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The Development of Charleston Architecture

PART I. DWELLING HOUSES

By ALBERT SIMONS

IT has long been realized by historians and critics of early American architecture that there is preserved at Charleston, South Carolina, and on the outlying plantations a wealth of material that would be of the greatest value if recorded in some comprehensive form before it inevitably disappears. Much has already been investigated and much published, but a great deal of importance has been of necessity ignored, and the whole subject requires classification in regard to sequence. Already, in the comparatively short span covered by the memory of the writer, much of irreplaceable value has been wiped out. It is quite beside the mark to wax sentimental about this loss, for it cannot reasonably be expected that any community can continue to be satisfactorily housed in its obsolete past, no matter how splendid that past may be. That so much has persisted to our day should be a source of gratification to all students of the days of the colonies and of the early republic.

However, it is important to preface any discussion of old Charleston dwelling houses by stressing two qualifying facts. First, that although great numbers of the earliest settlers in Carolina were French Calvinists or Huguenots, there is but scant evidence of direct French influence in the manner of building in colonial times. Of course England, like the rest of Europe in the eighteenth century, patterned its architecture as well as its etiquette after that of France, so that whatever elements may appear to be French came by way of England first, as may readily be observed by a glance at contemporaneous English work. However, it cannot be denied that this French strain in the people of early Carolina manifested itself in the tendency to build in a monumental way, whenever the means were available. The second fact to be borne in mind is that the buildings that have survived from colonial times are not nearly so old as might be expected from the date of the first settlement under the lords proprietors. This was in 1670, on the west bank of the Ashley river, at Albemarle Point. Ten years later the site of the present city, on the peninsula between

the Ashley and the Cooper rivers, was finally selected as being more readily defended from hostile attack.

In 1682 we read that "the town hath about one hundred houses, all of wood, though here is excellent brick made, but little of it." (Salley's "Narratives of Early Carolina," quoted in Smith's "Dwelling Houses of Charleston.") The prevalence of wood construction, combined with a series of destructive fires that swept the city at intervals between 1698 and 1740, has made it well-nigh hopeless to search for any houses that can be positively proved to belong to the seventeenth or the early eighteenth century. Probably the only seventeenth century dwelling surviving from Carolina's settlers is the house at Medway Plantation, on the estate of Mr. Samuel Gaillard Stoney. This house appears to have been built about 1682 by Jan d'Arsens, Seigneur d'Weirnhout, whose widow later married Landgrave Smith, governor of the Province of Carolina. A glance at the plan will indicate how successive wings have been added through many generations, but the original structure is obviously of the seventeenth century and shows a striking resemblance to Bacon's Castle, Surrey County, Virginia, built about six years previously.

There is convincing evidence to sustain the claim that the Colonel William Rhett house was built previously to 1722. Although now in the midst of the city, it was then on a plantation well outside the bastions. On the walls of the drawing room, over the mantelpiece and doorways, are rocaille decorations executed in plaster on paneling marked out in plaster. The character of this decoration corresponds with that of other houses of a somewhat later date.

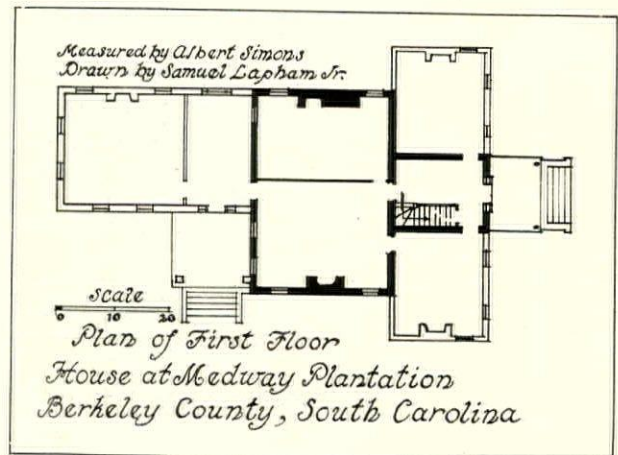
The Colonel Robert Brewton house (before 1733) is a three-story brick building covered with stucco, with quoins of slight projection at the corners, keyblocks over the windows, and a small wrought iron balcony under the middle window of the second story. The very adequate cornice is worked out in moulded brick, and the hip roof is covered with clay tiles of double curvature. There



Colonel Robert Brewster House (before 1733)

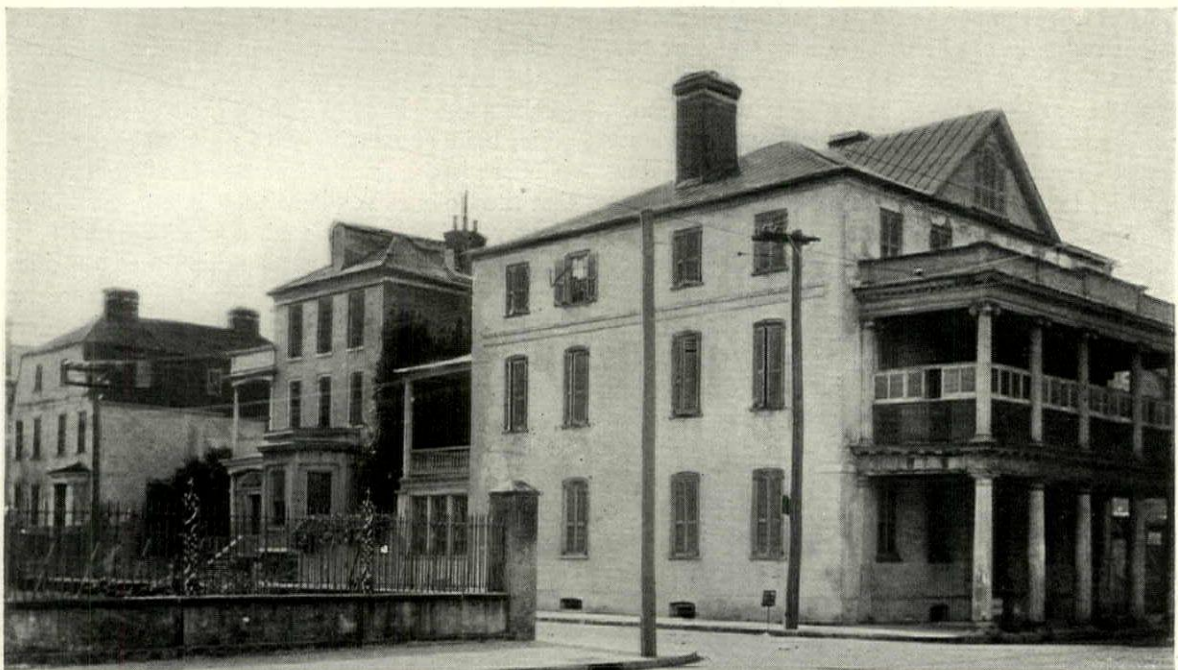
is no direct entrance from the street but through the piazza on the side. This piazza and those at the back are quite casual in their architectural treatment and are doubtless later additions to the house.

There are four houses that can be definitely classified as belonging to the years between 1740 and



Plan of Oldest Surviving Carolina House

1760. They are the George Eveleigh (1743-1753), Boon (1740-1749), Thomas Horray (1751-1761), and Ralph Izard (before 1757) houses. Besides these there are one or two others whose dates cannot be as definitely determined except within the range of several years; but all have certain features in common. They are built with rather thick brick walls, covered with stucco and sheltered under high-pitched hipped roofs. Unlike the later houses, the first floors are raised only about two feet above the grade. When piazzas occur, they appear to be often considerably later than the houses. Absolute symmetry does not always obtain, as the entrance or a balcony may occur to the right or left of the center. All the principal rooms are paneled throughout, except in the stair halls above the wainscots. Mouldings are bold and simple, and where the original mantelpieces have been preserved, there is comparatively little carved ornament. There are two

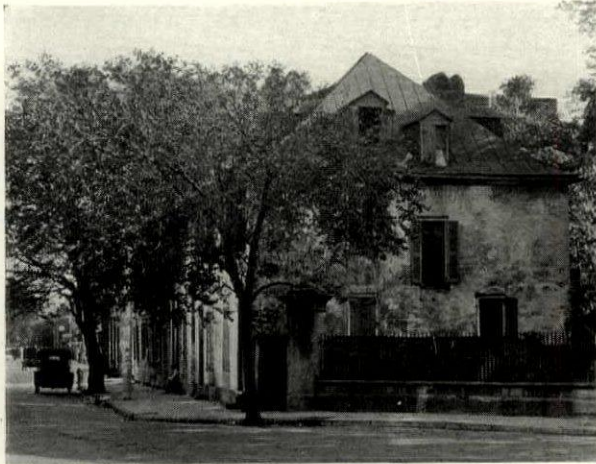


Corner, Thomas Horray House (1751-1761). Center, Robert Pringle House (1774)



By Courtesy of the Publishers, A. C. & H. W. Dickins

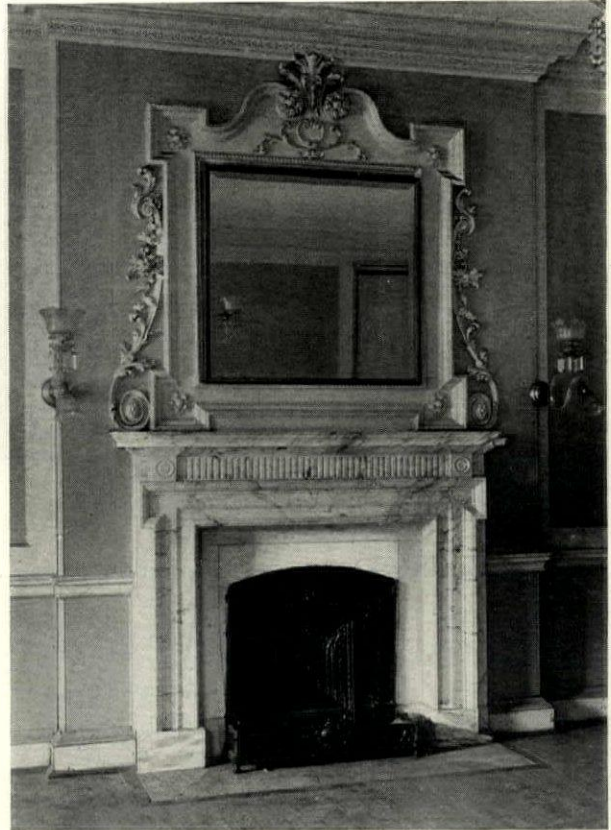
SAN PRASSEDE, ROME
ETCHING BY LOUIS C. ROSENBERG



Old Stone Houses

small stuccoed houses to the southwest of St. Philip's Church that from their appearance seem to belong to this or perhaps an earlier period. They are of interest as being probably the only houses remaining that are built of Bermuda stone. Early records show that this stone was brought in as ballast and was sometimes used in erecting dwellings, as well as for fortifications and sea walls.

From 1760 to the revolution we find a number of houses built with considerable magnificence, reflecting the growing prosperity of the colony. To this group belong the William Huger (about 1760), Miles Brewton (after 1765), John Edwards (1770), Colonel John Stuart (1772) and Robert Pringle (1774) houses, as well as several others whose character places them in this period although their dates cannot be determined. The feature of all these houses that is most admirable is the great elaboration and very excellent quality of the in-



Courtesy, J. B. Lippincott Co.

Mantel in John Stuart Drawing Room

terior woodwork and carved decoration. The detail preserves a consistent sense of scale throughout and shows an inspiration similar to the rocaille compositions illustrated in Swan's "British Architect." The Miles Brewton house is too well known to architects to require any comment here, but this

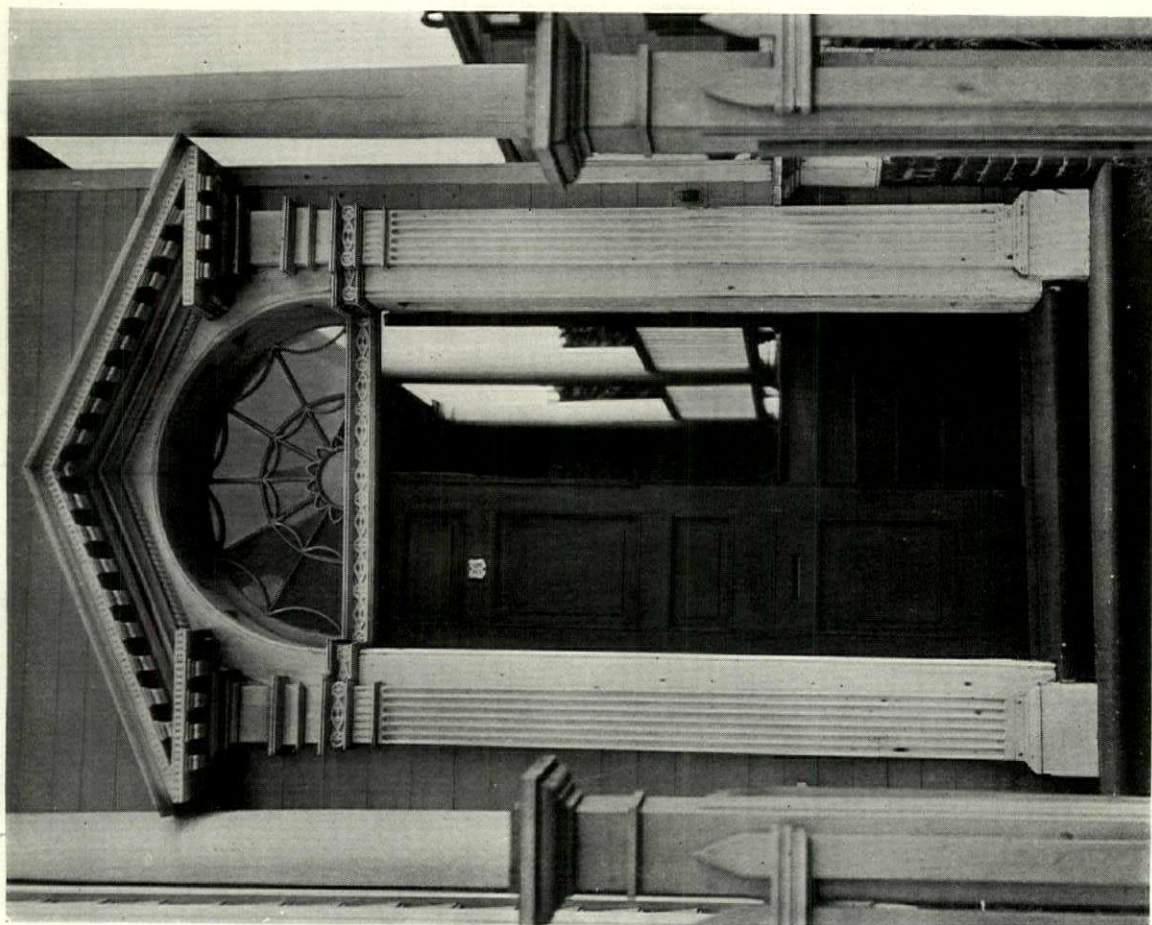


Ralph Izard House (before 1757)

This view shows the typical walls and gates at the street line

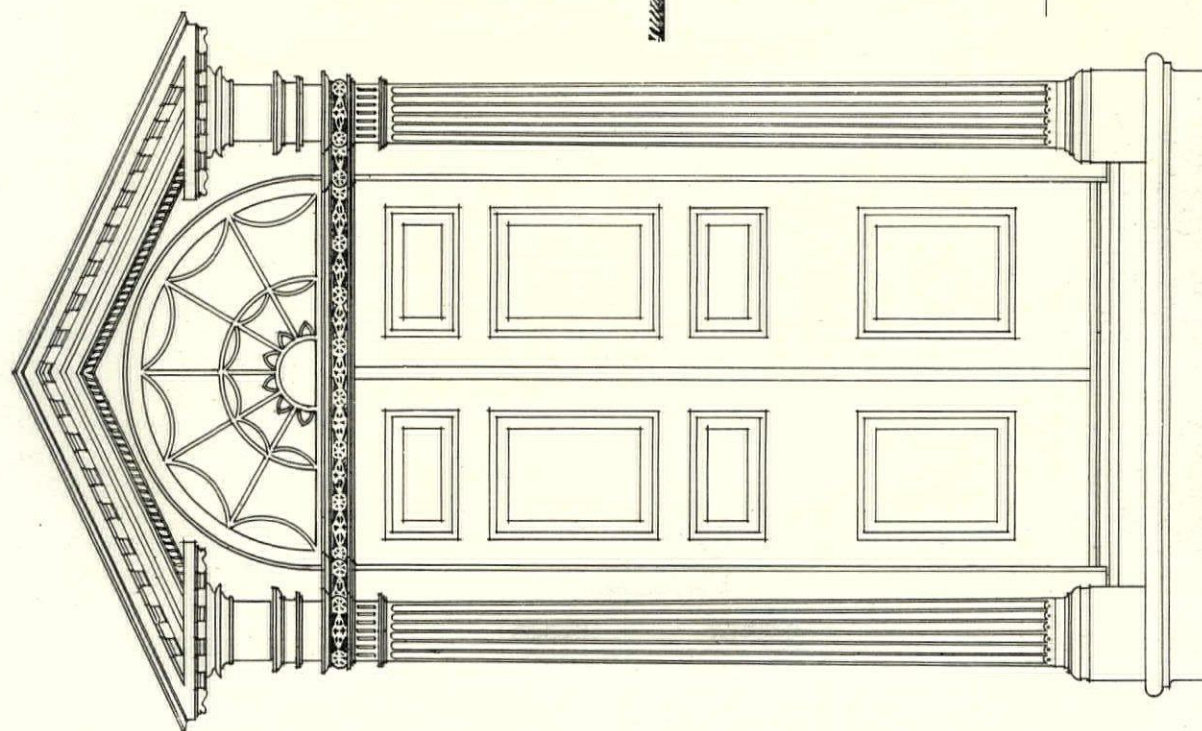


PORCH SIDE OF DOORWAY

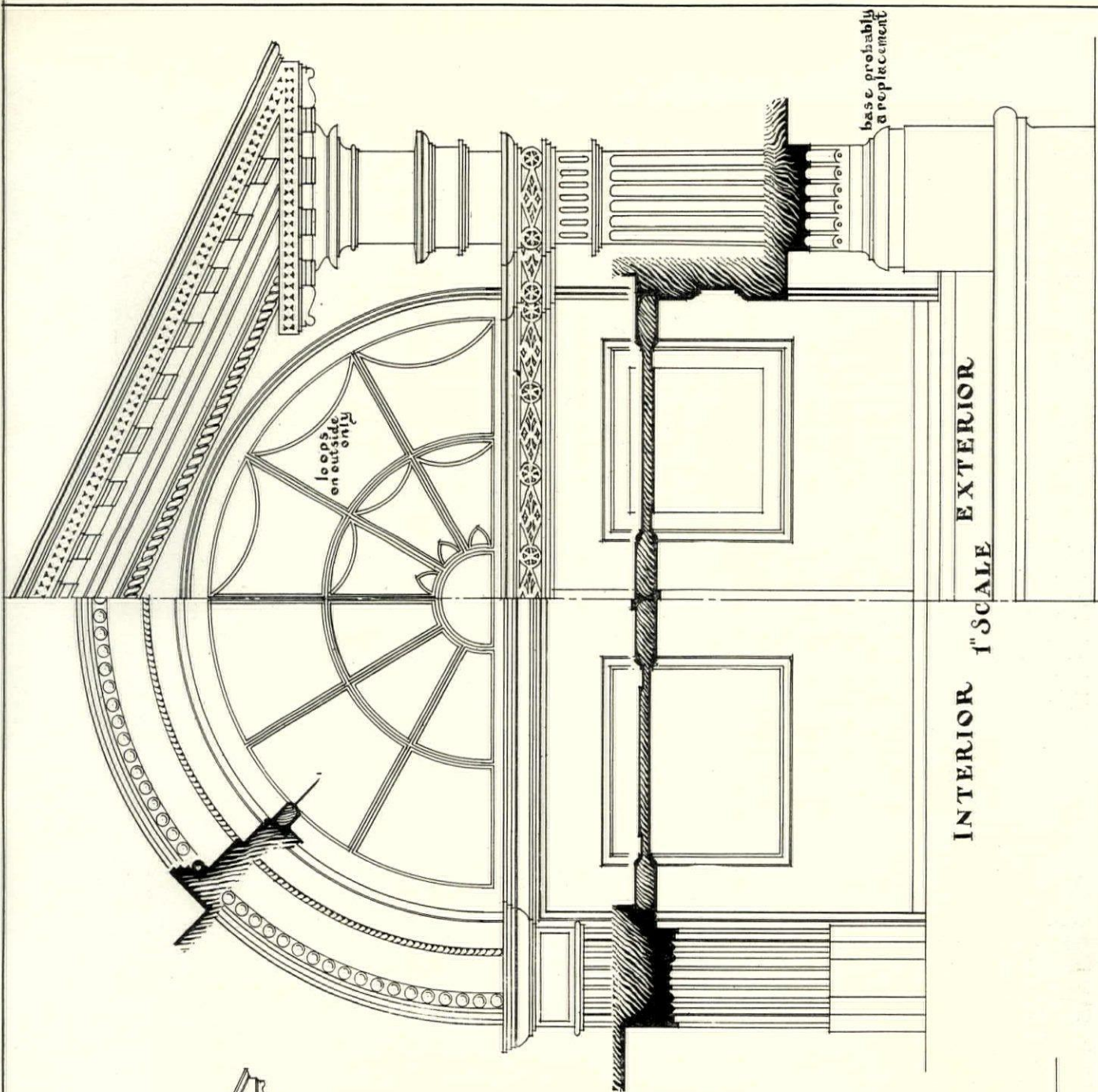


STREET SIDE OF DOORWAY

DOORWAY DETAILS, MAGWOOD HOUSE, CHARLESTON, SOUTH CAROLINA



FRONT ENTRANCE
1/2" SCALE



INTERIOR
1" SCALE

EXTERIOR

MAGWOOD HOUSE, CHARLESTON, SOUTH CAROLINA
NUMBER 39 SOUTH BATTERY NOW THE RESIDENCE OF MR. HENRY TRESVANT WILLIAMS

MEASURED AND DRAWN BY
ALBERT SIMONS
JUNE 1923

advertisement in the *South Carolina Gazette and Country Journal** of August 22, 1769, is of interest in indicating the extent of the services performed by the "architect" of that day:

"Architecture
"Ut rest gesta est Narrabo
Ordine

"Ezra Waite, Civil Architect, House-builder in general, and Carver, from London, Has finished the Architecture, Conducted the execution thereof, viz; in the joiner way, all tabernacle frames, (but that in the dining room excepted), and carved all the said work in the four principal rooms; and also calculated, adjusted and draw'd at large for to work by, the Ionick entablature, and carved the same in the front and round the eaves of Miles Brewton, Esquire's House on White Point for Mr. Moncrieff. If on inspection of the above mentioned work and twenty-seven years experience, both in theory and practice, in noblemen and gentlemen's seats, be sufficient to recommend; he flatters himself to give satisfaction to any gentlemen, either by plans, sections, elevations or executions, at his house on King Street, next door to Mr. Wainwrights' where architecture is taught by a peculiar method never published in any book extant.

N. B. As Miles Brewton, Esquire's dining room is of a new construction with respect to the finishing of windows and doorways, it had been industriously propagated by some (believed to be Mr. Kinsey Burden, a carpenter), that the said Waite did not do the Architecture, and conduct the execution thereof. Therefore the said Waite, begs leave to do himself justice in this public manner, and

assure all gentlemen, that he the said Waite, did construct every individual part and drew the same at large for the joiners to work by, and conducted the execution thereof. Any man that can prove to the contrary, the said Waite promises to pay him One Hundred Guineas, as witness my hand, this 22nd day of August, 1769.

Ezra Waite."

"Veritas Odium Pavit."

Some of the same decorative motifs found in the Miles Brewton house occur again in other houses of this period, so it might be supposed that Waite and his colleagues enjoyed a flourishing practice there as architects.

After the revolution houses depart more and more from the established types and exhibit a greater variety of plan and exterior treatment. One feature becomes more in evidence, and that is that piazzas or open galleries, extending the entire length of the house on the south or west sides, and of several stories, are now a more integral part of the house. The piazza should be differentiated from the more restricted entrance portico which was designed for architectural effect and not primarily to shade the interior. That piazzas of one story above a basement were built on plantations before the revolution seems probable; but the larger town houses of colonial times



Maison de Cadet Roussell, Rennes, France

*From The *South Carolina Historical and Genealogical Magazine*, quoted in Smith's "Dwelling Houses of Charleston."



Missroon House (between 1789-1795)



Josiah Smith House (1800)

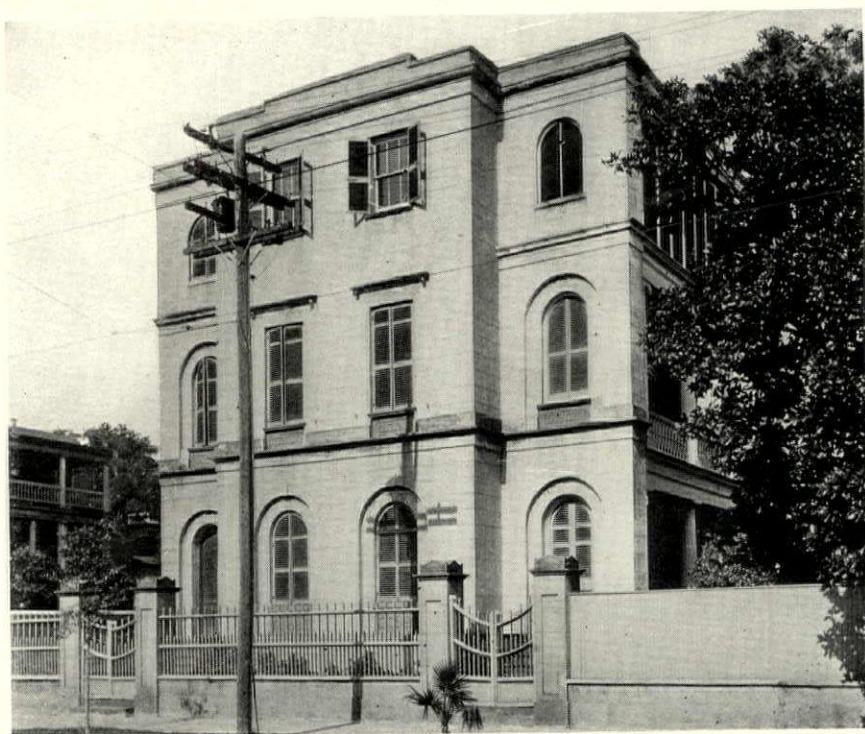
seem to have been without them. It has been suggested that these double- and triple-decked galleries were introduced by the French refugees from the revolution in Santo Domingo, who sought asylum in Charleston in 1793. Certain it is that these galleries bear considerable resemblance to such vernacular forms as are found in the "Maison de Cadet Roussell," at Rennes, where timber construction prevailed. That piazzas soon became an essential element is evidenced by this comment in the "Travels of the Duc de la Rochefoucault-Liancourt in 1796": "Large galleries are formed to shelter the upper part of the house from the force of the sun's rays, and only the cooling north-east wind is admitted to blow through the rooms."

From the early days of the republic we have quite a number of interesting houses to select for study. The Missroon house (between 1789-1795) is perhaps among the earliest post-colonial houses. The street facade bears an interesting resemblance to the Bingham house, Philadelphia. The detail of the mantelpieces and doorways is in the typical Adam manner, which now became the vogue, and is further exemplified in such splendid mansions as the Radcliffe-King (1806) and the Nathaniel Russell (be-

fore 1811) houses. Many of the mantels of this time are enriched with classic figures, after the manner of Flaxman, that occur in contemporary houses in Boston and Philadelphia. Whether these were made by Robert Wellford of Philadelphia or were manufactured by some local dealer or were imported from London is still a subject for more research and investigation to determine.

