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# European Town Squares

PART I

*By* GEORGES BENOIT-LEVY

"Have lofty ideas in what you wish for as well as in what you realize, remembering that a plan of noble and rational inspiration, once traced on paper, will never perish. Let our watchword be 'system' and our beacon, 'beauty'."—*Burnham.*

"*STATE in via ac respicite . . .*," said a preacher whom I once heard in a little village church. "Stop on your way, look behind and reflect."

These few notes will have nothing of a sermon, still less of a didactic treatise. They were written in contemplating certain views which are illustrated herewith. In this period when, throughout the world, each people is thinking about rejuvenating itself, in reconstructing upon new bases, I think that the greatest benefit to wish for our centers of habitation, old or new, is, above all, to preserve or to create a personality. Personality is what is actually lacking most in cities as well as in individuals. For the first, it is a result of all the constitutive traits of a city's veritable physiognomy: the general silhouette, interior sites, local tonality, the aspect determined by its different functions, and a thousand other considerations. The modern city has no worse enemies than these *nostradamus* of urban art, these "urbanists" with formulæ prepared in advance. No! The soul of a city is a delicate thing, made of contrasts and intangibles, of impressions and reactions, like the inspiration of a poet or the smile of a Parisienne!

Let us stop, then, on the way, and examine one of the essential attractions of every human agglomeration,—the square. The square has always been the place of culmination of a vast movement, whether of individuals or of merchandise, and this has determined its two principal aspects: that of a center of information, of reunion (the Latin *forum*, the Greek *agora*, the English "Inns of Court"), and that of a center of circulation, the relieving and regularization of the movement of vehicles and pedestrians, such as station squares or those at the intersection of several streets (*carrefours*). There is a third type of square partaking of the character of those preceding, each of which represents a specialty; this is the commercial center (*foire*), the administrative center (*hotel de ville*), and the religious center (*parvis*); each serves a definite function.

According to its location and character, the square may be quite open as a simple crossing of routes, or enclosed like the interior squares of the *Palais de Justice* at Liege, or perhaps "masked," when the streets giving access to it are placed in such a manner as to appear, so to speak, hidden. With these elements a number of variants may be evolved, allowing the architect-artist opportunity for original and harmonious creations.

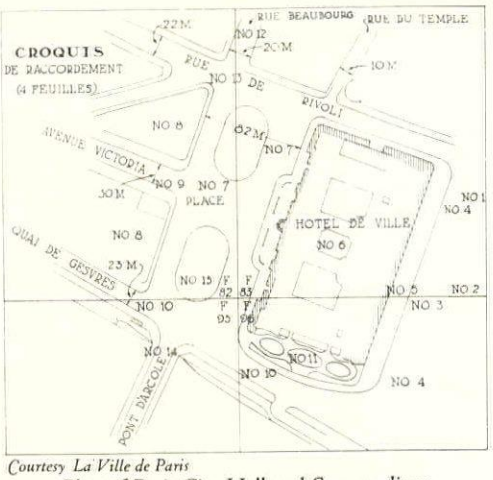
The treatment of the square has been one of the principal preoccupations of city planners and writers on kindred subjects. Among the most notable works I will recall those of Henard, of Georges Cain, of Poete, and of Scrive-Loyer in France; of Stadelbau in Germany, of Unwin in England, of Van de Schwaelmen in Belgium, of de Berlag in Holland, of Olmsted, of Stephen Child, of Robinson, of Burnham, and of Nolen, in America. However, we will content ourselves today with examining a few old squares, where one finds in the greatest degree those elements of individualism which ought to be a source of inspiration for the new cities, and, as we must limit ourselves, we will take our examples from France and Belgium.

## Paris

Of Paris, Goethe wrote: "Imagine to yourself this universal city where each step on a square or a bridge recalls a great past, where at every street corner a fragment of history has transpired." The beauty of Paris, in fact, is inherent in its very tradition. Quarter by quarter, street by street, square by square, certain stipulated rights of way have permitted an understanding between the state, the city, and the proprietors to preserve forever the harmony and arrangement of the architectural ensembles.

M. Charles Lortsh has well defined the beauty of Paris by the three terms: grandeur, scale (*mesure*) and elegance, and he has very justly defined the zone of influence in these lines: "The 'right of way' of the æsthetic is, for the most part, established

in the vicinity of the great central artery: *Rue de St. Antoine, Rue de Rivoli,* the *Champs Elysees;* bordering them or on their course, we find the *Place des Vosges* and the squares of the *Hotel de Ville, Victoire, Palais Royal, Pyramides, Vendome, Carroussel, Etoile, Trocadero.*" Now, let us see some of these squares.




*Courtesy La Ville de Paris*

Plan of Paris City Hall and Surroundings

*La Place de l'Hotel de Ville,* called before 1830 *Place de Greve,* is bound up with the history of Paris and of France. The oldest *hotel de ville,* or city hall, was the *Maison aux Piliers,* bought in 1357 by Etienne Marcel. The present *hotel de ville* was inaugurated in 1882. It is of the same style as that begun in 1533 under Francis I, finished in 1628 and burned in 1871. It covers an area of 13,000 square meters, forming a parallelogram of 150 by 90 meters. It was only in 1854 that the square of the *Hotel de Ville* was completely freed from the sordid and unhealthy streets which encircled it so closely. In that year the cutting through of the *Avenue Victoria* was decided upon, a street 100 feet wide, which at first was to be extended as far as St. Germain l'Auxerrois and unite the perspectives of the *Hotel de Ville* and of the Louvre. This avenue was inaugurated in 1855 by Queen Victoria, who passed between two rows of decorations representing houses and masking the rubbish of the work of demolition.

The square of the *Hotel de Ville* is an interesting example of a modern square, situated in a network of the most densely crowded streets, and keeping its character of a civic center happily intact. Coming from the east we have the *Mairie* of the *IV Arrondissement* (No. 1) and the church of St. Gervais (No. 2) separated by a square (No. 3) from the annexes of the *Hotel de Ville* (No. 4), themselves joined by another square (No. 5) to the principal buildings (No. 6), facing at the west (No. 7), 82 meters distant, other annexes (No. 8) and the buildings for public audience (No. 8 *bis.*), themselves bordering on the *Avenue Victoria* (No. 9). To the south, the *Quai de Gesvres* (No. 10), 23½ meters wide, and the little garden (No. 11) surrounding the statue of Etienne Marcel, the first mayor of Paris. To the north are structures destined to disappear and to be replaced by municipal buildings, with the ending (No. 12) of the new *Avenue Hotel de Ville,* 20 meters wide, and of the *Rue de Rivoli* (No. 13), 22 meters wide. The great axis running from north to south

*Photo. Champagne*

The Place du Carroussel, Paris

The old Louvre in the background; traffic passes through arches at extreme left; foreground garden connects with the Tuileries

(No. 15) of the *Place de l'Hotel de Ville*, from the *Rue de Rivoli* to the *Pont d'Arcole*, has a length of 155 meters.

The *Place du Carroussel*, lying in the extension of the axis of the *Avenue Victoria*, and consequently in that of the *Place de l'Hotel de Ville*, beyond the older part of the Louvre, enframed by the new Louvre, and followed immediately by a delightful garden preceding the Tuileries, the *Place de la Concorde* and the *Champs Elysees*, constitutes a well known architectural ensemble. It is a square for promenading or for meditation, surrounded by palaces and museums, where the heavy traffic, which rolls by to the right and left of its central parterre, passes unnoticed. It is a retreat in the heart of Paris.

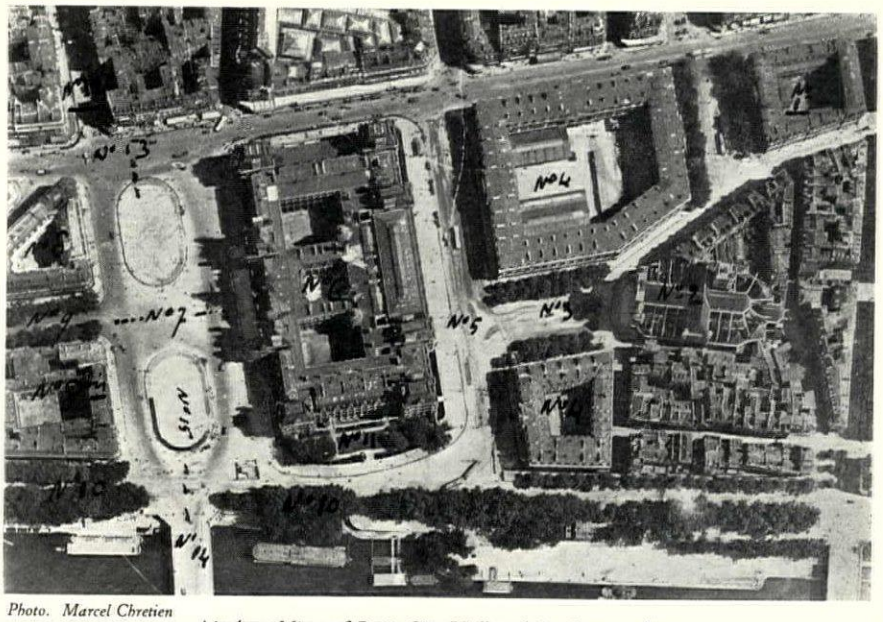


*Photo. Marcel Chretien*

Airplane View of Paris City Hall and Its Surroundings

See References in Text

The *Place de la Concorde* is the largest square in Paris. At first known as *Place Louis XV*, then *Place de la Revolution*, it was originally adorned with a statue of Louis XV, and later with another representing Liberty. During the revolution the guillotine was erected here for the execution of Louis XVI. More than 3,000 persons were guillotined on this square. In 1836, the obelisk of Luxor was erected here, a monolith of rose syenite, 76 feet high, coming from the ruins of Thebes, covered with hieroglyphics and surrounded by fountains 30 feet high in the style of those of the *piazza* of St. Peter's at Rome. Around the square, eight stone pavilions constructed in the eighteenth century by Gabriel support statues representing the large cities of France; Lyons, Marseilles, Bordeaux, Nantes, Rouen, Brest,

*Photo. Ollivier*

The Place Vendome, Paris

A square place with closed view except along axis of Rues de la Paix and Castiglione which lead from the Opera House to the Tuileries

*Photo. Marcel Chretien*

The Place des Vosges, Paris
Under the high-building is a carriage archway

Lille and Strasbourg, by Pradier. The square is bordered by the Seine and the *Pont de la Concorde;* to the south, by the perspective of the *Chambre des Deputes;* to the east, by the Tuileries; to the north, by two *hotels* with Corinthian colonnades, and pediments sculptured by Hodtz and Coustou. These *hotels* are each 96 meters long and 25 meters high. They were erected 1763–1772 from the designs of Gabriel, and served as *Garde Meuble National*, or storeroom of the royal effects, until 1806. The *Place de la Concorde* is today the typical large open square for traffic, important and treated monumentally.

The *Place Vendome*, of octagonal form, with houses built on a uniform plan by Mansart and Boffrand on the site of the *Hotel de Vendome* and the Convent of the Capucines, served as the site of the fair or market of St. Ovide until 1771. The *Place Vendome* shows very well how, even in the center of a large city, in one of the important zones of circulation, the past has been able to impose its æsthetic obligations. Its old houses, conceived as a whole, have kept all their dignity; they now house public offices, such as the Ministry of the Marine, and *hotels de luxe*. The *Rue de la Paix* and the *Rue de Castiglione*, each 22 meters broad, connect it with the Opera and the Tuileries, and take away nothing of the enclosed, intimate character of the square, the axes of which measure 24 meters in both directions.

The *Place des Vosges*, to the northeast and near the *Place de l'Hotel de Ville*, is surely the square which town planners will want to visit. They will

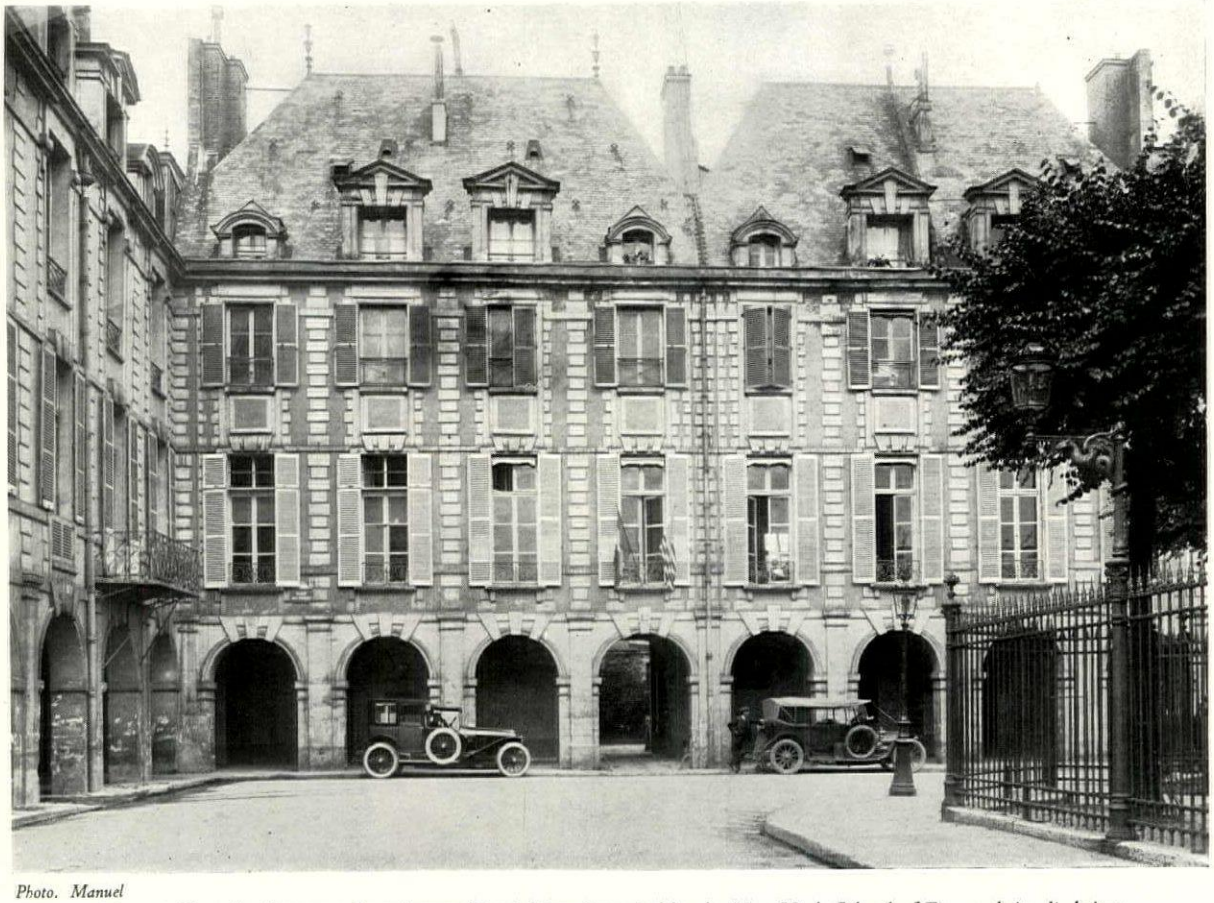


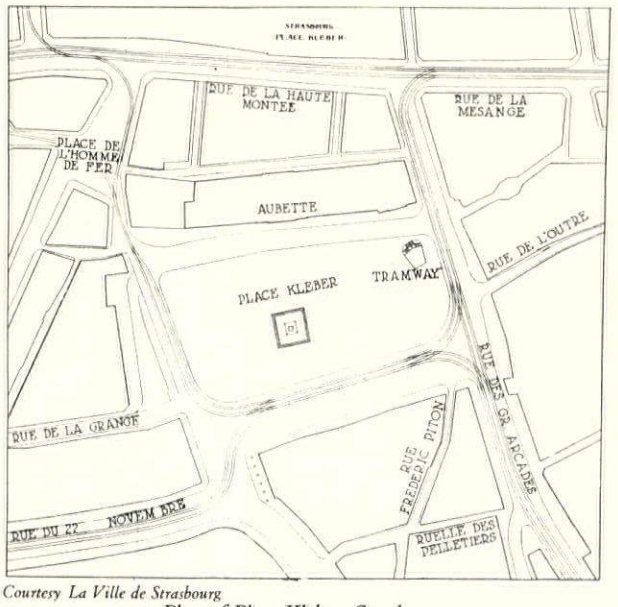
*Photo. Manuel*

No. 13, Place des Vosges, a Renaissance Hotel, Now Occupied by the New York School of Fine and Applied Arts

see how throughout the centuries an urban site of great beauty has been preserved without change, and they will find there a powerful inspiration which may be applied, in different manners and styles, to modern groupings, large or small. The *Place des Vosges* was created on the site of the old palace of the kings of France, called *des Tournelles*, by an edict of Henry IV, dated July, 1605. All the architectural details were most carefully thought out. Here, in some brief notes, is a *resume* of the characteristics of the *Place des Vosges:*

In the seventeenth century it formed the center of fashion, a vast square with equal sides. To the south, the *Pavillion du Roi* with gateways leading to the *Rue St. Antoine*, and to the north, the *Pavillion de la Reine*. Surrounding it there are 26 pavilions of brick and stone, of uniform plan with vaulted galleries. At the corners there are four fountains; in the center, an equestrian statue of Louis XIII, in marble, by Cortot and Dupaty. No. 21 was the *hotel* of Cardinal de Richelieu. Victor Hugo lived in No. 6 from 1833 to 1848 (*Musee Victor Hugo*). No. 25, *Hotel de Lescalopier*, has belonged to the same family since 1610. At No. 13, which was the home of the actress Rachel, floats the American flag. It is The New York School of Fine and Applied Arts, where, in the salons which have preserved their interior decoration and their paintings of the old days, the flower of the artistic youth of the United States comes to get acquainted with *le gout francais*. So, for every dwelling which surrounds this square we could show historical character, or practical adaptation to modern requirements, at the same time preserving the old-time aspect.

We could go from one square to another in Paris and find in each, except in a few modern and banal examples, a personal character resulting from its function, its history, and its architectural conception. We should find similar squares in most of our cities, and in particular at Strasbourg, Rouen and Nancy, daughters all of a laborious evolution.




*Courtesy La Ville de Strasbourg*

Plan of Place Kleber, Strasbourg


*Courtesy Les Amis de Strasbourg*

Place Kleber, Strasbourg

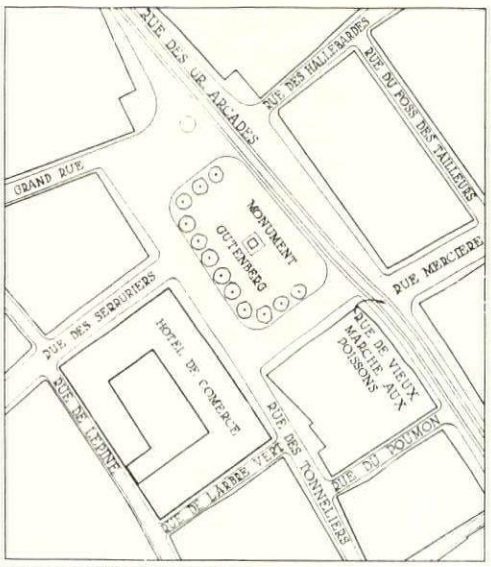
View of side opposite Aubette with Rue des Grandes Arcades at left

## Strasbourg

The capital of Alsace is celebrated for its cathedral and also for its gems of urban architecture. Its squares are among its most remarkable features, giving a distinguished setting to its buildings.

The *Place Kleber*, formerly *Place des Recollets* or *des Cordeliers* (Cobblers) on account of a community which established itself here from 1230, had inspired the projects of the architect Blondel, who, in 1765, was to have completely transformed it. These projects were not realized except on one side of the square, the north side, where the building called the *Aubette* was erected, destroyed in 1870 and then reconstructed. It became the *Place d'Armes* in 1681, but has been called *Place Kleber* since the erection of the statue of Kleber in 1840. Many times it has been the center of great events in the history of Strasbourg; military spectacles, voluntary engagements under the revolution, funeral ceremonies in honor of Hoche, of Marat; the planting of a Liberty Tree, important events all.

The streets which open upon it are: to the west, the *Rue du 22 Novembre* and the *Rue du Jeu des Enfants* (Street of the Children's Games); to the south, the *Rue des Francs Bourgeois* and the *Rue des Grandes Arcades*, the latter of which borders the square on its whole east side to rejoin the *Rue de la Mesange* (Titmouse) and the *Rue de la Haute Montee;* to the east, the *Rue de l'Outre* (Street of the Leather Bottle). Quite near is the *Place de l'Homme de Fer* (Square of the Iron Man), a little square which is just as picturesque as its name or the names of the neighboring streets already given. The *Place Kleber* measures 75 meters in one direction and 180 meters in the other. An important center of traffic and a place of reunion, the *Place Kleber* is very well enframed by the *Aubette*, a public building, and by its old-time houses.




*Courtesy La Ville de Strasbourg*

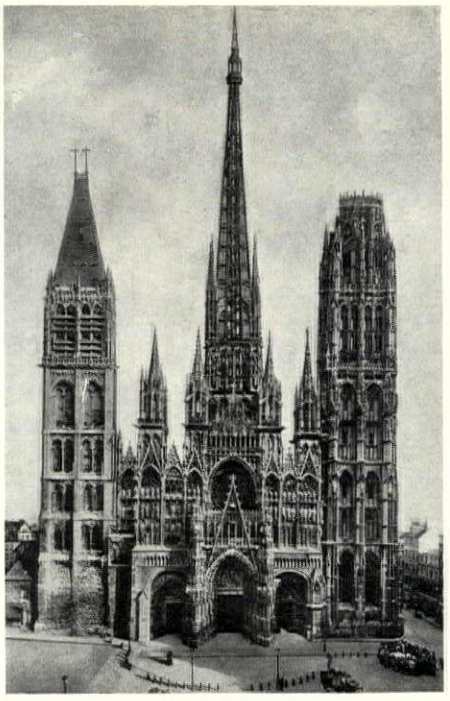
Plan of Place Gutenberg, Strasbourg

The *Place Gutenberg*, formerly *Place du Marche aux Herbes* (the Vegetable Market), was once the center of municipal life. There rose the *Pfaltz* (Town Hall), the Chancellery, and the Mint—all buildings demolished in the eighteenth century. The *Hotel de la Chambre de Commerce*, which now occupies the west


*Courtesy Les Amis de Strasbourg*

Place Gutenberg, Strasbourg
The Hotel de Commerce shown in right center

side, is the only souvenir of that old epoch which still exists. It was constructed in 1585 to be an annex of the *Pfaltz;* it became itself the *Hotel de Ville* until 1791. At that date the mayor's headquarters were removed to the *Chateau de Rohan*, a former bishop's palace, which as national property was sold to the city. The *Place Gutenberg* is bordered on the east side by the large street which at the north is called *Rue des Grandes Arcades*, and, on the south, by the *Rue du Vieux Marche aux Poissons*. To the west begin the *Grand Rue* and the *Rue des Serruriers* (Locksmiths). The statue of Gutenberg was erected in 1840. A charming little old square, from its origin it has kept something of the character of a civic center, such as we would like to find in new towns. It measures 70 meters in one direction and 50 in the other. In referring to the plan we will notice on one hand the occupational names of the surrounding streets, and on the other hand, the picturesque widenings of the *Rue de l'Arcade* and the *Rue de Vieux Marche aux Poissons.*

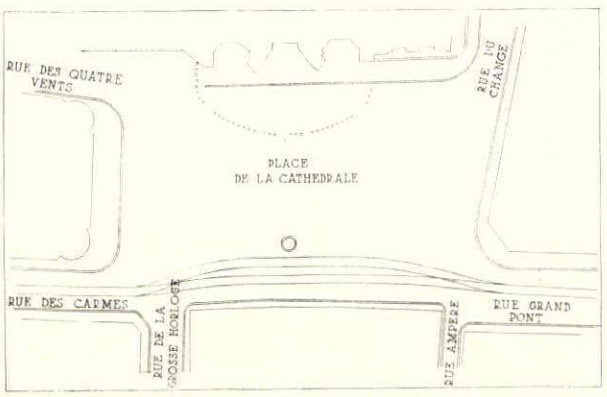


Rouen Cathedral


Rue de la Grosse Horloge, Opposite Cathedral

## Rouen

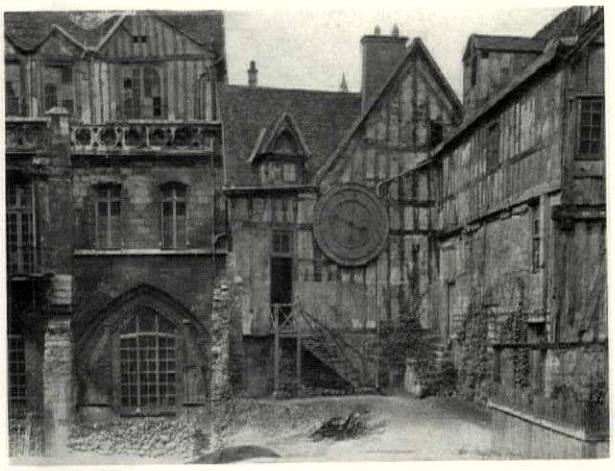
One of the most interesting and picturesque of old French cities, Rouen, the capital of Normandy, a city of art, favored by the charms of nature and embellished by the hand of man, has a cathedral of delicate stone tracery, a cathedral square where the historic events of the city have taken place, and where there still exists among the relics of the public buildings which once surrounded the square the *Bureau des Finances.*




*Courtesy La Ville de Rouen*

Cathedral Place, Rouen

M. Georges Dubosc, the erudite Rouenais, writes me: "Opposite the cathedral, at the corner of the *Rue du Petit Salut*, one can still see an elegant construction of the renaissance, the old *Bureau des Finances*, where the Industrial Society is installed. It was com-



*Rouen Photos. Raitze*

Old Houses in Cour d'Albane, Adjoining the Cathedral, with Archway to Rue des Quatre Vents

Second Inside Place of the Palais de Justice, Rouen

menced in 1509 by the architect of the cathedral portal at the expense of Antoine Bohier. This *Bureau des Finances* is an admirable building which bears also the name of *Generaux*, and it is decorated with the royal coat of arms, a letter 'L' in a crown, and a porcupine. It used to contain a prison which was burned the first of February, 1651, together with about 15 prisoners. In spite of the deterioration which took place from 1823 to 1827, the *Bureau des Finances* has still preserved a fine architectural character."

The cathedral square shows how little the present generation has respected the memory of the centuries when this square was in its glory. Instead of conforming to tradition there have been erected modern buildings. Let us turn quickly to that old *Rue de l'Horloge*, filled with historic marvels, which one discovers from the *parvis* of the cathedral, to that picturesque *Cour d'Albana*, and both to the exterior and interior courts of the *Palais de Justice*, a jewel of the renaissance. I predict sure success to the town planner who will group public or semi-public buildings with as much charm as the builders of the *Palais de Justice* of Rouen!

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*THE charm of old European cities lies largely in the delightfully open character which their squares possess, contrasted with the orderly and close grouping of buildings. The plans given here will aid in visualizing these spaces. Modern town planners and architects will do well to study the elements of their individuality fortunately still preserved.*—THE EDITOR.

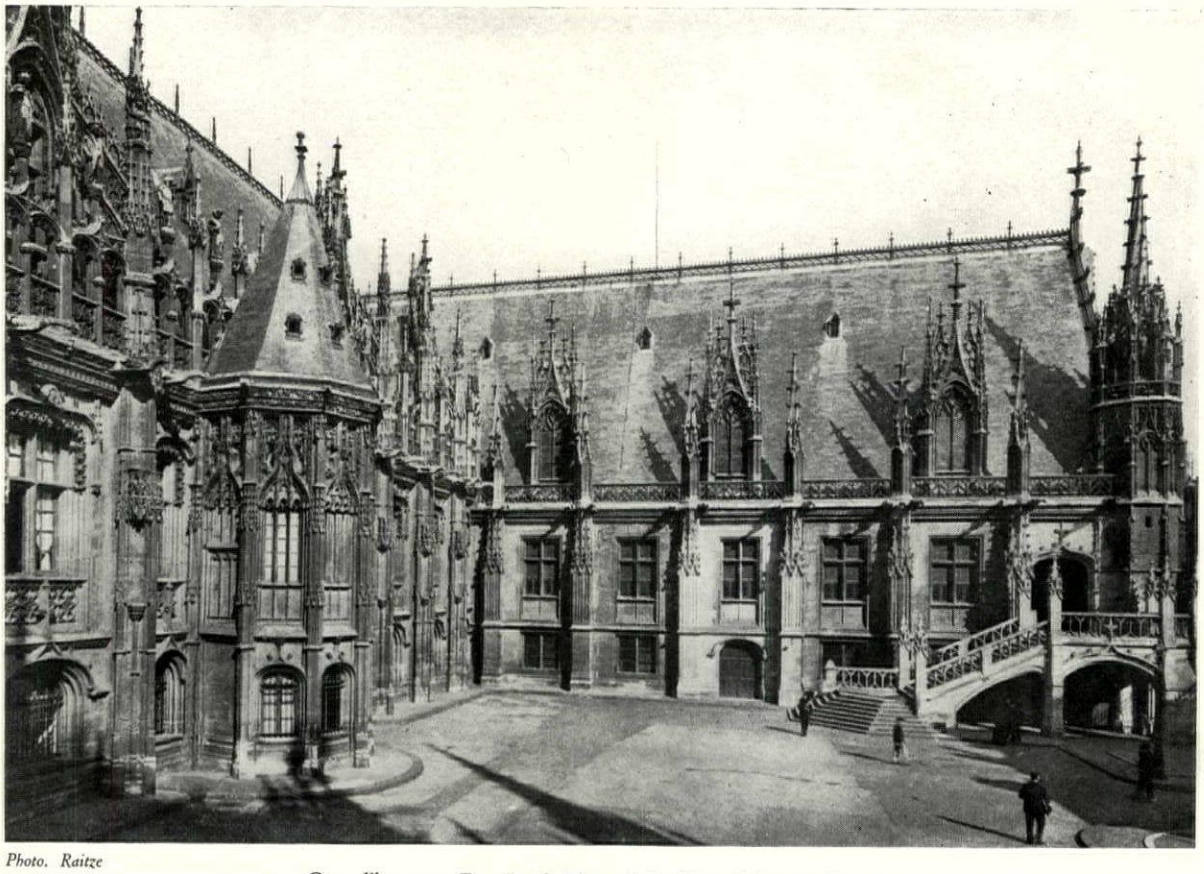


*Photo. Raitze*

Cour d'honneur, First Inside Place of the Palais de Justice, Rouen

# On European Sketching

*By* W. POPE BARNEY

WHEN one stops to consider how many studies, sketches and notes an architectural designer produces in the course of an ordinary morning's work in the office, one realizes that half a dozen is in no wise an unusual number; of course these are not very finished, but they convey an idea, and sometimes possess considerable charm. In the light of this, is it not surprising that the same man, when traveling in Europe, will probably have only a few drawings to his credit at the end of each week?

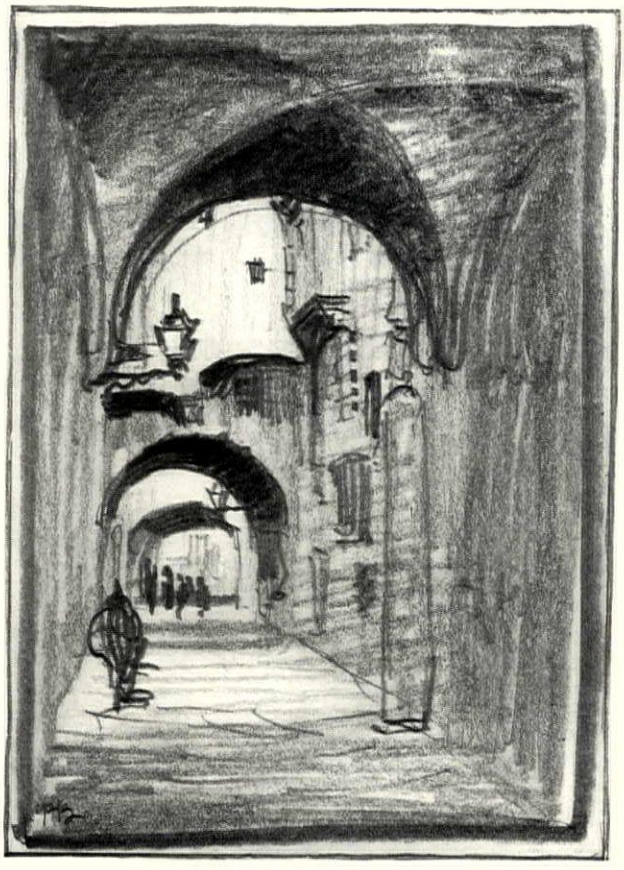
Perhaps this is largely because to make a sketch from nature seems such an effort,—there seems to be no place to sit; the wind blows one's paper; one cannot hold it and sharpen a pencil at the same time, and half a dozen other obstacles arise, silly but irritating, which can only be overcome in advance by giving sufficient study to the working out of a thoroughly efficient outfit,—and then by leaving none of it at home. And in planning this outfit, it would certainly seem wiser, at least until one becomes an inveterate sketcher, to stick to one medium, as this relieves the mind of any possible indecision on that score; and at first there will seem plenty of indecision in another direction,—the choice of that point of view which is exactly right. So few things, fascinating though they be, seem to lend themselves to one's idea of a composition, frozen and set in a groove as one is by the making of formula sketches, with a tree on the right, a cloud on the left and a shadow across the foreground,—a perfectly good formula in the office, where it often seems necessary to get out sketches so rapidly that time is lacking for the study of new compositions, and one repeats the old standby rather than make a failure with the building committee which meets the next day.

The study of textures and old crumbly walls seems beside the mark when one has no formula for their indication, and the idea of really drawing them fills one with an exhausted dismay. And so it goes, until some day, after covering many sheets of paper with fumbling efforts, the sketcher begins to hit his stride and really see things, and feel an enthusiasm to put them down, no matter how much labor it entails. He forgets his old tricks of indication and begins to appreciate the work of the men who really can draw. He cultivates the habit of looking at things as though he were going to draw them from memory, and studies to absorb their significant flavor.

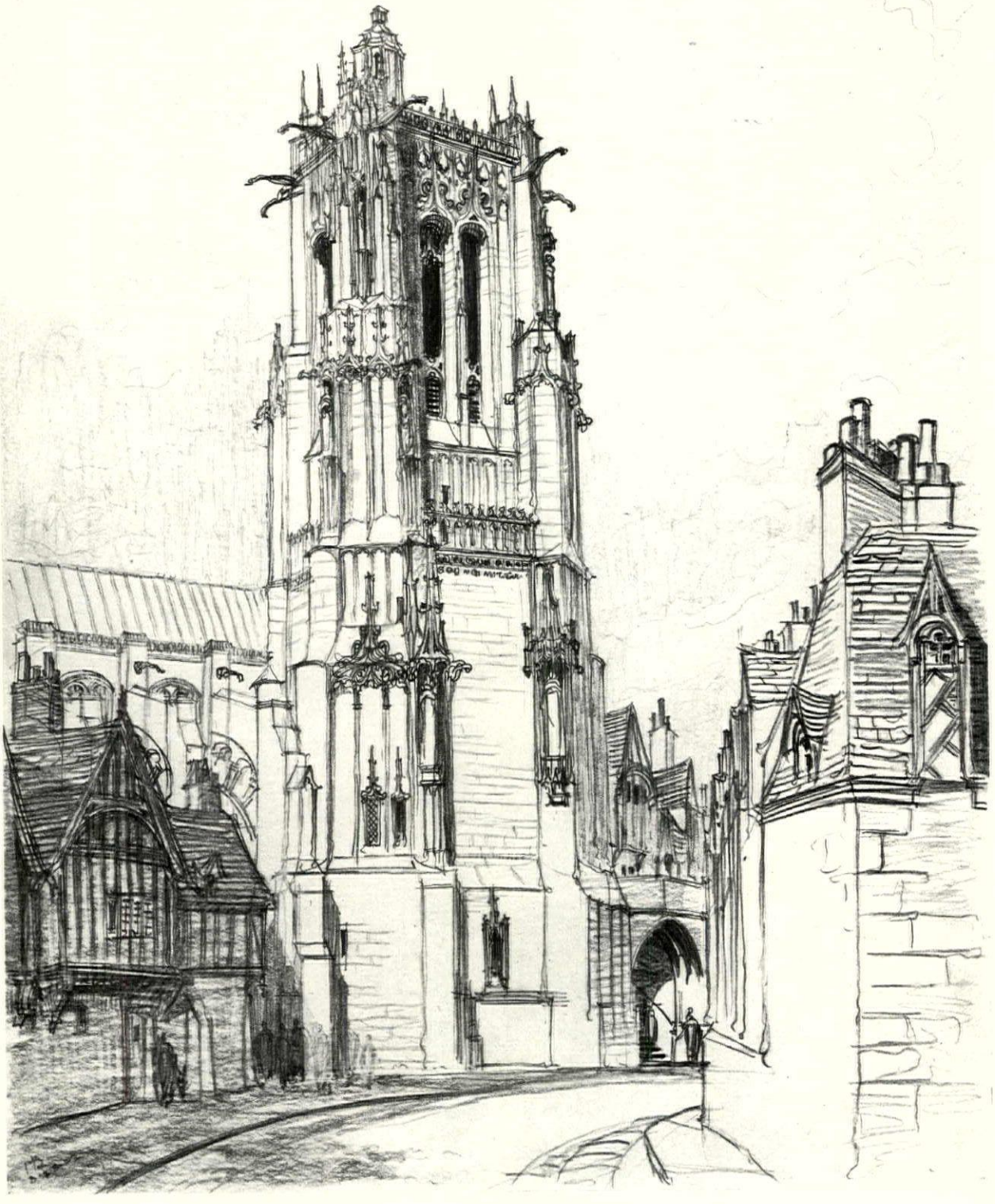
Gradually a whole host of beauties are unfolded to him. Perhaps it is the way the sky shows itself between roofs and chimneys and forms a pattern of itself; or perhaps the way buildings and walls grow out of the ground, and the surface of the earth undulates as it comes towards him, or the grasses and the water in the rutted road make subtle patterns leading into the picture, things which an office cannot teach—but which nature can!

When, with all the multitude of new impressions to confuse the mind, the traveling sketcher adds to his difficulties by jumping from one medium to another, these simple truths about nature come to him more slowly. It is so much easier to master one thing at a time, and he should master his medium so well that he is not thinking of *how*, but of *what* he draws. For most people this takes daily practice. A free, easy, expressive line is the reward of much joyful work, and surely no more perfect opportunity for joyful work in sketching could be offered than is found in leisurely European travel. If one goes rapidly, the sketches become mere notes. It is necessary to feel that there is sufficient time to get the distinctive quality of the place, even if only in a shorthand diagram which can serve as a basis for more considered drawing done indoors when cold or rain prevents direct study from nature.

Such half-memory work made in the evening or during inclement weather attests most truthfully to one's progress in careful observation, of both architecture and values. It is stimulating though humiliating to find how little one observes and retains, and how much



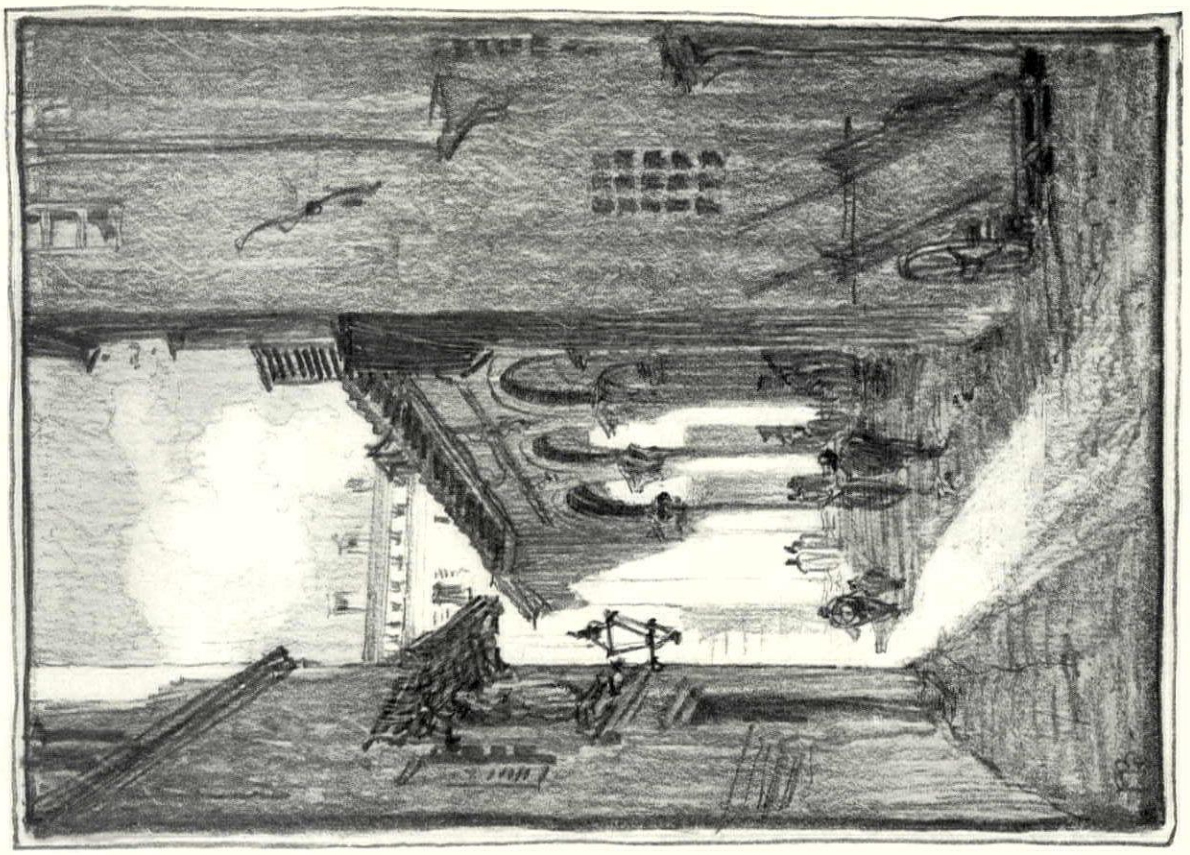
Note of a Florence Street
By W. Pope Barney
*Size of original 3⅜ x 4⅝*



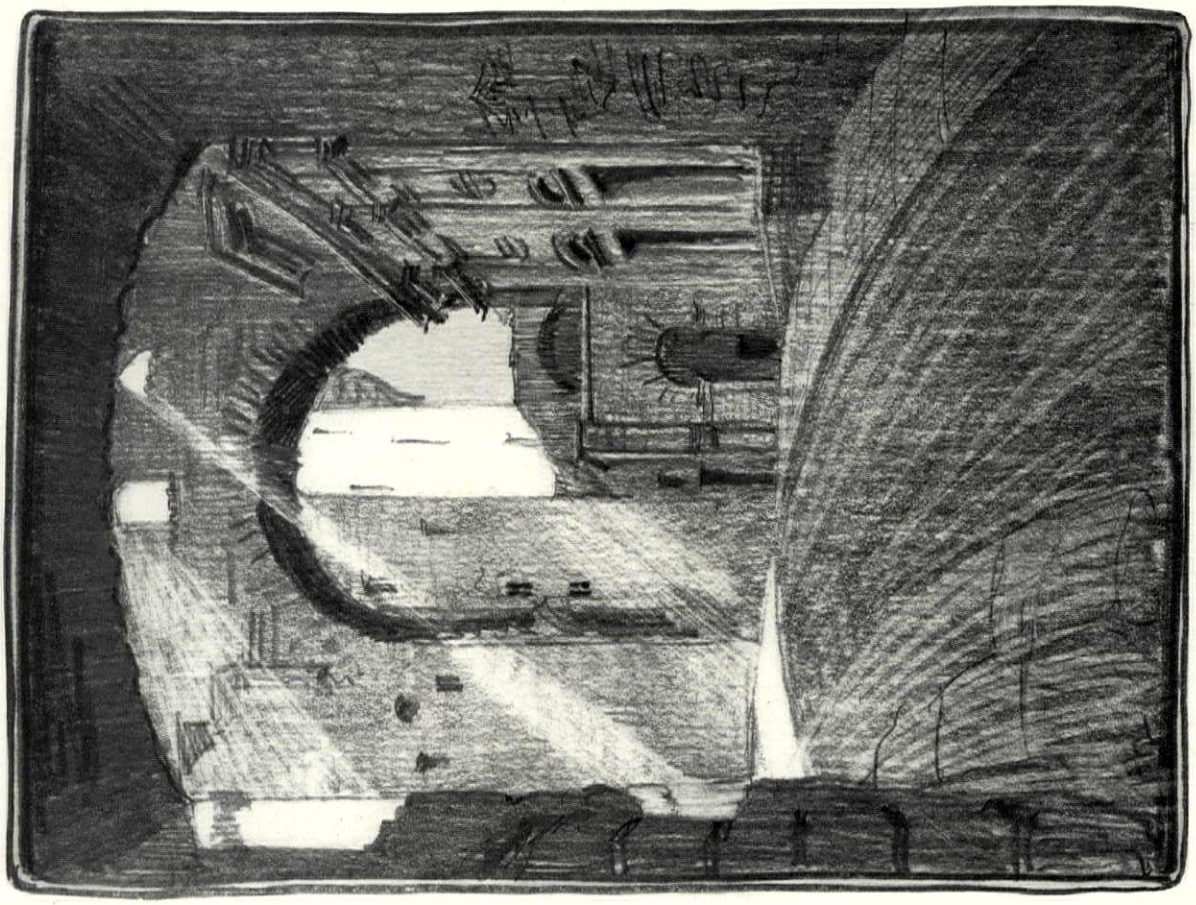
A NORMAN TOWER

MEMORY SKETCH BY W. POPE BARNEY

*Size of original 10 x 13*



MERCATO NUOVO, FLORENCE
BY W. POPE BARNEY
*Size of original 4¾ x 7*

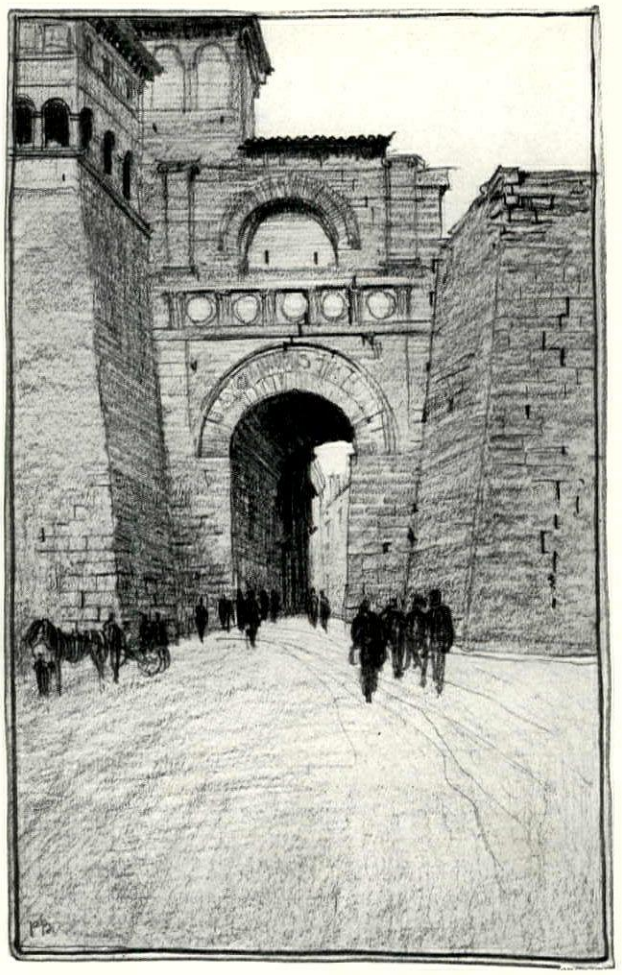


AN ANCIENT PALAZZO PUBLICO, PERUGIA
BY W. POPE BARNEY
*Size of original 5 x 7*

at a loss one feels at first in trying to make a selection of significant data. For instance, if one visits a Cotswold manor, and the time is too short to attempt a serious sketch, what are the things to note on paper, and what should be left to memory? To seize the characteristic and essential for notation and observation is the problem.

How often the sketcher will find, when he gets back to his lodgings and takes out his notes for the day, that he has drawn the big elements of the composition, which could have been trusted to memory, but has failed to get the exact slope of the roof, the proportion of mullion to opening, the proximity of eave line to window head, and the maximum and minimum sizes of stones of which the walls are built, and whether the roof rests directly on the wall at the eaves or not! He only remembers that it somehow looked right and was full of Cotswold flavor.

After the sketcher has studied a location thoroughly and absorbed its characteristics, it becomes possible to group and compose the various elements, which he has in a sense made his own, into a series of sketches of some dream village or castle, and so get no end of amusement and profit out of the inevitable wet days. But all this comes at the end and not at the beginning. At first the architect, more than most artists, needs to get away from his formulæ for "snappy" rendering, and observe nature, trying meekly and sincerely to draw what he sees. The result will not be clever, but it will have some quality which chic office studies never have. It may even have some little breath of inspiration, which the place itself conveyed. It may, as time goes on and he gains more command of his medium and more love and care in execution, carry such a message of reality that some friend will say, not "What a lovely sketch,—how did you do it?" but "What a lovely place—where did you find it?" And after all, is not this what an architect wants most to get —the flavor of the places he visits, and the ability to depict the flavor of the places he hopes to create?



Porta Augusta, Perugia
By W. Pope Barney
*Size of original 4¾ x 7⅜*

From the Duomo Steps, Perugia
By W. Pope Barney
*Size of original 4¾ x 8*

# BUSINESS & FINANCE

C. Stanley Taylor, *Editor*

## Organization in the Architect's Office

*By* HOWELL TAYLOR

FOR some years Howell Taylor, of the office of Richard E. Schmidt, Garden & Martin, Chicago, has been studying the practical background of the architectural profession in its components of business-getting, efficient production, and economical administration. He has had an opportunity of collecting data of direct practical value to all architects. The present article is one of a series which will appear within the next few months, which it is believed will provide an interesting and helpful picture of the logical developments which are taking place in the economic aspect of practice.

One of the most valuable contributions toward the advancement of a profession is a frank interchange of business experience. For this reason it is to be hoped that architects will take an active interest in this series of articles, and will not hesitate to contribute constructive criticism which may be presented in the form of comments at a later date.—THE EDITOR.

IN the development of any organization which systematizes human effort, there comes a period of transition when the personnel is changing from a small, unimportant group, in which the owner thinks for everyone employed, to a living, vibrant institution of many independent thinkers, which is capable of absorbing whatever duty is offered without disrupting the smooth functioning of real co-ordinated business effort. Such a transition is inevitable in an architect's office when it is found that the commissions and number of permanent clients are increasing from year to year and demanding the building up of a force of carefully trained men.