The Joseph Manigault house (1790-1797) is one of the few houses whose architect is known, it being the work of Gabriel Manigault; and in its plan it displays very clearly the architectural preferences of the day. The southern piazza is obviously later, as the detail is greatly

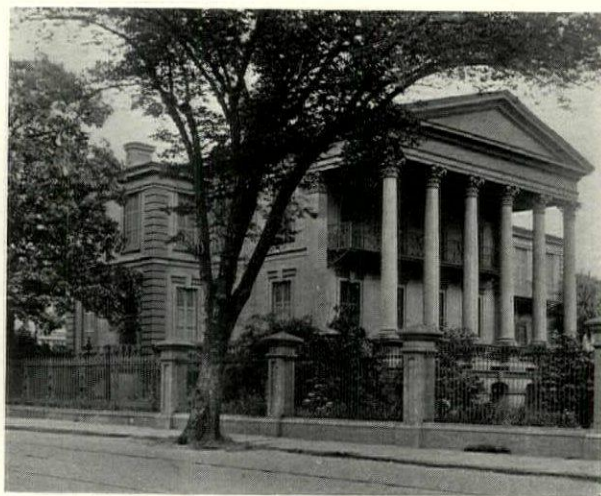
inferior to that of the segmental portico on the west. In the Josiah Smith house (1800), now the Charleston Club, we see how the entrance portico on the east was later supplemented by piazzas on the south, with Doric orders of the Greek revival. In the William Mason Smith house (1820) we find the first signs of the Greek revival, manifested in the mouldings of the cornice and in the Greek orders employed in the triple-decked piazzas. The house is interesting for the manner in which on the street façade the end of the piazzas on the south is masked



William Mason Smith House (1820)



Jenkins Mikell House (after 1853)



Elias Vanderhorst House (after 1832)

behind a masonry wall, repeating that of the stair hall on the north, lending an architectural air.

In the Elias Vanderhorst house (after 1832) and in many others we find the piazzas extending across the street front when the width of the house faced south, so that the desired symmetry is obtained without effort. The Charles Alston house (1838) has perhaps one of the most charming side piazza developments, and the intersection of the roof and cornice with those of the house is more successfully accomplished than in most cases.

The use of the colossal order extending through two stories does not seem to have been generally favored, and it occurs on comparatively few houses; the order from the "Temple of the Winds," Athens, seems to have been usually preferred in such cases. However, in the Jenkins Mikell house (after 1853) we find a Roman type of Corinthian order, the

capitals even having rams' heads at their corners.

The destruction of wealth that came with the war of secession and with the subsequent years of "reconstruction" arrested local architectural development at a time when American architecture had strayed into devious paths, so that today there are few important houses of the later Victorian era.

The problem of the architect, practicing in Charleston today, is to provide homes that will conform to the modern standards of comfort and convenience and will at the same time conform in character to the quiet dignity and charm of their venerable neighbors. That a similar problem has been confronted and solved successfully by many of the profession in Boston, Philadelphia and Baltimore, where modern homes of a distinct local character abound, proves that it is not unreasonable to hope for a revival of Charleston architecture.



Charles Alston House (1838)

Period Finish for Wood and Plaster

IT may be said that the basic elements of interior design and decoration for period rooms consist of form, finish and furnishing, which includes the use of decorative fabrics. Form is expressed architecturally by the proportioning of line and mass in accordance with precedents established during the various periods, such as the seventeenth and eighteenth century Italian, Tudor and Jacobean, Queen Anne, Adam, and similar historical divisions of architecture and decoration. Similarly, furnishing and the use of decorative fabrics are based upon original conceptions of the various periods. All of these have been thoroughly expounded in text and illustration, and there is available a great store of printed information covering the design and furnishing of original period rooms and modern rooms adapted from these periods.

It is interesting to note, however, that the third important element, which we have termed "finish" and which includes painting, staining, gilding and other forms of wood and plaster finish in period rooms, while highly important, is comparatively a mystery to architects and almost all others except those craftsmen-painters who are qualified by experience and study to actually perform this work. While it may be fully realized how important a contribution wood and plaster finishes render in the decoration of a period interior, it is certain that there is very little information available as to how such effects are actually obtained and how these effects may be reproduced in modern rooms of period design. The soft, rich brown of the woodwork of the Italian renaissance; the painting and glazing of plaster walls in such rooms; the gilding and coloring of carved work, and similarly, the different finished effects demanded for various period rooms are appreciated by architects, but the method of obtaining such finishes or approximating them in modern work is not usually understood.

It is certain, nevertheless, that with a better understanding of the actual methods employed in obtaining the various necessary finishes of woodwork and plaster walls in period rooms, the architect would be in a better position to direct the efforts of decorative painters and to thoroughly appreciate the integrity of workmanship and the skill of the craftsmen required to perform high class work of this character. With an understanding of the methods employed, it is also possible in less expensive work to fairly approximate results on a basis of economy where sufficient funds are not available to carry out this work in its more perfect form. This article will therefore consist of a brief treatise on the actual methods of obtaining various plaster wall and woodwork finishes which are recognized as important elements of period interiors. For the bulk of information contained in this article we are indebted to Luigi Borgo, an artist-craftsman and decorative painter of the old school whose long experience and

study in Europe and in this country have rendered him a practical authority on the subject. Much of the fine work done in recent years in this country is attributable to his skill and that of his associate, Morris J. Gunn. In studying the information presented in these paragraphs it will be remembered that while exact methods are described, it is impossible to define in print that craftsmanship which is the final element of all mixtures and methods of application in work of this character.

Finishes of the Italian Renaissance

The characteristic wood finish of the Italian renaissance period is the soft, rich brown with an eggshell gloss used on walnut ceilings, doors and other woodwork. There are two general methods used in obtaining this finish:

1. A penetrative stain is first applied to the wood. This must be a water stain for penetration. If a high degree of penetration is not required an oil stain may be used. These stains are obtainable as commercial mixtures, in which case a walnut stain would be used for this finish or stain may be mixed by an experienced painter, in this instance using a mixture of Van Dyke brown and negrosene. The first coat of stain having been applied, it is followed by a thin coat of shellac or varnish as a medium to bring out the color. If the wood requires a filler, this is put on after the stain, rubbing with steel wool between and finally applying two coats of wax, well rubbed. Careful rubbing has a great deal to do with the finish.

2. The second method uses the first coat of stain as already indicated, but instead of following with a coat of shellac, two coats of rubbing varnish are applied, the last coat being rubbed to an eggshell finish by the use of powdered pumice stone and water, rubbed with a piece of felt. (Sold as stick-felt).

Walnut, oak and mahogany all require fillers, and birch and maple, being close-grained, require none. Some painters, however, make a practice of using fillers on all woods where the work is of a particularly high class nature. At this point it might prove interesting to present some information regarding wood fillers and their use as recently prepared under the direction of the International Association of Master House Painters and Decorators of the United States and Canada. The general consensus of opinion by the membership of this organization is that open-grained woods like oak, chestnut, ash, walnut and mahogany require a paste filler to fill the open pores between wood fibers. Close-grained woods such as maple may require the use of a liquid filler or shellac to accomplish the same purpose.

Without fillers varnish coats put on to new woods sink in, giving a pitted effect. Of course if enough coats of varnish are put on and sandpapered the pores of the wood would finally be filled level enough to avoid the pitted appearance, but obviously it is

cheaper to put on a filler coat. Birch, while classed as a close-grained wood, takes a better mahogany finish if it is filled with a paste filler, instead of with a liquid filler. This filler brings out the grain and figure contrast best.

Paste fillers are mixed after many different formulæ. Manufacturers also supply such fillers ready to use in paste form, and they require only a little thinning with turpentine or benzine to make them ready for use. Most of the wood fillers today are those prepared ready for use by manufacturers. The prepared wood fillers come in natural color (or transparent), oak, golden oak, antique oak, mahogany and walnut colors. It is well, however, for the painter to know what composes a good filler,—and how to mix it himself when occasion requires it, or when there is advantage to be gained in cost in doing so. Fillers are usually colored to tone in with the natural color or the stained color of the wood to be filled. There are exceptions to this rule, and often a novelty effect is wanted. A black filler is sometimes used to make mahogany finish darker; to gain a gray effect on light colored woods, white filler is used, and also on gray stained woods. Colored fillers are used on natural finished woods, too.

Many materials are used as a basic pigment for fillers. Some of them are: whiting, clay, corn starch, and barytes. None is quite so good as silex when it is very fine,—the water floated grade is best. Silex is silica, a white, transparent, inert sand resulting from crushing quartz rock. It will not bleach out in the grain of the wood, and will not shrink nor bulge out. It is fairly transparent and is easily colored. A mixed paste filler may be made by approximately this formula:

- 3 pints pure raw linseed oil;
- 2 pints Japan drier,—not too dark in color;
- Enough very fine silex to make a stiff paste.

Grind this mixture through a hand paint mill for thorough mixing. It can be mixed in a pot with a paddle, using extra care, if the silex is very fine. When the filler is to be kept on hand for some time in kegs or cans, the silex may separate from the liquid. To prevent this the paint manufacturers add cornstarch to the extent of from 10 per cent to 20 per cent of the weight of the silex, or they add up to 25 per cent of asbestine (silicate of magnesia) to keep the silex in suspension in the liquid. To make this stiff paste filler ready to use the painter thins it a little with turpentine, but only as much as is absolutely necessary to permit brushing it into the pores of the wood. It is used much thicker than paint.

The color of this paste is correct for some woods to be finished in the natural colors, but for others and for stained woods it should be colored according to these directions, using preferably dry colors, although oil colors can be made to serve. To stain first is the high class method, but these mixtures are used over oil stains, almost always with good results. Great care should be taken with fillers.

Antique Oak
2 lbs. thick paste filler;
 $\frac{1}{2}$ to $1\frac{1}{2}$ oz. burnt Turkey
umber.

Antwerp Oak
2 lbs. paste filler;
2 oz. drop black.

Antique Mahogany
2 lbs. thick paste filler;
 $1\frac{1}{2}$ oz. burnt Italian siena;
 $\frac{1}{2}$ oz. Van Dyke brown.

Antique Mahogany
(Very Dark)
2 lbs. thick paste filler;
 $\frac{1}{2}$ oz. burnt Italian siena;
 $\frac{1}{2}$ oz. rose pink;
 $\frac{1}{2}$ oz. drop black.

Mahogany, Light
2 lbs. thick paste filler;
 $1\frac{1}{2}$ oz. burnt Italian siena;
 $\frac{1}{2}$ oz. rose pink.

Forest Green
2 lbs. thick paste filler;
6 oz. drop black;
1 oz. Van Dyke brown;
 $\frac{1}{2}$ lb. dark chrome green.

Fumed Oak
Usually this finish is not
filled, but when it is
varnished and filling is
called for mix in this
way:
2 lbs. thick paste filler;
4 oz. Van Dyke brown;
2 oz. burnt umber.

Mahogany on Birch Lumber
2 lbs. thick paste filler;
2 oz. rose pink;
2 oz. Van Dyke brown;
 $\frac{1}{8}$ oz. drop black.

Bog Oak
2 lbs. thick paste filler;
 $\frac{1}{2}$ lb. Van Dyke brown;
4 oz. drop black.

Early English
2 lbs. thick paste filler;
4 oz. drop black.

Flemish Oak
2 lbs. thick paste filler;
1 oz. Van Dyke brown;
1 oz. burnt Turkey umber;
4 oz. drop black.

Ebony
2 lbs. thick paste filler;
1 oz. drop black;
 $\frac{1}{8}$ oz. Prussian blue.

Golden Oak
2 lbs. paste filler, thick;
1 oz. Van Dyke brown;
2 to 4 oz. black asphaltum.

Rosewood
2 lbs. thick paste filler;
1 oz. burnt siena;
 $\frac{1}{4}$ rose pink;
 $\frac{1}{8}$ oz. drop black.

Walnut
2 lbs. thick paste filler;
 $1\frac{1}{2}$ oz. burnt Turkey umber.

The paste filler, as has been said, is to be thinned to heavy brushing consistency with turpentine. Then with an old short bristle stiff brush lay the filler on and rub it well into the open grain of the wood. Brush the filler *crosswise* of the grain first and finish up by laying it off as smoothly as possible *with* the grain—the same way as the grain runs. The best filler sets, but does not get hard dry, in from 15 to 20 minutes. When it has set hard enough to hold fast to the wood—when the coat looks flat and the gloss has disappeared—wipe off the excess filler, using a piece of burlap or machine waste. If the filler is permitted to set too long, it may not be possible to wipe off the excess material at all. Then it must be sandpapered and scraped,—not an easy task. If the filler is wiped too soon, it comes out of the pores of the wood and the purpose is defeated. After filling and wiping, allow the surface to dry at least 12 hours; 36 hours' drying will prove of considerable advantage. Then the filler is harder and more firmly anchored in the wood.

For extra fine work a second coat of the same filler mixed, possibly, a little thinner, is put on in the same manner and wiped off. That will surely fill the wood level and avoid varnish's "pitting," as the painters call it, when it sinks into the wood pores.

Next fill all holes, nail holes, cracks and joints with putty colored with dry colors to match the filler. Let it dry hard before sandpapering. (The method known as "sparkling," described later, is better for high-class work.)

Liquid fillers are sometimes simply paste fillers made thinner with turpentine or benzine. More often, however, shellac, a coat or two, serves as a liquid filler, and it is sandpapered down to remove all except that which fills the wood pores. Liquid fillers are made in many ways. Those made from cheap resin varnishes, such as gloss oil, hard oil, sealing varnish and suction varnish, are not satisfactory because they turn white, are too brittle and cloud the finish. A formula commonly used successfully is:

- 2 gals. pale interior varnish of good quality;
- 2 qts. turpentine or benzine;
- 1 qt. Japan drier, light in color;
- 5 lbs. well dried bolted China clay;

Mix the clay with a little of the varnish and run it through a hand paint mill. Then add the balance of the liquids.

In Italian interiors the wood ceilings are sometimes decorated in color. This is done by the use of water colors, oil paints, or by tempora. (Tempora will be explained later). Water colors with wax finish constitute the cheapest method. Oil paints have a tendency to blacken with age, and consequently their use is not so popular. The third method is that known as the tempora color method. In using the first method the first step is to stain the wood in the desired background color. The second step is to apply the outline of design, which is done with pin-

pricked patterns, after which the required design is painted on in water colors. When these have dried the entire surface is carefully waxed and rubbed in two coats. If oil paints are used for this work it is highly important to use basic colors which will remain unchanged for the longest possible period. The decorative effect is obtained by the use of complementary basic colors rather than by color mixtures which tend to fade and blacken.

The term "tempora" as applied to the use of color in decorative painting involves the use of some specially prepared medium which will hold the colors fast and form a permanent bond in applying them to the wood or plaster. On wood ceilings the method which is most satisfactory is the use of tempora in which the first coat is a priming coat consisting of thin glue (mixed 1:6) and whiting (lump white), a material known to the Italians as gesso. Over this priming coat is then placed the background coat which is a tempora medium. The old method favored by Italian craftsmen is to mix egg yolk, vinegar and varnish in equal parts and to add the necessary amount of dissolved dry color to give the required color tint to the background. Another mixture which is used as a tempora medium is that of glue and glycerine with necessary coloring added. When this background coat has been completed and dried the outline of design is applied as just described



Dining Room, House of W. T. Grant, Esq., Pelham, N. Y.

Howard Major, Architect

and various colors are painted on, still using the tempora medium. Finally, the entire work is waxed and rubbed once or twice.

Finishing of plaster walls is complicated but very interesting. There are several general systems involved: (a) oil colors; (b) tempora colors; (c) *affresco*, and here are given descriptions of each of these methods:

(a) *Oil Color Finishing for Plaster Walls.* The first step is to apply three good coats of white lead and oil. The first coat is allowed to dry for two days. This coat is put on fairly thin to avoid brush marks. The second coat is put on to a painting consistency, and the third coat has more turpentine, together with an amount of coloring made in accordance with the desired color tone. There is then applied a fourth coat consisting of a mixture of zinc and enamel in equal parts and in the desired color. Then comes the important finishing step which is that of glazing. Glazing consists of applying a mixture which is a compound of turpentine, oil and varnish in approximately these proportions: 1 qt. turpentine; $\frac{1}{2}$ cup oil; $\frac{1}{4}$ cup varnish.

The oil is in this mixture for the purpose of keeping it soft while working. The varnish is included in order to hold the glaze and to prevent its rubbing off by cleaning or by accidental contact. In order to give the desired antique effect this glaze is rubbed lightly in all directions with cheesecloth before it has completely dried.

(b) *Tempora Colors.* The use of tempora colors for plastering finishing is the least expensive method. The plaster is prepared by the mason and has a sand finish. The first step of the painter is to prepare the surface with a priming coat of gesso (whiting) and glue approximately 1:6. The next coat is a mixture of gesso and glue with the color introduced, and when this is completed the wall is finished for all modern requirements. If an aged effect is desired, a glaze mixture is applied in two coats consisting of wax, turpentine and color and applied as before described. The wax is used in this mixture for its quality of waterproofing.

There is an alternate method and one which is less expensive which gives a beautiful antique effect. In this method the plaster is sand finished as before, and two coats of paint are put on using complementary colors. For instance, if the color is to be cream, the first coat is pink; for blue, the complementary color is yellow; and for green, the first coat is red. In mixing these colors they are toned to the same approximate coloring, and the finish coat is put on evenly but allowing the complementary color to show through in a texture of brush markings or stippling. These colors are used in a tempora medium.

(c) *Affresco.* The *affresco* system of mural decoration has been in use for many centuries in Italy, and its proper application requires the work of true craftsmen, usually with inherited qualifications and

knowledge. There are two types, the first, known as *affresco secco*, and the second as *affresco buono*.

Affresco secco is carried out on a dry surface which may be a Keene cement or a very good plaster finish. The priming coat used is a mixture of lime water and milk. The next coat, which is the background coat, consists of a mixture of lime and milk with color added to get the required shade. All color must be used in very liquid form. The lime which is used for this work must be wood-burned lime and must be well slackened. Few people know how to slacken lime for a use such as this. Proper slackening is carried out by adding water slowly and in true proportions so that the mixture will at no time boil or burn. After this slow slackening process is carried out the lime should be stored for at least one year and preferably for two years or more. In Italy the master craftsmen of this trade maintain stores of lime which are often many years old and pass down from father to son.

For making this background mixture the lime is strained in order to take out any lumps or foreign matter and mixed to the desired thickness with a liquid consisting of one-third milk and two-thirds water. Color is also added for the desired shade. The reason that milk, buttermilk or casein is used in this mixture is because lime mixed with animal matter has a tendency to petrify and become stone-like so that the completed job is permanent in character and holds color excellently. When the background coat is completed and dried, any required design or mural decoration is applied in the same medium. The final finish of this work to get the antique effect is the application of a coat of milk and water proportioned 1:2 or 1:3 rubbed with a chamois skin, or the application of a coat of wax g'aze well rubbed.

The use of this final glazing coat is customary for practically all types of fine interior finishes. The effect obtained consists of emphasizing texture, toning down colors, and pulling together in a semblance of age the various decorative elements introduced in the different finishing stages.

The more interesting *affresco* method is that known as the *affresco buono*. The medium which is used to carry the color is a mixture including two parts of well washed white river sand and one part of lime as already described. The selection of sand is very important. In Italy a special kind of sand, particularly well adapted for this purpose, is known as *pozzolana*. If beach sand is used, it must be thoroughly washed, as the presence of salt is fatal to the result. Certain well qualified painters use marble dust instead of sand, but this must be done with great care and thorough understanding of the medium.

Before applying *affresco buono* it is important that the base of plaster upon which it is to be applied be strong and safe against cracking, bulging or other disturbance. In the Italian method where it is desired to apply *affresco buono* the mason will build up

several coats of mortar over a brick wall. The first coat he applies vertically; the second coat in horizontal strokes; the third coat in diagonal strokes, and similarly to a total of four or five coats. When this mortar surface, or any other properly prepared surface, is finished, it is ready for the application of *affresco* in the mixture already described. Into this mixture is introduced no color as the background color is painted on and colored by the artist if mural decorations are to be applied. The first coat is put on about $\frac{1}{8}$ -inch thick, and the design is worked in rapidly in colors as it is necessary to bring this work to a stopping point before it can dry and allow crystallization of the lime which will not hold or take color. It is customary, therefore, to prepare ahead only as far as the artist can work in a day. A joint is made for proceeding next day, and any undecorated surfacing coat

is cut off. It is not advisable to work over the colors in this type of decoration. In fact, the secret of good work is to carry it out quickly and accurately so that it is not necessary to go over the same color twice. Lime water or milk of lime (*latte di calce*) is a diluting medium in this color work.

Another method of finishing plastered walls which is occasionally employed in Italian interiors is the use of leather. This leather is in plain colors or sometimes illuminated and is applied with a glue (probably Venetian varnish). The surface of the leather is then shellacked two coats and the glaze applied with a mixture of wax, turpentine and any desired color. Another interesting feature of Italian rooms is the occasional marbleizing of the wood bases and trim around doors. This marbleizing is done in the usual way, requiring good craftsmanship in the application of oil paints. The colors of the marble are selected and painted on in two or three coats. Blending is carried out by rubbing of the brush to simulate the marble figure. Finally, two good coats of varnish are applied and well rubbed.



Library, House of William Fahnestock, Katonah, N. Y.

Charles A. Platt, Architect

The results of this process may be noted in columns used in the Commodore Hotel, New York. These are plaster columns decorated in an excellent imitation of Cipollino marble.

Another wall finish in which interest has recently been expressed in this country is that known as the "spattered" wall. This can be simply explained. Quite often when a peasant in Italy paints his house he will first whitewash it, but not being satisfied with the effect he obtains pots of paint in two or three colors and dipping a large brush in the paint he will grasp the brush halfway up the bristles and drawing back the ends release them to throw the paint in irregular spots over the surface of the wall. This may be done in one color or a mixture of several colors, providing a surface of unusual texture and color.

The gilding and coloring of carved woodwork is a difficult process when properly done. The first step is to apply one coat of the liquid mixture of gesso and weak glue. (Whenever this priming coat is used it is applied very warm). A second coat

is then applied, but the glue is made stronger. A third coat is applied of the same mixture but with the glue weak again. Then a fourth coat is applied, the same as the second coat, continuing alternately until six or eight coats of this priming mixture have been built up. After these coats have dried the surface is carefully sandpapered, and all edges, undercutting and interstices are carefully tooled to their original sharpness and shape. The next step is to put on what is known as *bolo*, consisting of a mixture of glue and rosin or sometimes shellac brought to a sticky consistency so that it will dry very hard, and brought to a reddish color by the use of burnt siena. This coat is allowed to dry and assumes a very hard surface. A coat of gold sizing is then applied. The sizing is obtainable commercially, and if real gold is being used for the decorative work, slow-drying sizing should be applied at night. In the morning this sizing will be found slightly tacky, and at that time the gold leaf is put on and worked into cracks and around edges with a small brush. After drying completely the gold is burnished and glazed. Often some coloring matter is put in the glaze, and if lighter spots are required on projections, these are obtained by rubbing before the glaze dries.

A cheaper method of obtaining gold finish would eliminate some of the coats of priming material and would employ commercial gold (Dutch metal). Here the process of application is the same, except that Japan sizing is used and after the Dutch metal coat of gilding is applied a good coat of varnish or shellac is necessary in order to keep the gold from tarnishing.

For the finishing of ironwork in Italian rooms the original method has been to apply a coat of oil well rubbed in. It is customary also to paint or varnish ironwork, but the unpainted method is usually preferred.

Oak floors are finished by staining in any desired color but quickly wiped off to leave stain in the grain. A filler is then applied which may be a commercial type of oak filler, and for a dull finish two coats of wax are applied over this or a coat of thin shellac and wax. If a high polish is desired this may be had by long and careful rubbing of the wax, or for a gloss finish varnish is necessary.

It may be noted that many woods, even white wood, can be used for trim in less expensive work, and it is possible to finish these woods to resemble walnut. This calls for careful craftsmanship, in the course of which the painter keeps adding glazes and color and rubbing with rotten stone dust to get the desired result.

Tudor and Jacobean Finishes

In Tudor and Jacobean rooms the first subject of interest is the staining and finishing of oak paneling, doors and ceiling timbers to approximate the effect of old work. There were two methods generally used in obtaining these effects, the first of

which has a tendency to provide a heavy rich gloss finish, and the second to bring out the graining and texture of the natural wood, enhancing this by a deeper color. To obtain the first result the wood is stained and filled as described in other sections of this article, after which two or three coats of varnish are applied and rubbed until the desired effect is achieved. This rubbing is accomplished by light sandpapering between the varnish coats, and the last coat is rubbed with powdered pumice stone and water or oil and felt. It may be noted here that water is usually preferred with powdered pumice stone on all coats except the finished coat. Generally there is no rubbing between coats except light sandpapering and steel wool for mouldings.

The natural wood finish referred to as the second method may be desired in a light shade of the natural wood color, or it may be better to obtain a darker, richer effect. To bring out the natural beauty of the wood without darkening it noticeably the painter first applies a thin coat of shellac which he proceeds to rub down well with steel wool and sandpaper. He then glazes the surface with two coats of a special glaze made up of beeswax and turpentine which is carefully and patiently rubbed until the desired effect is obtained. If the darker effect is desired the first step is to paint on the raw wood a glaze made up of glue, and a little umber of raw siena, the amount of which is obtained by experiment. This mixture is the basis of darkening, and after the surface is sandpapered the next proceeding is to shellac and glaze with two coats of wax and turpentine as already described.

An interesting feature of finishing William and Mary rooms is the method of treating carved surfaces of woodwork, particularly where the carving is deep and of a very delicate nature such as that of Grinling Gibbon. Some of this carving is so delicate that leaves and flower petals are almost entirely detached from the body of the composition. In modern work much of this ornate and difficult carving is really simulated by the use of a composition ornament. We have, therefore, for consideration the finishing of carved natural wood and of composition ornamentation. The first step is to apply a filler of the commercial type known as a paste wood filler. This filler has coloring in it, and it is brushed on and immediately rubbed away *across* the grain so as to leave color in the grain. If a darker effect is desired the filler will be rubbed away slowly *with* the grain so that more color will be taken up under absorption. Fine brushes are used for this work, and it is carried out slowly and carefully so that all surfaces will be properly covered and the final step is to wax and rub carefully. Where ornamentation is made up of composition material, the finish is carried out in the same manner as carved wood is finished except that judgment must be used in coloring the stain. Usually the surface of the composition material is harder and less absorptive than wood.

In rooms of this type the floors generally consist of wide oak boards which are given a high polish and occasionally set with wide joints which are filled with a black mastic compound. These floors are stained, filled in the usual manner and brought to a high polish by rubbing in wax, or a high gloss is provided by the use of varnish in several coats according to the desired effect. The black compound used in filling joints is a commercial mastic compound which is available through the usual market channels.

Queen Anne, Adam and Colonial Finishes

Many interesting problems of wood and wall finishes arise in work of these periods. Perhaps the first of these involves what originated in the Queen Anne period and extended through the Adam era—the use of highly polished mahogany doors. Their finish is approximately that used on fine pianos, and is obtained by first staining to the desired color followed by the application of a filler. Mahogany must be filled well because of the nature of its grain. After the filler is applied three coats of varnish are put on, and the last coat is well rubbed with rotten stone dust or powdered pumice stone and water or oil. For the final finish lemon oil is rubbed over the surface and fanned until almost dry. Then, with a piece of cheesecloth dipped in natural alcohol, this surface is brought to a high polish.

The wood of the walls in this period was frequently of "deal," which is approximated by pine. In the original rooms it was often left in its natural state and ultimately weathered to a beautiful yellow color, and the problem today is to approximate this finish on new wood. This finish is obtained in the manner similar to that used for the natural wood finish in the Jacobean period already described, except that the glaze which is put on raw wood as the first step is colored with siena, umber and a touch of Venetian red, mixed according to the judgment of the painter, and brought to an approximation of color by test application. If it is found that the color of the stain is too deep, this condition may be corrected before shellacking by washing down the surface with hot water, which will tend to lighten the color.

One problem which arises in the course of this work is due to the fact that the pine now obtainable is uneven in the quality of grain and of softness and hardness. In other words, hard spots are encountered, spots where the grain is raised, and the problem is how to treat these spots or sections of pine to provide an even coloring over the surface. In many instances it will be found that the wood is not thoroughly cured and that these spots are sappy. The first step is to lay a coat of shellac over the spots in order to stop the exudation of sap. This is followed by applying a coat of what is known to painters as "sparkle." Sparkle is made up by diluting white glue with warm water

and creating a thin mixture having gesso introduced in proportions of about 1:6. Then a small amount of white lead is added and the mixture is stirred into an emulsion in which is placed a small quantity of varnish. This mixture is left in a pail until ready to use, at which time it is thickened with plaster of Paris and laid over the wood evenly to smooth out the rough grain. This is left for two or three days to harden, and is then sandpapered to a smooth, even surface. Sparkle is also used for the purpose of filling in cracks and uneven spots by the same method.

The enamel finishes of these periods are obtained in a rather complicated manner. In order to provide a full body and the proper richness as a basis for an antique effect, usually seven coats over the priming coat are put on in this manner:

First two coats are of white lead and oil.

Third coat, 75 per cent lead and 25 per cent zinc with oil, thinly applied.

Fourth coat, 50 per cent lead and 50 per cent zinc with oil.

Fifth coat, 75 per cent lead and 25 per cent zinc with oil.

Sixth coat consists of one-half enamel and one-half French zinc.

Seventh coat is a full gloss enamel, which is rubbed carefully with powdered pumice stone and water.

It is usually desired to obtain an antique effect on this type of finish. This is done by applying a glaze made up of turpentine, oil and varnish well rubbed in all directions until the desired texture of finish is obtained. Then the surface is rubbed with rotten stone dust or powdered pumice stone and water until the result is satisfactory. This glaze may have a certain amount of coloring matter in it, and color may also be introduced into the seventh coat just described. Very little color should be mixed with enamel, as it has a tendency to spoil the properties of the material.

Where mouldings and carved woodwork are used, it is sometimes desired to leave the round and projecting parts in relief and of a different tone than the background. This is done by applying two coats of glaze as already described. The first coat is light in color, and the second coat darker. While the second coat is still wet it is rubbed off at all points where the lighter color is desired. The same effect may be obtained by rubbing off the first glazing coat, particularly if it contains some color, but the better method is to use two glazing coats. Naturally, this is a somewhat expensive method of finishing, and it may be cheapened by eliminating much of the rubbing which takes time and patience and makes a high labor cost. It is also possible to reduce the number of coats required and to apply the glaze immediately without much rubbing of the final coat.

Occasionally in these rooms the decoration is carried further by the application of gold, bronze or coloring on parts of the mouldings and other carved work. As already said, it is not good policy to mix much color with enamel, and color should never be mixed with varnish as it destroys its flowing qualities. Any desired color should be

put on beneath the varnish, and effects like gold may be used on slow-drying sizing or Dutch metal on Japan sizing. All colored painting and gilding should be done before the final enamel coat or glazing and varnishing are applied. Gilding is done by applying a coat of shellac on the required part after the last coat of paint; then the sizing or gold leaf and Dutch metal is applied. Dutch metal should be shellacked to prevent discoloring.

In these periods, particularly in simple rooms, it is quite popular now to use wall papers of Chinese character with a finish of shellac and varnish. The paper is first applied to the wall, then one coat of shellac is put on to stop suction. The second step is the application of glazing, as already described in previous finishes, and finally a coat of varnish. Any desired color, such as umber, should be put in the glazing rather than in the varnish.

A method of applying color over plastering which insures a permanent freedom from cracking involves the use of a canvas covering for the plaster walls. The material used is raw muslin or one of several canvas materials available under commercial trade names, some of which are obtainable with one coat of paint already on. Sometimes it is desirable for the texture of the cloth to show. Flat paints and mixtures of lead and oil are used in this work, and coat after coat is added (usually two or three coats) until the texture disappears completely.

An interesting enamel finish which is gaining some popularity at the present time has the familiar appearance of a Chinese crackle vase in which tiny hair cracks develop all over the surface, pro-

viding a certain texture pattern. This result is obtained by first putting on a coat of sealing varnish, then, before the varnish dries, it is painted with a flat color coat. Before this second coat dries it is painted with another flat coat. If this is done it will be found that after drying well hair cracks have developed all over the surface. A final coat of glazing brings out these cracks in the desired pattern.

Another interesting glazing finish, which is particularly adaptable for colonial rooms, presents a two-tone effect. This is obtained by working two colors together in this manner: The glazing mixture is prepared as already indicated, and one part of it is colored with raw sienna and chrome yellow and the other part is colored with blue, chrome yellow and sienna. These two colors of paint are worked together by painting one spot on the wall with one mixture and immediately next to it another spot with the other mixture, varying the sizes of spots. While wet these are rubbed together with cheesecloth, working in all directions so that the two-tone effect is brought out. Floors in these periods are finished in the usual way, and after the surfaces are painted they are usually protected by waxing or by varnishing in accordance with the finish desired.

In this article we have attempted to cover most of the usual finishes for wood and plastering as required in the period rooms. Naturally, special problems will develop, and architects who wish specific information on any particular method of finishing will receive the necessary information by addressing the Service Department of THE ARCHITECTURAL FORUM, 383 Madison avenue, New York.

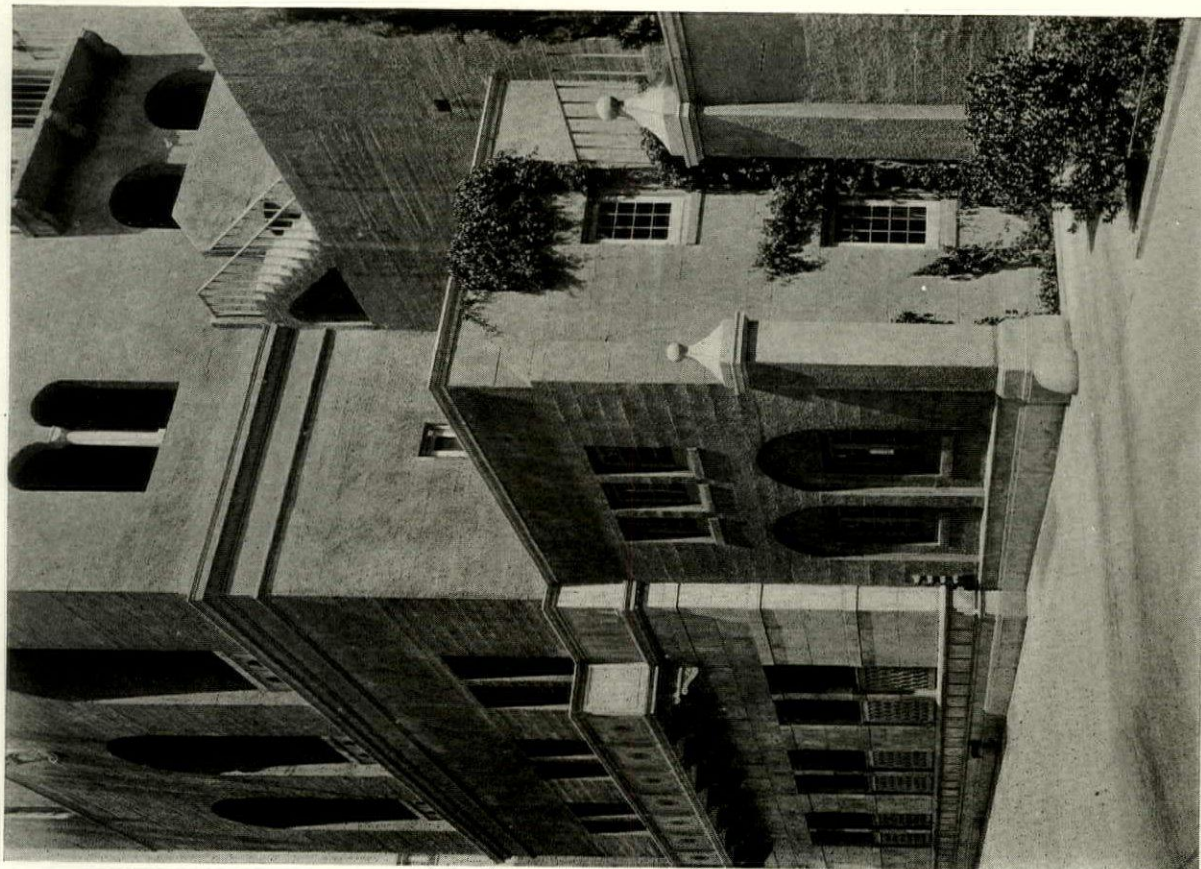


Dining Room, House of Harold Carhart, Esq., Glen Cove, N. Y.

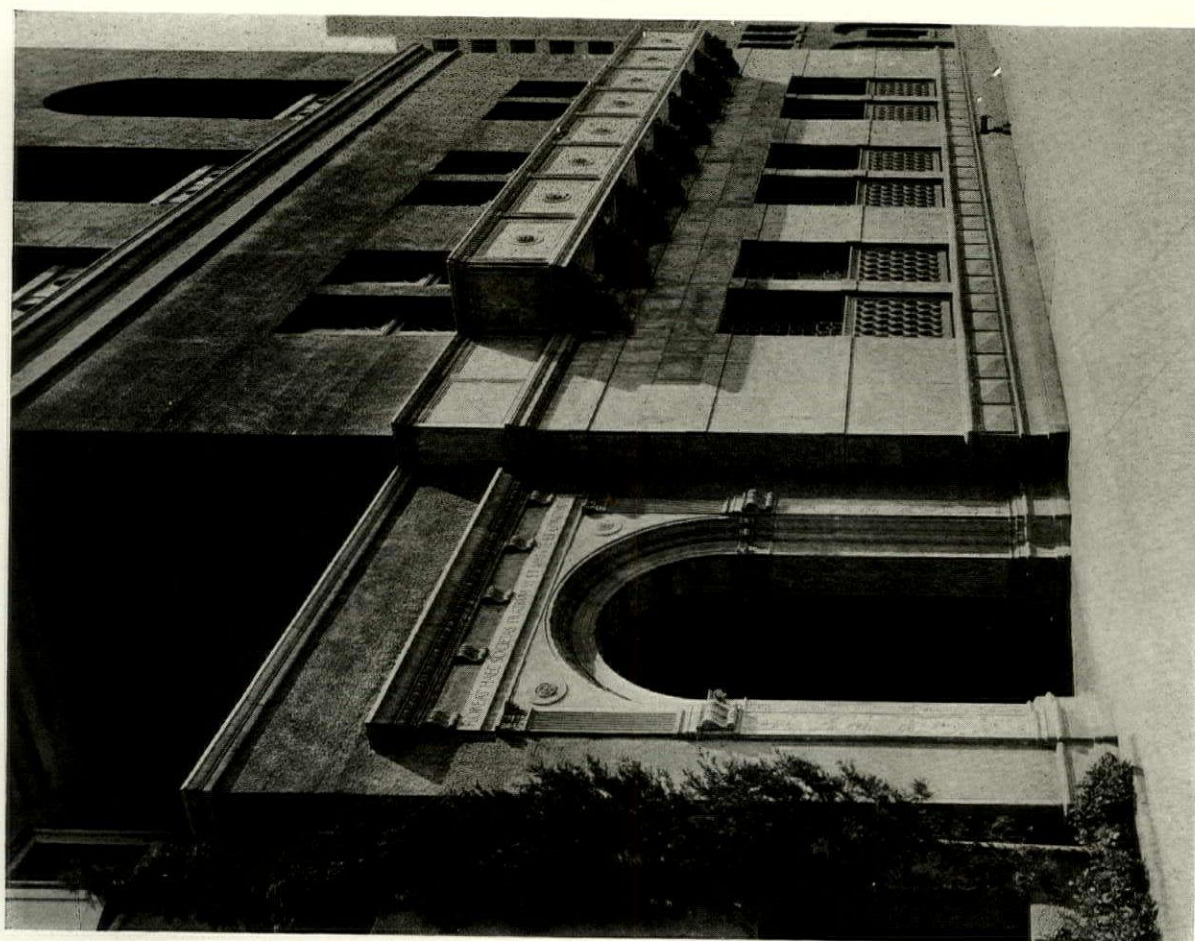
Howard Major, Architect



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ENTRANCE TO GARAGE

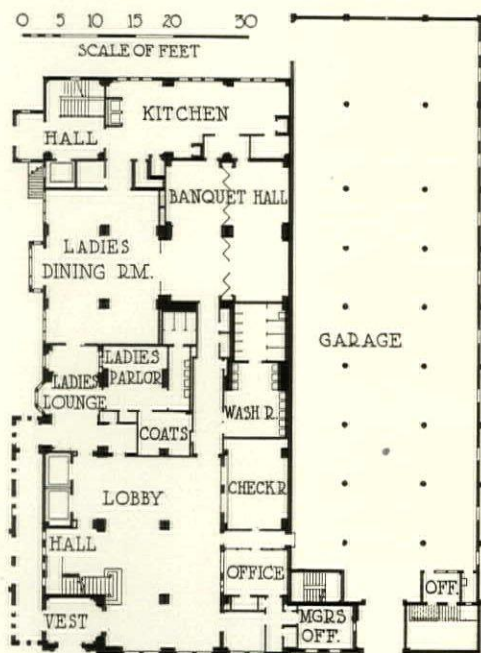


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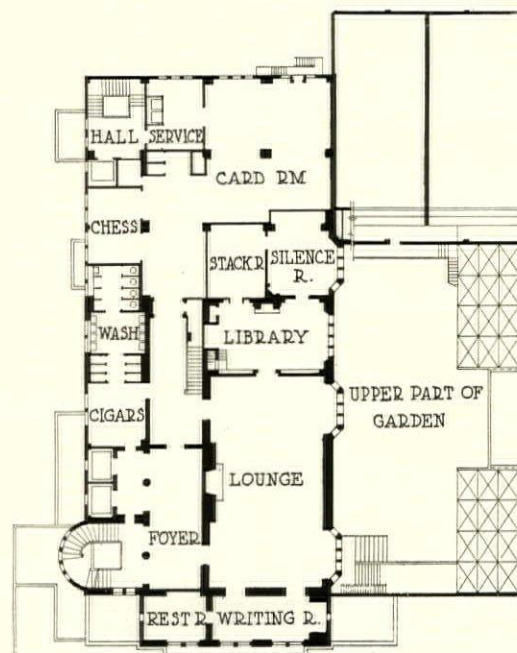
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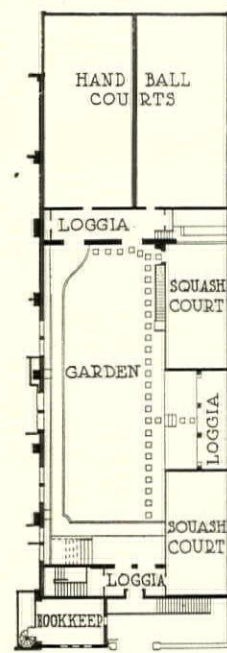
LOUNGE WINDOWS OVERLOOKING ROOF GARDEN



FIRST FLOOR PLAN



SECOND FLOOR PLAN



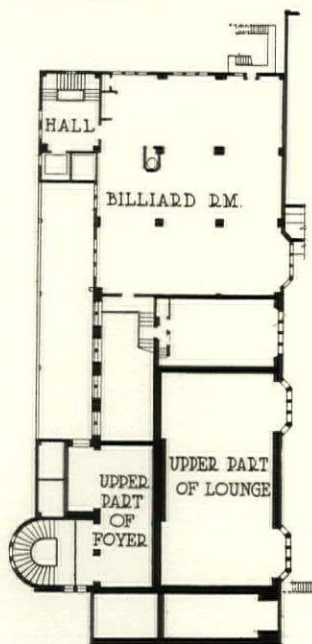
ROOF GARDEN PLAN

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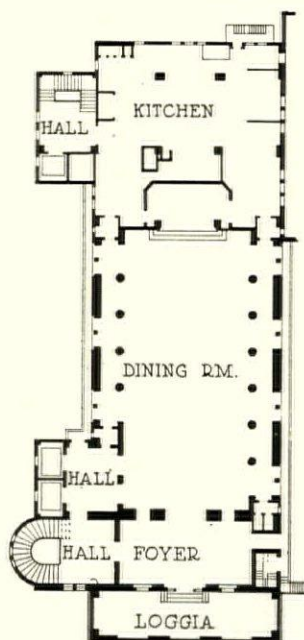
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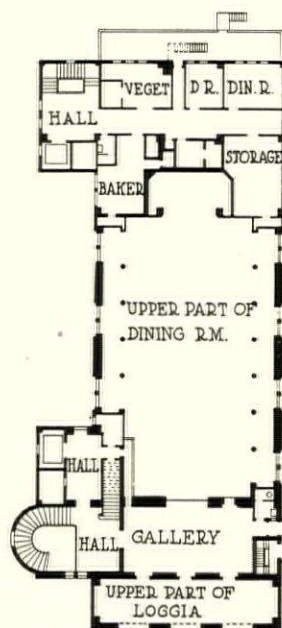
MAIN DINING ROOM



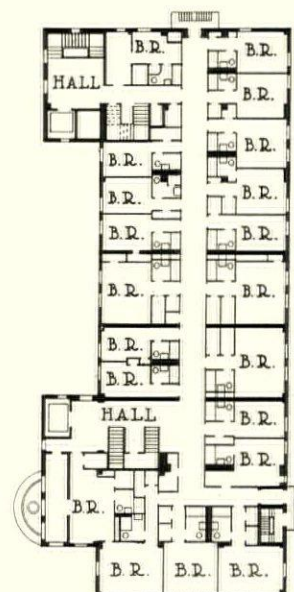
SECOND MEZZANINE PLAN



THIRD FLOOR PLAN



THIRD MEZZANINE PLAN



FOURTH FLOOR PLAN

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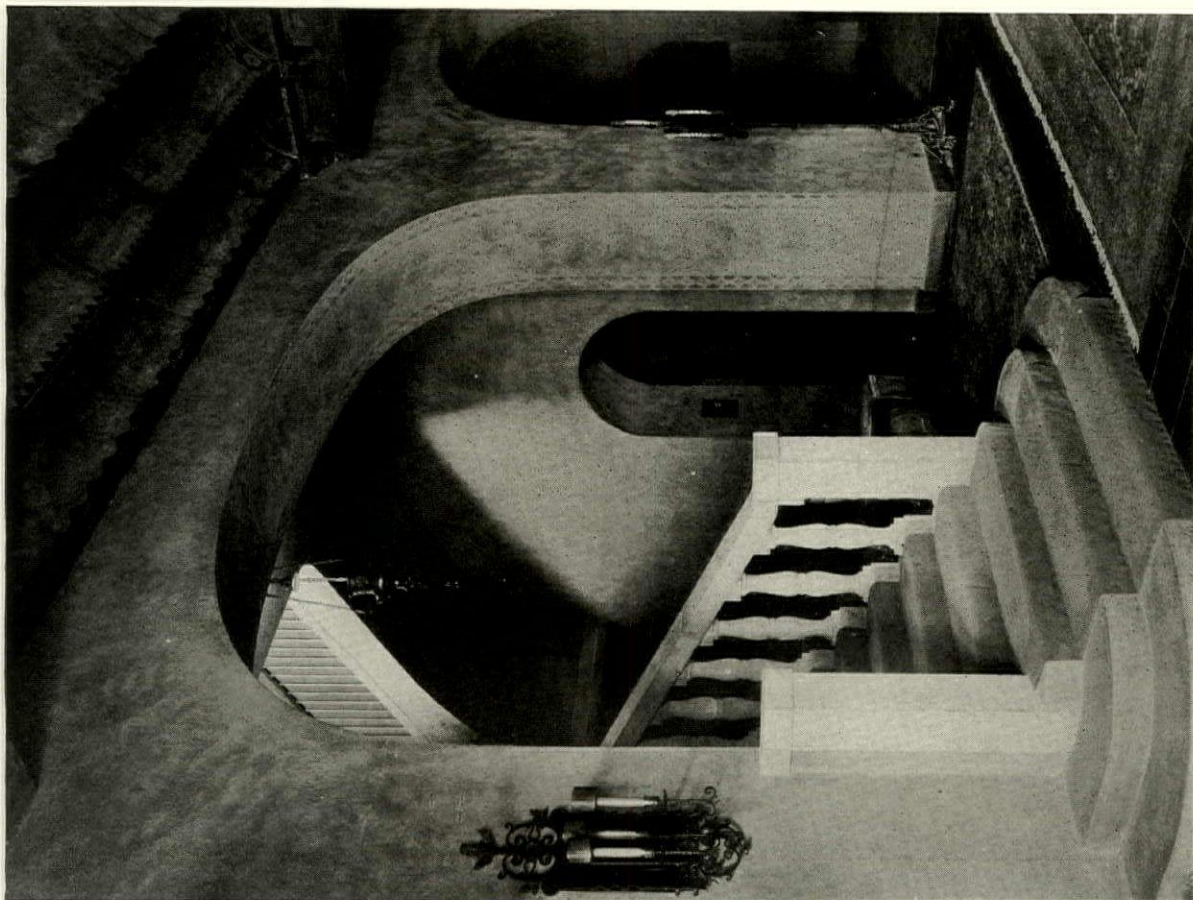
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DETAIL OF MAIN DINING ROOM
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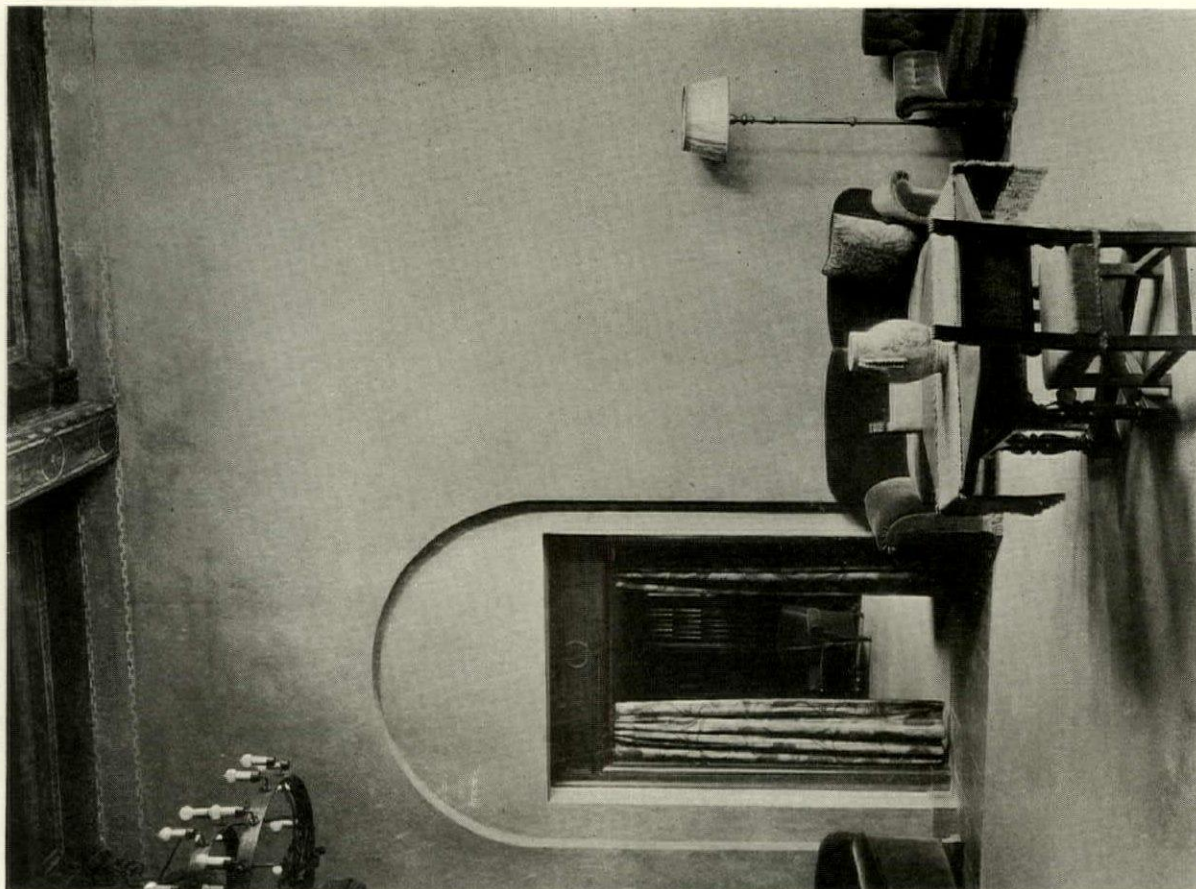


SILENCE ROOM OPENING FROM LIBRARY



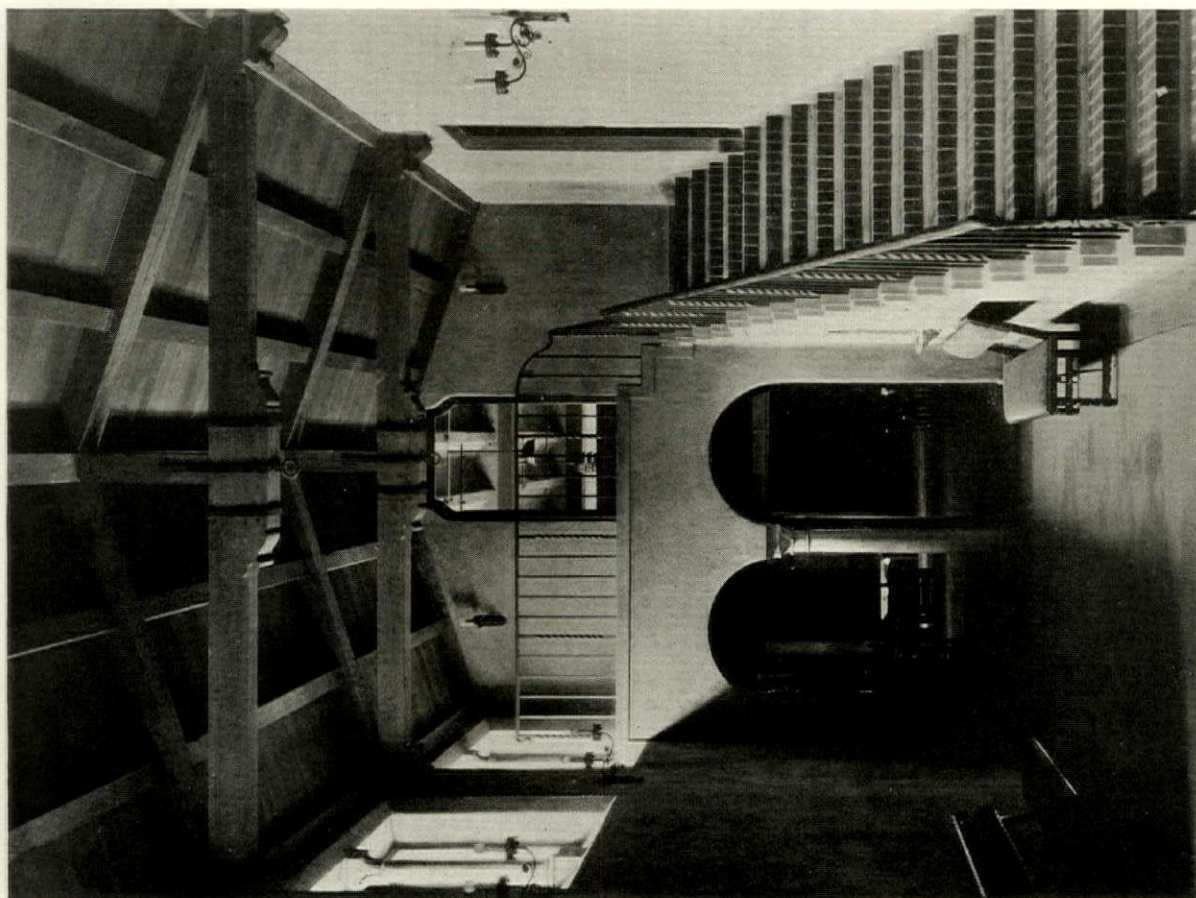
STAIRCASE IN FIRST FLOOR LOBBY

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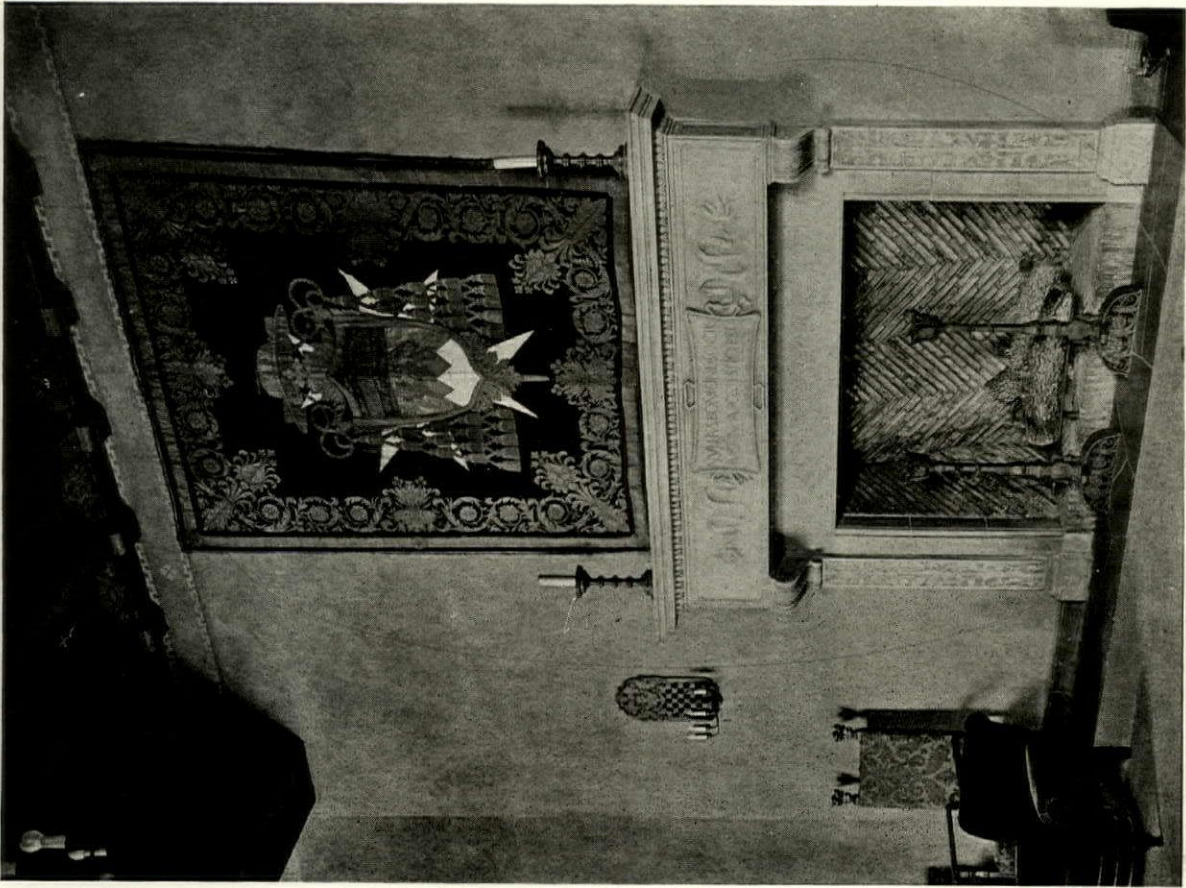