In expanding the business or professional office the primary problem is often in the unwillingness of the principals to give up definite responsibility to subordinates and to concern themselves largely with the broader aspects of professional and business procedure and policies. In only too many business houses it has been found that failure to make this decision is the first retrogressive step, while those concerns which have carefully trained, capable assistants to interpret policies of the firm under broad powers and to work out their own salvation with very little interference, are forging to the front. The turning point between real success and narrow mediocrity hinges on the point of view of the owners and their ability to agree that there are men in the world who are willing to do individual thinking for the benefit of an employer's business.

The same condition is inevitable in building any organization, because human effort has the same elements with which to deal wherever it is found. The professional office which develops without a system will find itself confronted with its weaknesses sooner or later, and they are generally discovered not by members of the firm but by clients who have reason to be disgruntled at the poor service they have received because of a badly organized staff. It is safe to say that the justifiable kick of some rattling good client has caused many an architect to take a shamefaced inventory.

The pitfalls of faulty organization in an architect's office become so self-evident when a logical plan is developed that it is unnecessary to consider them in particular. The most flagrant misuses of a draftsman's time in an office which is growing generally arise from lack of definitely established responsibility and its resulting friction.

In any organized effort which demands the co-operation of many people and the democratization of a single purpose there are but four basic elements, whether the effort functions as an architect's force, a business staff, or some other activity. These are (1) policy or purpose; (2) expert knowledge; (3) results obtainable, and (4) leadership. On their correct co-ordination to fit the case in hand depends the success or failure of the organization. The element of leadership becomes the pivotal point of contact for the first three. In another sense we may say that each executive who represents leadership is influenced in all of his efforts by these first three elements, and it becomes his duty to co-ordinate them. Any analysis of organization which cannot be fitted to this scheme and clearly define responsibility, contains the elements of failure.

To elucidate the meaning of the three elements of organization as applied to the working arrangements of an architect's office, it is evident that (1) purpose or policy becomes the point of view of the principals of the firm; (2) expert knowledge, the consulting service of engineers and others called in or engaged as permanent members of the staff; and (3) results become the physical accomplishments of the organization and depend upon the working staff actually engaged in producing drawings. It is assumed that there is one member of the firm who would hold the executive reins, or a paid member of the staff who would be given executive responsibility for the successful running of the office. However great or small may be the volume of business, the consideration of these three elements will control his decisions.

No one of them can take precedence over the others in importance, because they are indissolubly linked together. Policy or purpose, perhaps, is responsible for a greater degree of good or bad organ-

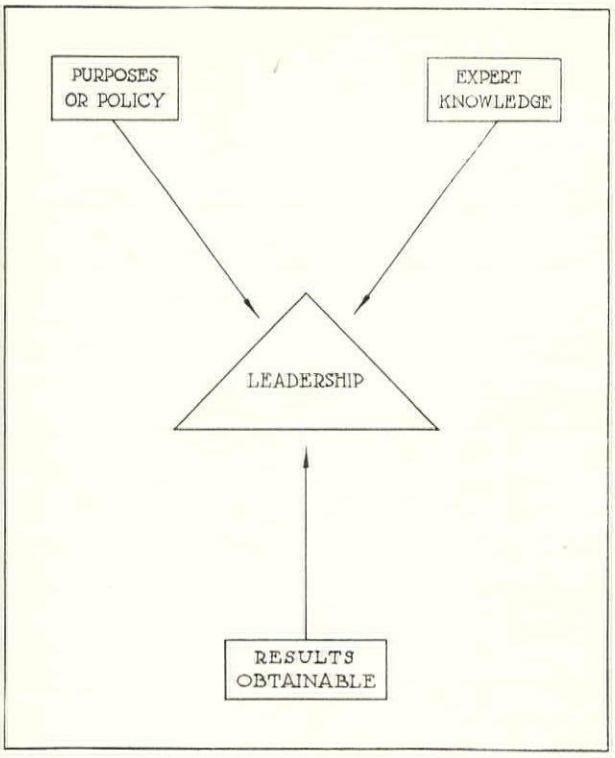



Chart A

ization than either of the others. The point of view of the owners of a business is always reflected in the work of the staff members and in their desire, or lack of it, to give their best efforts to the firm. If results are not forthcoming from the working force, let the principals look to their policies. Causes for discontent are generally more deep seated than casual circumstance would indicate among average good men. "Reason is man's most active human faculty." If he feels that unreasonable demands are being made upon him, or that his employer is governing him through a spirit of criticism instead of through whole-hearted co-operation, he will be discontented. Through thoughtful analysis the employer can establish conditions and morale in his office which will not only keep down overhead expense but will actually enliven and broaden the interests of the office.

The importance of expert knowledge in the balanced scheme is evident. Specialized knowledge is the keynote of accomplishment today, and the successful architect is an executive who is able to utilize intelligently the services of thoroughly trained experts in various fields, with a background of good taste and culture and a discriminating appreciation of design. The nature of the producing staff is of equal importance, because therein lie not only the opportunities for developing the practice but also for preventing lost effort with its resulting money losses.

In order to establish a basis for building an organization it is assumed that the most desirable man for the architect to seek as an employe or to develop in his staff is the fully trained architect who is able to nose out a commission, meet the client, design the building, and take charge of producing working drawings,—in other words, an all-around man who could go into practice for himself quite easily, but who has been convinced by the employing architect that his interests are identical with those of the firm, and who is willing to put his best efforts into the general activity of the firm with the certain knowledge that they will be adequately remunerated and acknowledged. With such men available for development, a firm can become an institution which will build up ideals, ambitions and traditions. Good men leaving the architectural schools will seek connections with such a firm, and they can be selected for their associations and ability.

Into the hands of these fully trained architects is put the immediate responsibility of handling an operation from start to finish. When a new commission comes into the office the client is given to understand that his interests will be cared for by one member of the staff who becomes the "liaison" assistant between the office organization and the client. During the early conferences the effort should be made to have a member of the firm present, but as the client's confidence is established in the assistant less and less of the principal's time need be spent in attending to the details of planning and equipment. Various staff experts are called into conference from time to time, but the liaison assistant is clearly responsible for the operation;—the client understands this, and the staff members as well. It should be the duty of this man to see that the client gets the service from the office to which he is entitled. He has but one superior, the office manager, who keeps general supervision over all work and irons out friction.

As the drawings develop the liaison assistant works constantly with the staff experts, the chief designer and the mechanical, heating, structural and ventilating engineers. When he is ready for additional help for tracing and detailing, he calls upon the chief draftsman whose duty it is to see that men are available as they are needed. Specifications are prepared by the group of engineering experts as soon as the drawings are completed, and to aid them are notes taken during the conferences with the client.

With the completion of working drawings and specifications, the service department lets contracts, attends to all the business details between owner and contractors, and starts construction. All orders and certificates are issued by this department, and in fact no contact is established between the work and the office except through the service department and the liaison assistant who continues to keep in touch with every step in the development of the operation to make certain that nothing sidetracks progress. If proper attention is given to office morale, the position of the liaison assistant will be seen merely as a right means of co-ordination rather than irksome check-up.

It is important that every communication or document sent to the client should have with it a letter

from the liaison assistant explaining its purpose. Nothing will give the client a greater degree of confidence than to realize that his interests are receiving systematic attention in the various departments of a large office, and that he can always get satisfaction from one man who knows all about the details of his particular building. Nothing will breed more discontent and dissatisfaction in his mind than to receive the impression he is being handed about from one to another executive without any connecting link or definition of responsibility.

Chart "B" provides a graphic explanation of this plan of organization.

With the use of an organization plan such as is here outlined it is evident that in cases of necessity final decision rests with the office manager who must interpret the policies of the firm. For average working conditions, however, the whole force will function without his detailed attention.

In this plan there are no department heads of equal responsibility, a fact which eliminates friction and thereby saves many drafting hours. Especial care should be exercised by the principals of the firm in maintaining the executive power of the office manager. He alone should interpret policies to the force. Nothing will disrupt the morale of a working staff more quickly than any indication of lack of confidence by the owners of a business in employes who are hired for executive positions. Where a member of the firm assumes the position of chief designer, he must be willing to co-operate fully with the office manager to determine the desirable compromise between beauty of design and practical utility. If it is worth while to have an office manager, his decision should be final.

But three other items need be considered in a practical working scheme; these are statistics, publicity and business-getting. Every architect's office should have some definite arrangement for obtaining and tabulating useful statistics. This activity may be one duty of a man who is principally occupied on some other task, or it may be made the work of a director and several clerks. The statistical department should be prepared to furnish authentic data on building conditions and costs from week to week. One of the reasons a client should engage an architect is that his ability to determine definite costs is valuable, yet the belief is almost universal that he cannot do this, and in fact the experience of many clients has proved that their architects knew very little about costs.

No architect's office should be without some systematic plan of publicity which is carried out carefully by some one person who makes it his regular activity. Back of every sale, whether the item be overcoats, automobiles or architectural service, the customer's mind must be brought to the buying point. This may be done by means of a newspaper

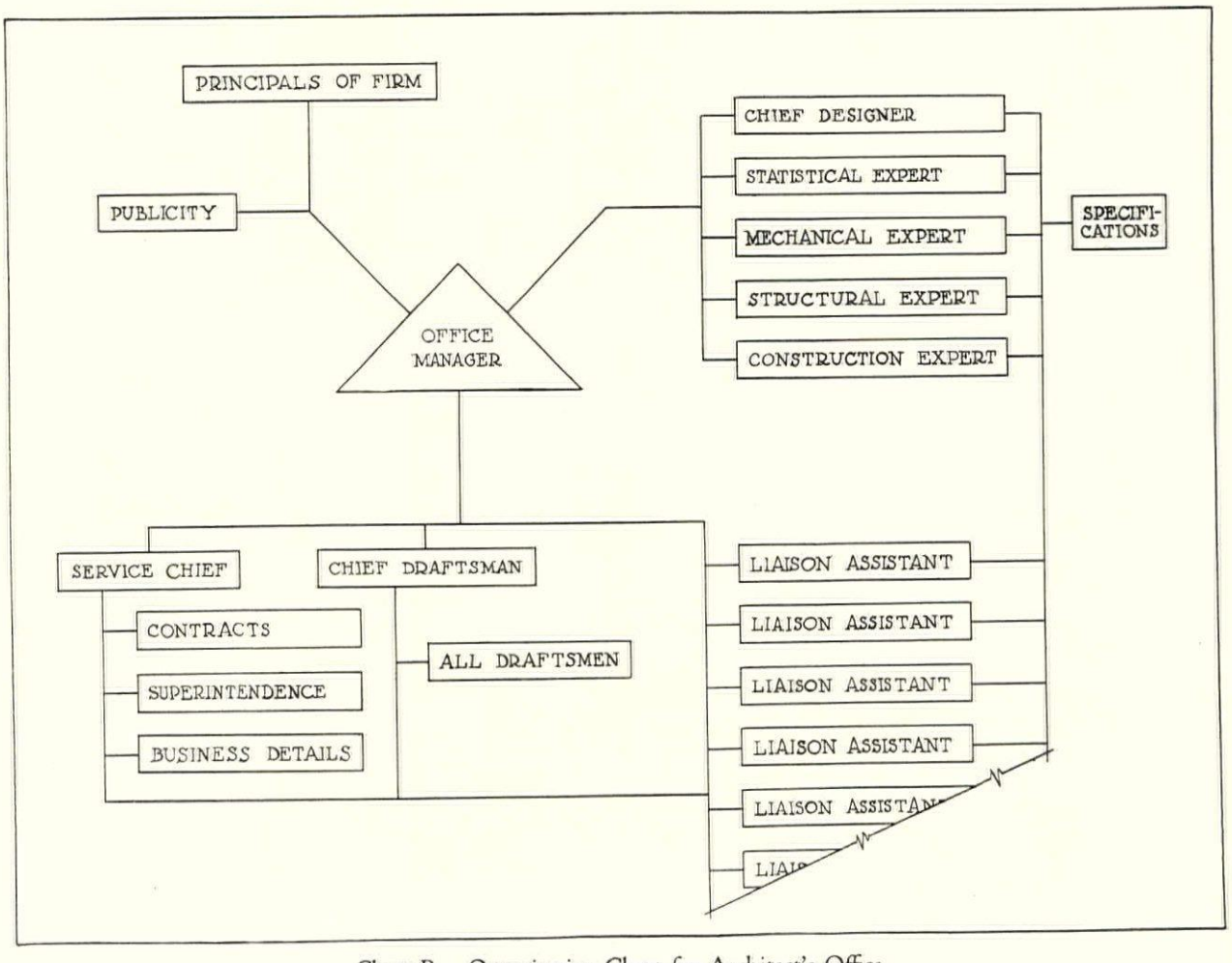



Chart B. Organization Chart for Architect's Office

advertisement, by a well written letter, or by word of mouth, but to consummate the sale it must be done, and the architect who says he doesn't believe in advertising has failed to analyze one of the essential elements of successful practice.

In such an organization as has been outlined, business-getting naturally falls to the principals of the firm not actually occupied with too heavy executive duties, and to the liaison assistants who should be as carefully trained in salesmanship as in other branches of the profession. But in an organization which is on its toes, every man should be made to feel that his efforts to bring in commissions will be appreciated and amply rewarded. Who knows but what a bit of encouragement may not be just the moving force necessary to start some dub-draftsman toward landing large commissions?

Where the spirit of the force is one of consistent co-operation, because each man has had it proved to him that his own right interests lie in forwarding the interests of the firm, a logical plan of organization will save more drafting hours than can a score of office rules.

*IT is proposed to lend a more personal touch to the information conveyed through the Business & Finance Section by a consideration of individual problems of office administration which may find general application throughout the profession. Architects are therefore invited to submit to* THE ARCHITECTURAL FORUM *specific problems relative to business-getting, publicity, office administration and related subjects. Methods through which these problems have been met successfully in other offices will be considered, and resulting information will be presented in a comprehensive manner but without disclosing names.*