DOORWAY TO LIBRARY FROM LOUNGE

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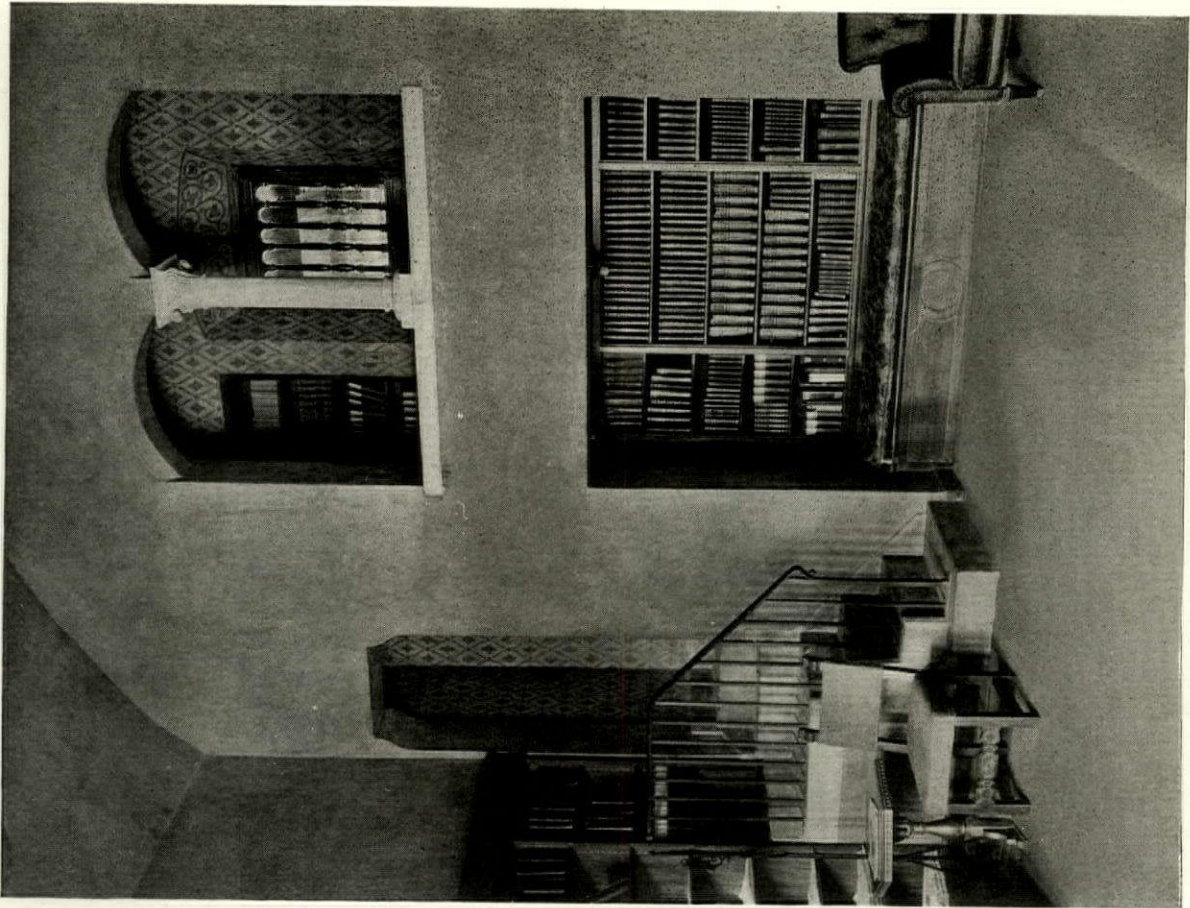


SECOND FLOOR STAIR HALL



MANTEL IN LOUNGE

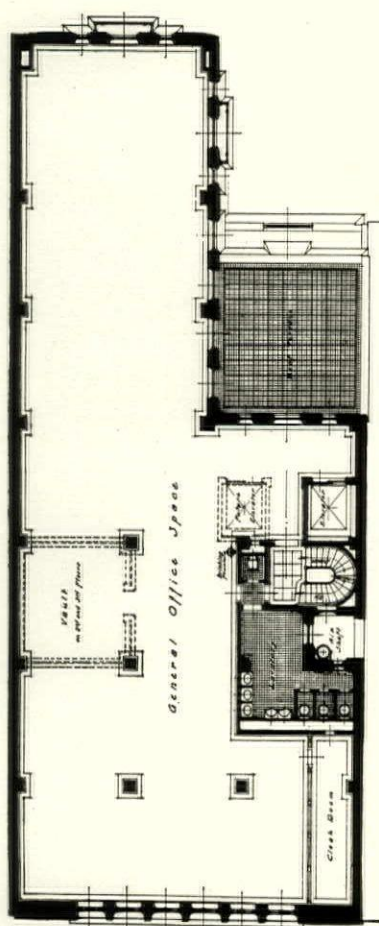
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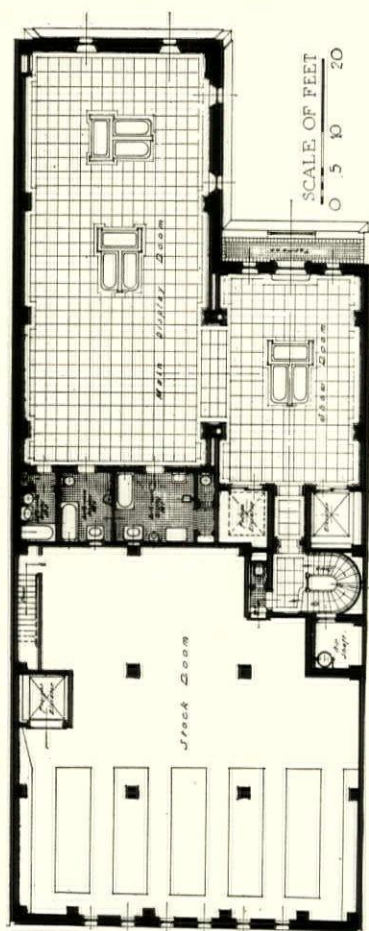
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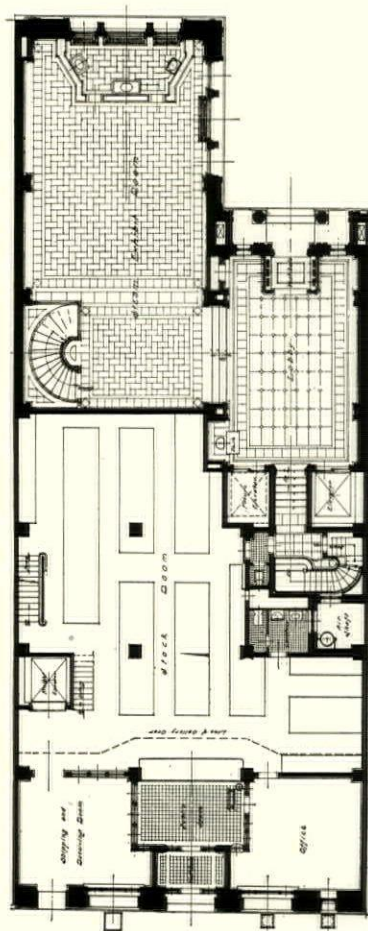
BEAVER HALL SQUARE FACADE
BUILDING FOR CRANE, LIMITED, MONTREAL
HUGH VALLANCE, ARCHITECT



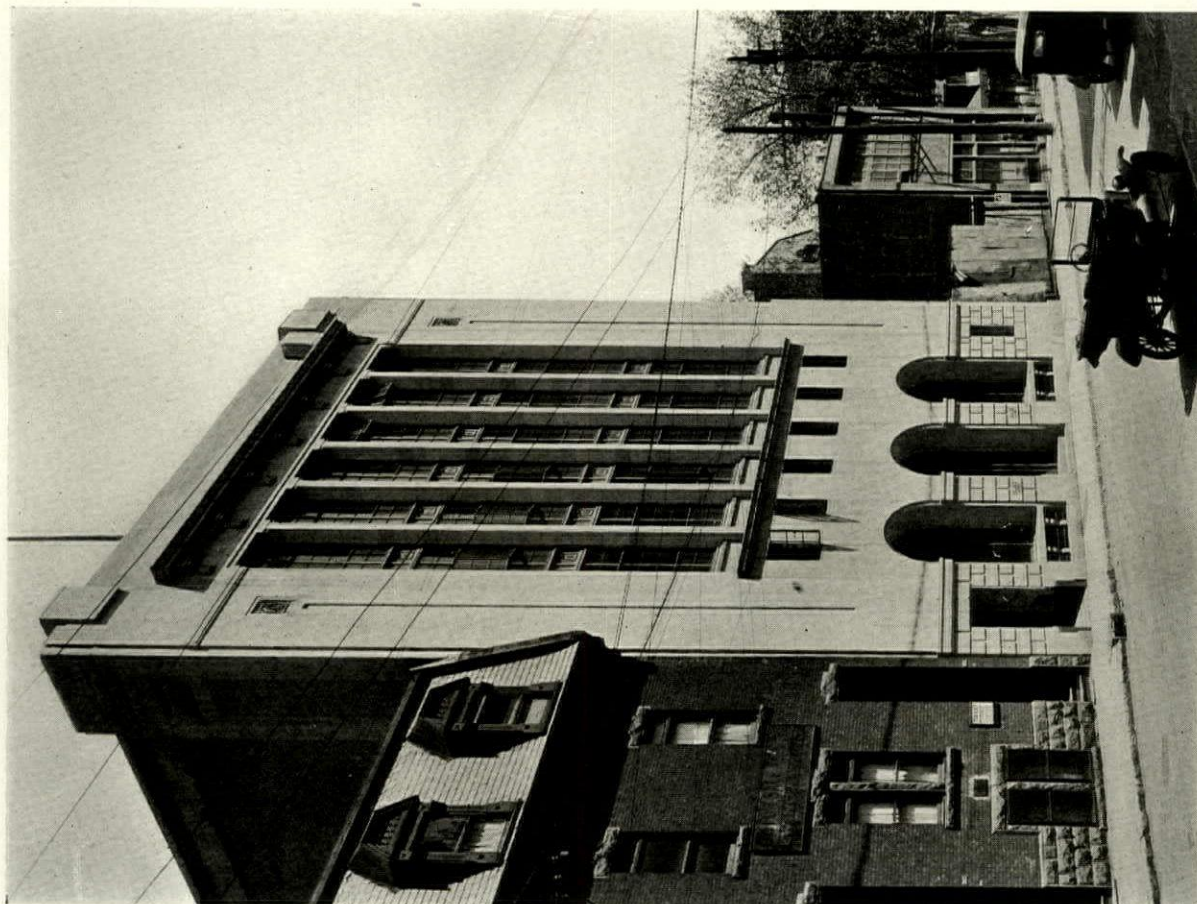
TYPICAL FLOOR PLAN



SECOND FLOOR PLAN

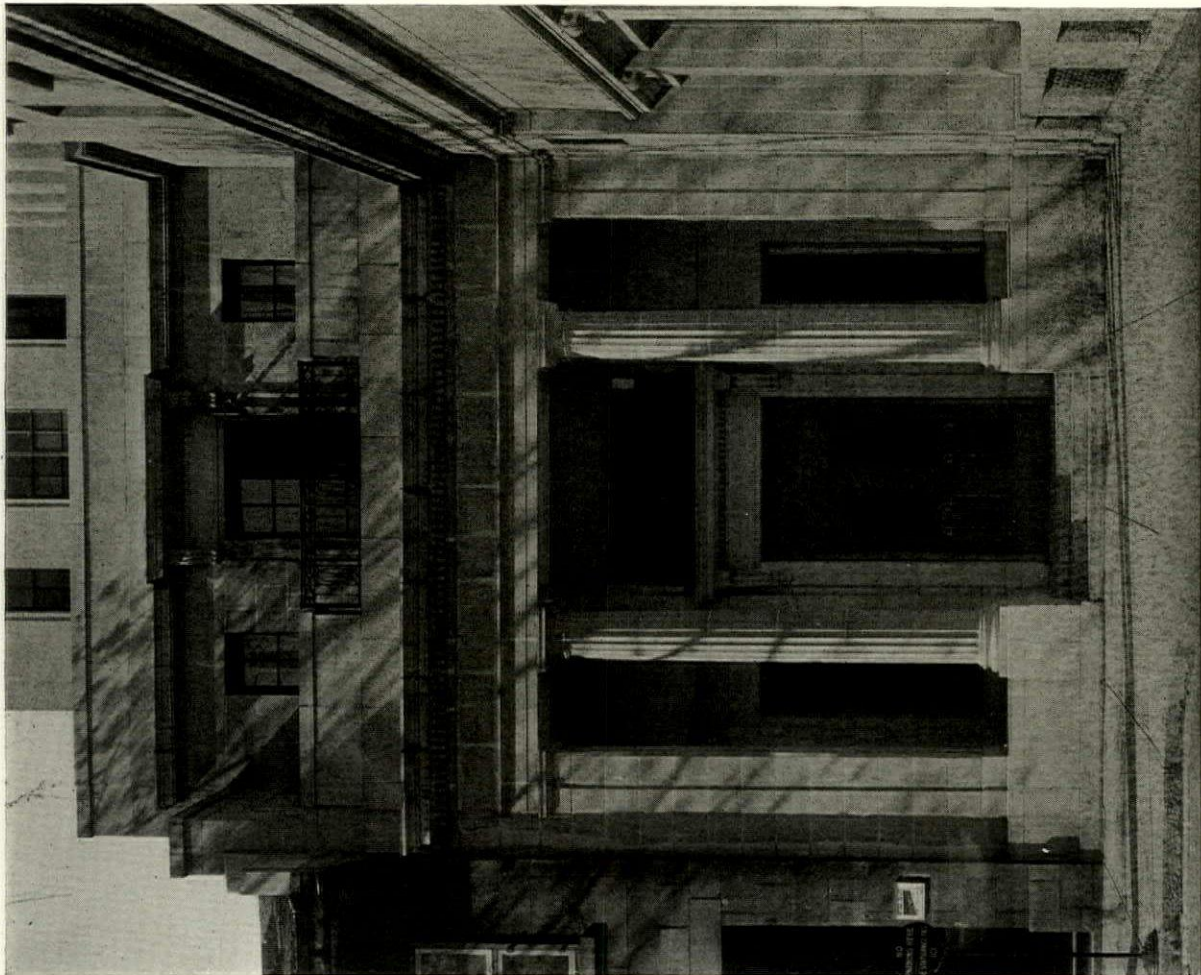


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UNION AVENUE FACADE

BUILDING FOR CRANE, LIMITED, MONTREAL
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DETAIL BEAVER HALL SQUARE ENTRANCE
BUILDING FOR CRANE, LIMITED, MONTREAL
HUGH VALLANCE, ARCHITECT



VIEWS OF SHOWROOMS

ENGINEERING DEPARTMENT

Charles A. Whittemore, *Associate Editor*

Electric and Hydraulic Elevators in Modern Buildings

By JAMES A. McHOLLAN

Vice-president, The R. P. Bolton Company, Engineers

INASMUCH as the successful operation of large buildings depends to a great extent on proper elevator service, the selection of elevator equipment is of primary importance. After construction is completed it is seldom practicable to modify the equipment to meet unforeseen requirements of service. Information is presented in this article on some of the latest improvements in electric elevator equipment, together with operating records from existing plants, and these may be of assistance to architects and engineers in planning elevator equipment. Another problem in elevator work frequently arising in existing buildings is the question of replacing hydraulic elevators with electric cars, and comparative cost figures are given in detail which may aid in advising building owners on this important subject which often comes up for study.

The figures given here show the travel, in miles,

of elevators over extended periods, and in conjunction with accompanying tables they may serve as an aid in gauging the extent of service which may be expected in proposed installations. Buildings in which the elevators are worked beyond their normal capacities greatly exceed in number those equipped with a surplus of cars. The density of the rush hour traffic is likely to be underestimated, and for this reason the diagrams A, B, C and D have a special interest. The number of passengers carried per hour is shown, and the variations in up and down traffic can be easily traced to the normal habits of building occupants and visitors.

The electric elevator has been subject to many improvements in the past few years. One of these is a system of control known as the multi-voltage, which improves the smoothness of operation, and by eliminating the losses involved in the ordinary meth-

TABLE I
ELEVATOR MILEAGE AND POWER USED BY ELECTRIC ELEVATORS IN LARGE BUILDINGS

I—16-sty. Office Building Number of Elevators, 4		Volume 1,960,300 cu. ft.		Area of Plot 13,800 sq. ft.	
Elev.	Period of test	Car miles	Kw. hrs.	Kw. hrs. per car mile	
1.....	23 days	320.8	1490	4.64	
" 2.....	23 "	335.6	818	2.44	
" 3.....	23 "	295.7	790	2.67	
" 4.....	23 "	245.5	818	3.33	
II—10-sty. Office Building Number of Elevators, 3		Volume 1,561,000 cu. ft.		Area of Plot 12,200 sq. ft.	
Elev.	Period of test	Car miles	Kw. hrs.	Kw. hrs. per car mile	
1.....	28 days	61.8	252	4.08	
" 2.....	28 "	74.0	297	4.02	
" 3.....	28 "	82.3	330	4.01	
III—22-sty. Office Building Number of Elevators, 16		Volume 12,000,000 cu. ft.		Area of Plot 47,000 sq. ft.	
Elev.	Period of test	Car miles	Kw. hrs.	Kw. hrs. per car mile	
1.....	42 days	547.9	2420	4.42	
" 2.....	42 "	564.7	2250	3.98	
" 3.....	42 "	758.6	3100	4.09	
" 4.....	42 "	920.5	2920	3.17	
IV—15-sty. Office Building Number of Elevators, 12		Volume 5,344,000 cu. ft.		Area of Plot 30,900 sq. ft.	
Elev.	Period of test	Car miles	Kw. hrs.	Kw. hrs. per car mile	
1.....	7 days	77.7	368	4.74	
" 2.....	7 "	77.6	305	3.95	
" 3.....	7 "	75.4	313	4.15	
" 4.....	7 "	66.8	264	3.95	
" 5.....	7 "	29.2	123	4.21	
V—7-sty. Hotel Number of Elevators, 4		Volume 1,867,000 cu. ft.		Area of Plot 26,400 sq. ft.	
Elev.	Period of test	Car miles	Kw. hrs.	Kw. hrs. per car mile	
1.....	19 days	259	643	2.48	
" 2.....	19 "	263	761	2.89	
" 3.....	19 "	109.6	276	2.52	
" 4.....	19 "	78.0	233	2.99	

ods of control effects considerable economy in the consumption of current. This system does away with the usual resistance control for governing acceleration and retardation, and substitutes for it a method by which the same result is obtained through the use of a series of voltage steps permitting the direct application of voltages of 60, 120, 180 or 240 volts to the elevator motors. This is accomplished by installing a compensating set which floats on the main supply lines, the set delivering power to the individual elevator controllers at the voltages mentioned. Operating on the standard voltage of 240 when running at speed, the elevator motors are thrown directly across the various voltage steps during acceleration and retardation, reducing the current losses to a minimum. This system also has the advantage of reducing peak load effects on the supply lines, a consideration of some importance where energy is purchased on a demand basis.

TABLE II

HOURLY VARIATIONS IN ELEVATOR TRAVEL IN 400-ROOM HOTEL, VOLUME 2,600,000 CUBIC FEET, AREA OF PLOT 12,500 SQ. FT.

Hour	Miles Per Hour			
	Car 1 Passenger	Car 2 Service	Car 3 Passenger and Service	Car 4 Passenger
10 a.m.—11 a.m.	1.77	1.31	1.54	2.25
11 "—12 "	1.18	1.33	1.02	1.12
12 noon—1 p.m.	2.19	1.74	2.12	2.31
1 p.m.—2 "	1.9	1.4	1.77	2.01
2 "—3 "	1.65	1.78	1.92	1.65
3 "—4 "	1.01	.85	.82	.5
4 "—5 "	1.80	2.05	1.57	1.5
5 "—6 "	1.75	1.34	1.36	1.51
6 "—7 "	1.87	1.14	1.74	2.45
7 "—8 "	1.4	1.05	1.52	1.61
8 "—9 "	1.29	.46	1.1	1.39
9 "—10 "	1.22	.37	.73	1.36
10 "—11 "	.95	.6	.52	1.27
11 p.m.—12 midnight	1.3686	2.23
12 mid.—9 a.m.	2.32	3.17	2.9	6.02
9 a.m.—10 "	1.5	1.32	1.43	1.43
Total miles for 24 hrs.	25.16	19.91	22.92	30.61

Total miles in 24 hours for 4 elevators, 98.60

TABLE III

PASSENGERS CARRIED AND ROUND TRIPS PER HOUR IN 20-STORY OFFICE BUILDING. VOLUME OF BUILDING 1,500,000 CUBIC FEET—AREA OF PLOT 6,400 SQUARE FEET

5 Elevators in operation					
Hour	Up and Down Trip	Passengers Carried Up	Passengers Carried Down	Total	
8—9	72	232	169	401	Average Number of Passengers Up Per Trip 3.22
9—10	120	574	252	826	Average Number of Passengers Down Per Trip 2.35
10—11	118	413	329	742	
11—12	96	410	381	791	
12—1	120	458	536	994	
1—2	120	500	449	949	
2—3	108	566	417	983	
3—4	96	372	319	691	
4—5	120	336	427	763	
Total	970	3861	3279	7140	
Average					3.98 3.38

Another of the more recent developments that has added much to the ease and precision of operation is the application of micro-drive self-leveling equipment to high speed elevators such as are used in the

larger buildings. One of the most troublesome features of elevator operation, involving both danger to passengers and wastefulness of power in operation, has been the difficulty of making exact floor landings. The ordinary elevator operator is very likely to stop a high speed car some inches above or some inches below the floor level, necessitating the repeated restarting and stopping of the car to improve its position; and even then it is not infrequently left slightly off the floor level, and the passengers are subjected to the hazard of tripping on entering or leaving. With the micro-drive, all this is eliminated. Each elevator drive is equipped with a small auxiliary motor which is automatically thrown into operation when the car is about to make a landing and, operating at slow speed, brings the car to the exact floor level. Not only this, but through an ingenious arrangement of contacts it holds the car there against any tendency to creep.

In addition to the saving in power through the lack of "jockeying" at the landings, it will be appreciated that considerable time is saved by the micro-drive. This is due partly to the elimination of time lost by the operator in the attempt to make landings, and partly to the greater speed with which passengers can be loaded and unloaded when the car is always at the exact floor level. This method has made it unnecessary to employ highly skilled operators, as the average operator can readily land the car well within the micro zone, which extends from about 16 to 18 inches above the floor to the same distance below. Within this zone the micro-drive motor takes charge of the operation and automatically makes the landing.

This system is well adapted to push-button control, and one of the largest of New York's skyscrapers is to be thus equipped. By means of a special controller, the closing of the shaft doors will start the elevator, acceleration up to full speed being accomplished automatically. Stops will be made for discharging passengers through the use of push-buttons within the car, the automatic control and micro-drive motor again bringing the car to the exact level of the desired floor. Passengers wishing to board the car at any floor will simply press a button, and the car, without any action on the part of the operator, will stop at the floor level. When the car is carrying its full complement of passengers the operator will press a button which clears his car of all calls, transferring them to the next car going in the same direction. It is obvious that the adoption of refinements such as these must add definitely to the renting possibilities of any high grade structure.

Another notable, although not so recent, advance in elevator design has been the introduction of the V-groove or single wrap drive for gear-driven machines up to 400 feet per minute. With this drive the hoisting cables bend only a part of one turn over the top of the drum. A direct driving lead is thus obtained, wear and tear on the cables is greatly

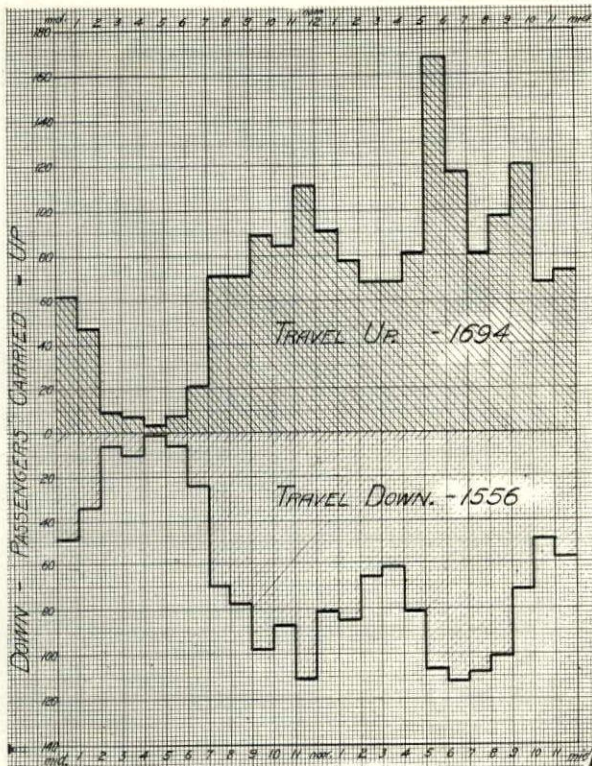


Diagram A, showing passenger traffic in elevators;
3 passenger cars—2 freight cars

lessened, and the power used per elevator car mile is reduced. In locating elevator machines and control boards, it is always desirable to place these at the top of the shaftway. In this location the elevator cables last longer, and it makes unnecessary the use of basement space for housing the machinery. In preliminary estimates of installation costs, care should be taken not to overlook the cost of providing the supporting steelwork for the machines and for the enclosing penthouses and skylights with screens on top. The cost of such work varies widely, often being as high as 30 per cent of the cost of the elevator, guides, rails, and the usual shaft equipment. This item may be even more expensive in the alteration of an old building, and the inexperienced engineer or architect is apt to be confronted with unexpected items of expense in elevator alterations.

The question of what should be done about the replacement of hydraulic elevator equipment in buildings erected some years ago, when machines of this type were the best obtainable, is one that presents itself with greater and greater frequency as time passes. The electric elevator has so clearly established its superiority that it may safely be assumed that practically every new elevator installation will be electrically operated, but whether the time has come, in connection with any specific instance, to discard the old hydraulic equipment for new electric machines, involves a number of considerations that require careful study. Until the advent of the gearless traction electric the hydraulic elevator was quite generally selected for higher

class buildings, but the safety features, speed, ease and accuracy of control and relatively low initial and operating costs of the electric have definitely given it the first place.

If in any building the existing hydraulic machinery is worn out, or substantially so, or is giving service that is inadequate for the needs of the building, then the problem of whether or not to electrify is simplified—it becomes largely a question of whether the property owner is willing or able to make the investment necessary properly to maintain his building at the standard required by its character and income-producing qualities. On the other hand, in the building where the hydraulic equipment is not antiquated, has been well kept up, and is giving fairly satisfactory service, the problem is one requiring skillful analysis if the best course is to be determined, the main consideration being the effect of the proposed change on the operating expenses of the property. A study of this kind is complicated by the fact that hydraulic elevator operation is so closely tied in with other building services that it is impossible to segregate various cost items, which must necessarily be allocated by some method

The accompanying diagrams—A, B, C, and D—show the passenger travel per hour in a 300-room hotel, Volume 3,000,000 cu. ft. Area of Plot 13,400 sq. ft. 3 passenger, 1 freight and 1 service elevator.

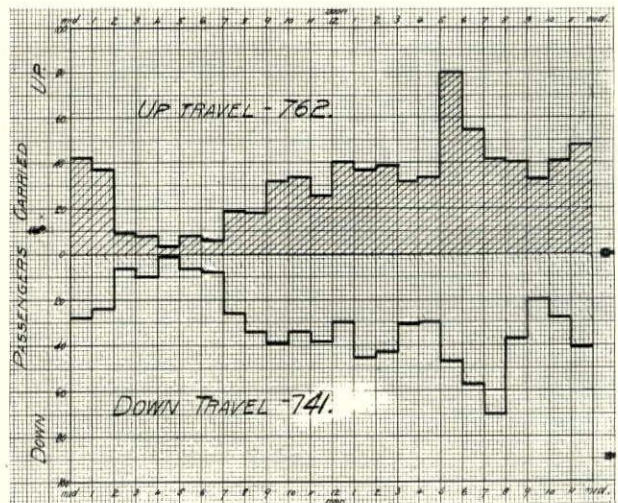


Diagram B, showing passenger elevator traffic; 3 cars

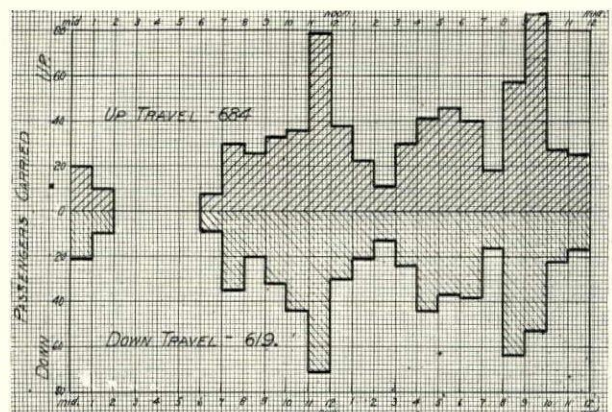


Diagram C, showing freight car passenger traffic

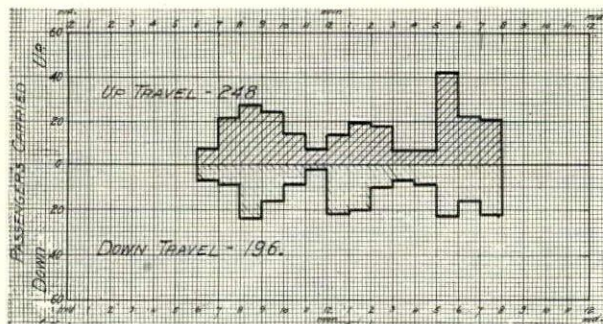


Diagram D, showing service car passenger traffic

of estimation, aided, perhaps, by test results. It is not so much a question of relative elevator efficiencies, that is, pounds of steam on the one hand compared to kilowatt hours on the other, values which could be determined with comparative ease, as of the effect that the type of elevators in use may have on the operating methods and costs of the engine and boiler rooms. An elevator study therefore almost necessarily becomes one embracing the entire subject of light, heat and power production.

Take, for instance, a hotel having hydraulic elevators, an electric generating plant, a steam refrigerating machine, steam pumps, a kitchen, and a laundry. Remember also that the building must be heated, that it uses large quantities of hot water, and that a certain amount of the steam required for these purposes can be obtained from the steam exhausted from the piston apparatus. Consider a fireman employed in firing the boilers. The coal that he handles will produce a certain amount of steam. Part of that steam will be used by the elevator pumps; after doing its duty there, it may flow into the radiators to help heat the building, or it may issue from the exhaust head into the atmosphere. This will depend on the amount of steam required for building heating at the time, and the total amount available from all of the piston apparatus. The problem to be solved, then, is what proportion of the coal is chargeable to the operation of the elevators, and what to the other apparatus.

Again, what proportion of the fireman's time may properly be charged to elevator operation? Theoretically this could readily be calculated, but for all practical purposes it is rather useless to ascertain that one-tenth, or one-sixth, or one-half of the fireman's time is thus chargeable, unless at the same time it is possible to eliminate the fraction thus determined from the payroll. For instance, if there is but one fireman to a shift, we cannot readily dispense with one-tenth of him, and the payroll is not affected unless, indeed, methods can be so adjusted that one shift can be eliminated. If, on the other hand, there are a number of firemen, it is possible to dispense with fractions of the total, and theory and practice may meet on common ground.

In reviewing the general considerations involved in elevator electrification, it may be well to separate the buildings equipped with hydraulic machines into three broad general groups or classifications:

- A. Where the existing hydraulic equipment is outworn, and must be replaced.
- B. Where the existing hydraulic equipment still has some years of useful life remaining, but where an improvement in the service is desired.
- C. Where the existing hydraulic equipment still has some years of useful life remaining, and is giving adequate and satisfactory service.

There is little or nothing to be said about Class A in this article. It is assumed that new elevators must be installed, and presumably they will be electric. The details of kind, speed, capacity, etc., are all matters that must be determined from a knowledge of local conditions and requirements. In Class B, the question of business judgment enters largely into the determination of whether or not to electrify. While it is almost safe to assume that economies will be effected in the operating costs by installing new electric elevators, it does not necessarily follow that these economies will be sufficient to cover the fixed charges of interest and depreciation on the investment required for the new cars. If they do not, the property owner, realizing that his service is not satisfactory, must then decide whether or not the improvement to be expected, with its attendant advantages as reflected in the rent roll, will be sufficiently great to justify the investment.

Classification C presents some very nice problems, the solution of which calls for an intimate knowledge of the practical side of engine and boiler room operation. The assumption is that the property owner will be content to continue the operation of his building equipment along the existing lines unless he can see that after allowing for interest and depreciation on the required investment there will be an annual saving by electrifying it. It has been pointed out that hydraulic elevator operation is closely tied in with other building services. Large buildings erected when hydraulic elevators were in vogue were usually provided with electric generating plants as well as extensive equipment of steam pumps and other apparatus, the presence of which complicates the solution of the elevator problem, which thus extends itself to include the entire power plant, for if the elevators are electrified, the generating plant will in all probability be inadequate to carry the increased load, and some provision must be made for motive power. Four methods of treatment then suggest themselves:

1. The generating plant may be enlarged sufficiently to carry the elevator load.
2. The plant may be continued as it is, and the elevator load placed on station service.
3. The generating plant may be shut down and the entire electrical load placed on central station service.
4. The generating plant may be shut down, the other steam equipment electrified, and the entire electrical load placed on central service.

Plan 1 is open to the disadvantage that it involves an extra expenditure which materially increases the total investment required, with the added drawback that it tends to perpetuate a system which many believe is sooner or later to be superseded by central station service, a view which present tendencies encourage. Plan 2 presents the attractive feature of requiring no investment for machinery, but it possesses the great disadvantage of involving the use of two separate sources of power, the limited requirements of each making it impossible to obtain the maximum economy from either. As a rule, central station rates for electrical energy depend partly on the amount of current used and partly on the nature of the load factor. It will be apparent that the rate obtained for the supply of elevators only will be materially higher than for the entire electrical requirements of the building, while on the other hand a private plant operated for only a portion of the building's service will necessarily be handicapped. Plan 3 is subject to the same objections as Plan 2, although to a less degree. It contemplates the placing of the entire electrical load on central station service but retaining in operation whatever steam apparatus there may be, such as pumps, compressors, etc. Equipment of this kind is very wasteful of steam, and necessitating the operation of high pressure boilers, permits the plan to make comparatively little change in the engine and boiler room attendance, with a resulting lack of economy.

For some years the tendency has been in the direction of Plan 4. Since the war the price of practically everything that enters into the cost of plant operation has shown a very large increase, while as a rule the central station rates for electricity have received little modification. As a matter of experience, it has been found in the general run of such cases that the true point of economy can only be reached by establishing harmony in the operating conditions. That is, if the elevators are to be electrified, it will probably be advisable, if there is other steam equipment present, to electrify it also, either taking current from the central station, with the steam system on a low pressure basis, or supplying the electrified load from the local generators. As it is quite possible in such circumstances to estimate operating costs with considerable accuracy, an important point in view of the large investments involved, the best course to follow in each individual case can with a reasonable exercise of care and judgment be ascertained.

While it has been the usual custom in high grade buildings where elevator changes are made to substitute for the hydraulic equipment complete electric machines, it has occasionally been found of advantage, instead, to leave the hydraulic apparatus intact, merely replacing the steam pumps by electrically-driven units. It may be said at once that this type of electrification is far less efficient from a current-consuming standpoint than the more complete

change, but that on the other hand the cost of making the change is very much less, and if the fixed charges of interest and depreciation on the investment are considered, as they of course should be, the advantage in total operating costs may lie with the less efficient but cheaper equipment. The matter is one which involves careful calculations.

The exact condition of the hydraulic machinery will naturally in many cases determine the type of electrification, for it will be apparent that it would be unwise to undertake the expense of providing new electric pumping units for the operation of apparatus which would, in any event, require replacement in a comparatively short time. It would be better in such a case to anticipate the inevitable and make the complete elevator change-over at once. Assuming the elevator equipment to be in good shape, however, and that the question of whether to electrify completely or by the use of electric pumps is to depend on the question of operating expenses, it will be found that the main item of difference in the two methods pertains to the consumption of current and the fixed charges on the investments.

The other items of cost that need be considered in a study of this kind, and some idea of the relative values involved, may be gathered from the summary here given of the estimates prepared in connection with a large modern multi-story office building, having nine hydraulic elevators, a generating plant, and a full complement of steam pumps.

ESTIMATE 1

Operating Costs for Light, Heat and Power with Hydraulic Elevators and Steam Plant

Coal, 6,840 Tons.....	\$54,720
Labor—1 chief engineer	
1 asst.	
3 watch engineers	
3 oilers	
4 firemen	
3 coal passers	
1 handy-man	
16 men	28,340
Ash Removal	2,740
Boiler Feed Water.....	1,200
Supplies and Repairs.....	5,000

Total Operating Cost..... \$92,000

Interest and depreciation on salvage value of plant
plus value of space occupied..... 3,000

Total Cost

ESTIMATE 2

Operating Costs for Light, Heat and Power with Electric Elevators, Electric Auxiliaries and Central Station Service

Coal, 2,340 Tons.....	\$18,720
Labor—1 chief engineer	
3 watch engineers	
1 handy-man	
3 firemen (for 30 weeks).....	10,780
Ash Removal	940
Boiler Feed Water	160
Supplies and Repairs.....	1,400
Electric Service.....	26,500

Total Operating Cost..... \$58,500

Interest and depreciation on necessary investment 21,500

Total Cost

ESTIMATE 3

Operating Costs for Light, Heat and Power with Hydraulic Elevators Electrically Operated, Electric Auxiliaries, and Central Station Service

Coal, 2,340 tons.....	\$18,720
Labor (as given above).....	10,780
Ash Removal	940
Boiler Feed Water	160
Supplies and Repairs.....	1,400
Edison Service.....	39,000

Total Operating Cost.....	\$71,000
Interest and depreciation on necessary investment	6,000

Total Cost..... \$77,000

It is seen that in the case of this building the increased use of current with the electro-hydraulic equipment very closely balances the larger fixed charges on the greater investment required for straight electric elevators, and that the question of the length of useful life remaining in the hydraulic apparatus becomes the determining factor.

In another building, a large apartment house having 14 hydraulic elevators, all in good condition and giving satisfactory service, operating cost calculations which were recently made led to a recommendation for the installation of electric pumps for the elevators. The estimates prepared in this case may also prove interesting.

ESTIMATE 1

Operating Costs for Light, Heat and Power with Hydraulic Elevators and Steam Plant

Coal, 7,800 Net Tons.....	\$46,800
Labor	26,615
Ash Removal	2,949
Oil, Supplies and Repairs (average per year)....	5,000
Water (to boiler plant).....	1,095

Total Operating Cost..... \$82,459

ESTIMATE 2

Operating Costs for Light, Heat and Power with Electric Elevators, Electric Auxiliaries and Central Station Service

Coal, 3,000 Net Tons.....	\$18,000
Labor	11,696
Ash Removal	1,200
Oil, Supplies and Repairs.....	1,000
Water (to boiler plant).....	300
Purchased Electricity	30,430

Total Operating Cost.....	\$62,626
Interest and depreciation on investment.....	21,000

Total Cost..... \$83,626

ESTIMATE 3

Operating Costs for Light, Heat and Power with Hydraulic Elevators Electrically Operated, Electric Auxiliaries and Central Station Service

Coal, 3,000 Net Tons.....	\$18,000
Ash Removal	1,200
Labor—3 engineers	
1 fireman	
2 firemen (30 weeks)	
1 relief man	
Oil, Supplies and Repairs.....	1,500
Water (to boiler plant).....	300
Purchased Electricity.....	35,155

Total Operating Cost.....	\$67,851
Interest and depreciation on investment.....	8,400

Total Cost..... \$76,251

In estimating the consumption of current by electric elevators, it is usual to calculate it from the annual car mileage and the assumed kilowatt hours per mile. The former can be determined by placing counters on the apparatus to indicate the number of trips which, when multiplied by the travel per trip, will give the required result. In the absence of counters the same information may be obtained through the co-operation of the elevator operators.

The consumption of current per car mile is not so readily ascertainable. In the case of straight electric elevators it varies according to the speed and carrying capacity of the cars, the number of stops, and the care exercised in operation. For electro-hydraulic equipment there is less variation, a hydraulic elevator requiring the same amount of water with the car empty that it does with the car loaded. The accompanying test results of several high grade elevator installations in New York may be of interest in this connection.

10-story Office Building (Electro-Hydraulic Elev.)
Volume 1,757,000 cu. ft. Area of Plot 11,000 sq. ft.

Period of Test	Car Miles	Kw. Hrs.	Kw. Hrs. per C.M.
Elev. 1			
" 2			
" 3			
" 4			
56 days	2,623.6	26,832	10,227

17-story Hotel (Electro-Hydraulic Elevs.)
Volume 2,615,000 cu. ft. Area of Plot 12,500 sq. ft.

Period of Test	Car Miles	Kw. Hrs.	Kw. Hrs. per C.M.
Elev. 1			
" 2			
" 3			
" 4			
30 days	2,456.5	23,600	9.64

The variation shown in the consumption of electrical energy per car mile by the straight electric machines, much of which results from a difference in the operation requirements, calls attention to the importance of carefully studying these requirements before attempting to estimate on the use of current. The consumption of the electro-hydraulic equipments, it will be seen, is about twice or four times as great per car mile as for straight electric machines. Notwithstanding this large difference, the cost of the change-over work is so much less that it may be expected that many more installations of this kind will be made. In fact, decision has recently been reached to electrify the entire equipment of 23 elevators in one of New York's most prominent department stores, in the expectation that before the hydraulic apparatus is entirely outworn, sufficient saving will have been put aside to install new electric machines of the most modern type.

The question of elevator service in a building of many kinds is so important that upon its solution may well depend the entire matter of its being a success or a failure. When it is remembered that many buildings in large cities represent investments which run into large figures, it will be readily seen that the elevator problem is a matter upon which often hinge large financial interests.

ITALIAN RENAISSANCE DETAILS

A SERIES OF MEASURED DRAWINGS

By HUNTER McDONNELL



WALL FOUNTAIN IN COURTYARD ON VIA GIULIA, ROME

THE wall fountain, so often found in Italy, is quite as useful in America. In Italy it adorns courtyards, cortiles and loggias, and it often finds its happiest uses in gardens. In America it may be found in all these surroundings, and frequently in conservatories or even in hallways and other parts of houses.

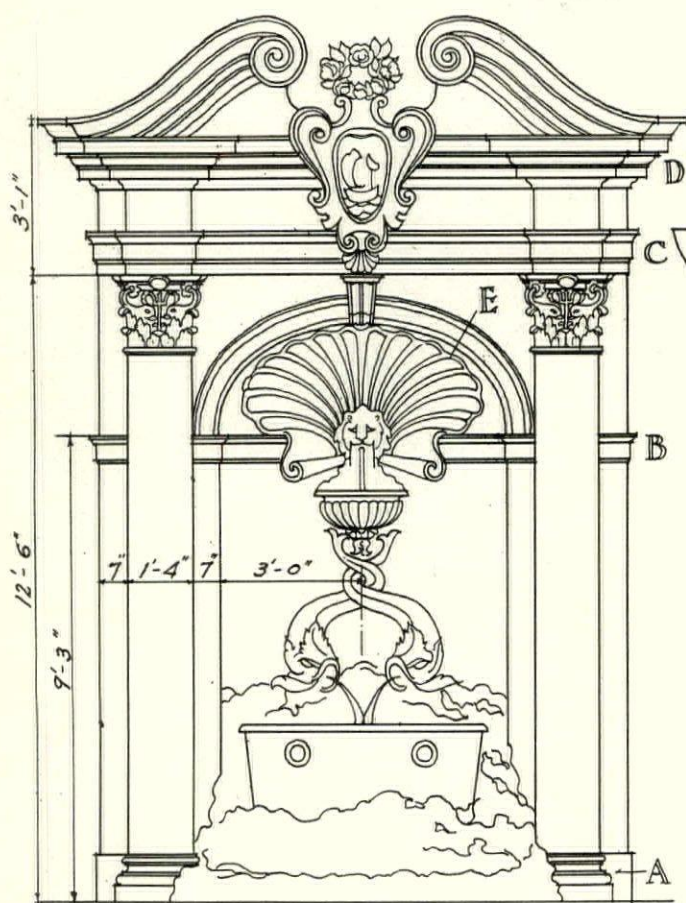
The fountain, which stands in the cortile of a small house in Rome, is so placed that it forms an effective termination to the vista down a passage which leads from the street. It is cut from the finest and hardest travertine, and its detail, unlike the detail of so much work of the baroque period, is minutely and clearly carved. From the center of the elaborately carved shell which fits the head of the niche, a stream of water issues from the lion's head into the upper bowl. Two dolphins play streams of water into the large basin which is of some depth and probably served as a water trough for domestic use. This large basin or trough is supported on a bed of rough, spongy cement work covered with moss to give the effect of natural rock.

• BASE OF •
PILASTER "A" •

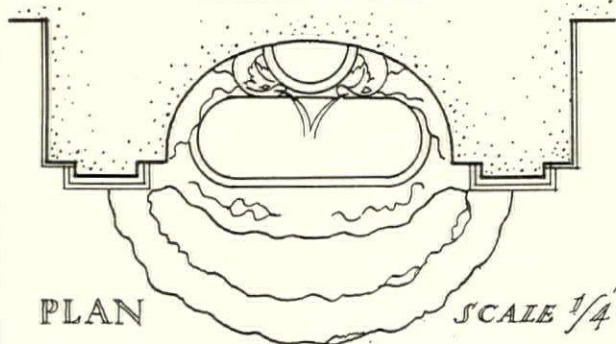
• DETAIL "E" •

SECTION THRU
• CORNICE "D" •

ALL PROFILES ARE
• $\frac{1}{4}$ FULL SIZE •

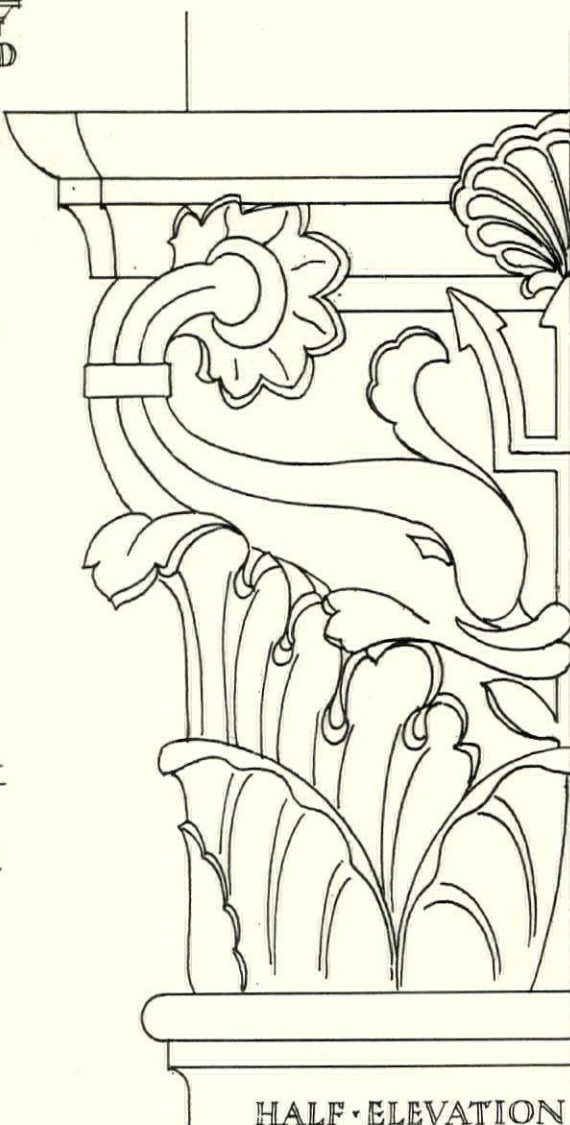


• ELEVATION •



PLAN

SCALE $\frac{1}{4}$ " = 1'-0"



HALF • ELEVATION
OF CAP • $\frac{1}{4}$ FULL SIZE •

DETAIL
"C"

DETAIL
"B"

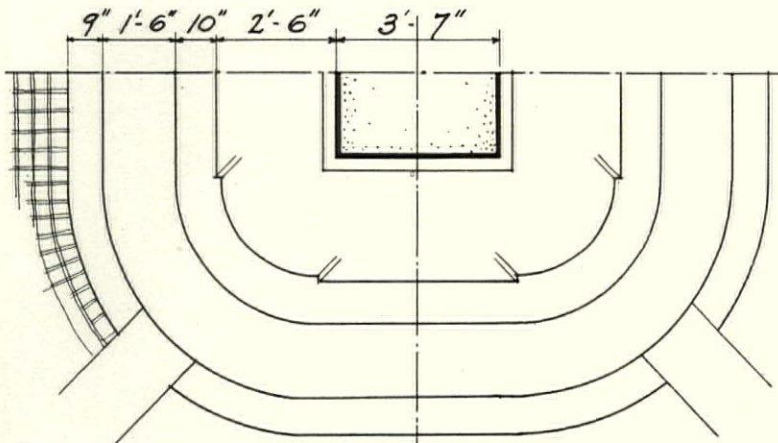
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• WALL • FOUNTAIN • IN • COVRT •
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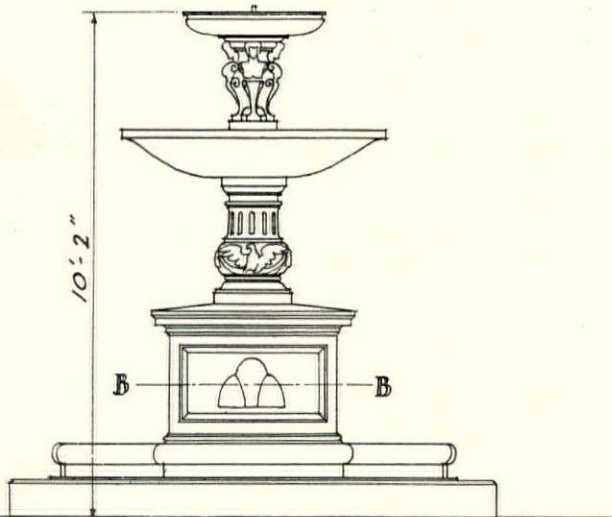
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• PLAN • AT "A" (LOOKING UP)



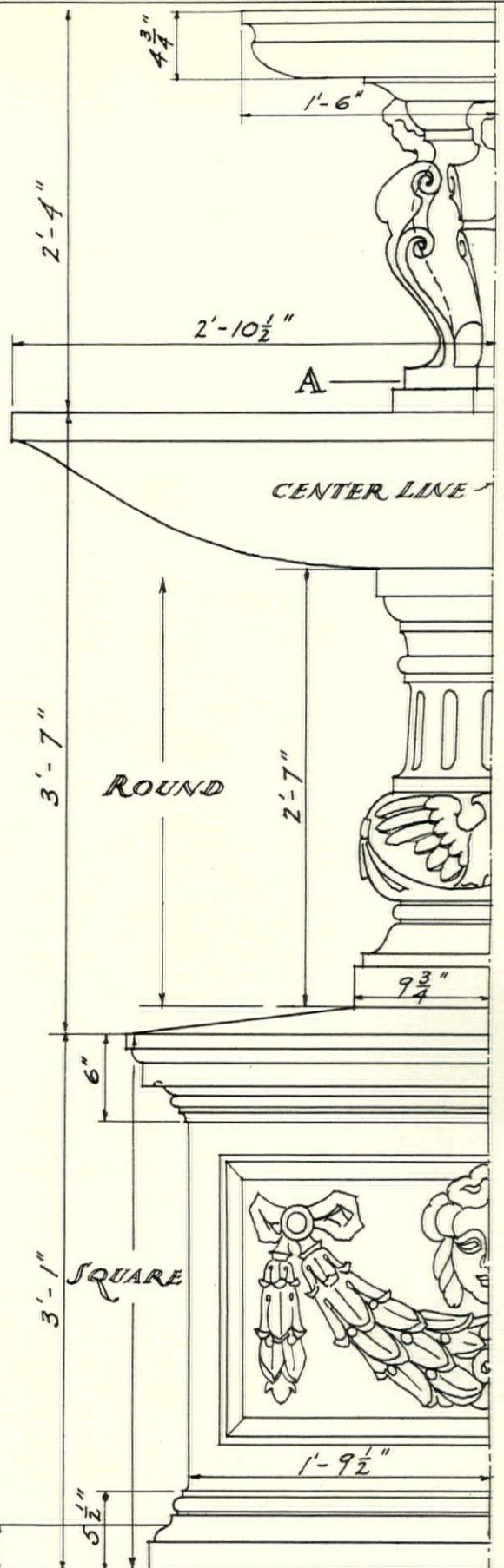
• HALF • PLAN • ON LINE "BB"
SCALE $\frac{1}{4}$ " = 1'-0"



• ELEVATION •
SCALE $\frac{1}{4}$ " = 1'-0"



• DETAIL • OF • HALF • ELEVATION •
SCALE 1" = 1'-0"



• ITALIAN •
• RENAISSANCE •
• DETAILS •

• FOUNTAIN • IN • COURTYARD •
• OF • MONTE • DI • PIETA • ROME •

• MEASURED & •
• DRAWN • BY •
HUNTER MCDONNELL

ITALIAN RENAISSANCE DETAILS

A SERIES OF MEASURED DRAWINGS

By HUNTER McDONNELL



FOUNTAIN IN COURTYARD OF MONTE DI PIETA, ROME

THIS fine example of a free-standing fountain forms an integral part of the design of the stone-paved court in which it stands and is proportioned to the architectural treatment about it. The fountain is made of the travertine so extensively used in Rome, and has taken on a mellow gray tone with age. The carving in the rectangular panels of the base is boldly executed in high relief; that of the baluster supporting the bowl is lower, blending into the contour of the turned form.