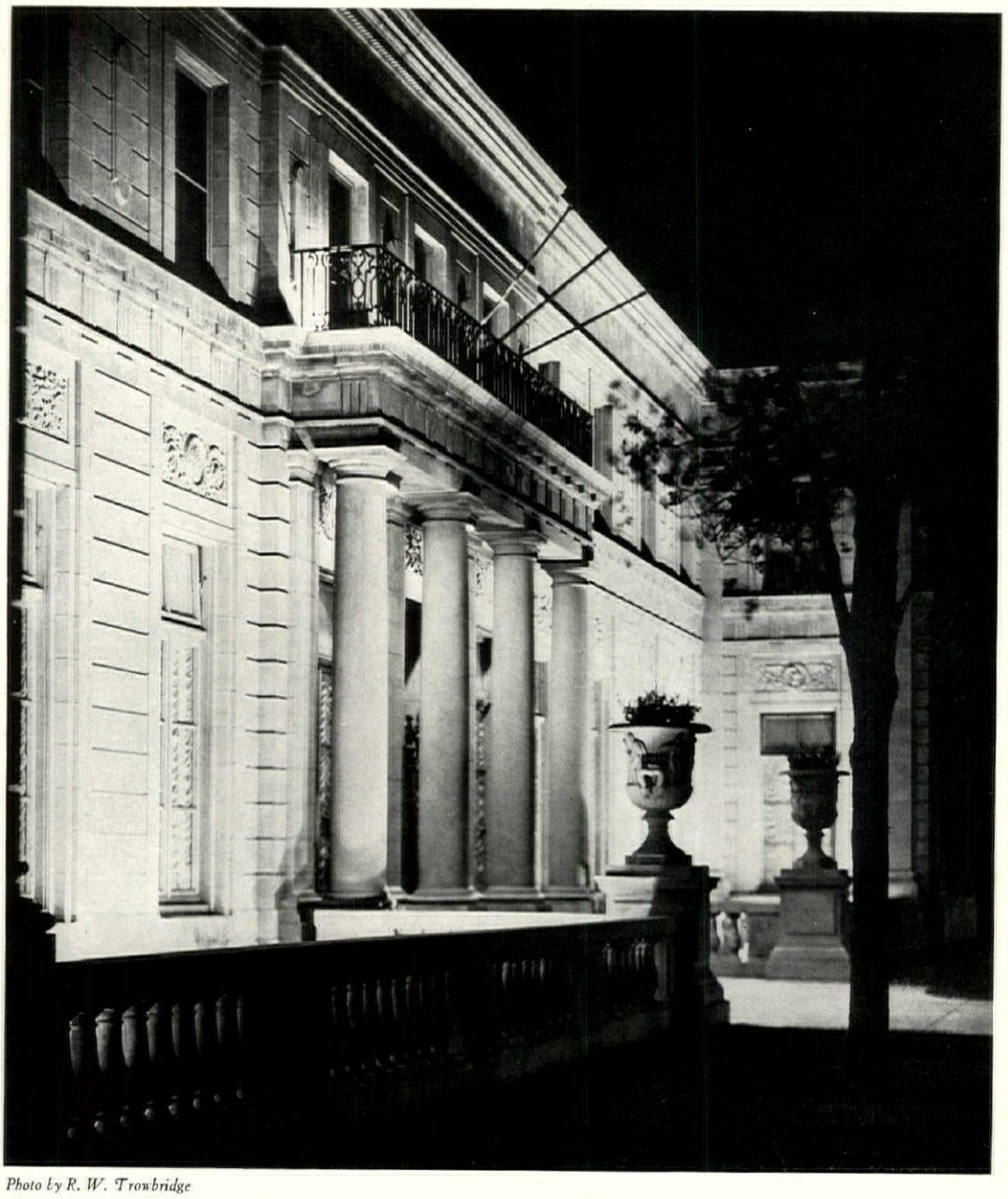


*Photo by R. W. Trowbridge*

Night View, Entrance to Illinois Life Insurance Company Building, Chicago

Holabird & Roche, Architects

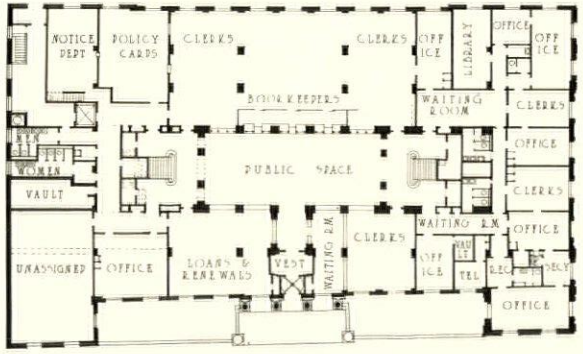
*Photos by R. W. Trowbridge*

DETAIL OF ENTRANCE

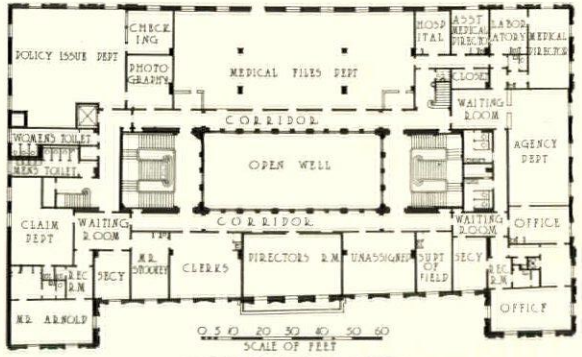
ILLINOIS LIFE INSURANCE COMPANY BUILDING, CHICAGO

HOLABIRD & ROCHE, ARCHITECTS

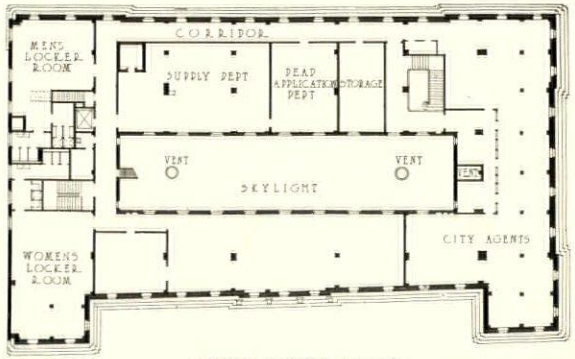
GENERAL VIEW OF LAKE SHORE DRIVE FACADE




FIRST FLOOR PLAN



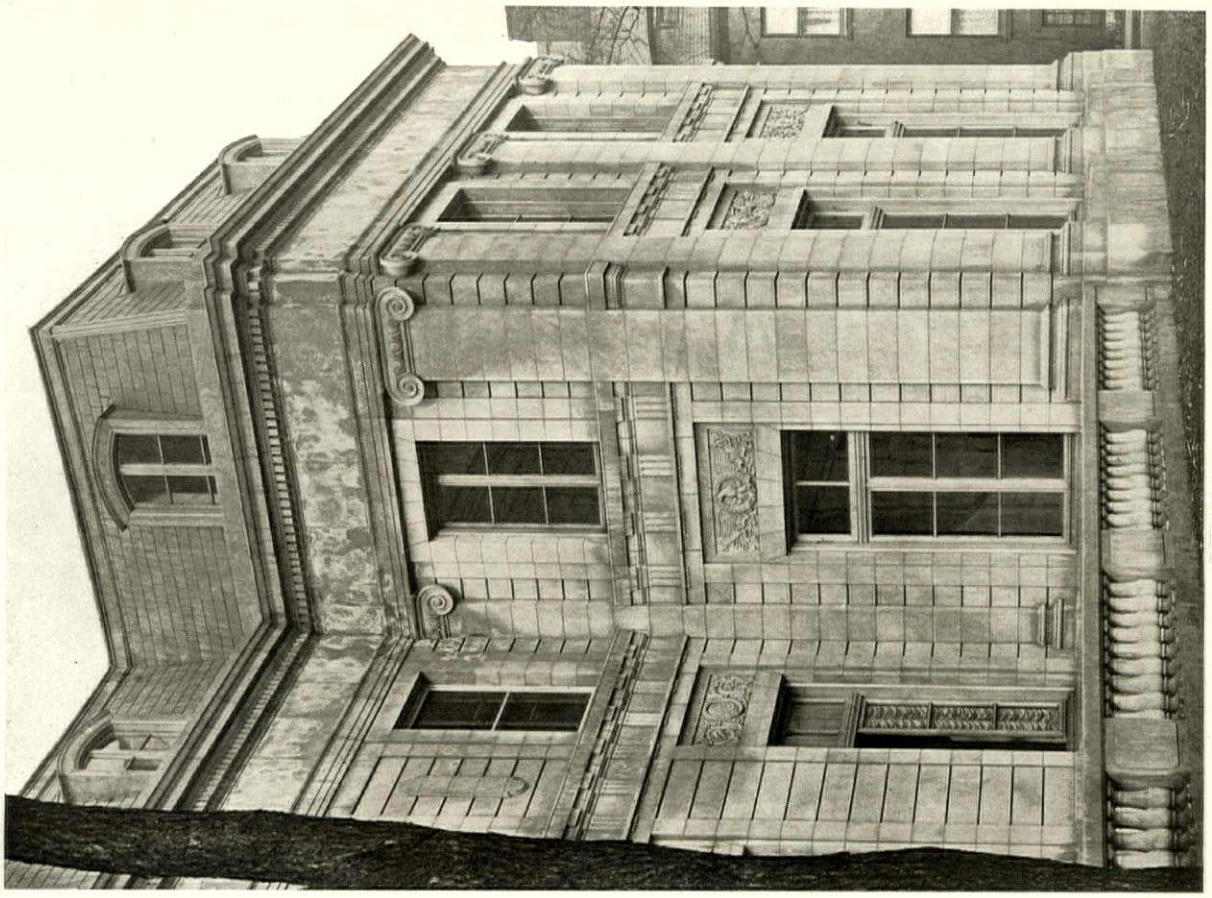

SECOND FLOOR PLAN



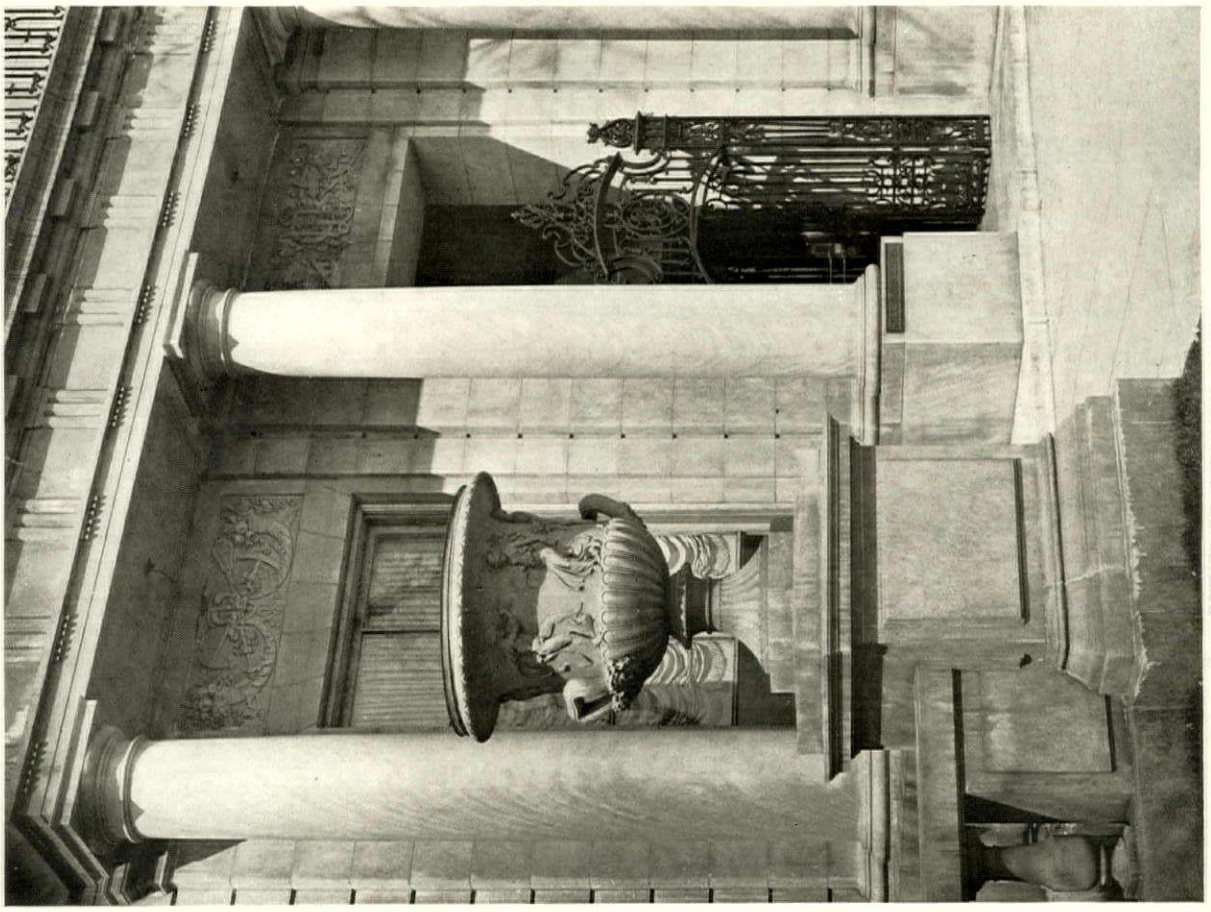

THIRD FLOOR PLAN

ILLINOIS LIFE INSURANCE COMPANY BUILDING, CHICAGO

HOLABIRD & ROCHE, ARCHITECTS



DETAIL OF END WING



DETAIL OF ENTRANCE ORDER

ILLINOIS LIFE INSURANCE COMPANY BUILDING, CHICAGO

HOLABIRD & ROCHE, ARCHITECTS

INTERIOR OF PUBLIC SPACE

ILLINOIS LIFE INSURANCE COMPANY BUILDING, CHICAGO

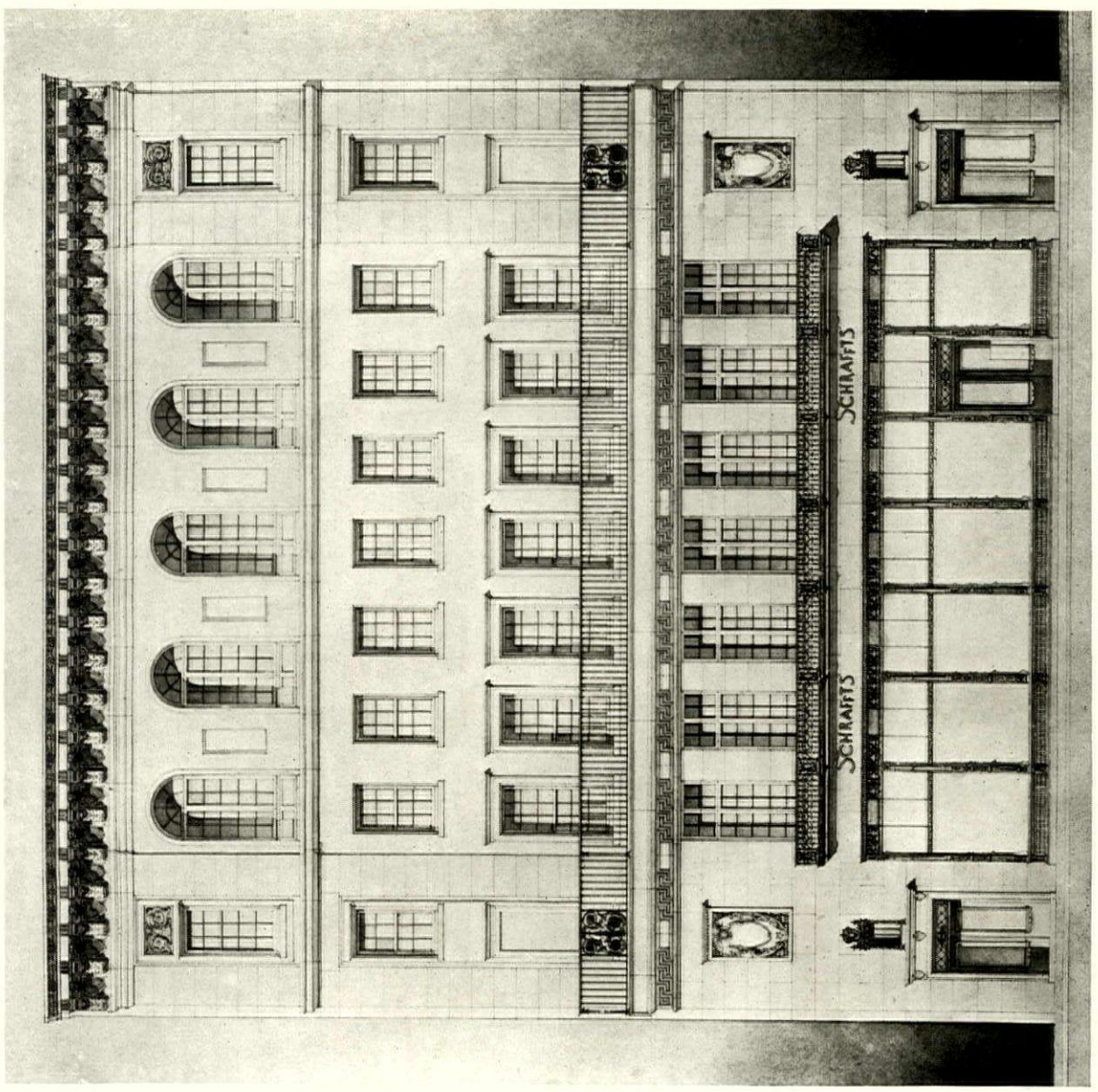
HOLABIRD & ROCHE, ARCHITECTS

DETAIL OF STAIRCASE

SECOND FLOOR CORRIDOR

ILLINOIS LIFE INSURANCE COMPANY BUILDING, CHICAGO

HOLABIRD & ROCHE, ARCHITECTS



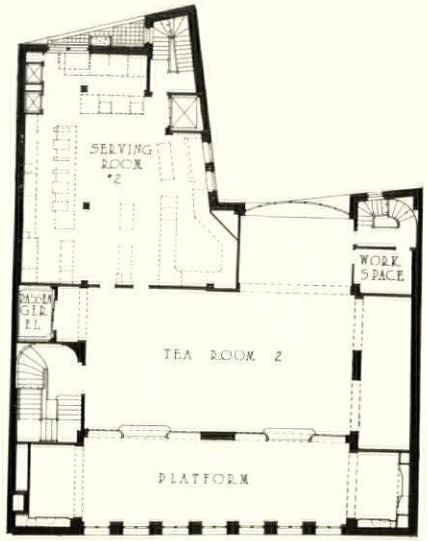

DETAIL OF ELEVATION

*Photos by Paul J. Weber*

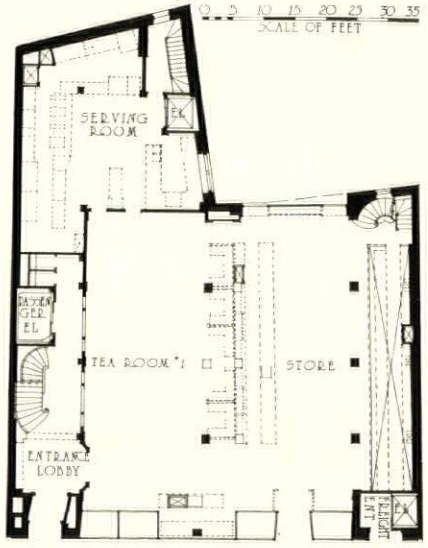
BUILDING FOR FRANK G. SHATTUCK CO., WEST STREET, BOSTON

J. D. LELAND & COMPANY, ARCHITECTS

EXTERIOR VIEW




TYPICAL TEA ROOM FLOOR PLAN

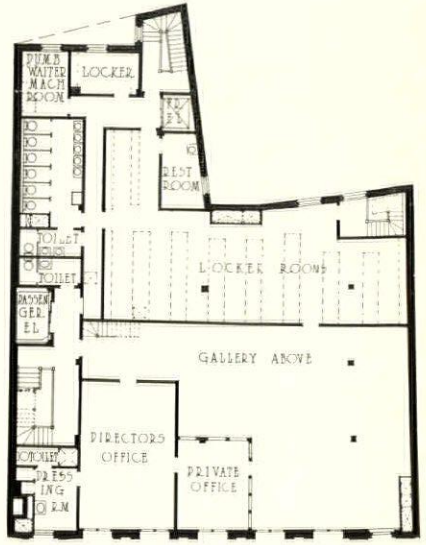



FIRST FLOOR PLAN

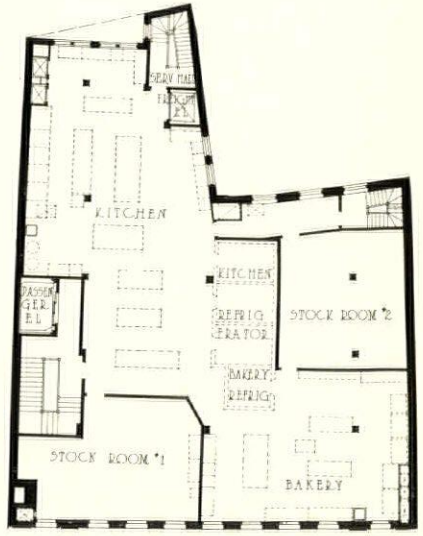
DETAIL OF LOWER STORIES

BUILDING FOR FRANK G. SHATTUCK CO., WEST STREET, BOSTON

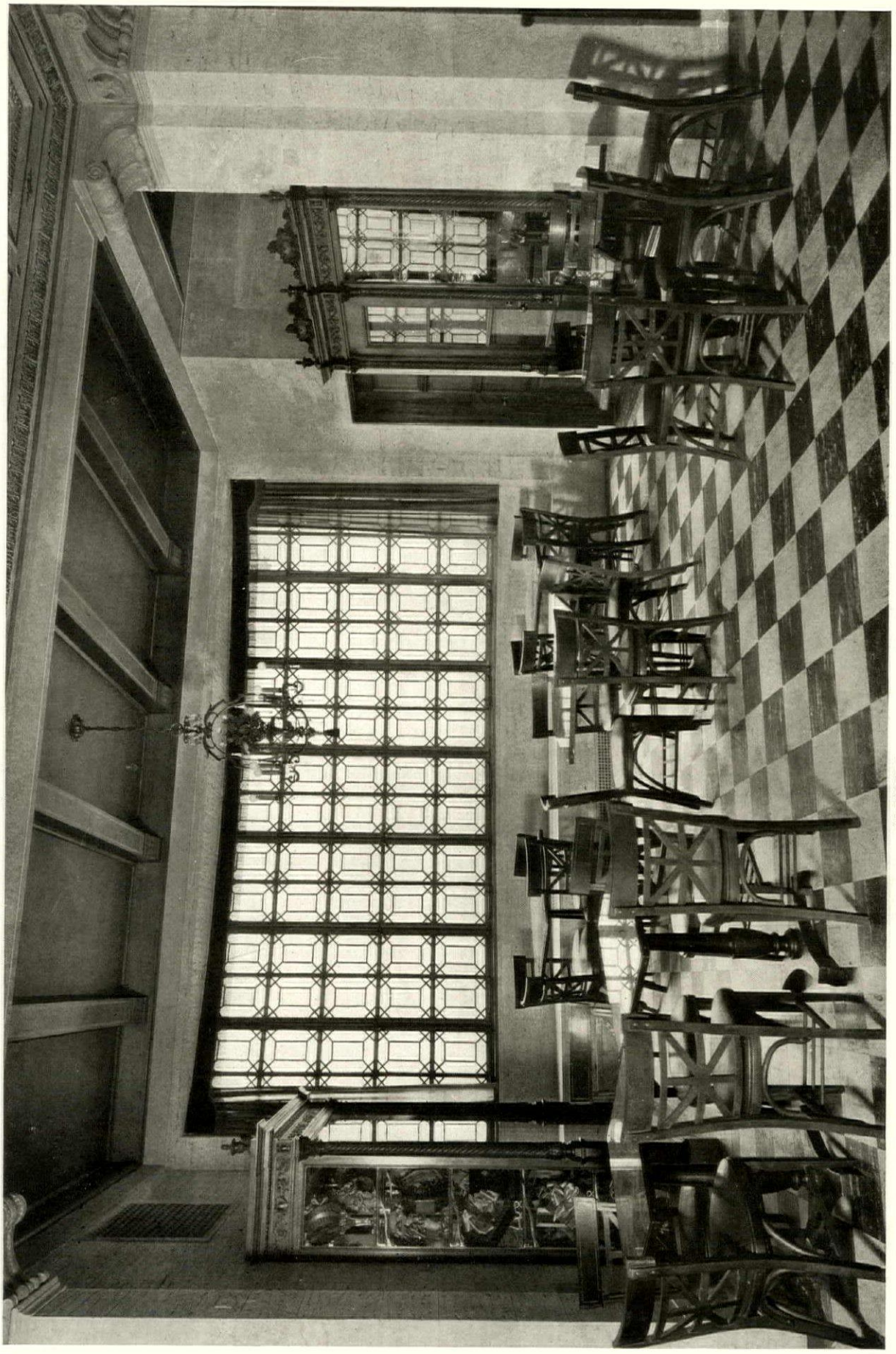
J. D. LELAND & COMPANY, ARCHITECTS




FIFTH FLOOR PLAN




FOURTH FLOOR PLAN



ALCOVE IN SECOND FLOOR TEA ROOM
BUILDING FOR FRANK G. SHATTUCK CO., WEST STREET, BOSTON
J. D. LELAND & COMPANY, ARCHITECTS; CHARLES E. BIRGE, ASSOCIATED

SPACE AT FRONT OF STORE

VIEW TOWARD REAR OF STORE

BUILDING FOR FRANK G. SHATTUCK CO., WEST STREET, BOSTON

J. D. LELAND & COMPANY, ARCHITECTS; CHARLES E. BIRGE, ASSOCIATED

DETAIL IN STORE, SHOWING REAR PUBLIC STAIRS

BOOTHS IN THIRD FLOOR TEA ROOM

BUILDING FOR FRANK G. SHATTUCK CO., WEST STREET, BOSTON

J. D. LELAND & COMPANY, ARCHITECTS; CHARLES E. BIRGE, ASSOCIATED

THIRD FLOOR TEA ROOM, LOOKING TOWARD ENTRANCE

ALCOVE IN THIRD FLOOR TEA ROOM

BUILDING FOR FRANK G. SHATTUCK CO., WEST STREET, BOSTON

J. D. LELAND & COMPANY, ARCHITECTS; CHARLES E. BIRGE, ASSOCIATED

# "Vanderhorst Row," Charleston, South Carolina

(A.D. 1800)

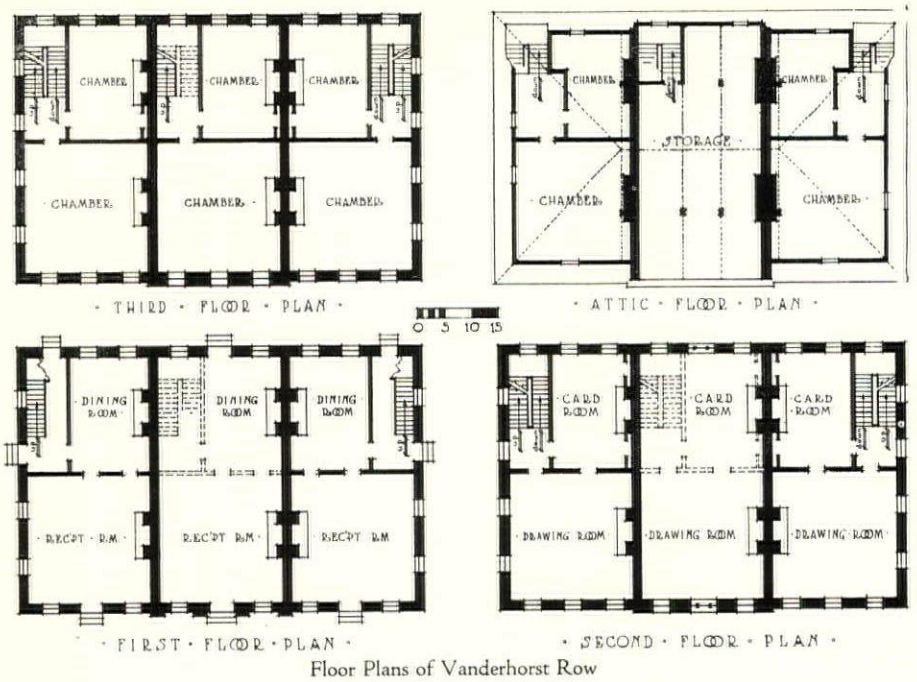
## A PROTOTYPE OF THE MODERN APARTMENT HOUSE

*By* SAMUEL LAPHAM, JR.

ONE naturally thinks of the apartment house as a modern invention, and to refer to a Georgian-colonial apartment house of the time of George Washington and John Adams will naturally evoke cries of mirth, if not charges of desecration from the admirers of that period, who would hate to admit that anything so prosaic and ultra-modern was even thought of in those times. But the germ did exist, even at the height of the period, for when Vanderhorst Row's massive walls were rising from the ground George Washington was still alive, and those standards of colonial architecture, "Homewood" of Maryland, "Woodlawn" of Virginia, and "The Octagon" of Washington, were either being planned or actually taking shape. And equally today with them, Vanderhorst Row survives and flaunts its date of completion, "A.D. 1800," on the marble tablet over its Palladian window for modern eyes to gaze upon.

In every analysis, by construction, by decoration, by social custom, it conforms to the modern apartment house of today as far as the idea could be carried in those times. By construction it conforms, because it is built as one unit under one roof, not as three separate structures pushed together, without accent, to form a tenement. It contains within itself three independent sub-units, all equally and individually complete. True, these units were placed vertically and not horizontally, as is the case today, but that does not violate the principle, for one might say that a modern apartment house is but a series of tenements placed horizontally on top of one another. By decoration it conforms, because it has the decoration of a private home, not the decoration, or rather lack of decoration, of a building to be let to the working class. Tenements are not decorated with stone lintels, keystones and plaques, and Vanderhorst Row is. Palladian windows have not been cheap in any age. In the interior we find fragments of wood cornices with modillions and flutings, and carved chair rails with traces of wainscoting. Only the mantels in the secondary rooms remain; the others have been torn away to be reset in modern houses, even as the early Christians pillaged the Roman temples for the adornment of their churches. Throughout, Vanderhorst Row shows that it was built not for tenement profits, but as a place the units of which would match any moderate

Street Elevation of Vanderhorst Row, Charleston, S. C.




Floor Plans of Vanderhorst Row

home of that day in any city on the Atlantic coast.

Why the idea of horizontal homes instead of vertical homes was not thought of, or if thought of abandoned, is easily determined. Social custom and medical opinion did it. Elevators did not exist, and to be faced with the knowledge that nowhere in the city did the general entrance room or general reception room occur above the first floor (this in order that the sheep might be weeded from the goats before any person entered the family precincts proper) was enough to make an owner desist. Also against the horizontal idea was the then established fact that to sleep on the first floor was dangerous. Yellow fever and malaria had their epidemics and were attributed, not to the mosquito, which ascends only a certain height in its nocturnal flight, but to the night mists from the then undrained marshes, rising each dusk to a definite level. It was thought that the mist harbored the diseases, and consequently must not be slept in. This fact, combined with established custom, rendered a horizontal scheme useless. The designer may have thought of it, but as instantly realized that the lower floor would never be taken and would be a dead loss, to say nothing of the damage to the desirability of the upper two floors by rendering them less readily accessible. In addition to this, the kitchens and servants' quarters were always in a separate building on account of the difference in race, and it was beyond question to design quarters for a whole retinue of slaves, floating in mid-air as it were, to serve the upper apartments. Thus medical theory, social custom and convenience united to eliminate the horizontal apartment house idea and produced in Vanderhorst Row a vertical example. They produced a Georgian-colonial house, but one that hid within itself the germ of the towering apartment houses of today. The idea may be said to have started in the *en bloc* houses of the Adam brothers in London, and to have gradually penetrated to the colonies, but to Vanderhorst or to his unknown architect-builder must be given credit for utilizing and advancing it with the greatest skill and refinement.

History can add but little. We find that Vanderhorst Row was completed in 1800 by Arnoldus Vanderhorst, Governor of South Carolina from 1792 to 1794. A companion house to this was erected a short distance away, but was torn down after the civil war. They indicated the period of prosperity that followed the American revolution, and were a product of the wave of extravagance, due to the large profits of that post-war period, even as we have seen the same wave in hundred-fold proportion produce the ornate 10- and 12-story apartments in the heyday of 1919 and 1920.

Considering Vanderhorst Row from the architectural viewpoint, many items of interest can be found in the reconstruction of the original scheme, for although the century and a quarter that has passed has seen it descend the downward steps of residence, rooming house, warehouse and storage building until it became a deserted shell, save for two rooms used as a cotton office, enough remains in one unit to match parts of the second and to reconstruct between them what is now entirely lost in the third. The outside dimensions of the building are exactly 48 feet by 75, the central portion having a width of 26 feet as compared with the 24 feet, 6 inches of the north and south sections, and projecting 4¾ inches beyond them. The ceiling heights are 12 feet on the first, 12 feet on the second, 9 feet, 3 inches on the third, and 8 feet on the attic floor.

The designer had a simpler problem than the designer of today. He had no plumbing and no bathrooms to cut up his plans; no kitchens and pantries and servants' rooms to be welded and forced into a harmonious connection with the major rooms of his units. All of what today would be called service rooms were by custom, as already said, placed in separate buildings, and thus it was done at Vanderhorst Row. Twenty feet to the rear of the house, according to Mr. H. B. Whilden, whose courtesy enabled the writer to investigate the premises, stood the secondary service building, containing servants' quarters, kitchens, coach-houses, etc. Of these no trace remains today, their very sites being covered by a warehouse built of the brick that was once in their walls.

Thus Vanderhorst Row, proper, was aristocratic in that it had major rooms only, and the architect's

scheme was not complex. The north and south units were identical, except being of opposite hand. At ground floor level are three entrances to each house, giving admission to persons of suitable degrees, the state entrance on the front, the family entrance on the side, and the service entrance at the rear, under the stairs. The first leads directly into the reception room, the others into the stair hall, which is flanked by the dining room. Passing through the reception room and ascending the stairs, one enters into the family drawing room from the stair hall. This is the most lavishly decorated room of any in the house, having a 14-inch denticulated wood cornice with a pentaglyph frieze and a chair rail with the frieze motif repeated thereon. To the rear, over the dining room, is presumably a card room or chamber, with a plain, 5-inch cove cornice and an uncarved frieze. Again ascending the stairs brings us to the third floor, where two chambers take the place of the rooms below, and twisting and ducking under the hip of the roof, as we mount the attic stairs, we find another set of two chambers lighted by dormers. Such are the two end sections of the group.

The central section, having light at the front and back only, is somewhat different. Reconstruction of the first and second floor plans is somewhat hypothetical. Partitions have been swept away, leaving only faint marks. Openings have been cut and filled, windows converted into tin-clad entrances for cotton bales, and the stairs removed. These changes leave little ground to build on, beyond the fact that the stairs ascended in the northeast corner. The drawing room on the second floor has the Palladian window, and traces would indicate that the card room also had one overlooking the harbor. There are also traces of panelwork below the chair rail where the other sections had plaster. What the owner of the central portion lost in side lighting he had made up to him in elegance and comparative splendor, but wreckage has left but the slightest trace behind. The central third floor matched the other two, but the attic was left unfinished and not cut up into rooms. The dividing walls, 21 inches in thickness, run solid to the ridge, the hip rafters of the end sections spanning from the corner of the building to the ridge, while the main rafters of the central section are carried on purlins resting on trusses of 48-foot span, running from front to rear wall and placed 7 feet, 8 inches on centers. These can best be described as being combined king and queen post trusses, with all members, both tension and compression, being of wood. The bottom chord of the king post forms the upper chord of the queen, the lower chord of the queen post being concealed between the ceiling of the third story and the attic floor. No cross bracing occurs in the central panel of the queen post, which is 8 feet high and 24 feet long —but nothing has happened. The timbers composing the trusses are all hewn and vary in size, according to position from 7 x 7 up to 7 x 13. The main joints are mortised, tenoned and pinned, the tension members being strapped to the others by wrought iron straps on each side, fitted over ring headed spikes, through which thin, triangular, wrought iron wedges have been driven.

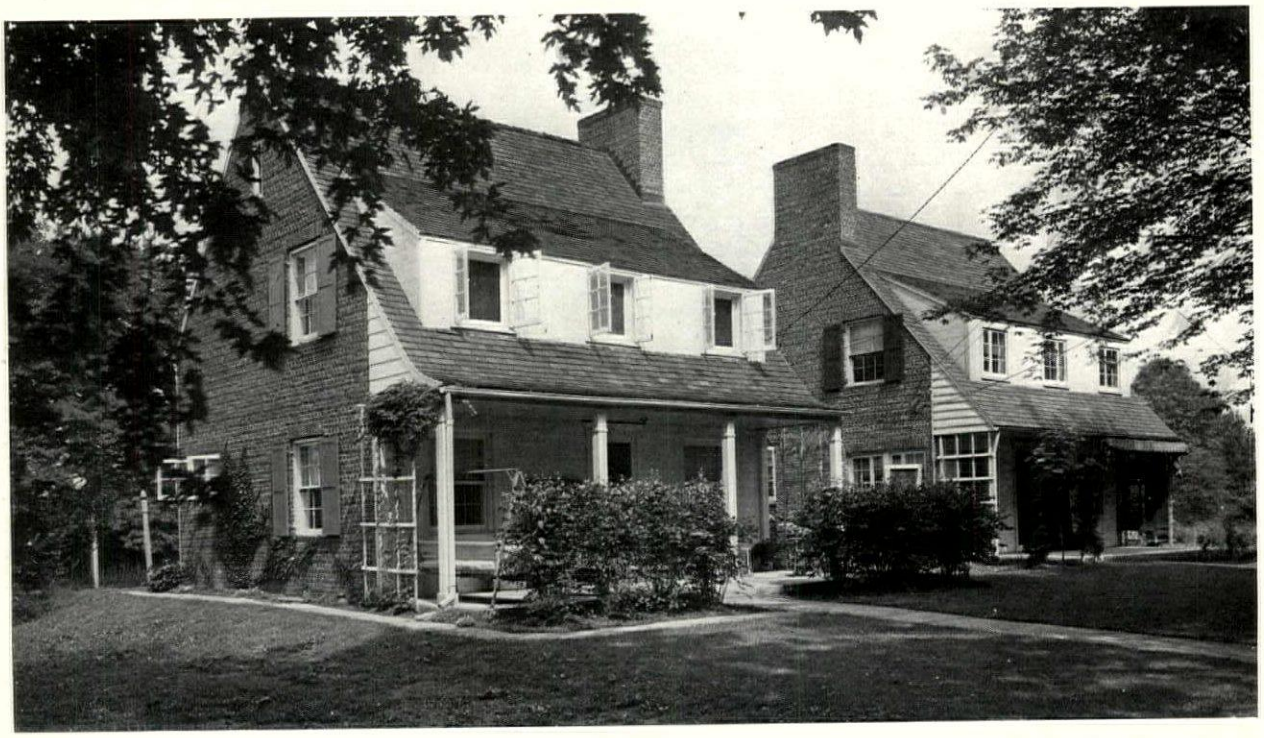
Solid exterior shutters are used throughout on the first floor. On the other two floors, interior blinds are used, folding back behind the interior trim into recesses in the thickness of the wall, thus giving the effect of paneled jambs. The mullions of the Palladian window are extended on the interior to the full depth of the frame, and the blinds of the central window fold back into them.

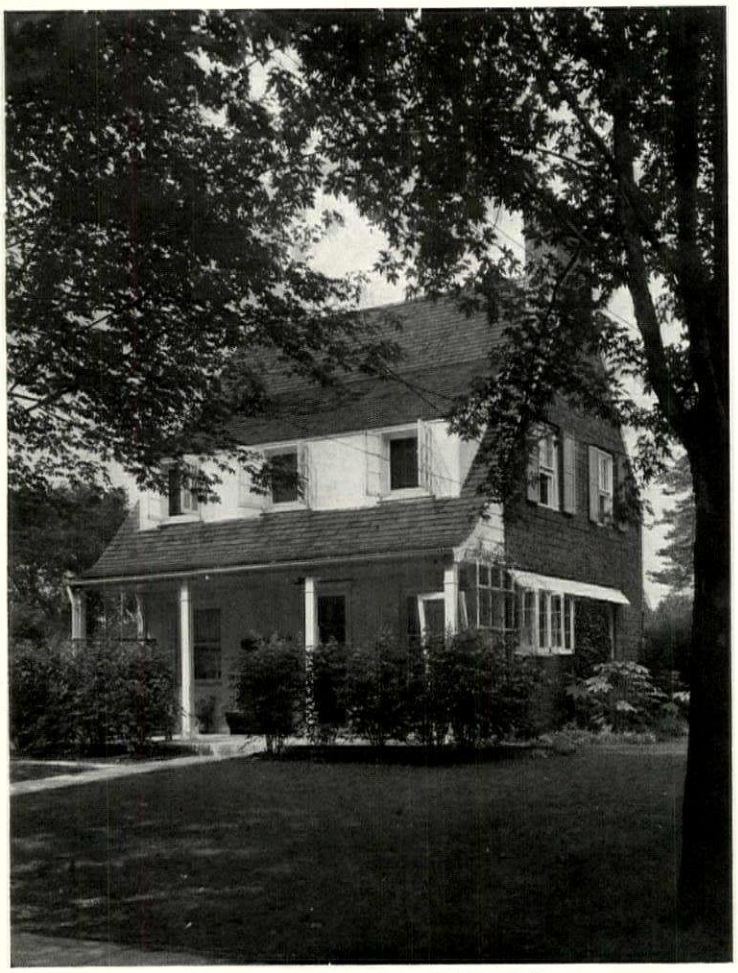
Externally, the photographs indicate the architectural lines and effect better than words could do. Seven West Indian hurricanes and one earthquake have clutched at Vanderhorst Row. The triangular brick pediment of the central portion, probably with a full elliptical oculus, some quoins and keystones, has been the price paid. The repaired brickwork can be easily identified. In addition to the feeling and the scale given by the fenestration, the chief interest is in the plaques and keystones. One rectangular plaque bears the word "VANDERHORST," the other the word "ROW," while the elliptical plaque gives the date, 1800. The keystones, plain, wedge-shaped blocks on the outer portions, become ornamental on the central division. Here they are channeled and ribbed, with raised buttons on the central rib. In fact the similarity to the keystones of "Woodlawn," Virginia (A.D. 1799), is so striking as to make one wonder whether it was due to chance or to copy by both builders of some imported plate of drawings, distributed throughout the colonies.

Such, in brief, is Vanderhorst Row. To praise it would be but to run through the list of qualities requisite to good architecture that any course on the philosophy of architecture names: strength, vitality, restraint, repose, breadth and scale,—all are there. Every factor that makes them—proportion, light and shade, color, solids and voids, balance and symmetry—can be found, and will be realized more and more when the building is seen in varying lights, ranging from tropical noon to winter twilight. It has seen much; it saw all of the notable men of the early republic and ante-bellum days, planters and statesmen, LaFayette, Daniel Webster, Calhoun, Pinckney, the Hamptons, Robert E. Lee; saw nullification and secession and the riots of reconstruction; saw the mustering for 1812 and 1845, the bombardments of 1861 to 1865, the captured Spanish shipping of 1898, and the khaki-laden transports of 1919; saw Jefferson Davis, Theodore Roosevelt and William H. Taft pass by. It is now but a shell, but in spite of that the building lives and has a spirit, as though the vibrations of events long past had given it a soul, and although year by year some little thing yields to the touch of time and of the elements, that spirit remains and impresses those who wander down the ancient street.

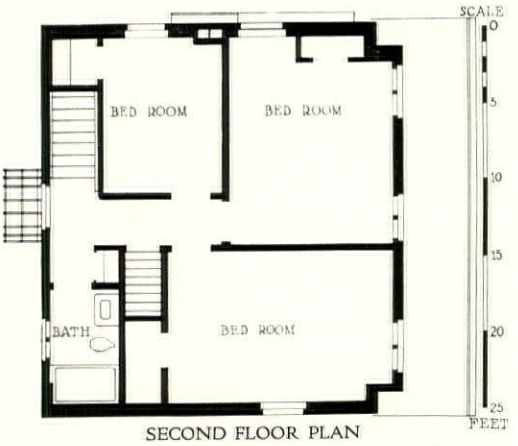
# Two Houses at Hackensack, N. J.

WESLEY SHERWOOD BISSELL, ARCHITECT

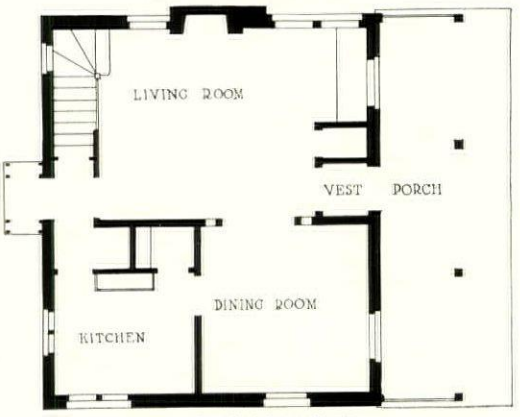




VIEW SHOWING LIVING ROOM END




SECOND FLOOR PLAN




FIRST FLOOR PLAN

*THESE houses, built in 1918-19, cost $5,600 each. They have terra cotta walls with exterior of four-inch brick veneer or stucco. Single-pipe steam heat.*

# ENGINEERING DEPARTMENT

Charles A. Whittemore, *Associate Editor*

## The Insulation of Dwellings

*By* GEORGE D. BROWN

THE problem of insulation in connection with dwelling construction is one which is age old, but its study in recent years has received a new impetus, due largely perhaps to the increased cost of fuel, and due also in no minor degree to increased knowledge of insulation problems. In the older days when building construction was almost entirely hand work, even to making the sash and frames, and when lumber obtained was of a little different character from that with which we are familiar today, houses were possibly less subject to leakage around windows and doors than the average house at the present time. The fact remains, however, that the people occupying the houses during that period were not so particular as to the temperature maintained in the dwellings as is the custom at present. Possibly to this may be attributed the average measure of health and the growing up of sturdy ancestors.

At the present time the high temperature which most people demand in their residences is, no doubt, in a large degree productive of colds or certain other forms of disease, which, while not serious, are annoying, and which, if we were willing to live in houses with a lower temperature, might in a large degree be eliminated. This is probably a debatable point, and this is not an attempt to make a scientific analysis of sanitary or biographical conditions in connection with insulation.

There is, however, an ideal at which everybody aims in residential work, and that is to maintain a constant degree of warmth in winter as well as maximum coolness in summer. Obviously this is impossible in houses which are poorly constructed or thrown together, and the first thing to be considered in regard to heat loss in winter is ill-fitting doors and windows and poor construction of walls and roofs. No matter how much protection one might give to various parts of the house, if a gale is permitted to blow through the openings around doors and windows, it would be impossible to maintain anything like livable conditions, except at an uneconomical rate of fuel consumption. The first thing, therefore, in connection with insulation is not necessarily to provide some medium to prevent heat loss in walls and roof, so much as it is to prevent unnecessary heat loss at all.

Whatever heat units are generated by the heat producer, whether it be hot air, hot water, steam, vapor, or any other medium, eventually are dissipated through these principal sources: direct radiation through the walls and glass areas, which is unavoidable; loss of heat through radiation from the heater or the conducting pipes; loss of heat through the necessary air changes for ventilation in the various rooms, which is accomplished to a large degree by fireplaces or by ordinary leakage, also by the heat transmission through walls, ceilings and roofs.

In order to have a residence with livable conditions, both as to heat and ventilation, it is necessary to maintain practically a continuous supply of heat throughout the 24-hour period, and this is absolutely determined when the number of air changes or amount of ventilation is established. Changes of air beyond the requirements of ventilation indicate a corresponding waste of heat.

In the majority of dwellings no direct system of ventilation is provided, the leakage around doors, windows and attic spaces usually being considered sufficient. This is, of course, a haphazard method and likely to be exceedingly uneconomical.

The ventilation of dwellings is a subject which can best be well dealt with in a succeeding article. There is no doubt but that demands are continually arising for proper ventilation in homes, and this cannot be accomplished by any such method as depending on ordinary leakage. Strange as it may seem, there are still people, some of them in the architectural and engineering professions, who think all that is necessary to ventilate a space is to take the air out. This is obviously impossible, as the air can be taken out only as an equivalent amount of air is supplied from some other source. Any ventilating fan installed in a box, tightly sealed except for the ventilating opening, would merely churn around a certain amount of air in the blades, a little air being forced into the box and a little air possibly being carried out of the box, but it would at once be obvious that the main air contents of such a box would not be disturbed to any great degree. Consequently in homes, particularly the better types, it would be well to introduce some form of fresh air inlet which will permit of a change of air in a proper manner without depending on leakage.

In many of the older houses, and in many modern houses of better class construction, unless the contractors are carefully watched, the spaces between studs will be found to be open from the bottom to the top, with free air passage into the basement,

and into the various spaces between the joists of the floor construction. This condition, due to difference in temperature, permits the circulation of air so that these spaces soon become nearly as cold as the outside temperature. For this reason, therefore, it would be uneconomical to attempt to insulate against loss of heat through the outside walls if conditions of this sort are permitted. There are a sufficient number of other reasons in good building construction why these spaces should be stopped up, so that every architect or engineer or home owner should be particularly careful to see that there is no direct leakage through the various stories through channels of this sort. Fig. 1 indicates a method of stopping up these spaces, and, while not directly connected with insulation problems, it shows what should be done to furnish the proper closure process.

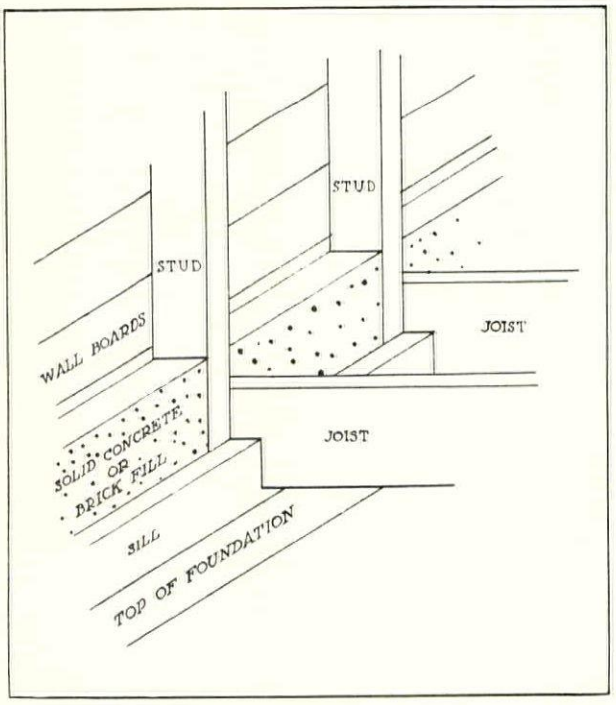



Fig. 1. Solid concrete or brick from top of sill or interior girder will stop air circulation through wall spaces

Not only is it important to prevent cold air from the outside coming into the house, but it is also important to prevent the warm air inside the walls and ceilings from being chilled by almost direct contact with the outside air. This can be accomplished in a variety of ways: First, by doubling up on present forms of construction. Second, by eliminating some of the construction now in use and substituting other materials which have a definite value as insulating mediums. Third, by adding still another insulating medium to the present forms of construction. The second method is particularly applicable in cases of stucco work or brick veneer, as will be seen by reference to Fig. 2. The latter method is efficient up to the point where the additional expense necessitated by the installation of this material effects economy in fuel consumption.

Fig. 3 illustrates one method of insulating the

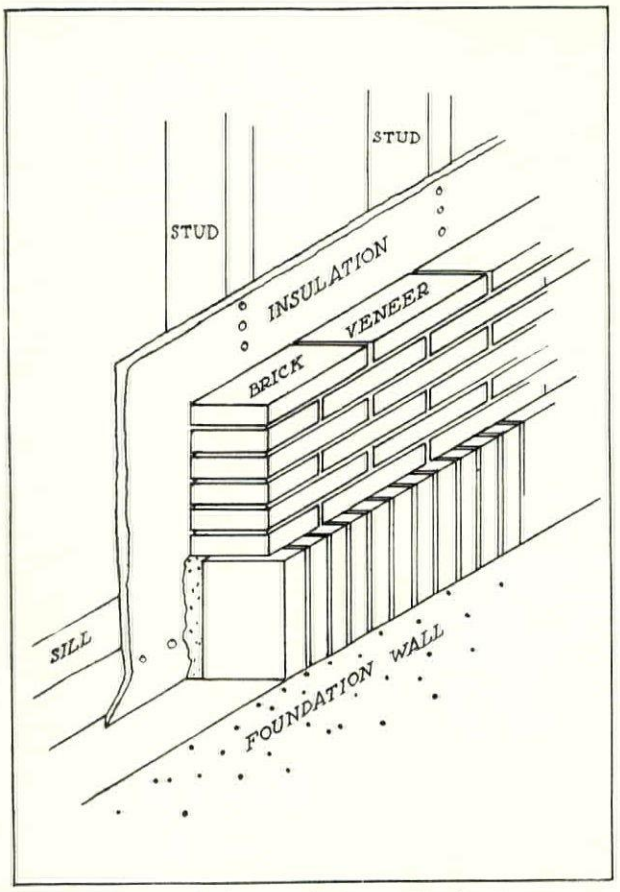



Fig. 2. Insulation applied to outside of studs instead of ordinary boarding

exterior walls which has frequently been adopted with considerable success. This method has also the additional advantage of serving as an additional fire protection in case the material is of a non-inflammable character.

There are at the present time in the market such a variety of materials which have insulating values of various kinds that where a medium of this kind is to be used the architect or engineer should carefully study the relative values of the different types

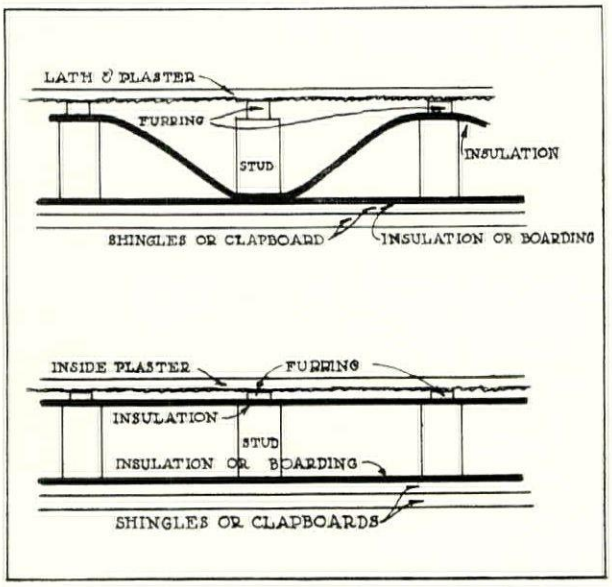



Fig. 3. Two methods of insulating outside walls

for the particular position where they are to be used. For example, certain types of installation will require a flexible insulating material; other installations will require that the material be in a loose form packed in; other conditions will indicate the use of a rigid material, which may serve not only as an insulation, but also as a basis for plaster.

When insulation is mentioned, the material most commonly associated with it is cork board, and in those situations where it is easy to apply it structurally, it is as good as any insulating material available. There are, however, a considerable number of insulating fabrics and a few insulating boards which equal cork in efficiency, and which are much more practical in their application. These insulating materials are made from vegetable fibers such as seaweed, flax straw, wood pulp and the bagasse from sugar cane. Those which are mentioned here as fabrics are such as are made in pliable form; those which are mentioned as boards are such as are made in rigid form having considerable structural strength. Several of these insulating materials have thermal values closely approximating that of cork. In practical use, on account of much fewer joints and absence of air holes, some of them are fully equal to cork as insulation and in addition are much more readily applied.

In most of the tabulations of values of insulating material cork is taken as the standard. It may be because that is the best known medium for the prevention of heat loss. Some of the newer materials coming on the market have, however, a very high value of conductivity which closely approximates, if in some cases does not actually exceed, the values of cork. Tables are as a rule very deceptive. They do show, however, some interesting features in comparison with standard building materials, but without a careful analysis between the laboratory tests and the coefficient value of any insulating medium, and a similar careful analysis under practical conditions, the tables themselves do not give the information which the architect and engineer are actually seeking.

It is perfectly possible, as an engineering function, to figure out the exact theoretical amount of heat losses to the various parts of a building, and by comparing this theoretical heat loss with the theoretical insulating coefficient one can readily make a table showing a very high value in thermal efficiency for the various insulating mediums. In some cases the saving in fuel consumption has been calculated as high as 33 per cent. It is safe to say, however, that the real insulating value of almost any material may be figured on a basis of from 15 to 20 per cent fuel consumption without fear of exaggeration.

In the analysis of the various types of insulating mediums on the market under practical conditions, it would probably be difficult to measure a variation of over 15 per cent in the conductivity of the different types of insulating materials; that is assuming, of course, that the standard insulating material is used as a type and that ordinary sized building paper or tar paper is not considered the same as the flexible or rigid insulating materials.

It is apparent to any architect or engineer who figures the various conditions in the attic spaces of dwelling houses or of other types of buildings, during the winter or the summer months, that there is a point here where heat losses can readily be intercepted. Many times an attic, unused, undivided and unfinished, will be unendurably cold in winter. This blanket of cold air naturally rests on the floor timbers and the ceilings of the floors below, and has a tendency to chill all of the air which comes in contact with the surface. It is obvious at once, in pursuing the theory that warm air rises, that when the warm air comes in contact with this surface a chill falls to the floor so that in a very short space of time the entire room below the attic space would assume the temperature of the attic space itself were it not for the heat units put in through the heating apparatus. It can be seen at once that a condition of this sort causes an extraordinary strain on the heating apparatus, and that unless all of these conditions are taken into careful consideration in planning the heating installation, the radiator or register sizes may be found, after the first heating season, to be altogether inadequate.

On the other hand, in summer the space under the roof becomes unendurably hot, even with windows open so as to produce a circulation of air. Some roofing materials seem to radiate the heat to a far greater extent than others. A slate roof, for example, radiates heat much more readily than wood shingles. Consequently, attic spaces under a slate roof are quite likely to be much warmer in summer than corresponding spaces under a wood shingled roof. The process here is exactly reversed from the process in the winter months. The excessive heat in this upper area tends to communicate itself to the stories below, so that the rooms under these unused attic spaces are correspondingly warmer than the rooms which are under an attic space where insulating materials have been used.

It has been found that by the practical application of an efficient insulating medium, applied directly to the under side of the ceiling rafters, provided the work is carried out with such care as to allow no extraordinary circulation of air from the attic space itself behind this board, the temperature in the attic, during the extremes of summer and winter weather, will be vastly different. As an additional protection, in some instances, both the upper and under sides of the ceiling rafters are covered with an insulating material. On the roof side the boards are applied above this. On the attic side the furring, lath and plaster may be applied if the attic space is to be finished.

There is another phase of this work which is well worth considering on sloping roofs. If the attic space be properly insulated against heat loss, the normal temperature of the upper and under sides of the roofing material itself, for instance the slate,

will be so nearly the same that the only melting effect on the snow as it falls on the roof will be from the rays of the sun. This, of course, would be nearly uniform. While if the attic space be not insulated, the heat loss being greater at the upper part of the roof than the under part near the eaves, on account of the tendency of warm air to rise, the snow will melt and form slides which sometimes are not only objectionable but dangerous.

It is not intended to imply the impossible, that by insulating the under side of the walls this will absolutely prevent snow slides, but it is a fact, which can be demonstrated by observation, that the snow slides are far less numerous on insulated than on uninsulated roofs.

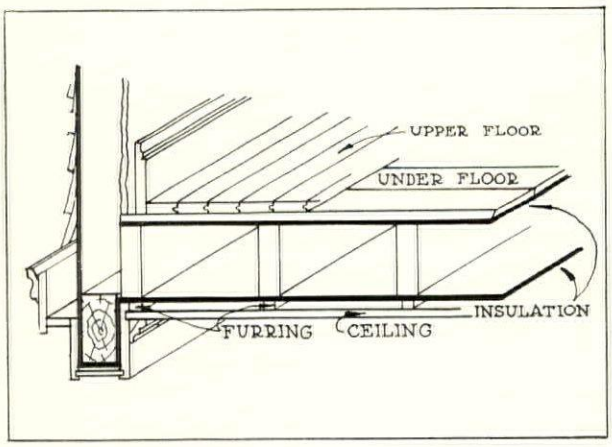



Fig. 4. Insulation of floor over an open piazza

There is one frequent instance in residence construction where some good type of heat installation is imperative. Fig. 4 illustrates such a case and suggests a remedy. This refers particularly to a bathroom constructed over a piazza, but the same insulation is necessary wherever any room, window seat or other occupied space is exposed in this manner to outside temperature. In many modern houses it is found desirable to increase the occupied space on the second floor beyond the area of the ground floor. To accomplish this rooms are pushed out over piazzas or an overhang is constructed. Unless the spaces between the timbers are well filled with a non-conducting material, or unless the floor or under side of the timbers is properly insulated, the resulting cold floor alone causes well founded criticism of the architect or engineer responsible for the work. It is difficult to believe that anyone with the least degree of experience or common sense would expose plumbing pipes or heating conductors in such a situation. The fact is, however, that such things are done through, let us say, inexperience, although oversight might be a better term to use. Such construction should be classed among the criminal offenses.

There are many ways in which the insulation may be accomplished besides that shown in Fig. 4. For example, in Fig. 5 the spaces between the joists are

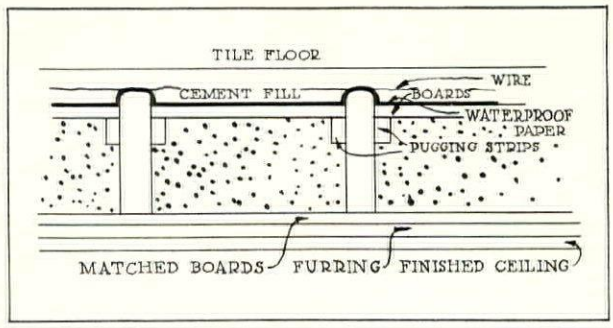



Fig. 5. Loose filler insulation method for exposed floors

completely filled with a loose material. In some cases sawdust, shavings, mineral wool, asbestos, or other forms of loose material may be used. In this construction use of the insulation is not subject to the same criticisms as when the identical material is used to fill vertical spaces between studs.

No matter how fond we are of the "loose" type of insulation, we must admit that during the passing of time the material becomes more dense and closely packed, if it be inert, than when first used. Hence a portion of the space will become uninsulated, while the remainder of the space may be no better insulated than at the beginning. In any insulation medium it is the confined air spaces which afford the resistance to heat loss, and the solid matter merely holds the air spaces in place. If, then, we use a material subject to deterioration from any cause, be it rot, decay, disintegration or compacting, we are solving the problem but temporarily.