The small upper basin is supported on the heads of three caryatid figures which are deeply undercut, leaving a thin stone core through which the water pipe passes to the top. The upper basin is covered with a lead pan, into which the water falls from a spout at the center. The overflow spills into the large bowl and then flows over the shallow stones built into the pavement.

THE ARCHITECTURAL FORUM

OCTOBER, 1923

European Town Squares

PART II

By GEORGES BENOIT-LEVY

WITH Paris establishing the standard for the entire country, it follows that every provincial city in France is a more or less faithful copy of Paris, though the traveler, whether architect or layman, whose powers of observation are keen will note in many a city or town old buildings of certain architectural types which are survivals of past ages and show the use of some particular local style or some peculiarity of design.

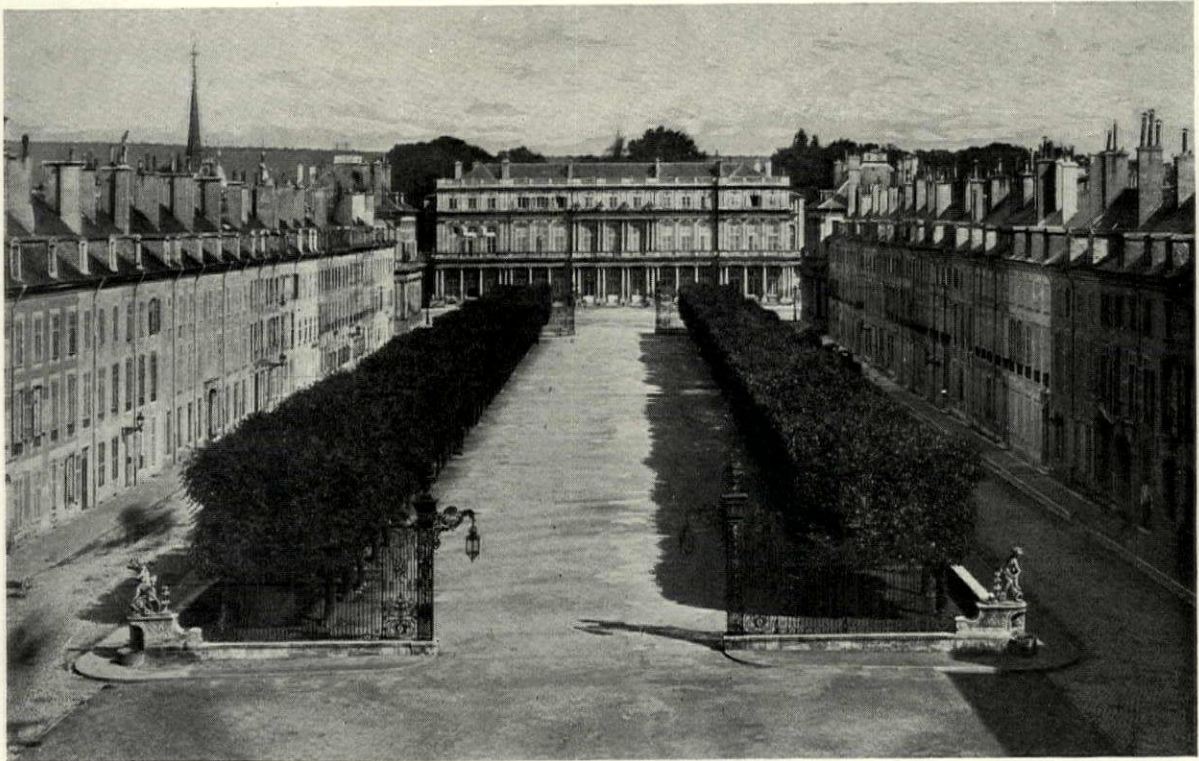
Nancy

The *Place Stanislas*, the *Place du Gouvernement*, and the *Place de la Carriere* are among the finest squares in this interesting old town. They succeed each other and merit this compliment of M. Maurice Barres, who refers to them as "These three famous squares which the city, wrapped up as it is in business, preserves like *salons* to receive and dazzle strangers." The *Place Stanislas* is surrounded in large part by public buildings: *Hotel de Ville* (former palace of the dukes of Lorraine), Prefecture, Theater, Hotel. Its sober facades are relieved by the lamp standards and grilles of wrought iron, by the delicate statuary, and by the nearness of the public garden, whose foliage we see emerging at one of the corners in one of these illustrations. The *Place Stanislas* and those which succeed it in the scheme are of the best types of the administrative center.

Brussels

Belgium is Brussels, and Brussels is the *Grand Place*.* There is no nation in the world which has developed love of country and civic spirit as we find them in Belgium, and nowhere are these qualities given better material expression than in the public squares. This *Grand Place* of Brussels is truly the heart of the city. It centers all the activities of Brussels about its *parvis* of 100 by 50 meters. At the west, the *Hotel de Ville*, of a flamboyant Gothic style, is one of the largest and richest in the Low Countries. The right portion dates from 1402, and the left wing was built in 1444. The tower (98 meters) was finished in 1454 and is surmounted by a statue of St. Michael, the patron of the city. The rear facade, in the style of Louis XIV, is of 1706. The *Maison du Roi*, formerly *Broodhuis* (Bread Hall), 1873-1896, replaces a building of the same style of the end of the fifteenth century which formerly served as a dwelling for the functionaries of the court. On the second floor it contains the communal museum. At the side of the *Maison du Roi* is the house of Victor Hugo, with a bust of the poet over the entrance portal. At the south, that marvel of the renaissance, the *Palais des Ducs*; at the south-

The figures below illustrations will be found to identify locations of buildings on the different plans given in these pages.



Place de la Carriere, Nancy, France
Palace of the Government at the rear. Opposite in Place Stanislas is the City Hall

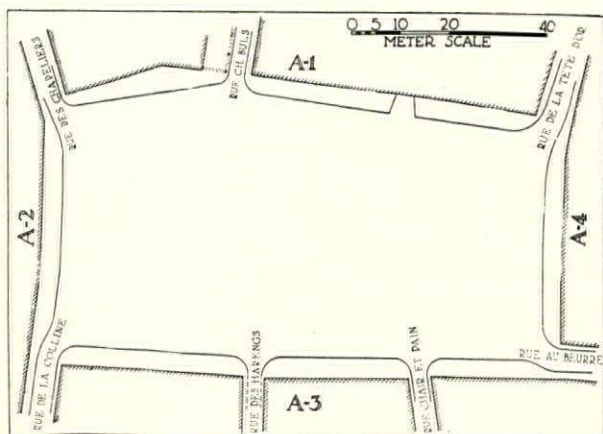


Hotel de Ville, Grand Place, Brussels (A-1)

west, the *Maison des Brasseurs* (Brewers) at the north, the house of the guilds; houses of the silk merchants, boatmen, archers, carpenters, coopers and bakers, each with the symbol of its saint or its patron rising above its gable. And what local names, and how typical are those of the streets climbing up to this square, the *salon* of the city, with its rich facades often enlivened by the colors of the flower market where the pretty flower girls sit!



La Maison des Ducs, Grand Place, Brussels (A-2)



Courtesy, City of Brussels

The Grand Place, Brussels

Streets of the Hill, of Herrings, of Meat and Bread, of the Golden Head, of the Hatters, of Butter, how many generations have trod your heavy pavements, your narrow sidewalks, some of which are only a meter wide, and the widest of which do not reach two meters and a half!

Liege

Liege, with its 170,000 inhabitants, is one of the glories of the Belgian provinces. The administrative, religious, and university centers occupy the district between the Meuse and the northwest confines of the *Boulevard de Ceinture* which surrounds the city. Beyond it various suburbs are springing up.

Especially admirable are the *Palais du Gouvernement* and the *Palais de Justice*, fraternally united in the building surrounded by the squares of St. Lambert, Notger, Foch, and du Marche. This building, covering four and one *hectaires* (about 10 acres), is of interest to us on account of its two interior courts, the first of which measures 600 by 400 meters, and the second 400 by 300 meters. The

first, which we enter by the gateway, is surrounded by a gallery of low, pointed Gothic arcades resting on 60 columns whose capitals are decorated with capricious masks, garlands, and other varied ornament. It communicates with the second court, which is of a quite different character, by a passage fashioned at the extreme corner of the gallery opening at the right of the portal. This court has arcades on only two sides, and those of the north are partly walled up. In the center there is a circular basin surrounded by plants and shrubs. All is calm and tranquil in this little-frequented court which incites one to reverie. A gate at the rear leads to the *Rue du Palais*. These courts consti-

tute two examples which are still offered to the architect or the constructor of cities desirous of arranging intimate squares about which public buildings may be grouped. Commenced in the tenth century, completed, destroyed, reconstructed, the most recent scheme of the building is that affected by the provincial government, and due to Delsaux, in 1550. Its facade is in the pointed style, and it is a good example.

Bruges

Bruges, sung by the poets, is celebrated for its quays, its *beguinages* (convents), and its squares. Let us glance at the *Place du Bourg*. We find it surrounded by these buildings: the *Hotel de Ville*, built during the reign of Count Louis de Mach in 1376, on the site of the *Maison des Echevins*, with its facade adorned by 50 statues representing the worthies of the Old and New Testaments; the old *Greffe*, contiguous to the *Hotel de Ville*, constructed from 1535 to 1537 in the style of the renaissance, its graceful gable ornamented with bas-reliefs and statues in gilt bronze,—this is the seat of the justice of the peace and of the council of war; the *Palais de Justice*, built in 1722, on the site of the palace of the counts of Flanders, called *Palais de France*.

Let us now see the *Grand Place*. It measures respectively on each of its axes 60 to 80 meters. Its irregular form adds to its charm and almost hides the openings of the streets which have access to it; *Rue aux Lainages* (Woolen Goods), *Rue de la Halle*, *Rue des Pierres*, *St. Amand*, *Marche aux Œufs*, *Rue de la Crevette* (Shrimp), all picturesque and expressive names. This square is surrounded by commercial houses and administrative buildings, of which the principal ones are these: the *Halles*, surmounted by the Belfry, built on the bed of the ancient *Boserbeck*, dating from about the year 1248, and remodeled from 1561 to 1566. The tower of the *Halles*, which is 85 meters high, contains in its second story the "bell of triumph," weighing 19,000 pounds. Eight men hardly suffice to set it in motion. The upper stage of the tower encloses chimes of 49 bells, weighing in all 56,166 pounds. The *Hotel du Gouvernement* and the post office on the site of the old *Watehralle*, constructed in the



La Maison du Roi, Grand Place, Brussels (A-3)

local style of the sixteenth century. On the second floor of the post office are the archives of the city of Bruges, with documents dating from 1281. The age of these towns must be remembered.

Mons, St. Nicolas, Furnes

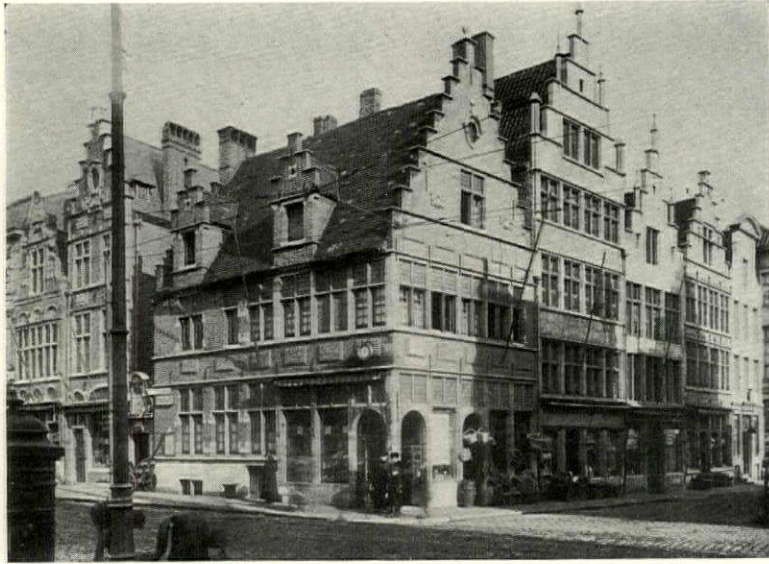
Mons, an industrial and art city of the Borinage, is, like every other Belgian town, proud of its grand place with its *Hotel de Ville*, its *Palais de Justice*, its *Palais des Beaux Arts*. Its belfry is 57 meters high, rich with a chime of 47 bells.

St. Nicolas (35,000 inhabitants) has a *grand place* of about eight acres. Everything is in harmony with this *grand place*, for each house has its garden and each quarter its parks. Patrick Geddes has called it the ideal garden city.

Furnes (5,500 inhabitants) has a history which goes back to the beginning of the Christian era. On



Les Maisons des Corporations, Grand Place, Brussels (A-4)



East Side, Place Pharaïlde, Ghent (B-1)

the spot occupied by the church of St. Walbruge there arose a temple dedicated to the god, Wotan. The *Grand Place* is all the more curious in that it is admirably framed by a series of public buildings which extend to the other enclosed little square.

Ghent

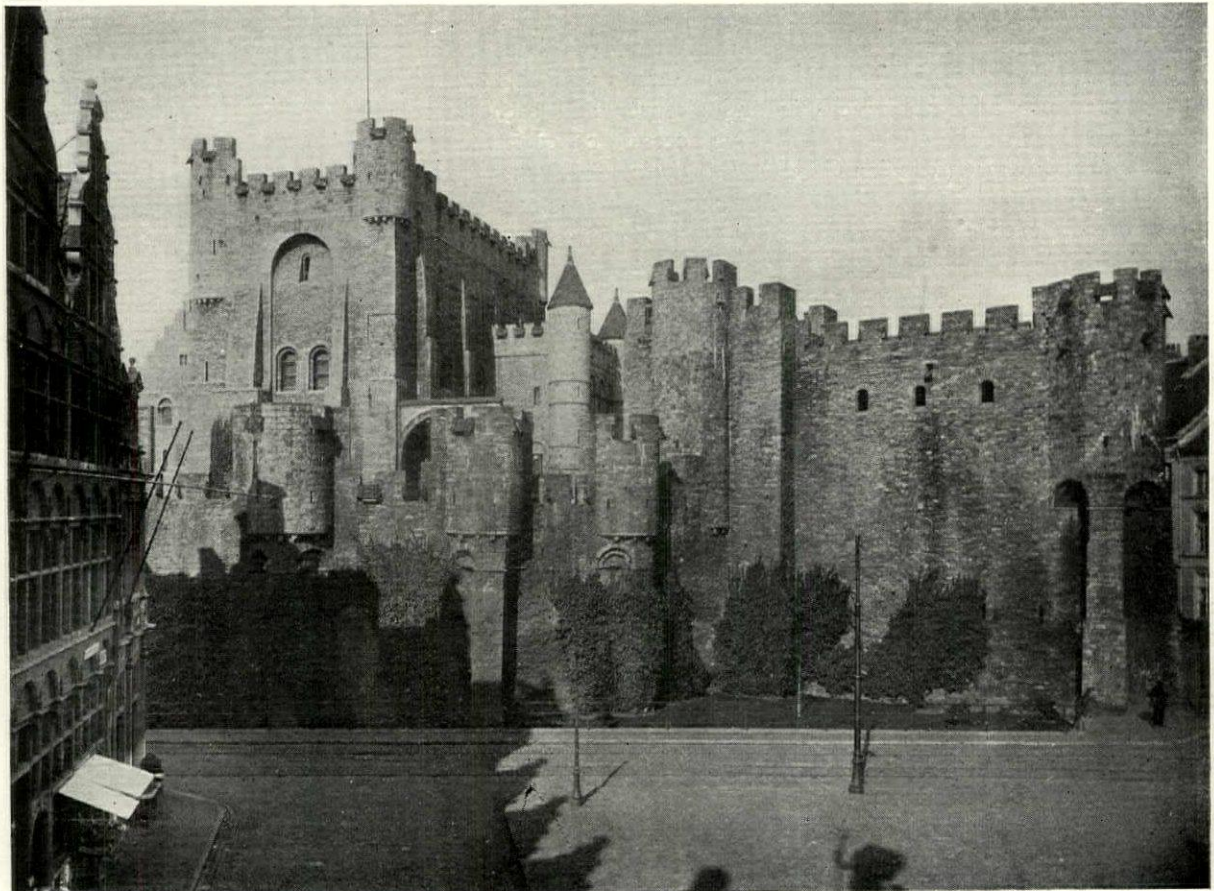
A really marvelous old town, in which the spirit of the past lives on. Filled as Ghent is with treasures, the marvel of marvels of all squares is the

Place Sainte Pharaïlde of Ghent,—Ghent of which Charles V said: "I would put Paris in my Glove (Gand). Gand, the French name for Ghent, is the same as the word for glove (gant). On this rectangular square of 37 by 55 meters, entirely enclosed by old buildings, is held one of the large vegetable markets of the city. The monumental gateway of the fish market is on one of the corners.

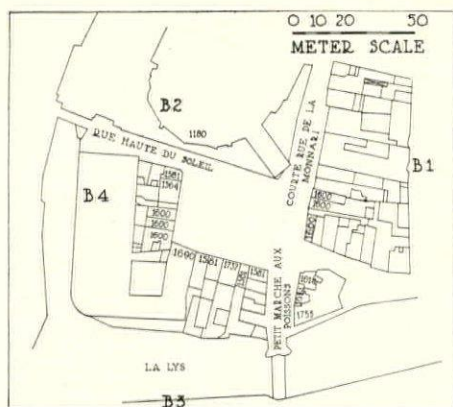
The square is well enclosed. The streets which end there do not make any gap in the series of facades which border it. They open in the corners of the square, and even when one is on a line with one of these arteries, the view is limited by its windings. The heavy traffic is on the north and east sides. A short distance is the

Haute Rue du Soleil (High Road of the Sun)—what a magnificent name! To the northwest there is a large bridge over the canal of the Lieve, and also in the *Rue Petit Marche aux Poissons* there is a large bridge over the river La Lys. A short way from the square, the *Rue Quai de la Grue* (Quay of the Crane) arrives at the Lys, which it then continues to border.

Here we have the arrangement of the sides of the square itself; first the north side, occupied



Castle of the Counts of Flanders, North Side, Place Pharaïlde, Ghent (B-2)



Plan, Place Pharaïlde, Ghent

entirely by the enclosing wall and the entrance *Chatelet* of the castle of the counts of Flanders, of a dark gray Tournai stone and a yellowish gray sandstone. Second, on the east side, houses of red brick and white stone. Third, on the south side, sixteenth century houses and the monumental gateway of the *Marche aux Poissons* of red brick and white stone and facades entirely of stone. Fourth, west side, houses of the sixteenth and seventeenth centuries, of the same type of construction.

I cannot enough thank the municipal administration of Ghent, which was so kind as to mark on the plan the date of construction of each building, all shops or inns of the purest Flemish style and form-



Photos and Plans, Courtesy City of Ghent

South Side, Place Pharaïlde, Ghent (B-3)

ing a striking contrast with the chateau to the north. An enclosed square of moderate dimensions, adapted for an active market, bordered on two sides by a river, one can imagine the magic aspect of this unique monument of civic art. The actual point from which each of the illustrations was made will be found indicated upon the plan.

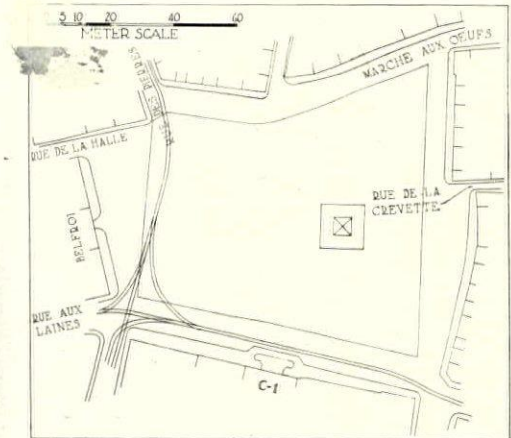
Certainly one couldn't apply that anathema hurled forth by Walt Whitman to all these squares: "There is nothing but thoughtlessness and reckless-



Sixteenth and Seventeenth Century Houses, West Side, Place Pharaïlde, Ghent (B-4)



Post Office and Governor's Palace, Bruges (C-1)



Courtesy, City of Bruges

Plan of Grand Place, Bruges

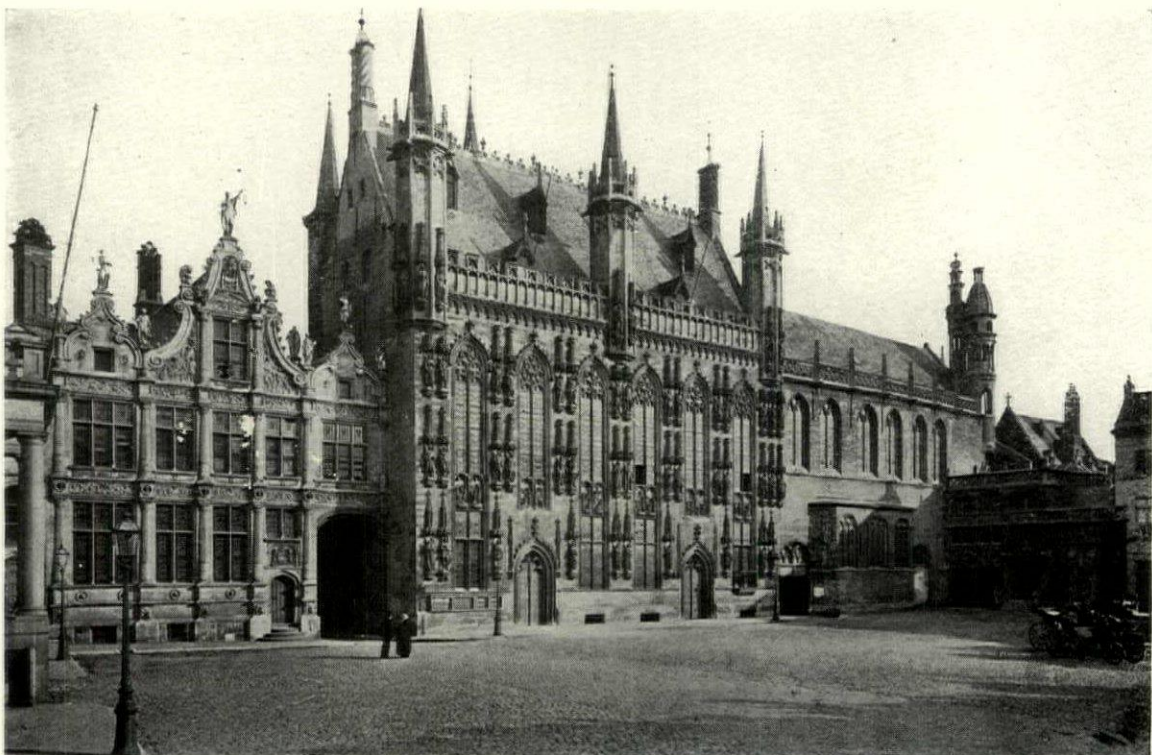
ness in the matter: the helplessness of people who don't live long enough to do a thing themselves, and have not manliness and foresight enough to begin the work and pass it on to those that shall come after them." No! To these we would apply rather the thoughts of M. le Baron de Montenach: "Formerly, towns were made, according to the quaint expression of an ancient chronicler, for the happiness of their inhabitants. The old towns were not perfect, but they were social." And how justly Mr. MacDonald saw things when he wrote me: "Our ancestors were masters in the art of grouping of buildings, obtaining development so that it does not have the air of an institution, which is so likely to

be the case when towns are planned in a wholesale manner, as so often happens. In things of the past, it is reasonable to seek to learn from the formation of cities of other days.

My thanks are due to *Le Syndicat d'initiative de Paris*, which is a real welcome league for Americans visiting Paris; to M. Francois, Chief Surveyor of Paris; to *Les Amis de Paris*, the president, M. Edmond Benoit-Levy, to his actual secretary, M. Maillard, noted historian of Paris; to M. Edmond Maurice Levy, curator of the *Arts et Metiers Library*. I must also acknowledge the co-operation of the *Syndicat d'initiative of Rouen*, *Les Amis de Strasbourg*, Mr. Georges Dubose of Rouen, the Information Official Bureau of Brussels, and more than of anyone else, of M. Libouton, director of the Belgian State Railroads.

Most grateful thanks are due to his Excellency, Governor Gregoire of the Liege province, to the mayors and city engineers of Rouen, Strasbourg, Brussels, Liege, Bruges, Mons, St. Nicolas, Furnes and Gand.

GEORGES BENOIT-LEVY.



Hotel de Ville and Palace of Justice, Place du Bourg, Bruges

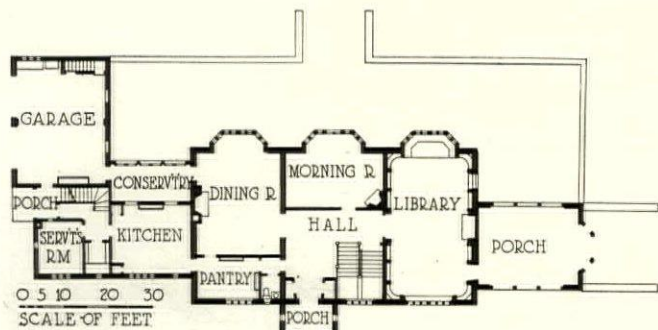


GARDEN FRONT
HOUSE OF HARRY C. BLACK, ESQ., GUILFORD, BALTIMORE
LAURENCE HALL FOWLER, ARCHITECT

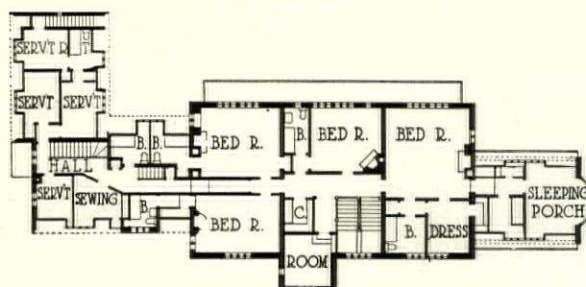
THE
LIBRARY OF THE
MUSEUM OF
COMPARATIVE ZOOLOGY
AT HARVARD UNIVERSITY
CAMBRIDGE, MASS.