Insulation can be used to great advantage in many ways in domestic construction, refrigeration spaces, cold rooms, heating chambers, etc. The first cost should not be a deciding factor. We all remember the days when the covering of a heating system was considered a luxury. We know better now. Soon every home owner will ask his professional adviser on building, "What kind of insulation shall I use?" The architectural and engineering professions can well devote some time to this important matter, and determine the adaptability of the various materials to their respective needs.

The analysis of insulation materials should show:

1. Is the material a poor conductor of heat?
2. Is it inert?
3. Is it fireproof?
4. Is it subject to rot or decay?
5. Is it sanitary, or will it become a breeding place for germs or animals?
6. Is it easy to handle and apply?
7. Has it any characteristics of ductility, or is it brittle?
8. Has it any structural value?

A material which will show the necessary characteristics for the work in hand will be a good investment for the owner.

# Wiring for Electrical Appliances

*By* WILLIAM H. WHITTON

A SUBJECT that still seems to remain largely in the realm of conjecture, even among the central stations that are supplying the electrical service, is the extent to which provision should be made in residential structures, whether apartments or private houses, for the use by the occupants of the various forms of electrical appliances without which, we are about ready to believe, no home is complete. Involved in it are not only the questions of the number and location of outlets—"convenience outlets" is the latest term—to which the appliances may be attached, but that of the capacity of the wiring supplying them, and of the service cables from the street.

That the latter considerations are important may be gathered from the fact, which will perhaps be surprising to many, that it is of quite frequent occurrence in apartment buildings of certain types of occupancy to find that the total load of the household appliances is equal to either the lighting or the power installation of the building, and that in extreme cases it may even exceed the two combined. Fortunately for the wiring in some of the buildings in which this condition prevails, particularly the older ones, the variety of the electrical devices in use, coupled with the natural irregularity in the time of their operation, creates a high diversity factor, spreading the load demands fairly well over the entire day. A certain proportion of the appliances may be expected, however, to be in service during the hours of maximum lighting requirements, and due provision for this condition should be made in planning the wiring capacities of new structures.

Data have been obtained on the subject in a number of typical New York residential buildings, a review of which may be helpful in estimating the probable load requirements of household equipment and in planning an adequate number of convenience outlets, although the rapidly growing popularity of electrical devices of all kinds may set at defiance even the most carefully prepared estimates. A list of the appliances counted in three typical apartment hotels, and included here, will give a better idea of the extent to which this condition prevails than can any general description. The buildings in question are of the usual high class found on New York's upper west side, and can be considered as fairly representative of their type.

Despite the wide variety of utensils listed, it will at once be observed that cooking equipment, both numerically and in the sense of power requirements, is the most important classification. For instance, in Hotel No. 1 we find that in addition to a large number of smaller cooking articles, there are five stoves requiring 7,500 watts, or 1,500 watts per stove, and in Hotel No. 3, 38 stoves requiring 68,716 watts, or 1,808 watts per stove. Second in importance to the cooking implements is the electric iron. As in the case of small stoves and grills of a capacity of 660 watts or less, terminals for flexible cords are provided, and it is then left to the purchasers to connect them to whatever lamp sockets or convenience outlets there may be in the apartments or in the particular rooms in which they are used. An outlet is of course very much better adapted for the purpose than a lamp socket, especially if provision has been made for utility outlets having more than ordinarily heavy wire, but if a proper outlet is not conveniently situated, then the lamp socket is naturally pressed into service. The remedy, of course, is to add more outlets, but although not a difficult thing to have done, for many reasons it is usually simpler to tolerate the evil. In a large sense, the problem is one that demands preventive measures rather than remedies.

To just what extent voltage regulation is affected by the appliance loads in buildings in which their use has increased to such an unexpected extent depends, of course, on the amount of copper provided for the main and branch wiring, the number of outlets per circuit, and the extent of coincidence in the use of the appliances. Even one 600-watt device connected to a lightly wired circuit may occasion a sufficient drop in the voltage to cause a perceptible dimming of any lamps burning on the same circuit. It is quite usual, in planning wiring layouts, to assume an average load intensity of from 50 to 55 watts per socket or outlet. In Hotel No. 1 there are 453 convenience outlets, which at 50 watts each would provide for a load of 22,650 watts. Compared with this is the total appliance capacity of 111,567 watts, or a possible load of al-

| Hotel No. 1 | | Hotel No. 2 | | Hotel No. 3 | |
|---|---|---|---|---|---|
| Appliance | Wattage | Appliance | Wattage | Appliance | Wattage |
| 25 Percolators | 10,000 | 14 Percolators | 5,946 | 23 Percolators | 13,435 |
| 12 Toasters | 6,000 | 4 Toasters | 2,175 | 18 Toasters | 9,765 |
| 4 Heaters | 2,640 | 1 Heater | 550 | 4 Heaters | 2,600 |
| 85 Grills | 56,100 | 23 Grills | 15,016 | 36 Grills | 20,450 |
| 5 Stoves | 7,500 | 20 Stoves | 10,786 | 38 Stoves | 68,716 |
| 2 16-inch fans | 150 | 69 Fans | 3,810 | 1 Fan | 60 |
| 32 Irons | 18,525 | 30 Irons | 16,026 | 42 Irons | 22,435 |
| 4 Vacuum cleaners | 946 | 2 Telautographs | 150 | 1 Vibrator | 24 |
| 3 Dental drills | 360 | 3 Vacuum cleaners | 300 | 2 Sterilizers | 1,200 |
| 3 Dental sterilizers | 1,800 | 1 Vibrator | 40 | 1 Egg boiler | 600 |
| 3 Victrolas | 561 | 1 Massage mch. | 35 | 2 Hair dryers | 380 |
| 1 Dental converter | 120 | 1 Hair dryer | 35 | 1 Violet Ray mch. | 50 |
| 1 Curling iron | 15 | 3 Curling irons | 86 | 3 Hair curlers | 160 |
| 1 Heating pad | 15 | 1 Sewing machine | 37 | 1 Waffle iron | 600 |
| 3 Sewing machines | 323 | 1 Hotplate | 1,306 | 9 Hotplates | 5,224 |
| 1 Moving Pict. mch. | 47 | | | 3 Ovens | 2,670 |
| 1 Emery wheel (1 1-6 h.p.) | 124 | | | 1 Heating pad | 50 |
| 2 Dental wheels (1-8 h.p.) | 186 | | | | |
| 1 X-Ray machine | 5,968 | | | | |
| 1 Player piano | 187 | | | | |
| 190 | 111,567 | 174 | 56,298 | 186 | 148,419 |

most five times as great as the wiring presumably was designed for. Of course it is not to be expected that all of the equipment will be in service at the same time, but on the other hand the load will undoubtedly grow from year to year, and it is to be expected that presently the normal wiring capacity will be absorbed, leaving no margin with which to carry the additional appliances, or the many floor or table lamps which are supplied from baseboard or wall outlets.

In Hotel No. 2, which is more modern by a number of years than No. 1, the outlet provision is much more ample, there being 770 outlets, representing a normal capacity of 38,500 watts. The appliance load at its maximum could be 56,298 watts, which is only about 44 per cent greater than the outlet rating. In Hotel No. 3, which is approximately of the same age as No. 2, a much less favorable showing is made. The normal capacity of the 385 outlets, 19,250 watts, must suffice for a possible load of 148,419 watts, which is almost eight times the outlet rating.

The comparison of the lighting, appliance and power installations of these three buildings may be of interest, more especially the relative values of the two first mentioned, since they are dependent for their current supply on the same set of building risers. The unexpected prominence of the appliance as a serious factor in determining load conditions will be apparent from these figures:

| | Hotel No. 1 | | Hotel No. 2 | | Hotel No. 3 | |
|---|---|---|---|---|---|---|
| | Watts | Percentage of Total | Watts | Percentage of Total | Watts | Percentage of Total |
| Lighting inst. | 64,765 | 29 | 70,360 | 37 | 120,225 | 30 |
| Power " | 50,541 | 22 | 61,265 | 33 | 135,026 | 33 |
| Appliance " | 111,567 | 49 | 56,099 | 30 | 151,403 | 37 |
| Total | 226,873 | 100 | 187,724 | 100 | 406,654 | 100 |

In housekeeping apartments and residences the conditions differ in many respects from those existing in apartment hotels. Observations of the appliance situation were made in a very large number—running into the thousands—of electrically served residential properties representing practically all scales of living. The outstanding features are the almost universal prevalence of use of electrical articles of one kind or another, and the serious inadequacy of the provision made for their proper use, it being necessary, in far more instances than the bare figures indicate, to connect the appliances to lamp sockets—an unsightly, inconvenient, and in some instances hazardous method.

Of the total number of premises surveyed, 69 per cent have at least one electrical device in more or less regular use. There are, however, only 26 per cent of the premises which are equipped with convenience outlets of any sort—baseboard, wall or floor—and it is a fairly safe assumption that the outlets have in many instances been so sparingly provided as largely to fail in meeting the requirements of location and accessibility.

Owing to the much smaller number of cooking utensils, the question of wiring adequacy in non-housekeeping residential property is less of a problem than in the housekeeping type, but the very general use of electric irons calls attention to the desirability of making practically 100 per cent provision for the use of these articles. Irons account for 60 per cent of the entire number of appliances recorded, and owing to their relatively high power requirements, for a very much higher proportion of the electrical load. Next in order, numerically, come vacuum cleaners, followed by toasters, percolators and heaters. The actual figures in a number of typical apartment houses are given here.

HIGH GRADE ELEVATOR APARTMENTS

| Apt. House No. 1 | Apt. House No. 2 | Apt. House No. 3 |
|---|---|---|
| 64 Apts. | 108 Apts. | 25 Apts. |
| 53 Irons | 59 Irons | 25 Irons |
| 40 Vacuum cleaners | 35 Vacuum cleaners | 15 Vacuum cleaners |
| 16 Toasters | 28 Toasters | 9 Toasters |
| 10 Percolators | 6 Percolators | 5 Percolators |
| 1 Heater | 12 Grills | 1 Grill |
| 2 Sewing machines | 3 Heaters | 1 Heater |
| 1 Heating pad | 3 Vibrators | 1 Heating pad |
| 1 Drill | 5 Fans | 1 Thermolite |
| | 4 Curling irons | |
| | 2 Heating pads | |
| | 1 Sewing machine | |

NON-ELEVATOR APARTMENTS

| Apt. House No. 1 | Apt. House No. 2 | Apt. House No. 3 |
|---|---|---|
| 5 Apts. | 23 Apts. | 20 Apts. |
| 3 Irons | 16 Irons | 19 Irons |
| 3 Vacuum cleaners | 4 Vacuum cleaners | 7 Vacuum cleaners |
| 1 Toaster | 4 Toasters | 2 Toasters |
| 1 Percolator | 1 Percolator | 4 Percolators |
| 4 Fans | 1 Fan | 5 Grills |
| 6 Medical appliances | | 1 Heater |

In Elevator Apartment No. 1, there are 162 convenience outlets and 1,633 lighting sockets, in 64 apartments, the occupants of which use 124 appliances, requiring power totaling 47,525 watts. The number of portable lamps attached to outlets is not recorded, but making some allowance for this purpose, it seems clear that many of the tenants must be inconvenienced by a scarcity of outlets, for in the majority of instances an outlet, to be properly useful, must not be many feet removed from the spot at which the appliance is to be used. A heater which can only be connected in the dining room will hardly serve to remove the chill in the bathroom, nor will an outlet in the drawing room prove very helpful when the problem is the serious one of energizing the family curling iron.

The figure of about 2½ outlets per apartment prevailing in this building, is fairly representative of the usual small but moderately high priced apartment, but is very much higher than the average throughout all classes, which is but slightly more than ½ outlet per apartment. The result of this almost universal lack is seen in the common use of attachment wires dangling from lighting fixtures, a situation which was very happily hit off in *Punch* some time ago by a cartoonist who pictured a breakfast scene in a prosperous English household. Draped from the ceiling fixture and from a number of wall brackets was shown a bewildering array of flexible cords. Among the complexities of these Jeems, the butler, bearing a tray and a pained expression, was warily making his way, reflecting, meanwhile, on his troubles. "This blessed 'ouse," he meditates, "is so full of modern conveniences that life has become one bloomin' gime of skippin' rope.'

# Stains for Interior Finish

*By* ALBERT B. PATTOU

STAINS, as applied to present-day interior wood trim, are divided into four classes: acid, spirit, pigment and oil. Each presents advantages as compared with the others and in turn possesses disadvantages,—wherein and why will be explained.

## Acid Stains

These stains may be purchased in dry form as aniline powders to be dissolved in hot water, so many ounces to the gallon, according to the strength of color desired, or bought in liquid form, that is already so mixed. It saves time to buy them in liquid form, and although some prefer the dry form in order to produce a certain shade, it is inconvenient unless there are facilities for having hot water on the site where they are to be used. The drawback to more extensive use of this clear, brilliant type of stain is that the water raises the grain of the wood, particularly on soft woods,—cypress, gum, fir, etc. The wood must therefore be sanded down again, and on large work this additional labor expense is an almost prohibitive factor.

Even so, where window casements, doors, fixtures or other trim are to be stained red mahogany and are exposed to sunlight, there is no alternative. An oil or spirit stain of the same shade would soon fade out to a sickly pinkish brown or yellow and forever after constitute an eyesore. In many apartments and store windows today may be seen the sad results of trying to provide a red mahogany finish with something other than a water stain. Under present conditions, however, this is not a serious consideration, for the reason that brown mahoganies, walnuts and enamels seem to have the field pretty much to themselves.

Under acid stains might also be included a chemical variety which differs only in that it does not contain aniline dye. Almost the sole modern use for this type lies in securing the fumed oak effect originally produced in furniture by use of the slow and cumbersome ammonia box. The wood is now first treated with a water solution or toner of soluble acids, which does not really color the wood but assures a uniform finish when the fumed oak acid stain itself is applied later. There are also fumed oak penetrating oil stains on the market, which stain in one application, but their tendency is to dull the flake of quarter-sawn oak rather than to bring it out.

Another use for a chemical type of acid stain is arising in connection with the revival of use of bird's-eye maple. It is not now finished a pale natural, but a rather dark brown, and in order that the "eye" may be brought out and an even color assured, a toner is being used, as with fumed oak. It is a question, however, whether this finish will ever become popular on interior trim, as even on furniture it is thus far largely confined to overlay work.

## Spirit Stains

The chief advantage of spirit stains, which come both as liquids and as aniline powders soluble in alcohol, is that they dry very quickly and penetrate well. The quick drying, however, also involves a disadvantage for the reason that when the stains are applied with a brush they may show laps, particularly in the lighter shades of mahogany, which are very brilliant. This "lapping" is overcome in furniture factories by using the air brush. So well do spirit stains penetrate that they may even be applied over varnish, and owing to this they are very popular for touch-up work, that is, when it is not desired to clean and refinish all over. This of course requires skillful handling and matching of shades, so that the dry forms are usually purchased.

What keeps spirit stains from more general use, however, is the fact that they are so fugitive to light. This is particularly noticeable in the red and reddish brown mahoganies, which fade more quickly even than the same shades of oil stain. Black spirit stain is of course fast, and is extensively used to imitate ebony.

## Pigment Stains

In the days before coal tar derivatives were widely used, painters and wood finishers made their own stains with linseed oil, Japan drier, turpentine, benzine and colors such as sienas and umbers for oak, burnt siena and rose pink for mahogany, burnt umber and Van Dyke brown for walnut, etc., ground in oil. These stains are still used to some extent and pass muster for certain classes of cheaper work. But even when the coloring matter is of the finest they have to be carefully mixed and strained, and when applied they tend to color the surface of the wood rather than to dye the wood fibers and so bring out the figure. This is the real purpose of stain, and by reason of the fact that they do it so much better, the anilines have the field largely to themselves for all medium and fine wood finishing.

Pigment stains are combined with clear varnish to produce what are known as varnish stains, sold in smaller packages, half-pints, pints, quarts, etc., to consumers for finishing woodwork, floors and furniture. They are easy to use, combining the two operations of staining and varnishing, and roughly that of filling, in one. They are not used by painters, of course, any more than pigment stains are used by Grand Rapids furniture manufacturers.

## Oil Stains

So far as interior woodwork is concerned, oil stains have perhaps the largest use of any of the stains mentioned here. They brush easily, bring out the wood figure well, are fast as to light except in

red mahogany or green, and do not lap or raise the grain. They dry slowly and often require wiping to insure a clear effect. The word "penetrating" is generally used in connection with them to differentiate them from the stains which *cover* rather than *dye* the wood.

Aniline oil stains are composed of a number of basic oil soluble anilines,—for red mahogany there would be black, yellow, red and scarlet powders mixed with heat in benzole. Other chemicals are then added which help to make the whole brush out better, penetrate more deeply, stay in solution, or give some desirable working quality.

One disadvantage of a number of aniline oil stains, which is also true of aniline acid stains, is a tendency to bleed through succeeding coats of varnish. To meet this, particularly in mahogany, painters and wood finishers apply a thin coat of shellac over them, some even over the filler as well, when the wood is open-grained. This treatment is usually effective and also insures against "tacky" varnish, that is, varnish which does not dry as a result of being applied too soon over slow-drying stain.

## Which Stain to Specify

In considering which wood trim stain to use, it is necessary to go back to first principles and recall that stains today serve three purposes: to bring out the beauty of attractively figured woods, to tone down the jar of exaggerated figures, and to secure a harmonious color relation between the wood and the rest of a room's decorative scheme.

The popular woods used for interior trim today in houses of the $15,000 to $35,000 class, leaving enamel work out of consideration, are birch, gum, oak and selected soft woods. Others are used, redwood for instance on the Pacific coast, but owing to natural color they are very often not stained at all.

## Birch

Birch, being close-grained, requires no filler and is stained in imitation of mahogany and walnut. When stained to imitate red mahogany the idea is usually to produce a colonial effect. On staircases, for instance, the red stain would be on handrails and treads, with white enamel on the risers and spindles. An acid stain should be used on this work in preference to oil or spirit to insure permanence of color. Semi-gloss or dull rubbed varnish is customary.

To imitate brown mahogany an oil stain is satisfactory, but it should be wiped to insure uniform color and clearness of tone; a wash coat of shellac and either two coats of flat varnish or a coat of varnish rubbed dull should follow. What are known as antique or Adam Brown stains are correct shades. To imitate walnut an extra strong oil stain of that color should be used, as the reddish cast of the birch must be subdued. The same strength of oil stain as is used on walnut itself or gum is not satisfactory for this reason. The varnish finish is the same as for brown mahogany. Walnut is closely imitated in birch.

## Gum

Gum, either red gum or sap gum, may be finished to resemble walnut so closely that only experts would be able to tell the difference. It takes an oil stain perfectly, and this need not be strong since the wood has a rich, natural color of its own. Being close grained, it requires no filler, and is most attractively finished with a coat of shellac over the oil stain, then waxed. A more durable finish, without sacrificing the satiny sheen and soft color, may be produced with flat varnish instead of the wax.

For finish of Circassian walnut, which is lighter by several shades than regular walnut, gum should have an acid stain, as an oil stain simply reduced in strength will not give as clear toned an effect. Gum may also be stained red or brown mahogany; for the former, and cherry, a water stain should be used, while for the latter an oil stain is satisfactory.

## Oak

Oak is not as popular for interior wood trim as in past years, its use being just now largely confined to floors. There are any number of stain treatments for it: golden, light, antique, weathered, bog and the various periods: Gothic, Flemish, early English, Italian, etc., and ready mixed stains for producing these effects are readily available. Oak is rarely colored with anything but an oil stain, and never in a red color.

Being open-grained, oak requires a filler, and this leads to more or less continuous experimentation in novelty effects brought about by harmony or contrast in the filler and stain. An example of harmony is silver gray oak, produced by a gray acid stain all over and a white or grayish white filler in the pores. The effect is rather pleasing for certain rooms, and variations of it on the Pacific coast are popular, being known as "driftwood."

Another novelty effect is known as Italian or "dusty oak," the wood being stained a reddish brown on the order of fumed, lightly shellacked, and finished with a wax colored gray, which fills the pores to some extent and gives the dusty appearance. "Frosted" oak is on very much the same order, and like the others originated with furniture styles.

Contrast in novelty effects on oak is had by staining the wood brown, gray or green and filling the pores with aluminum or gold. Some of the conventional oak effects are produced without any filler at all beyond shellac and wax: Jacobean, fumed, mission, etc. Very rarely oak is stained a forest green or a smoked color, but in the former case neither an oil nor an acid stain can be guaranteed not to fade; a permanent green has not been found.

## Pine and Cypress

Oregon pine (or Douglas fir) has a rather violent figure, and this is hard to tone down even by applying the stain rather strong. It requires no filler,

and is usually finished in antique and dark oak colors. An oil stain is preferable and never an acid stain, as the necessary sanding is endless. Cypress is also rather highly figured, and besides it dents very easily. It is best when stained in brown mahogany, walnut or dark oak effects. No filler is required, and oil stains are customarily used on it.

Georgia pine contains pitch and resinous oils which cause any stain to appear very "spotty,"—dark in one place and light in another. To be absolutely safe, whenever a given color effect is aimed at, from which it is not desired to vary, the architect will do well to consult a reliable stain manufacturer. Supply him with a sample of the trim unfinished, a block showing the actual color desired, and have him match on the trim itself. To specify a ready-made walnut stain of which the architect has only seen a sample on the actual wood is naturally to invite disappointment, and perhaps undeserved criticism of the stain house when that same stain fails to give the exact effect on birch.

## In General

In this connection it would be interesting to trace back some of the various styles which have governed woodwork finishing in our era. Very old timers will remember when woodwork meant softwood, painted with lead and oil in white and gray. Others will recall oak and walnut, rubbed with oil and becoming darker with passing years. We associate this style with the gloomy, stuffy interiors of the civil war period, when massive, gingerbread furniture, "warm" red wall paper and superabundant bric-a-brac were fashionable.

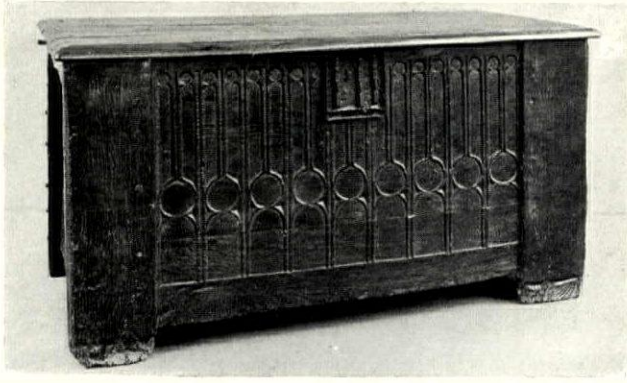
At another period everything was elaborately grained, usually in loud golden oaks, the staining and "graining" being done on cheaper woods. Such work was very popular and called for a high degree of skill, but according to modern theories the effect was glaring and coarse. The old time grainers have for the most part died out; the survivors have transferred their efforts to metal furniture and Pullman car trim, and their accurate copying of the natural wood grain is a marvel of perfection.

Wearied of grained effects, popular favor veered to light and golden effects on the genuine oak, and houses trimmed throughout in this manner sold at a premium. Oak did not then cost what it does today, so that it was kept but simply changed in color with the introduction of "mission" furniture. Woodwork was stained to match in various shades of fumed, weathered and bog oak, dull waxed effects taking the place of the shiny gloss varnish inseparable from golden oak.

As closely as can be determined, the vogue of "mission" did not terminate until red mahogany ceased to be an appanage only of the very rich with the discovery that effective imitations were possible on cheaper woods. With the change of color, use of the varnish finish once more returned, polished to a mirror-like surface. There occurred a minor reaction which had its origin in a current craze for sanitation, the idea being for a while to produce in every room as nearly the effect of a hospital ward as high gloss white enamel could make it. Disadvantages were not long in making themselves apparent, especially with regard to doors, where constant washing was necessary to remove the unavoidable marks of handling. To offset this, many left them stained red mahogany, and this effect of contrast with the white enamel framework still holds the popular imagination, and it is in keeping with present architectural usage.

Toward the end of the white enamel stage, ivory enamel furniture came in, and specifications for finishing interior trim quickly followed suit. The enamel was not only tinted to cream or ivory as a relief from the monotonous glare of white, but the surface itself was rubbed down to a satin or eggshell luster. At this period even hospitals had come to realize that apart from the psychological aspect, white was no more sanitary in itself than a tint, and that a dull finish in enamel was fully as resistant to dirt and bacteria as the gloss, besides being much more restful to the eyes.