DETAIL OF PORCH AND GABLE END



FIRST FLOOR PLAN



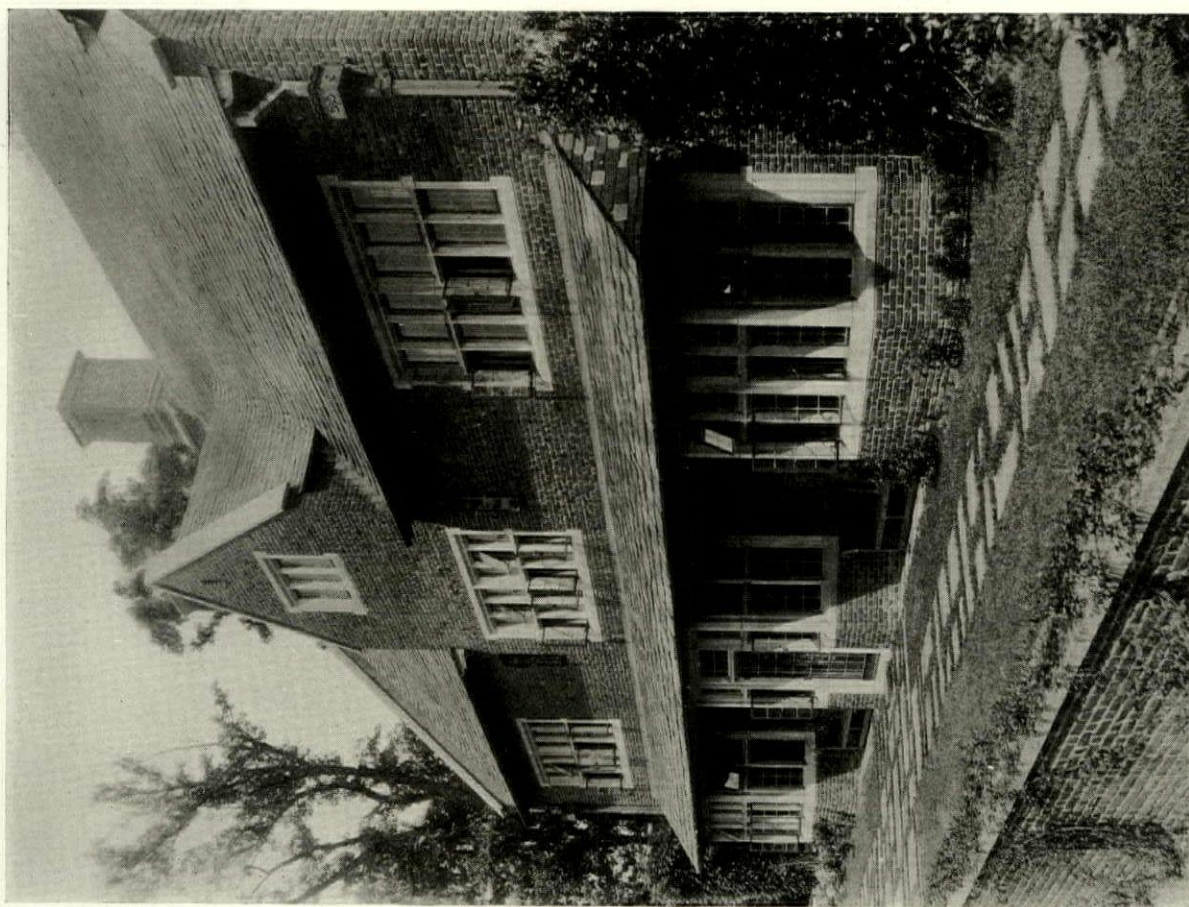
SECOND FLOOR PLAN

HOUSE OF HARRY C. BLACK, ESQ., GUILFORD, BALTIMORE

LAURENCE HALL FOWLER, ARCHITECT



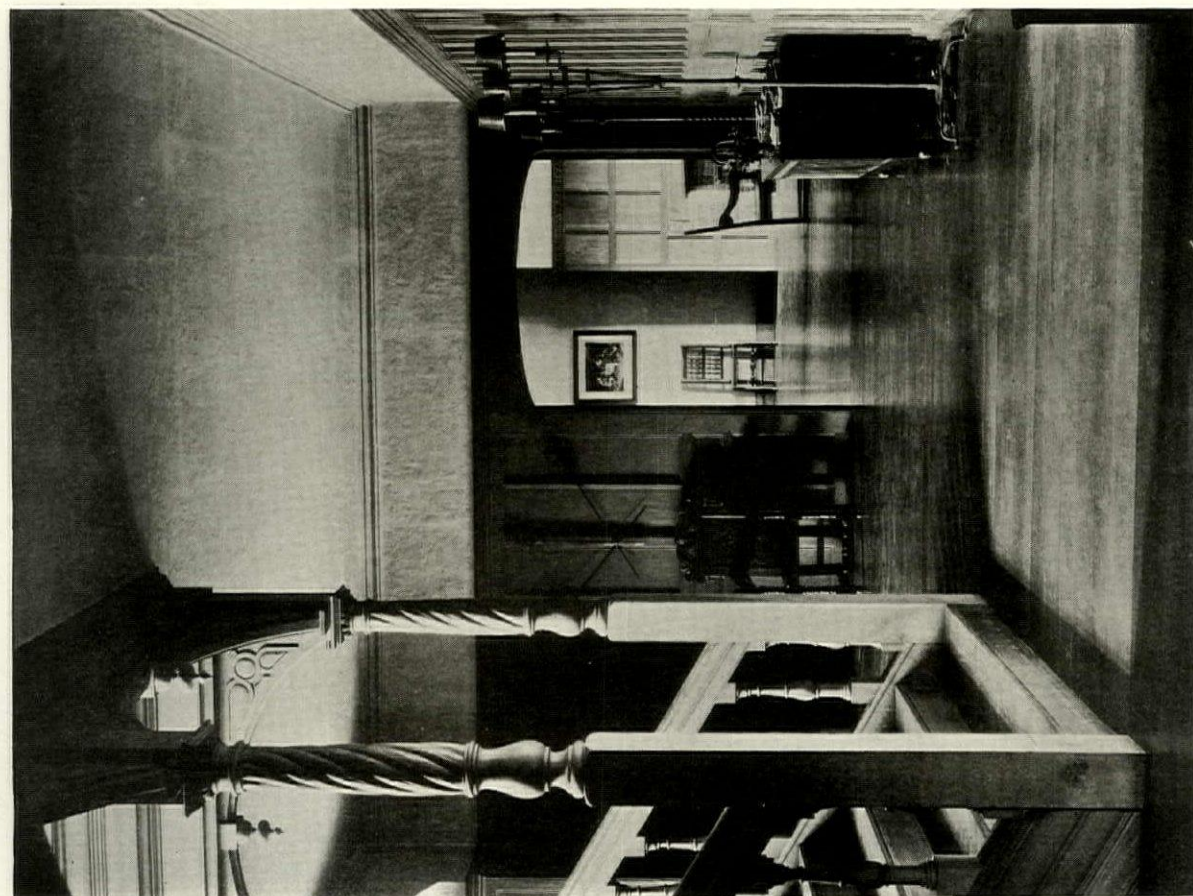
DETAIL OF ENTRANCE PORCH
HOUSE OF HARRY C. BLACK, ESQ., GUILFORD, BALTIMORE
LAURENCE HALL FOWLER, ARCHITECT



DETAIL OF GARDEN FRONT



TWO VIEWS OF DINING ROOM
HOUSE OF HARRY C. BLACK, ESQ., GUILFORD, BALTIMORE
LAURENCE HALL FOWLER, ARCHITECT



HALL AND STAIRCASE

HOUSE OF HARRY C. BLACK, ESQ., GUILFORD, BALTIMORE
LAURENCE HALL FOWLER, ARCHITECT



LIBRARY MANTEL

BUSINESS & FINANCE

C. Stanley Taylor, *Editor*

Publicity for the Architect

By HOWELL TAYLOR

AN intelligent plan for publicity, systematically carried out, will stabilize professional architectural practice and insure future commissions if the field of activity has been carefully analyzed and the publicity matter properly presented. "Nothing that insures future improvement can be safely overlooked. Especially when business is good steps be taken to keep it so. Back of it all is selling. Selling means telling. Advertising is telling. The advertising of yesterday and the day before helps make business good today. Today's advertising insures tomorrow's prosperity."

The publicity man who wrote this paragraph not only knew his own business but he suggested a point of view which has established the motivating force for success in many important commercial efforts.

Professional men have been brought up to decry the use of advertising, although they have accepted the desirability of publicity, whereas if we define publicity as any agency intended to keep the name and activity of a firm before the field of prospective clients, and realize that "back of every sale, whether the item be overcoat, automobile, or architectural service, the customer's mind must be brought to the buying point," it is evident that some form of advertising must be used in order to continue in practice. In some way the client's attention must be called to the professional service offered, and he must be convinced that he will benefit by it. However this be done, whether by published statements in magazines, by letters, by personal salesmen, or by chance word of mouth, it is all advertising, and the manufacturer or professional man who says he does not believe in advertising has not analyzed the basic principles of selling. He would not be selling his product if he did not advertise. Every bona fide, successful sale of any article or service must be preceded by advertising. It may not be specifically directed at a particular product, but it is always present. Advertising is only the education of prospective buyers, and the sooner architects begin using some systematic plan for educating their clients the less clamor will be heard concerning the instability of professional practice. Systematic publicity is business insurance; how it is produced matters little. Certain forms of publicity are more desirable for one business than for another, but publicity must be created if a steady flow of contracts is to continue. Working out a definite program for publicity has

not become common among architects, however, and they have followed the hit-or-miss method of merely accepting the commissions which come to them without making any definite or systematic effort to encourage the receiving of commissions. This has always been due to the aversion of architects to anything which might suggest the "unprofessional." Now, however, a much broader view is being accepted by architects, for success in any line of effort today is based upon clear thinking and logical reasoning, and the professional man who deals with commercial elements is now realizing that the legitimate principles of business apply also to his activities.

Modern industry never attempts to sell its products without some definite advertising and selling plan which has been carefully conceived and is consistently developed. Business men are accustomed to and expect a straightforward presentation of facts in entering upon any project, and modern salesmanship has so standardized the businesslike presentation of commodities that deviation from accepted methods is looked upon askance.

It has been a matter of general public belief that architects are poor business men. In the profession itself it is conceded that the successful firm must be made up of at least two distinct types of men—the business-getter and the dreamer. This idea must be changed, however, if architects expect to compete with engineering corporations and other agencies which are rapidly usurping the architect's place. To compete with the modern engineer, to be able to talk to the business man intelligently—and it must be realized that the great bulk of the dealings of architects are with the business and not with the artistic world—architects must assume the rôle of commercial scientists, however distasteful it may be to many of them, and must talk to the layman in language which he understands if they expect to win his confidence. Architecture needs a salesman. It needs to be "sold" to the public on a basis of "profit to you." The man in the street must be convinced that architects can give him real service. It must be proved to him that the carefully trained architect is not an expensive luxury.

Through analytical thinking in the business world, there has come the demand for a building service which simulates the efficiently conducted processes of modern industry, and one of the most serious

problems which now confronts the architect, namely, that of competition with the engineering corporations, has been caused by the members of the profession refusing to accept fully the responsibility of the business aspects of building.

The public—the business man, the average potential client—is in the habit of accepting things as they are done in the commercial way. He is giving little or no thought to what does or does not exist as a custom or practice in the professions. He wants a building. He has seen the names and advertised abilities of numerous contracting or engineering corporations. Finally news of his desire spreads, and he is called upon personally by trained salesmen who can give him real cost figures and who are openly competing with each other for the job. Unless this potential client has happened to have some special connection with architects and knows the quality and kind of service able architects are equipped to render, he accepts readily enough the practical offer of their competitors. It is safe to say that this incident happens daily many times in a score of cities. Engineering and contracting corporations are simply meeting an average problem of merchandising in the usual commercial way, and their customers expect it. As a result, architects lose business because they do not meet this competition.

Incidentally let it be understood that this is not a plea for getting the architect involved in extensive advertising campaigns intended to promote the growth of his practice, nor is it a suggestion that he make use of "billboard broadsides" or "double-page spreads" in the magazines and newspapers or any activity approaching such a lapse from professional dignity, but it is an attempt to urge a much freer and more systematic use of the subtle avenues of publicity as a fixed policy.

Barring great underlying causes for economic change, such as we have seen during the world war, there is no reason why the demand for an architect's service cannot be stabilized and be made to show a normal increase from year to year just as with any other business, but it is no more logical for an architect to go about presenting his case to prospective or potential clients without a carefully developed plan of publicity than it would be to lay out an extensive building project for a growing institution and provide for no future expansion. There must be a plan of action which can only be determined by a careful study of the field in which it is desired to work. No sporadic bursts of advertising activity ever arrive anywhere; they are costly and seldom mean anything to the user other than a firm disbelief in all advertising. To be useful and successful, a careful program of publicity must be drawn up after a thorough survey of the field in which activity is practicable.

Architecture is not a business, but it is so indissolubly linked with business in all its phases that its problem cannot be considered professional in the

light that lawyers and doctors consider theirs as professional. The professional problems of the architect are economic and commercial and must be recognized as such. The attempt to keep the "cloak of professionalism" tightly drawn about his shoulders has shut out the architect from the place in the community which he should be occupying. The fact that so small a percentage of the total volume of building is designed and built by architects is significant proof of this fact.

In selling his service to the client, the successful architect must study the client's point of view. He must anticipate a client's demands and be able to present convincing proof of the value of architectural service. Let us examine the mental process of an average prospective client. We may safely assume that he is a business man. His impulse to build is set in motion by commercial needs or the desire to improve some condition. He asks himself what kind of building he wants. He thinks in terms of what he has seen, of what he is reading, and of what his associates tell him. He reads two or three trade magazines relative to his business, one or two class magazines and perhaps one general magazine; he will glance through a striking monograph sent to him through the mail; personal letters addressed to him will usually receive answers, and he will generally accept personal calls relating to anything in which he is really interested.

The details of large building operations come into the experience of the average prospect but seldom—once or twice in a lifetime perhaps. When his building problem does present itself, the degree of its importance is considerably exaggerated. He has always supposed that he knew a lot about so simple a thing as building, but he finds he is confronted by something very complex. He knows in a general sort of way that architects plan buildings. He has heard that some are good and others bad. He knows that there are building corporations which keep within cost estimates and take complete charge of details. He discovers that he must investigate the situation very carefully, but finds that he first wants to know what has been done in the field which interests him. Here then is offered an excellent point of contact for the architect, and it is up to him to make the most of it. The client's attention can be gained not by explaining what good architects they are, but by presenting very graphic descriptions of buildings which interest him in media that he cannot help but see, making careful mention of certain important solutions and the architect's connection with them.

Were the public generally "sold" on the idea of hiring an architect for its building operations, as it is on the idea of engaging a lawyer to fight its legal battles, perhaps no concessions to the modern business point of view would be necessary on the part of the architect; but it is not, and the problem resolves itself then into one of expediency. It is not a question of "Shall we advertise?" but "How shall

we advertise?" How shall we educate our potential clients to the point of buying our services?—for when a definite point of contact is determined, it becomes a simple matter to present the worthwhile facts concerning an architectural office which will prove to the client the reasons why he should select this or that practitioner.

Some means must be found of catching a client's interest, but no statements concerning the quality of any architect's service will do this unless he has actually arrived at a point where he is ready to select his architect. More often than not the process of his education regarding the building he wants has been so closely associated with his observations about architects that his mind (on selection) is made up before he realizes it. Often, however, the old story about the early bird holds good; in other words, the architect who goes after the business in terms that a client expects to hear, commenting here and there on the way his office would handle certain problems, will find that he is selling his services.

A client's first impulse, when his building problem presents itself, is to set in motion some sort of investigation which will give him a fairly complete idea of what has been done in the field where his interest lies and what is the general trend in similar buildings under construction. The alert architect must sense this impulse and be prepared to meet it in a way that the client understands. For example, glance through the advertising pages of any newspaper or magazine and you will find that except in the case of well-established houses which are now doing "institutional" advertising, every commodity is presented with a "service to you" idea. It must be clearly held in mind that the average client cares little who his architect is if he gets what he wants.

In the automobile field the day has come when the name of a car is sufficient guarantee of its quality. In a measure and among a few broad gauged people the same is true in architecture, but the rank and file of the average prospective clients do not know one architect from another except in a very general way. In fact among a large majority of people the word "architect" means an expensive luxury that must be avoided by practical people. To become so well known that the mention of the name suggests the quality and nature of a service is most desirable, of course, but is only possible through years of carefully planned publicity. Word of mouth advertising is the best sort always, but its scope is very limited, and it seldom builds up a broad field of activity.

The architect must meet his selling problem at an earlier stage in the mental process of his client than he has been doing, and the means of accomplishing this deserves the most careful study. The first step in determining a logical plan of publicity is a survey of the fields of building construction that are being covered. The questions must be asked, "Just who are my clients?" and "Why am I equipped to handle their building problems?" A consideration of the

training and personal equipment of an architect's office will often reveal a broader field of activity than is at first realized. For instance, hotels, hospitals, apartment houses and institutional housing projects are closely allied architectural problems although widely different types of building from the users' points of view, and prospective clients should be sought by wholly different methods.

The next step is the determination of the most natural means of directing the attention of the prospective client to the architect's service without forcing him to a consideration of selecting an architect before he is ready to do so. At this time the news columns of trade magazines offer the best means of general publicity for the architect. Trade and class magazine editors will be glad to receive well written material on many subjects of interest to their readers. Many of the buildings which an architect constructs can be made the basis of descriptive articles and interviews which should be published over as long a period as possible. Such articles should always contain items of human interest, statements by owners, etc. A careful study of the trade and class magazines will determine the type of material each most readily prints. Another good source of publicity lies in the intelligent use of newspaper reports. When an important project is being launched or a building started or completed, careful reports should be prepared in the architect's office. Newspaper reporting has become such a standardized process, and newspapers are so accustomed to receiving usable material from the scores of press bureaus maintained by as many organizations, that often the less important projects go unnoticed if the story has to be sought out laboriously by staff reporters.

Architects should study news writing and prepare brief descriptions of new buildings, incorporating items of general interest whenever possible. If identical copies are sent with good photographs to all newspapers within a radius of 200 miles of the buildings, it is likely that a majority of the papers will publish them. They should be marked for release on a certain date several days in advance of the mailing to insure simultaneous appearance if the papers' editors desire. If 12-em (one-column) or 24-em (two-column) electrotyped cuts or mats of 65-line screen can be sent instead of photographs, publication will be more certain.

All such articles should be reprinted in quantities and mailed to prospective clients whenever they provide matter of direct interest to someone. These should always be accompanied by a brief but well written letter calling attention to a specific point of the architect's service which applies particularly to the proposed new work.

Under a well-conceived plan of publicity, carefully prepared loose-leaf monographs are of great value, for they can be kept up to date and used in giving clients a comprehensive survey of the fields in which they are interested. These monographs

should include the work of other architects, and should give the prospective client as broad and unbiased a concept of the general type of building he proposes to construct as can be had. If the architect has kept in touch with the industrial development of the community in which he is practicing, he should be able to anticipate the needs of a large majority of the industrial and philanthropical institutions, and be able to use these monographs in establishing a contact with prospective clients whom he believes are in the market for additional building.

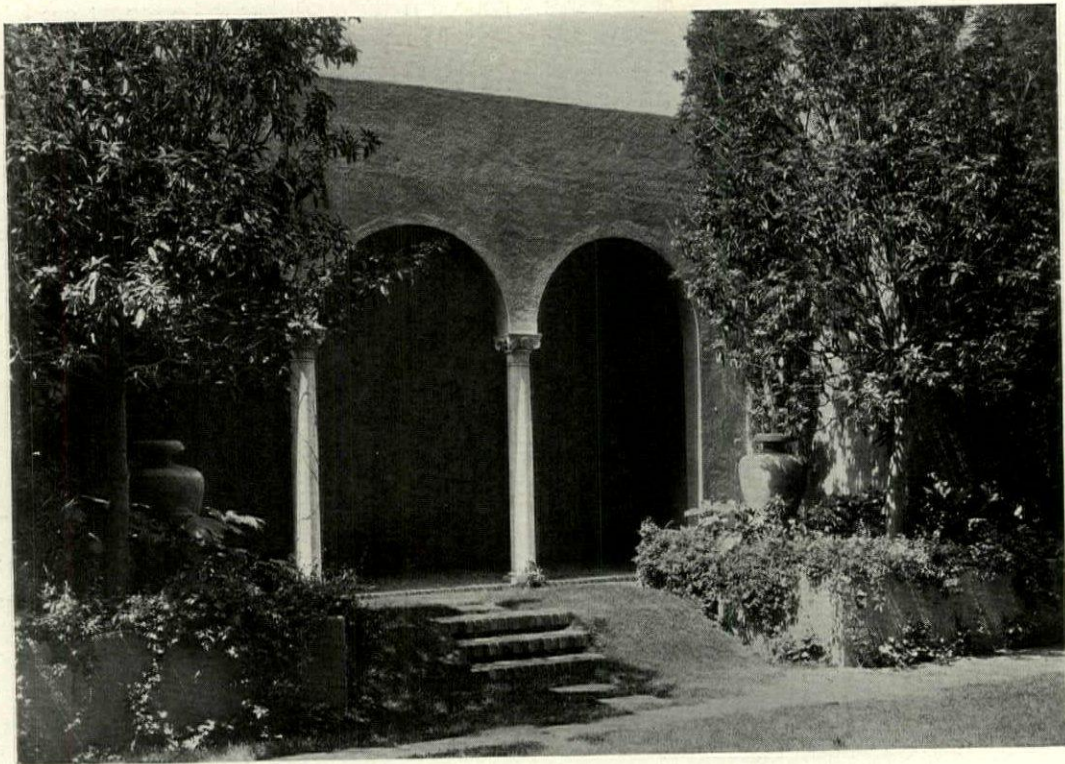
The most should be made of executed commissions in the smaller communities. No member of any board or building committee with which an architect has had a connection should be allowed to forget the fact that a certain architect performed a certain work. They are often members of other boards, and are generally prominent business men. The full scope of the architect's practice should be brought to their attention.

Encourage the men of the staff to bring in new work. Do not forget that every man, however humble may be his part in the organization, may have connections through which publicity can be obtained and lead to valuable commissions. Besides, keeping the man's interest in the office will introduce new clients to its service. Some of the work from this source may be small, and for larger offices will just about pay for the cost of producing drawings, but a new client is always an asset, and if the architect builds a \$10,000 house successfully, the client is likely to come back with a \$500,000 factory some day, or school building or church or hospital. Architects now make a practice of doing

the minor work of clients who have come to them for important commissions. Why not reverse the process? Take the small jobs first, and trust that the client will become influential in other large building projects later.

In all these suggestions the attempt has been made to include but a few of the important elements which an architect may use in laying out his plan of publicity. There is no set rule. Each office will have to determine for itself what specific items will best promote its growth and keep its name before the larger number of potential clients. One thing is important to consider,—no plan of publicity, however carefully it is laid out, is apt to bring immediate results. If an architect expects that his advertising and selling effort, which is established as a new and aggressive policy, will bring him tangible results within a few months, he will be disappointed, for his efforts will probably go unrewarded for a year or more. Such a condition should not discourage the use of a logical plan, however, for it has been the experience of many other concerns that are now firm believers in advertising.

"What does the advertising dollar buy?" It buys insurance for the future of the user's business. It buys the necessity of careful codification of the purposes and policies of the firm. It buys the respect of the modern business world, if done honestly, as well as the respect of every member of the firm's staff. Many users have found advertising to be the panacea for all the ills of organization and selling. It is not unreasonable to believe that a more general use of carefully planned publicity by architects will produce similar results.



Garden House, Roof Garden, University Club Building, Los Angeles
Allison & Allison, Architects

The Influence of the Empire Style

GENERAL CHARACTERISTICS

By AMELIA MUIR BALDWIN, *Interior Decorator*

PART I

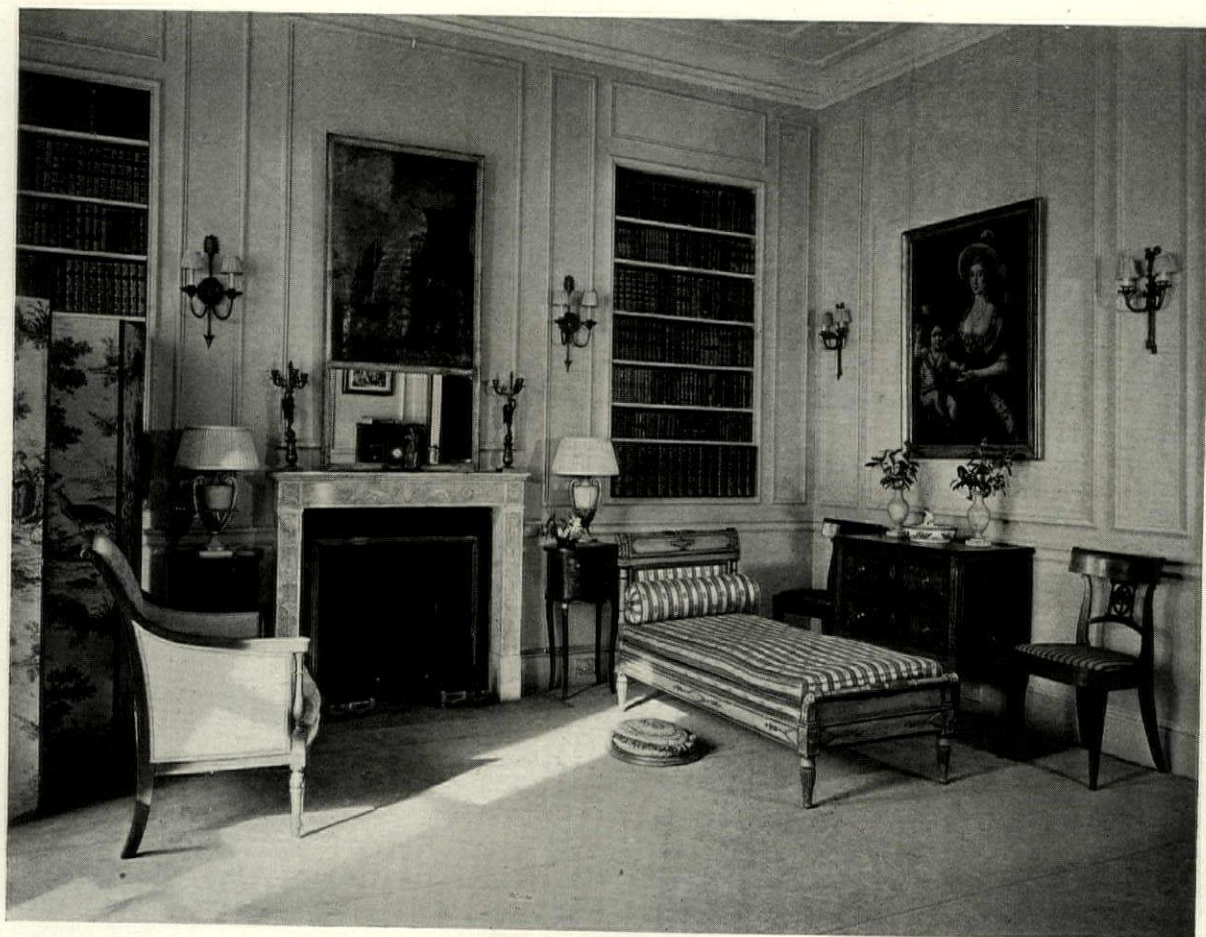
DURING the brief period of Napoleon's triumphs a style of decoration developed in France which strongly influenced contemporary designers in other European countries and in America; and quite recently, beginning about one hundred years after it first flourished, a revival has taken place, so that we frequently see modern rooms done in the empire style—of the French, Italian or American versions—or with empire influence.

The style was formed by two architects, Percier and Fontaine, who worked together from the time they met at the school of Peyre, the younger, in Paris in 1779 until Percier's death in 1838, Fontaine continuing until he died in 1853. After six years of study in Paris they went to Rome and later, during the revolution, to England. Equipped with this long training and steeped in the classic reaction of the time, their great opportunity came when the painter David introduced Fontaine to Napoleon, then first consul, and they received the commission to redecorate the country house of Malmaison.