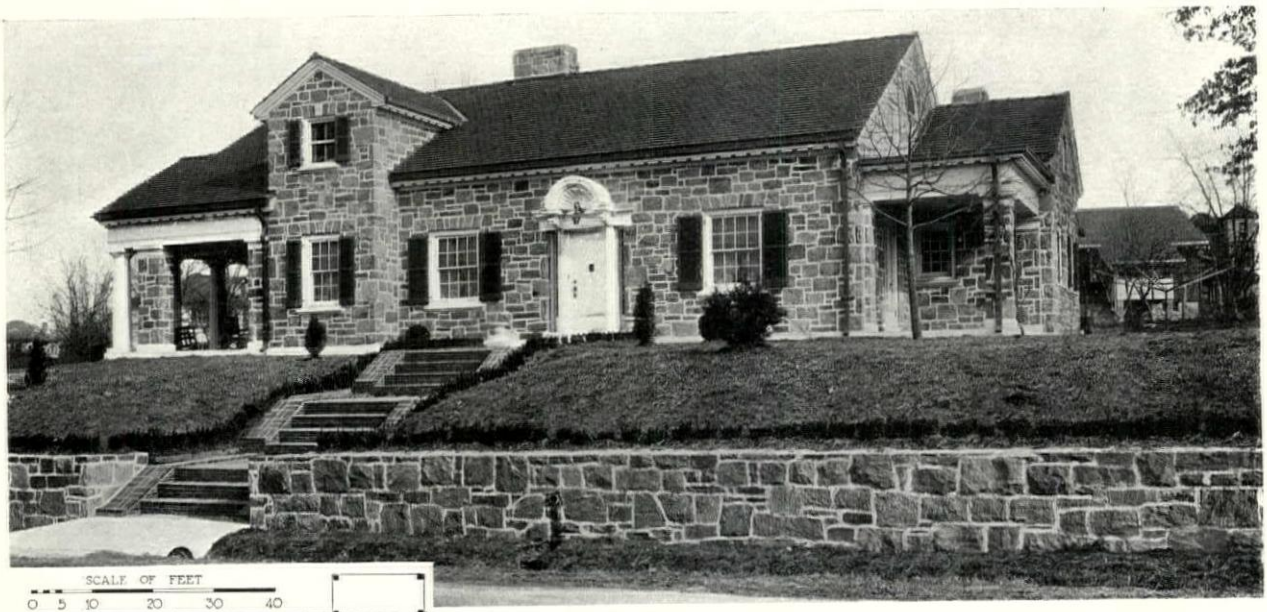
To bring us up to date, we find furniture finishes running almost 90 per cent to brown mahogany and walnut, with woodwork harmonized to it in almost the same shade of stain. There is in this close matching the recurrent danger of monotony, but it bids fair to be relieved by a noticeable tendency toward furniture decoration by means of hand painted or transferred floral designs and through use of marquetry inlay. What lies in the future it would be difficult to say. We know from the past that there will be a change of some kind, but with public taste constantly bettering we at least need not fear a revulsion to some extreme of freakishness.

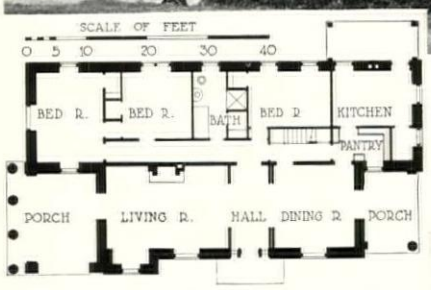


Early English Chest in Metropolitan Museum of Art

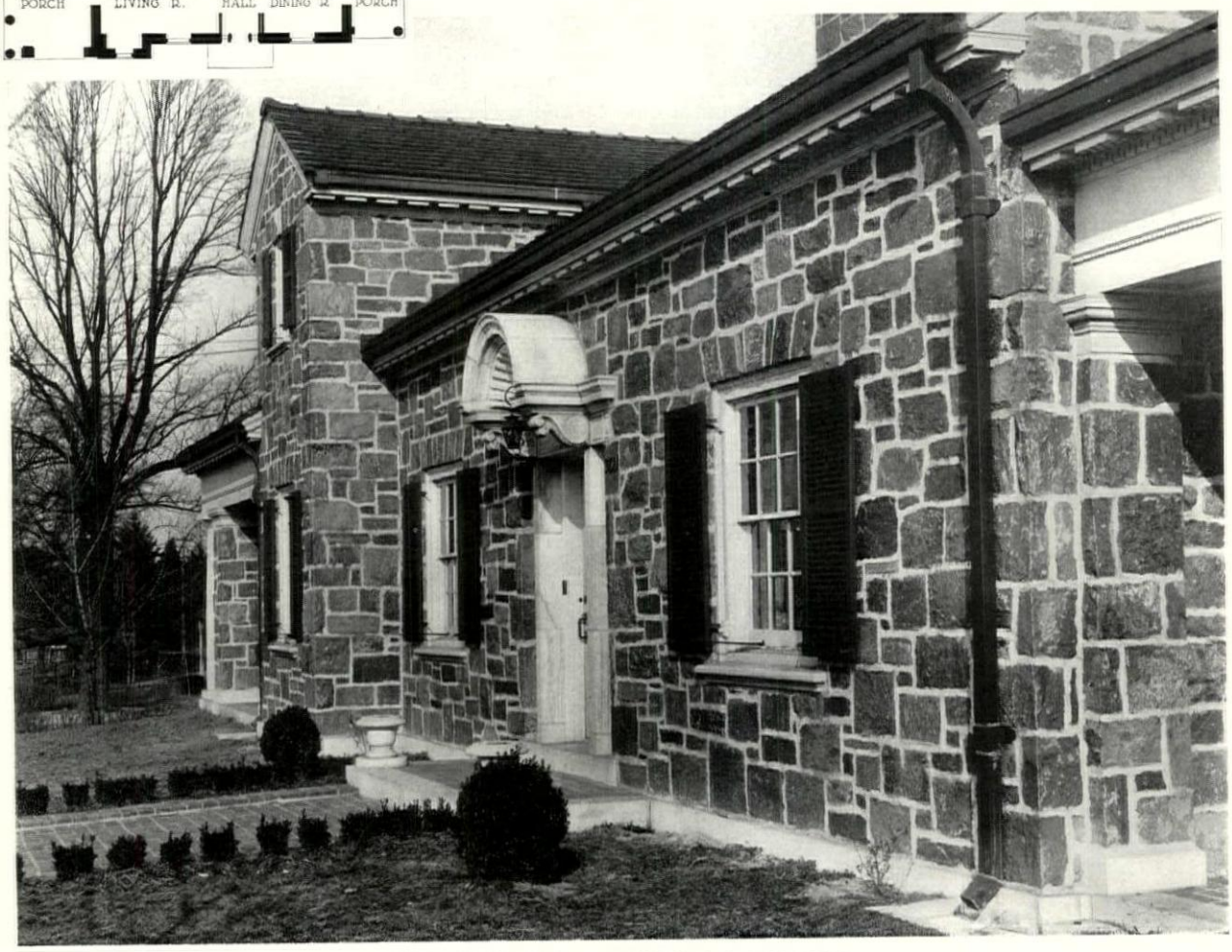
# House of Charles J. Cassidy, Esq., Washington, D. C.

MURPHY & OLMSTEAD, ARCHITECTS

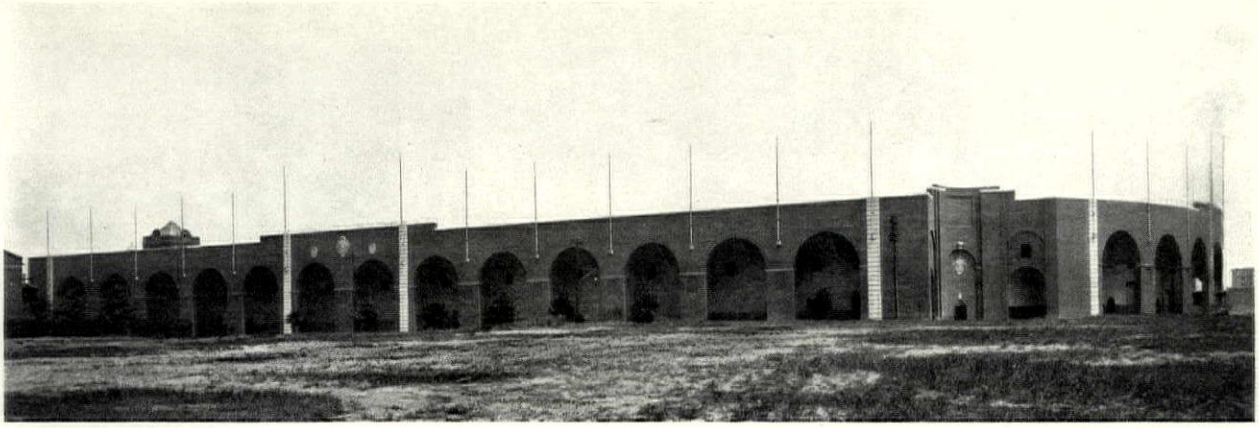





*THE wall facing of this house is Potomac bluestone laid seam face, providing a great variety of color. The trim is of white marble, tooled finish, and of about the same tone as the pointing. The roof is covered with shingle tile of russet tones harmonizing with the wall. Two rooms and bathroom are on the second floor.*



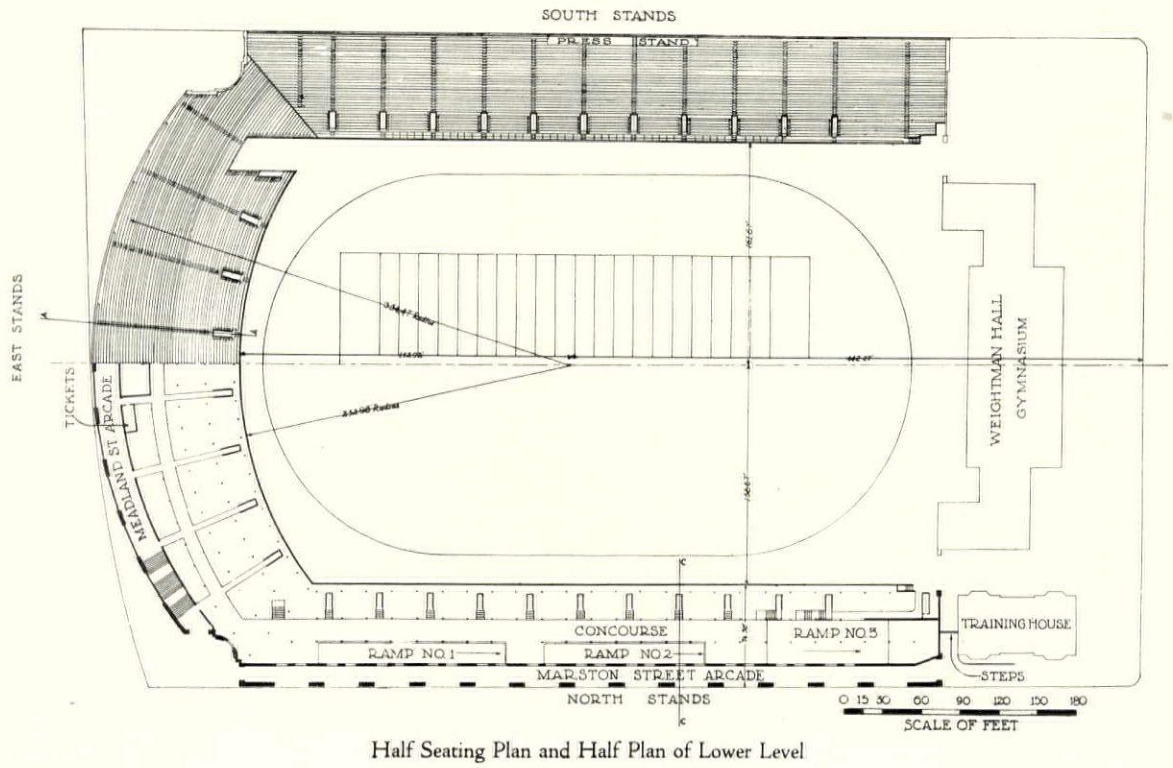
VIEW ALONG TERRACE ON ENTRANCE FRONT



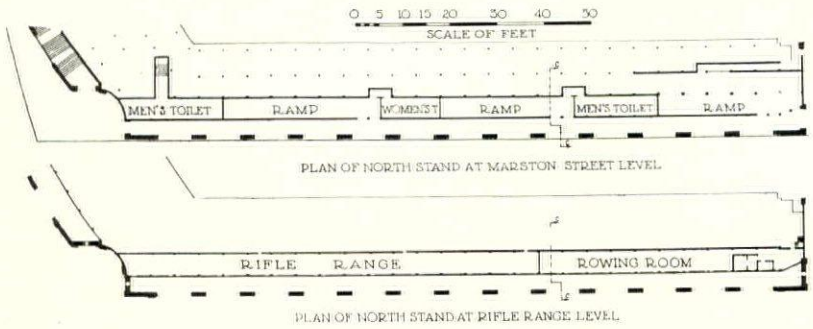
# The Franklin Field Stadium, University of Pennsylvania

IN designing and planning a permanent stadium to replace the wooden structure which for many years had accommodated spectators at the university's athletic events, there were several problems to be solved. It was desired to make use of the tract known as "Franklin Field" and long identified with the university's history, and yet the area (about six acres) was small for the building of a structure for seating the desired number of people, and to use the site at all it was found necessary to extend the stadium over the sidewalks around three sides of the property. Another problem lay in planning a structure suitable for football, baseball and a running track in which it was necessary that the entire field be visible from every seat in the stadium. But the difficulties in regard to plan were no greater than other difficulties in the way of design. Franklin Field is adjacent to the University Gymnasium, a structure built in what might be termed the collegiate Gothic style, while also close at hand stands the Archæological Museum, designed in what is described as the early Christian style. Then there was also the difficulty of scale, since required seating capacity necessitated a large expanse of vertical wall.

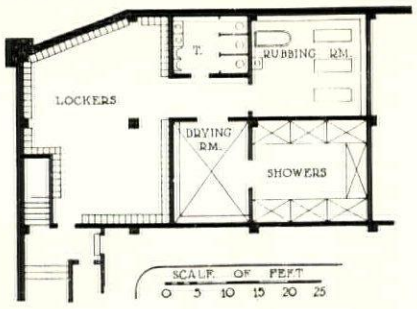
The stadium, as it stands completed, represents a triumph over all these difficulties, for it is of a seating capacity of about 40,000. Greater harmony in color and architecture between the stadium and neighboring structures has been secured than at first seemed possible, for the stadium agrees in color and material with the gymnasium and the museum, and with the museum as to architectural style, both




Half Seating Plan and Half Plan of Lower Level




Plans of North Stand



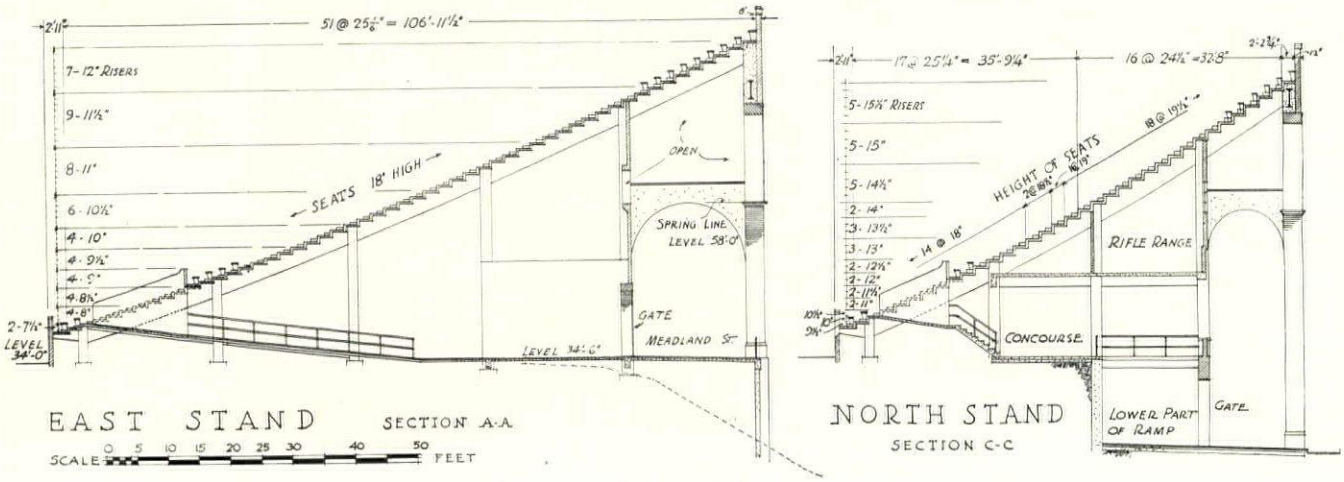

Detail Plan of Training Room

being of Italian origin, while the differences in scale between the stadium and the gymnasium are so marked that there is little opportunity of congruity.

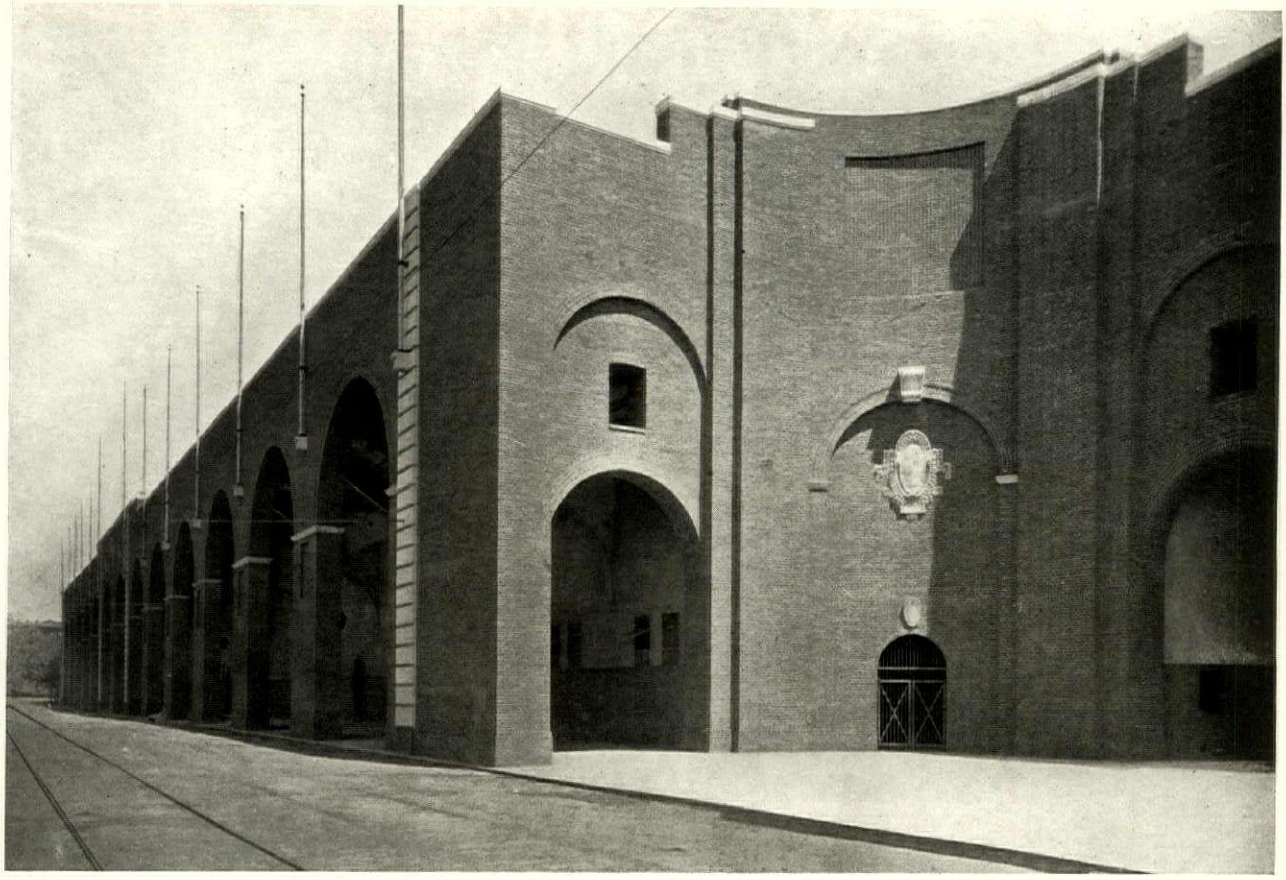
The appearance of the exterior of the stadium was governed by the necessity of extending the structure over the sidewalks. This logically involved the use of an arcade, and the predominating architectural motif therefore consists of a long series of brick arches, the piers which carry them having recessed panels in which it is intended to place memorials or tablets commemorating important events. The character which distinguishes it from other stadia is gained by the high, wide arches made possible by the elimination of alternate columns in the exterior wall. The area beneath the slopes has been arranged with three levels and contains three large team rooms, complete with lockers, showers, rubbing tables, etc., a physician's office, a directors' room, two squash racquet courts with galleries for spectators, five additional smaller courts for squash or handball, a rifle range, a dirt floor area for indoor practice of jumping, pole vaulting, etc., ticket offices, and storage space for equipment and the temporary stands which are sometimes erected for providing additional seating. The structure, within its encircling brick arcade, is built chiefly of reinforced concrete on foundations of concrete piles. Use has been made of concrete columns, girders, beams and slabs, following in general the type of construction now familiar for structures of this kind. The first row of permanent seats is high enough above the playing field to allow a sloping bank of temporary seats to be placed over the running track to augment the seating capacity for football games. The vertical curves of the cross sections are arranged to bring the surfaces of the seating platforms of the adjoining stands together on approximately true miter lines, and these lines give useful and logical locations for expansion joints, which do not, however, extend through the brick facing. An open cut has been left in the east stand for the 220-yard straightaway track and is filled with temporary seats at football games.

No description of a modern structure of this sort would be complete without some mention of the orientation of the field of play. The orientation of the gridiron on Franklin Field, with its long axis running west of north and east of south, was already fixed by its location and the restricting streets, but it happened to be almost perfect. By astronomical calculations the position of the sun for each hour of the afternoon of November 25 was determined. It was found that the sun would reach its ideal position, with its rays paralleling the short axis of the gridiron, at about 2:45 on this date, and that between the hours of 1:20 and 4:30 p.m. it would shine entirely within an angle of 19° with this axis.

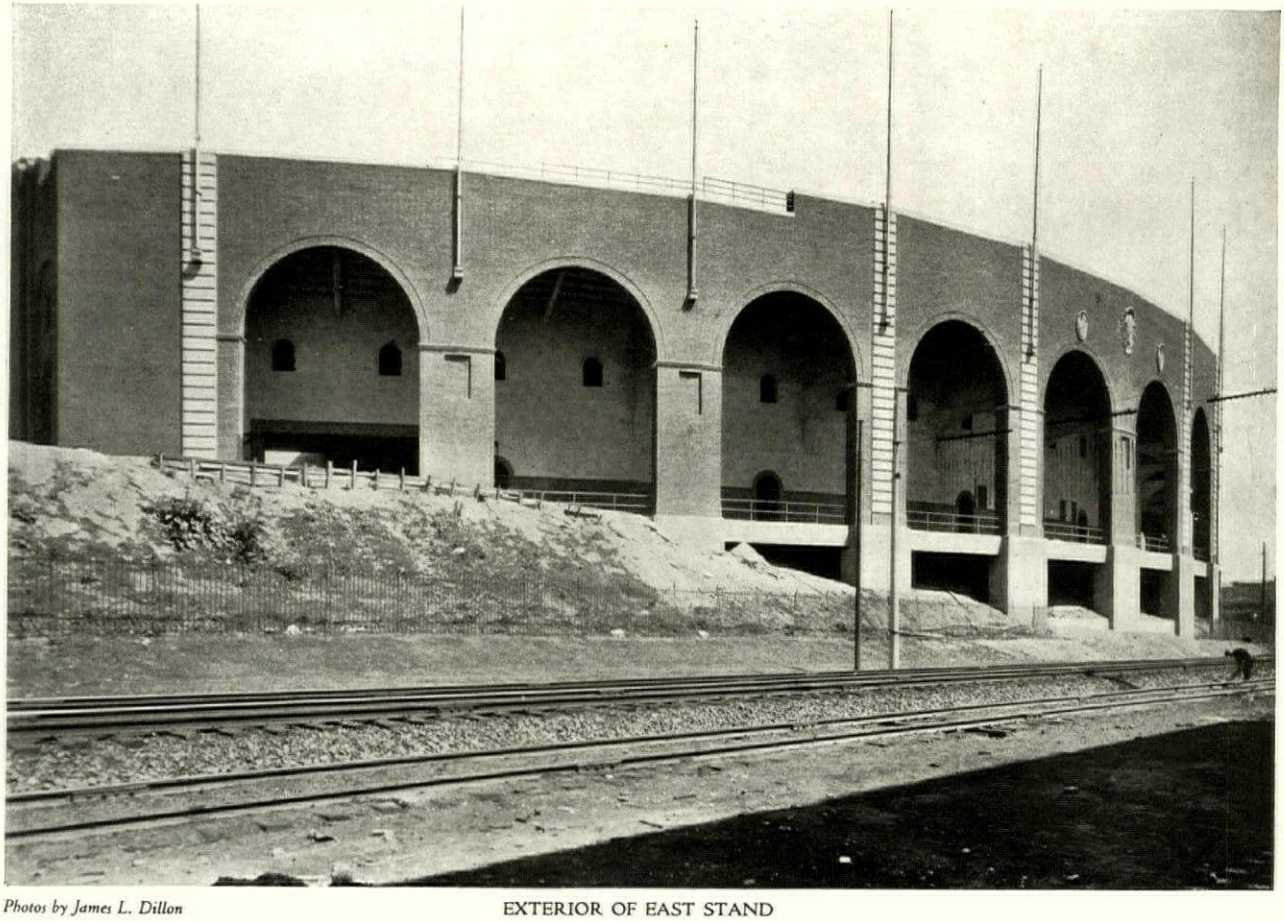
An outstanding detail in connection with the construction is the shortness of time required. The stadium was built during the five months between the time of using the old structure for the relay races on April 29, 1922, and the use of the new structure for the football games commencing September 30, 1922. The permanent stands cost, including all facilities, the brick facing and professional fees, $798,342 or $5.919 per square foot or $20.498 per seat.