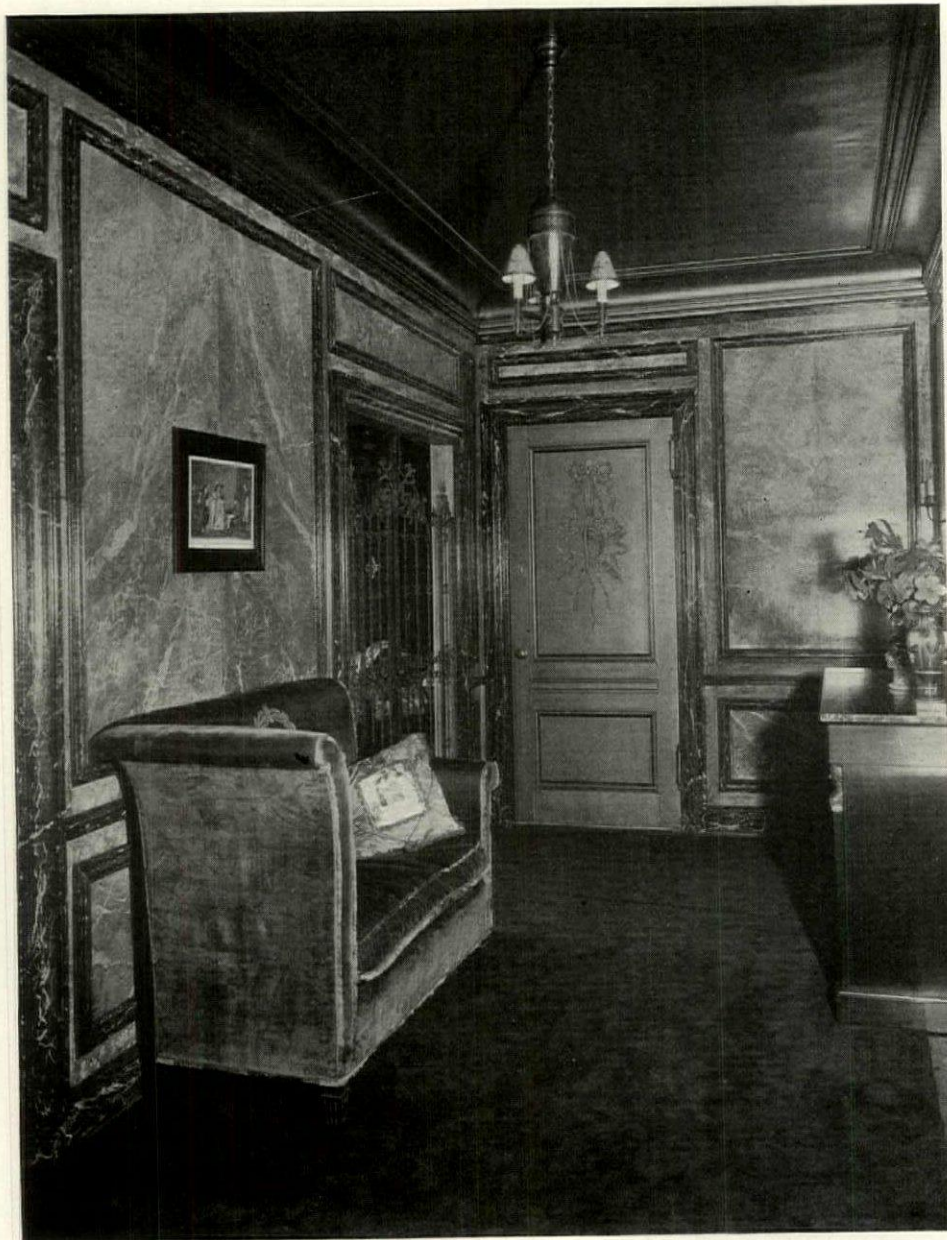
This beautiful home of the Empress Josephine was completely furnished in the new manner; paneled walls were painted with floating Pompeian figures or with a small motive of vase or lyre in the center of a large space, which was supported by a plain dado of simple and narrow projections. Desks and tables and chairs showed their direct derivation from ancient models, and the fine bronze work in lamps, furniture decorations and necessary hardware was severely classic in feeling.

It was the result of a fresh view of the classic styles and appeared as a swift dramatic change from eighteenth century decoration with only a very little transitional feeling in the Louis XVI and directoire periods. The classic revival began under Louis XVI, but the graceful style of that time had none of the precision and stoicism which came with the empire.

As Napoleon progressed in power Percier and Fontaine were called upon to furnish libraries and bedrooms and to set up thrones in various existing



Morning Room with Empire and Directoire Furnishings
Fakes, Bisbee & Robertson, Inc., Decorators



Hallway with Marbleized Walls and Woodwork
Chandler W. Ireland, Decorator

palaces. The dramatic quality of his career is especially felt in the salon of Louis XIII at Fontainebleau. The original elaborately carved dado remains, but above it a plain velvet hanging with narrow border decoration covers three walls and forms a background for the standards emblematic of victory which support the canopy, and the round-backed throne chair with the N in a wreath of laurel. It is a strong decorative treatment, expressive of self-control as well as mastery over others and a grasp of affairs. In contrast to it the remaining wall of the room, with the portrait of Louis XIII in the overmantel and every space thick with ornament, seems hopelessly self-indulgent and ineffectual.

Within a very few years it has been customary with us to praise the French eighteenth century styles, especially that of Louis XVI, and to shrug

the shoulders when French empire was mentioned. In this connection it is interesting to read the views of Percier and Fontaine as set forth in the preface to their "Recueil de Decoration," published in 1801 and reprinted in 1812. They say that "the eighteenth century is known by its bad taste," and they feel that in their work they have preserved the principles of taste as found in antiquity in a unity of truth, simplicity and beauty, which are most acceptable to a people tired of the innovations of two centuries. They have sought to revive the simplicity of the antique, "in fact the most antique, the Greek." They speak of the recent discovery of a great number of Doric temples, which has produced a sort of revolution in art, so that "Greek taste has become the mode."

The furnishings of the houses of Herculaneum and Pompeii, all in imitation of the Greek, with pure and simple lines and correct proportions, are serving as models for the French work which is replacing the irregular contours of the

previous century. These villages, "Greek in origin, carried on the usages of the Greeks," and engravings of "the multiplicity of objects of art and taste" found there are being used in all the ateliers of the industrial arts in France. These articles show "nuances of style and delicacies of ornament which are more Greek than Roman."

In parts of this preface Percier and Fontaine sound extremely modern. Their method of approach is the same which we use today—the study of ancient models and the conscious adaptation of them to our needs, with the hope of retaining something of their spirit and expression. Theirs was the age of the beginning of historical imagination. French actors playing classic parts were wearing red heels when David undertook to design correct costumes for them. Percier and Fontaine rail against anarchy and caprice in decoration, and ob-

serve that the same spirit exists in all the works of the ancients—"the largest and the smallest, in the temple and the vase of clay." They point out the intimate relation between construction and decoration, and speak of the influence of material and method on design. As an apt illustration they say that the gilded porcelain vases of the previous century were bad, "because this material has not the finesse of precious gold."

Every age which admires the classic styles gets out of them as much as it is capable of appreciating in feeling; and it is interesting in this connection to compare the work of Percier and Fontaine with that of Robert and James Adam, who were also inspired by the discoveries in *Herculaneum* and *Pompeii*. The French style is richer and more precise, partly because it is French and not English; but doubtless also because at that time the French people especially desired that pomp and order should replace the chaotic conditions which followed the revolution. It was a timely expression of their mood and a fitting vehicle for Napoleon's dreams of empire. What style could better suit his ambitions than the symbols of the *Cæsars* arranged with military precision?

The spell which Napoleon cast over his world was responsible for much of the immediate influence of empire decoration in other countries; but at the present time, as we are no longer moved by this particular form of hero worship, we must look for other expressions than those of military victory, if we are to make the style our own. When, however, we discard everything in it which is directly emblematic of the glory of Napoleon and the empire—the N, the bee, the palm, the laurel wreath, the Roman chariot, the Egyptian figures, the trophies and the ermine—we find that we still have the style. It is a distinctive and extremely decorative rendering of classic forms, in which the realism of the

late eighteenth century is replaced by highly conventionalized ornament, applied structurally, with strong contrasts in color and proportion. It has not only order, but moderation as well, and balances strength with delicacy and richness with restraint. It shows the consistency in details which we consider typical of the French, every smallest piece of hardware bearing the imprint of the period, and all the furniture, even to the embroidery frame, being specially designed in the style.

Certain colors belong to the period, and they are combined to get all the effect of contrast possible—as in black and white marble floors, brass ornaments on mahogany furniture, deep blue and gold damask, yellow medallions on a violet satin ground, and delicate green, medium blue and rose on the pale gold ground of a *toile de Jouy*. This style is not one with the emotional effect of indefinite or blended



An Empire Mantel of Red Lacquer and Marbleizing
Chandler W. Ireland, Decorator

colors; everything is quite distinct and clear, with no sense of illusion, as if in the bright light of intellectuality.

Another important characteristic is the contrast in proportion made by the use of large rest spaces in the plain surfaces of marble, wood and fabric, with small scale ornament in medallions and narrow band borders. Straight lines are more frequent than curved, and for that reason the simple vase form of a pedestal table and the curves of an X-shaped stool stand out effectively in contrast to tables and cabinets and sofas which follow the structural lines of the room. In textures there is harmony rather than contrast, none of them being very rough and many quite smooth and glossy. The silks and velvets, and polished marbles and woods give unity and richness to the style. The classic ornament of rinceaus, arabesques, and grotesques in panels, borders and medallions, have thin delicate lines and slight projections in accordance with the precepts of the "Recueil." The lyre, vase and dolphin appear in simplified drawing which makes them all the more decorative; the swan's neck, ram's head, horn of plenty and eagle are familiar to us through their somewhat heavier forms in American empire work.

If we feel the style sufficiently, it is not difficult to use it creatively at the present time to make some-

thing delicately French or in the more substantial feeling of the American empire; or we can harmonize the two manners and use the furnishings of both. The style is well suited to city houses and apartments, where plain spaces in walls, furniture or rugs give the restful sense we need, and the general air of sophistication and commanding efficiency is in accord with the life of our day. This absence of naivete is everywhere felt, even in the upholstery of the period; pillows are never of soft feathers, but of hair and boxed, and the chairs in Josephine's bedroom at Malmaison have the trimmest outlines which are possible to a skilled workman.

We might adopt the style as an expression of the beauties which reside in efficiency, if only we know how to find them there.

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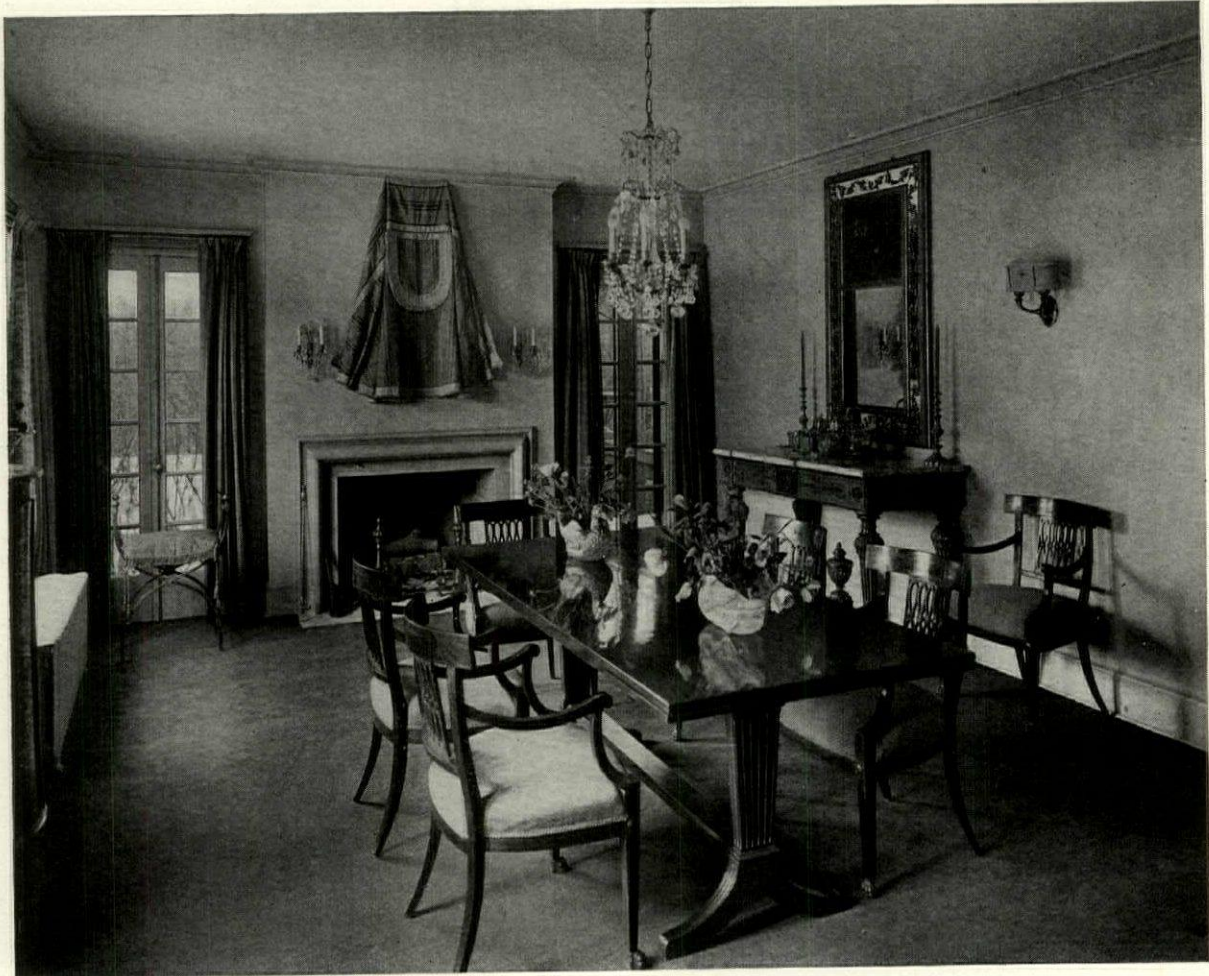
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Le style empire.



A Dining Room Arranged in the Empire Style
Miss Cheen, Inc., Decorators

Plate Description

UNIVERSITY CLUB, LOS ANGELES. Plates 57-64. In the development of this building, of which Allison & Allison are the architects, there has been careful and skillful handling of opportunities for architectural expression which were unusual. The structure occupies a plot of considerable area, part of which is occupied by the club's garage, a one-story building, the flat roof of which, at the level of the main floor of the club, has been developed partly as a terrace or roof garden and partly as courts for squash and handball. The placing of this one-story structure at the south side of the property has made possible a southern exposure for all the principal rooms of the building.

The design of the building shows an appropriate use of materials which are quite simple, the modified Spanish style lending itself well to development in concrete. About the principal entrance and across the lower part of the facade use has been made of cast stone as ornament or facing, but the greater part of the building is of concrete covered with only a slight coating of plaster which does not conceal the marks of the forms which in the broad, well-proportioned surfaces of the walls produce a certain texture. The high-pitched, steeply gabled roof which is so valuable from a standpoint of design contains all the roof equipment—the tanks, motors and other utilities which so often disfigure a building, and the chimneys and stair and elevator towers have been so handled that each performs a part in creating architectural character.

But the full excellence of this notable work is hardly realized until the restrained and thoughtful development of the interior is seen. Like a hotel a club offers an opportunity for the use of gorgeousness upon a lavish scale, a temptation which is not often resisted. Here, while no provision for the comfort which should characterize a club's home has been overlooked, there has been consistent use of those traditional forms, Spanish or Italian, which carry out the spirit expressed by the exterior of the building. The interior shows, therefore, an admirable use of ornament in connection with plain surfaces, luxurious yet restrained, and in no way suggesting that primitive austerity which comes to the minds of many when these Latin architectural styles are mentioned. The same excellent taste which directed the use of interior ornament in the club evidently supervised the designing of the furniture and other accessories which do so much in carrying out the spirit of the building. The furniture, which adheres to consistent use of Spanish or Italian models, was specially designed and made, and the same is true of the lighting fixtures, wrought iron excepting in the main dining room. Even the marked-off cement floors are beautiful and remarkably full of character. All this work was done by Los Angeles craftsmen, which adds to its interest.

BUILDING FOR CRANE, LIMITED, MONTREAL. Plates 65-67. This structure was built for use as salesrooms, stock rooms and executive offices for the Canadian branch of this large manufacturing concern and supplements an extensive plant in the environs of Montreal. The interesting appearance of the building, of which Hugh Vallance is architect, is due to a large extent to the peculiarity of its site, for it is situated at the point where a street widens out into Beaver Hall square. This irregularity of frontage seemed at first likely to create considerable difficulty in securing satisfactory architectural elevations, but in working out the design it led to the development of a treatment which is unusual and which adds materially to the attractiveness of the building as seen from the little square.

The structures which face Beaver Hall square, which is in the heart of an old part of Montreal, are of moderate height and built of local limestone. It was thought desirable that this structure for Crane, Limited, should fit into the locality without creating a jarring, discordant note, and excessive height was avoided, while use was made of the same limestone of which the fronts of the older buildings are made. The highly satisfying architecture of the structure is rendered even more pleasing by the use upon window trim and elsewhere of a gray-green color which contrasts well with the limestone of the walls.

The building is fireproof and has steel columns and floor beams. Local limestone, as already said, has been used for the exterior walls, base and steps being of granite. Windows are chiefly steel casements with plate glass. With the exception of a small terrace which is laid with tile the roofs are of 5-ply roofing with flashings of copper. Floor loads differ considerably, according to the uses for which various portions of the building were intended, from 60 pounds per square foot for the office section to 150 pounds for the display rooms, and from 300 to 500 pounds for the stock rooms. Heating is provided from a low-pressure steam equipment.

In keeping with its unusual and distinguished exterior the interior has been finished with considerable care. The floors of the lower story and the stock room floor are of concrete on steel beams. Finish floors of travertine are laid in the entrance lobby, the main floor and the principal display rooms. For minor display rooms, halls and offices use has been made of cement floors covered with a specially prepared finish with marble cove and base. Vestibule screens, elevator doors and frames are of bronze. Walls and ceilings are painted throughout, the chief display rooms and certain of the bath-rooms having dadoes of tile. The contract for the building was placed in October, 1921, and the structure cost, without furnishing, \$305,800, or about 68 cents per cubic foot.

EDITORIAL COMMENT

VOLUNTARY ARCHITECTURAL CENSORSHIP

AS one passes through our rapidly growing American cities, where the hand of the speculative builder is so much in evidence, a wish often comes to mind that some method could be devised for preventing the erection of monstrosities that destroy the natural beauty of suburban areas and offset the value of such well designed buildings as may exist.

In various cities architects have given thought to the problem, but without any mandatory powers little has been accomplished; in a few cases the loaning interests have been appealed to and the attempt made to induce them to recognize the greater financial security resting in a well planned and designed building; the effects are not continuing, however, because the traditional use of bonuses and other emoluments in times when funds are in demand places the emphasis on purely business considerations, and æsthetic principles are lost.

In all matters of this kind the simplest plan by which the co-operation of the direct factors can be assured is the best. In Washington such a plan has been put into practical effect, and its success points the way to the accomplishment of similar results in other cities. Washington is unique among American cities because of its being the capital city, with the interest of all Americans in its development; it is also an indication of our general culture to great numbers of foreign governmental visitors who often do not see other cities so intimately. It is likewise unique in having its development placed in the care of congress, and in common with much other congressional action there is criticism to be made of the results and methods.

A history of the development of Washington shows a roster of names of architects who have been leaders in the profession; their time and talents have been freely given to the nation's capital, and as a result of their labors Washington has a fine arts commission that supervises a great park system and public building program. These plans are admirable in scheme, but deficient in execution because of congressional handicap; there has been no broad plan of street development nor any control of private building that links up the work of the commission with the general development of the city, and as a result thousands of acres of beautiful rolling and wooded country into which the city has grown have been reduced to ugly wastes through the unintelligent work of the speculator.

With the thought that there was still time to prevent further spoliation, the Washington chapter of the American Institute of Architects appointed an

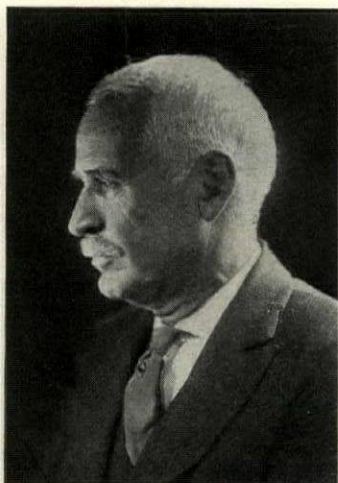
investigating committee in July, 1922, to report on the possibilities of rendering assistance in the development and beautification of the city. Two possible lines of action were proposed: First, the need of restudying the plan for the extension of the business and residential streets to minimize large grading operations with destruction of existing landscapes. Second, the need of some advisory body to extend æsthetic supervision to private buildings.

At the start it was determined to make of the work a non-organization matter, and accordingly all architects of Washington were invited to co-operate in evolving the necessary machinery for putting the scheme into operation. They were asked to nominate men for two different services—the younger men, who had certain free time to give to the varied details in co-ordinating the building interests and interesting the public in the movement, and the older men of established ability and reputation as jurors.

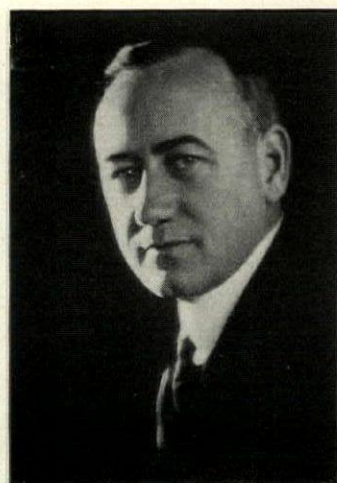
The proposal met with general favor among the architects, and there was formed a directing organization known as the Architects' Advisory Council. All of the service has been rendered gratuitously, and the work divided among a number of architects so that the burden has not fallen on a few.

The council enlisted the aid of the building department of Washington and secured from the commissioner an order that all plans filed for permits should be submitted to the architects' jury for approval before issuance of permits. This has made it possible to bring the plans for every private building before the jury for review. The examination of plans is done in a meeting called as the drawings come from the building department, so that no delay is caused. The members of the profession have shown a very generous spirit of co-operation, and their plans are often submitted to the jury before they are beyond the study stage. The recommendations of the jury are not in any sense mandatory, but in the great majority of cases are graciously accepted. It is, of course, not so much with established architects' work that the betterment is needed as it is with the product of the speculative builder and the young, inexperienced architects. The council in its short term of existence has been able to eliminate the atrocious perversions of the orders which the speculative builder is so fond of perpetrating; the false pediment with metal tiles and other mockeries of architecture have been likewise relegated to the scrap-heap. The change for the better is already noticeable, and it is due entirely to the public spirited, self-sacrificing labor of architects. This same spirit prevails in other cities, and with the Washington example before us, it is our hope that architects generally will go and do likewise.

THE Editors of THE ARCHITECTURAL FORUM take this opportunity to express to each member of the Editorial Advisory Committee and to each editorial contributor their sincere appreciation for the valuable co-operation extended during the preparation of this Hotel Reference Number. This background of practical experience has enabled us to present a treatise which will prove of enduring value.



E. M. Statler



J. Leslie Kincaid

EDITORIAL FOREWORD

IT is a source of gratification to us to present to the architectural profession this Hotel Reference Number of THE ARCHITECTURAL FORUM, the largest single issue of an architectural magazine ever published. This is one of the series of Reference Numbers, and, because to a great extent it is the work of others who have co-operated with us, we can perhaps take justifiable pride not only in the comprehensive and constructive editorial contents, but in the valuable array of interesting information contained in the carefully prepared advertising sections.

In this connection we wish to stress the fact that this Reference Number is not only a compilation of essential information for those interested in the design, construction and equipment of hotels, but that the Hotel Plan and Specification Reference Index (following the editorial section) constitutes a definite check list when plans and specifications are being prepared and approved.

In turning the pages of a recent issue of our esteemed English contemporary, the *Journal of the Royal Institute of British Architects*, we happened upon a review which epitomizes our editorial ambitions:

"This section of practice (hospital work) has been exemplified in a very remarkable degree in the December (1922) number of THE ARCHITECTURAL FORUM which is what is termed a Hospital Reference Number. Every sectional problem has been assembled and discussed in fifteen essays, voluminously illustrated and exhibiting a fine array of recent exteriors which are of remarkable and abiding interest and of real architectural value. This bulky quarto is set down in the midst of 170 pages of practical illustrated advertisements of hospital requirements of much interest and very suggestive, and, apart from the subject matter under review, deserving of more than passing notice."



Edward M. Tierney



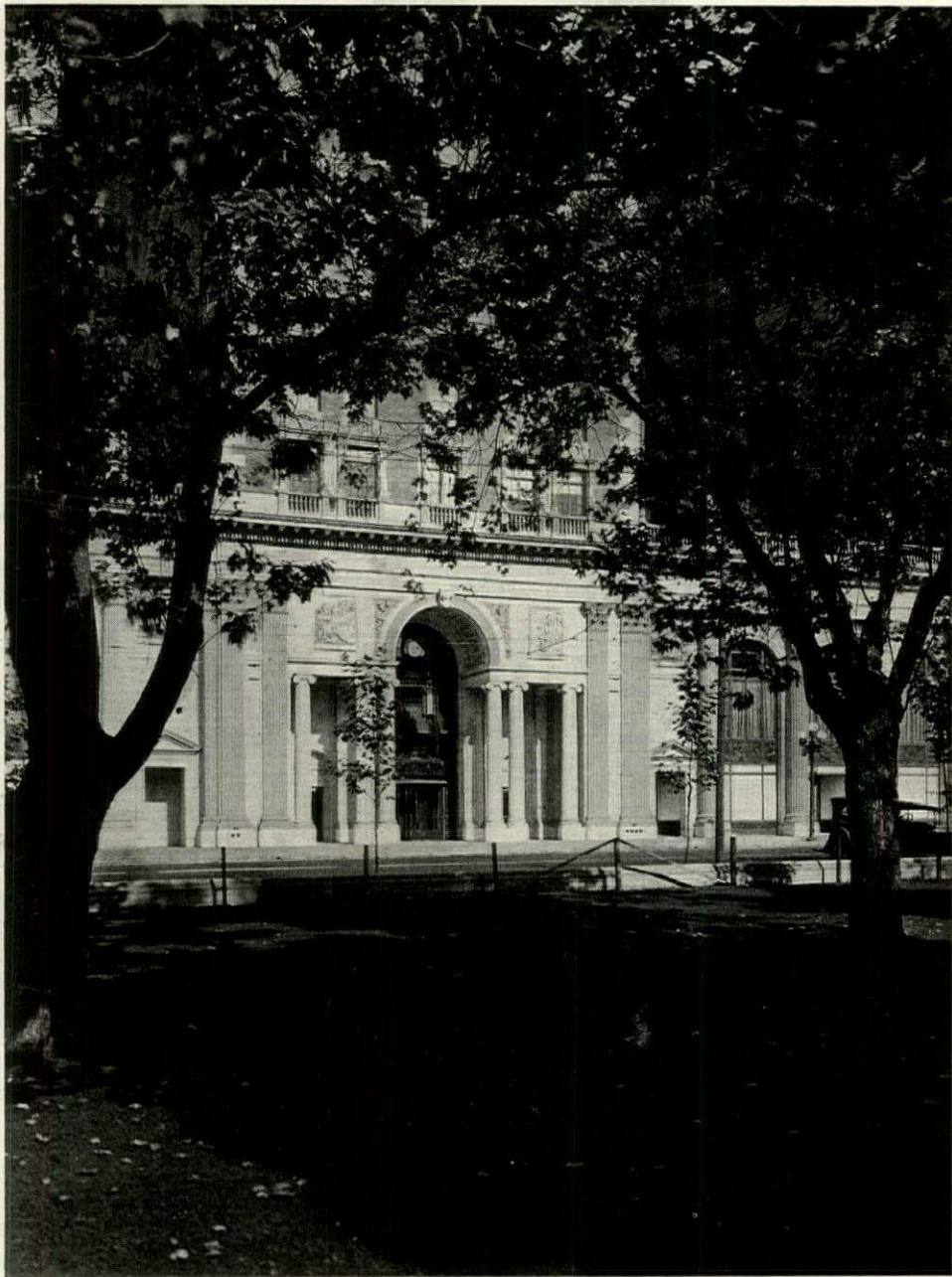
E. H. Ahrens



L. C. Prior



David Knott



ENTRANCE—SEEN FROM PARK
LOS ANGELES-BILTMORE HOTEL, LOS ANGELES
SCHULTZE & WEAVER, ARCHITECTS