Sections through East and North Stands



DETAIL OF ENTRANCE AT JUNCTION OF STANDS



*Photos by James L. Dillon*

EXTERIOR OF EAST STAND

FRANKLIN FIELD STADIUM, UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA

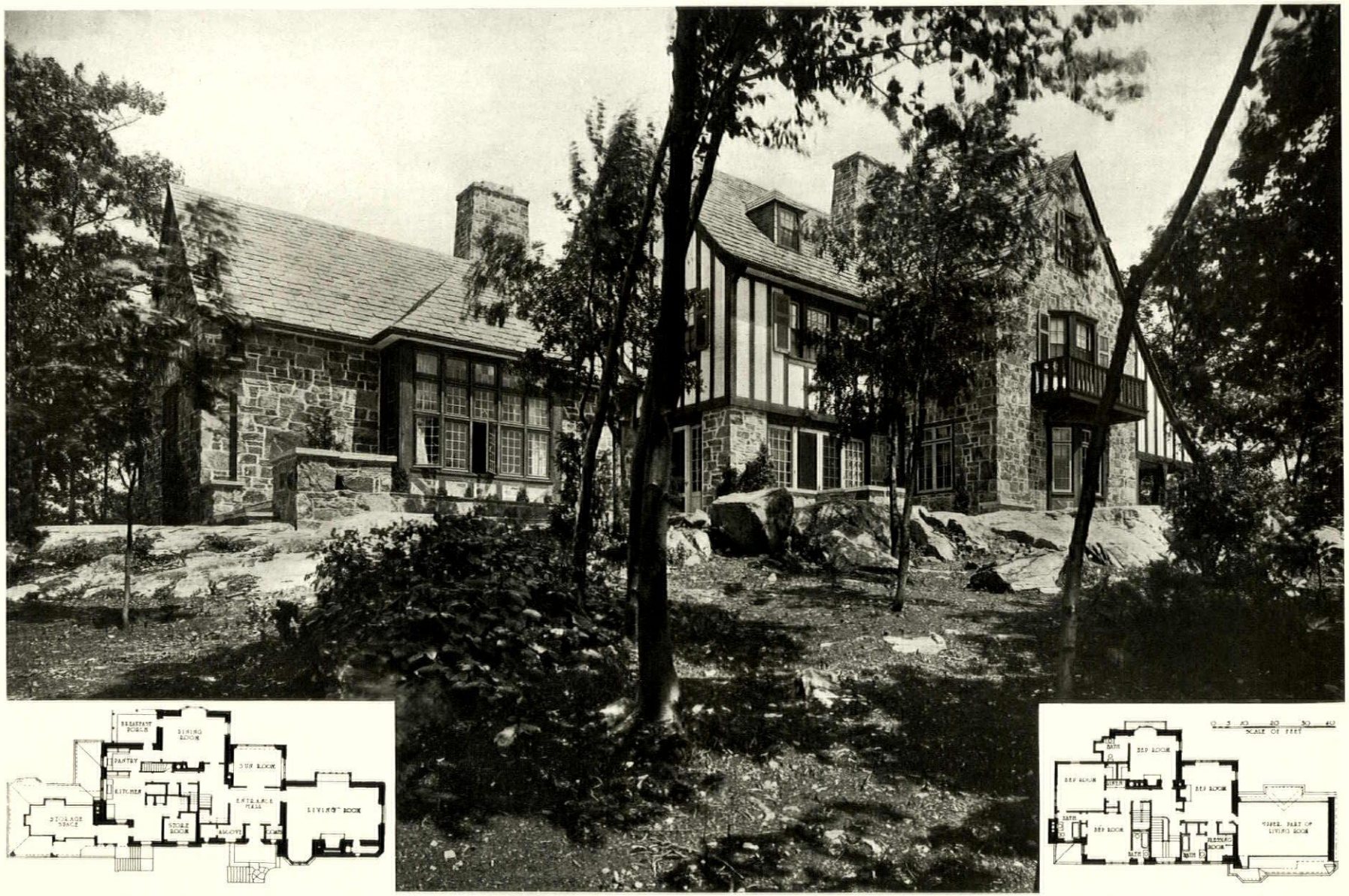
DAY & KLAUDER, ARCHITECTS; GAVIN HADDEN & H. T. CAMPION, ASSOCIATED ENGINEERS

ARCADE OF NORTH STAND FROM TRAINING HOUSE

INTERIOR OF ARCADE BELOW STANDS

FRANKLIN FIELD STADIUM, UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA

DAY & KLAUDER, ARCHITECTS; GAVIN HADDEN & H. T. CAMPION, ASSOCIATED ENGINEERS





FIRST FLOOR PLAN

VIEW OF SIDE TOWARD THE SOUND



SECOND FLOOR PLAN

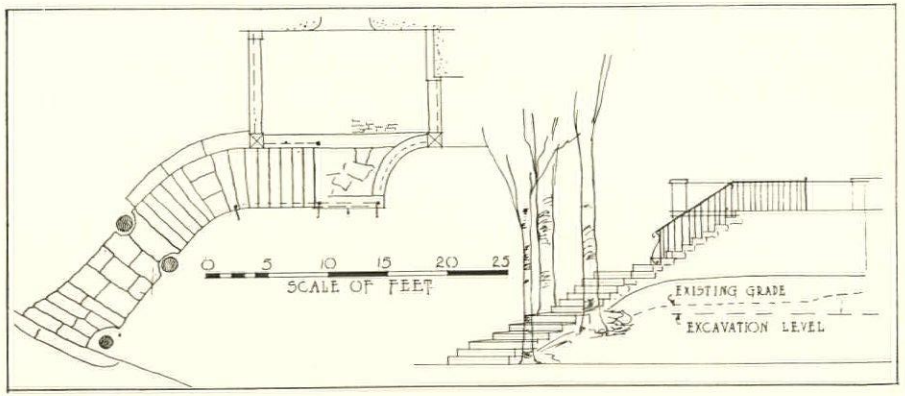
HOUSE OF J. P. CAHILL, ESQ., GREENWICH, CONN.

FRANK P. WHITING, ARCHITECT

*Photos by John Wallace Gillies*

DETAIL OF STEPS TO ENTRANCE

GENERAL VIEW OF ENTRANCE SIDE




HOUSE OF J. P. CAHILL, ESQ., GREENWICH, CONN.

FRANK P WHITING, ARCHITECT

EXTERIOR OF LIVING ROOM WING

INTERIOR OF LIVING ROOM

HOUSE OF J. P. CAHILL, ESQ., GREENWICH, CONN.

FRANK P WHITING, ARCHITECT

# DECORATION & FURNITURE

## Light Furnishings for Amusing Places

*By* AGNES FOSTER WRIGHT, *Interior Decorator*

WHETHER one spends one week or two on board an ocean steamer it is necessary to be comfortable, and an index of the taste of the traveling public in its surroundings is had in the popularity of the palm room aboard ship. The steamship companies appreciate the value of comfort and the part played by attractive surroundings, and they have devoted considerable time and thought to making the palm room and other more or less informal and semi out-of-door places inviting. One has become used to the breakfast room and the sun porch at home, where life is taken leisurely, and hence the popularity of the palm room on shipboard. It's a pity there isn't a better name for it, as one associates palms with the red plush of our old fashioned hotels, or with a "funeral parlor," where the emblem in the window is always a potted palm. On shipboard it might be called the "deck porch," since it is generally semi-opened to the deck and furnished in much the same way as a porch on terra firma; in fact in many respects the decoration and furnishing of a steamship's lounging places are much similar to those of the porch or veranda on land.

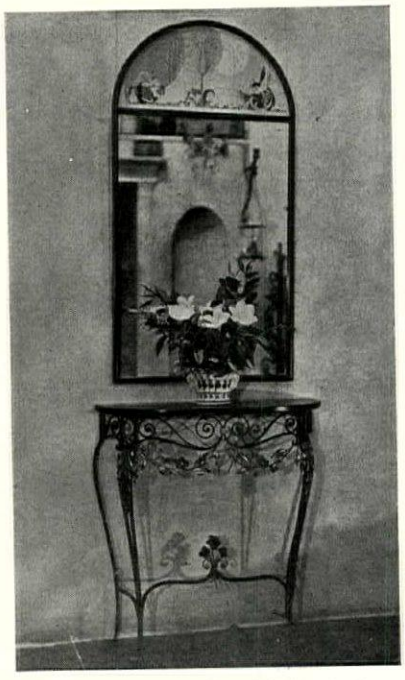
As the glare is generally great, much attention should be paid to the flooring which shows up considerably. Linoleums are now made in such marvelous color combinations and such rich, plain colors that the old battleship-gray floor colors should be avoided. Use a green-gray tile marbleized floor with a gray jaspe border, and repeat this green in a *treillage* with large architectural design, which arrests and carries the eye. There are so many moments on shipboard when one's eye wishes to be diverted from the horizon! It is not necessary to train vines up the *treillage*, as the design should be interesting enough in line not to need it, but if one wishes, real or tin ivy, which is an excellent imitation, can be used.

The ceiling can be laid off in diamond shapes with occasional ceiling-light shades of stick-reed, painted green and lined with plaster colored silk. The shades should be large, flat and diamond shaped, about 6 inches deep and covering two spread lights set close to the ceiling.

At the windows in place of curtains, which flap out and in, use roller shades with taut wire attachments top and bottom to keep them from flapping.

Palm Room on the S. S. Leviathan

In daytime these can be pulled up and at night pulled down, as the glare on glass is always unpleasant, and one hates the feeling that every deck promenader is peering in. Shallow 4-inch valances of the stick-reed, painted green and lined, conceal the shade rollers. These valances should be made to conform with the ceiling shades, in straight, vertical lines as a relief from the more fanciful trellis. For roller shades, use a light green sunfast glazed chintz, and have painted on each a brownish gray monkey in various postures. These will be amusing and tie in the color with the gray tile of the floor. The monkeys should be delicately and decoratively done, each perched on a crossbar to unify the decorations on different shades. This color scheme of greens and grays forms a good background for the gay colors of the wraps of the average ocean traveler, much in evidence on shipboard.



Wrought Iron Console and Painted Mirror

The furnishings should be of green stick-reed, small comfortable chairs, with flat gray and green oilcloth cushions, and green tables with gray oilcloth tops. Small, low, green japanned tables with center handles for cigarettes and glasses should be numerous in order to be always accessible.

A more formal scheme could be used for palm room decoration when the room is mainly enclosed. The flat plastered walls could be painted black and then rubbed with oil or floor wax until there is a slight reflection. The floor could be of a plain black linoleum, well waxed, and for use upon it, if black, there might be mohair rugs which have a beautiful two-toned texture, or use might be made of a black and white tiled floor as a ground for black rugs.

The windows and door casings as well as the simple paneling should be kept black, but the sashes in the windows should be painted blue—a clear, light blue. This same blue should be used on the flat plastered ceiling, with a cut-out stencil, a white swag design, on the walls as a frieze. The design of this should be interesting and should show a good value of black and white. For a center lighting fixture, use a sunburst of black glass balls. If these are unobtainable, get graduated wooden balls, paint them black, and dip in varnish until they shine. These will reflect the blue of the ceiling and add scintillating movement to the room, imparting a certain air of gaiety.

At the windows have heavy black cotton velvet curtains to the sill to draw at night. These will not fade, and are heavy enough not to blow out. As draperies to the floor, use a white wash satin; these should be full but not drawn. For furniture, use orange semi-upholstered chairs and divans and small pieces in two tones of blue, one darker than the ceiling. Palms in orange jardinieres will look well against the brilliant black walls. These are schemes for the gay ocean traveler, whose voyage must be made pleasant and amusing at any cost.

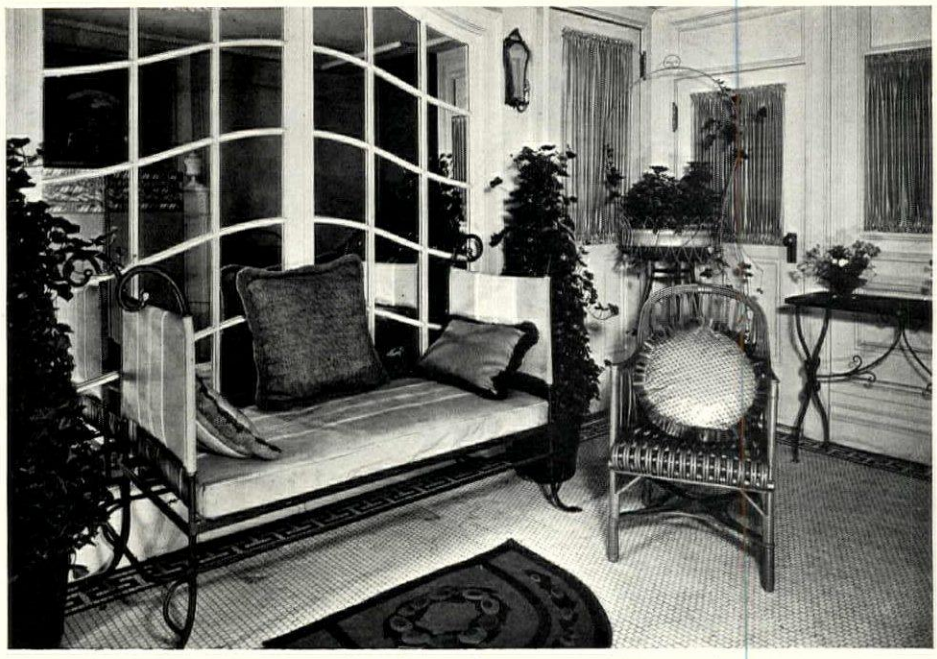
A Wrought Iron Luncheon Set

The wooden table top covered in green and black oilcloth, chair seats and back pads match French felt rug in gray, green and blue

For the porch at home we are generally limited to the wall finish of the house, unless the architect plans three sides to be partially enclosed, in which case in color and finish we are more free to use for the porch walls some color other than that of the house.

Soft coffee color with a henna and black floor is a most satisfactory start for a porch. Cement can be made almost henna color; even a wooden floor can be stained dark orange, and there are many rush mats of natural color, henna and black, which will work in well with this color scheme. Stain all the woodwork a warm, deep,

red orange. Plants look very well against this color, and the green of the window boxes and hanging baskets will be very fresh and tender. If feasible, have a red brick fireplace, with wrought iron fixtures, colored with a little orange paint. In the center of the mantel use a flat, rough pottery vase, and place copper jars at either end, or else a large copper bowl in the center and two large Chinese pottery birds in brilliant blue.

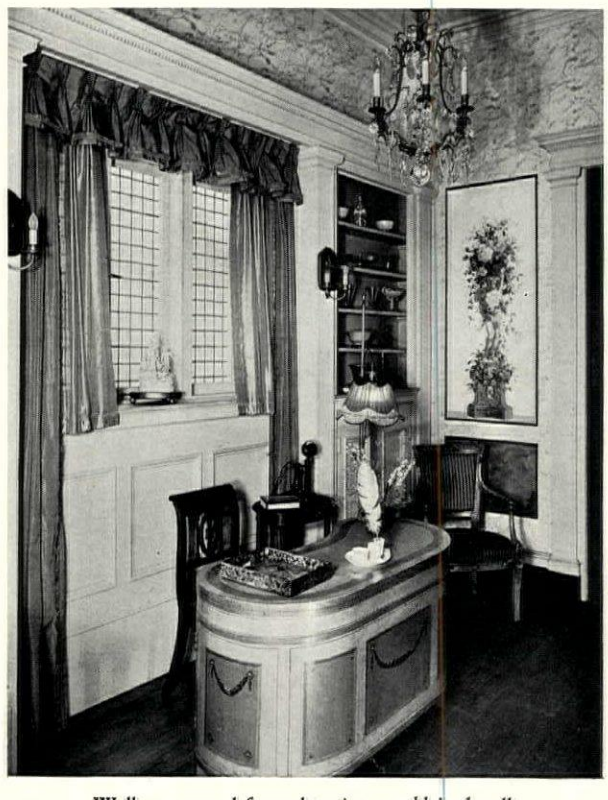


Wrought iron day bed covered in gray striped awning cloth
The stick-reed chair is durable and comfortable

A porch planned with a jut or alcove to hold a long, narrow magazine table is good. Somehow a table on a porch is always being bumped into, and the flower bowls imperiled. This is especially true in a household with romping children and the usual Airedale who dash into the table, whacking things to the floor. So plan an alcove for the main table for magazines and flowers. This should be low and long and painted with a rough stipple finish. All porch furniture should have a rough stipple finish and be antiqued so as not to show scratches or water marks, and also that the texture may conform to the general finish and use of the room. A stick-reed *chaise longue*, orange with *tete de negre* border, with a buttoned seat and back pad of striped blue, orange and *tete de negre* awning cloth, starts the furnishing in comfort, good wear and good looks, which should be the keynote to the room. I prefer stick-reed to the ordinary reed or wicker as it does not squeak or break easily and has more real style. Use with this some of the charming light new Belgium rattan smaller chairs. Thus one gets a good variety, both in texture and color. The rattan is natural color with brilliant blue insert patterns. Sometimes the pattern is red and green, but with the henna and blue awning stripe as seat pads use the rattan with the blue. Two or three small revolving coffee tables, in blue with *tete de negre* borders painted to match the long magazine table, add to comfort and orderliness.

Use glass curtains of linen scrim with a thick worsted fringe of orange, blue and *tete de negre*, the same colors as the awning stripe. Put here and there sunfast, plain, glazed, chintz, vari-shaped cushions in the blue and *tete de negre*, and some in a small patterned crisscross orange, or else use the wonderfully serviceable oilcloth pillows of every imaginable shape and color, which are smart, new and durable.

A breakfast porch should extend a cheerful greeting to us in the morning, as so many of us leave our good dispositions above, and come to brea kfast with a grouch. The room to greet us should be fresh, clear and crisp. Clear colors should be used, and there are several attractive schemes, such as one might find in the garden, to choose from. A delphinium blue, a lemon yellow and apricot is one, using blue as the main color, the blue walls with the trim of a deeper tone of the blue, and the ceiling a soft lemon yellow found in the heart of the delphinium. The floor could be of the deep blue lavender, and the sash curtains a thin blue sunfast with a cotton fringe of blue

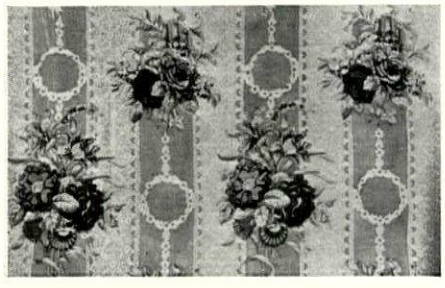


Wallpaper panel framed against marbleized walls

Painted tree design chairs with rush seats that combine well with Italian furniture

and lavender and the curtains hung on lemon yellow wooden rods. A painted yellow breakfast table could have the stretcher, apron and legs lavender, and the folding chairs could be of yellow, with heavy lavender rep seats and backs. These comfortable armchairs were gotten out to use in officers' camps during the war, and are excellent models to use on porches; they lend themselves to many decorative schemes, since the khaki backs and seats can always be replaced by something more decorative. Imagine such a room in the delphinium and phlox season, as each color of the delphinium is picked up in the various parts of the room.

A small luncheon porch for a hotel could have a white terrazzo floor with a black and red border. The lower part of the room could have a narrow red lattice as a wainscot over a white plaster wall; above, against the plain white plaster, could be set old fashioned French costume or Godey prints in narrow red frames set flat against the wall. All the woodwork could be red, and there could be wrought iron square luncheon tables, with their wooden tops covered with red oilcloth with red oilcloth fringe and tassels. In the center of each table a clear glass goldfish bowl in a graceful wrought iron stand could take the place of the conventional bunch of flowers. The chairs would be of wrought iron, left in the natural color or else enameled red, with tiny back pads and seat cushions of the red oilcloth. Red standing lamps, with red and white painted tin shades, would be durable and smart. For curtains, white oilcloth double sash curtains would be charming edged with the bright red laid and stitched on with a perforated border showing through the white. The corners instead of being square should be round. This prevents curling. For a restaurant these curtains are very serviceable, because they can be washed off, as can the screen which hides the pantry door and is made of white stretched oilcloth with panels, marked off by bands of red with perforations.

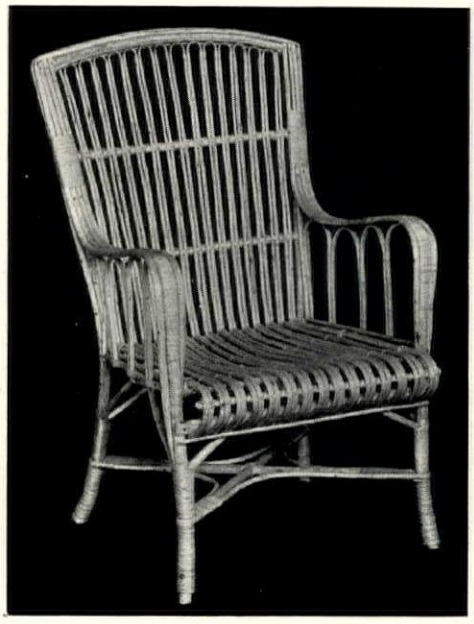


A gay striped cretonne

A more conservative porch room has painted plain taupe walls with wallpaper figured panels pasted on; and in lieu of the ordinary wooden mouldings

A wrought iron and cane settee makes the nucleus for a sun enclosure. The radiator has a wire mesh cover over which is a wrought iron directoire design

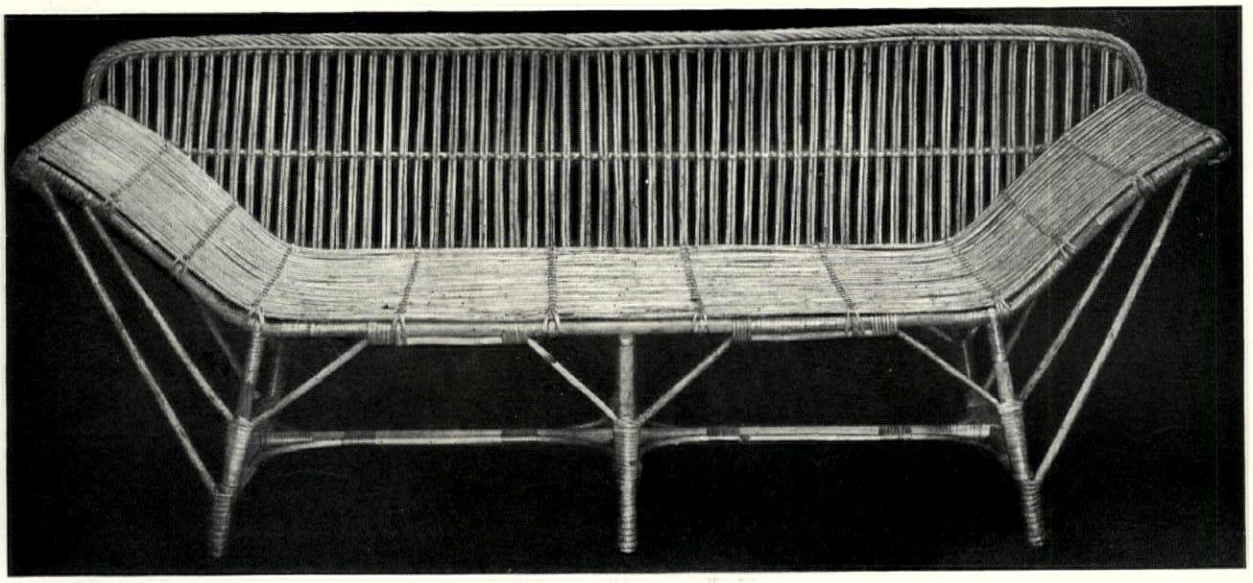
Four modern reproductions of *toile de Jouy* that make distinctive hangings and coverings for occasional furniture



Stick-reed chair

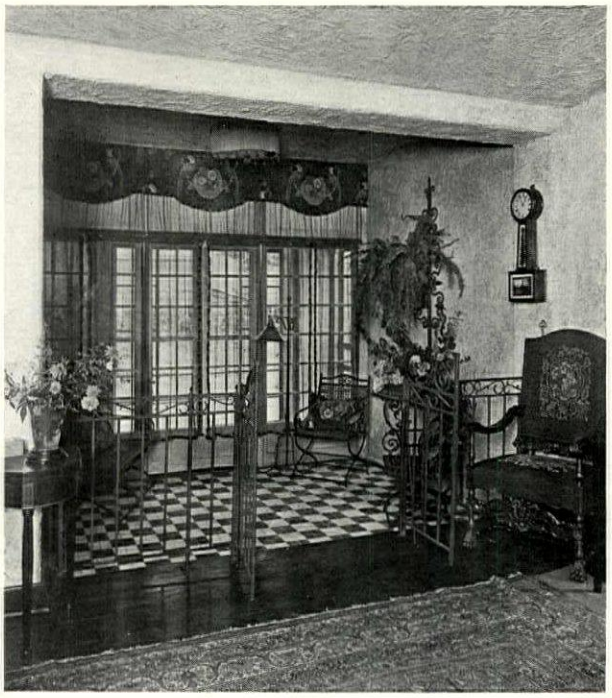
*Toile de Jouy* is usually printed in one color on cotton of contrasting color with a semi-glazed surface

Iron card table with black glass top



An odd shaped stick-reed couch which is completed with a flat pad to the end of the arms

a moulding line is painted directly onto the panel. Either marbleized paper or a plain paper with the painted mouldings outlining it can be used. At the windows, cherry and cream *toile de Jouy* curtains bound in cherry colored taffeta would be quaint and inviting. Birch furniture stained grayish color, and a double upholstered seat in *toile de Jouy* would make a pleasant spot in which to read the morning paper! A pair of small, low, comfortable chairs in cherry glazed chintz with taupe bindings would tie the walls and furniture together.



A sun enclosure with tile floor made distinctive with wrought iron and cane furniture

Wrought iron and cane furniture has great charm and stands hard wear, as well as being thoroughly comfortable. The chairs have a rather Italian feeling in their design, and, used in an hexagonal room, with rough deep cream plastered walls with decorated pilasters and an Italian fruit garlanded border, they would be enchanting. Use with these a few straight chairs painted with the same fruit swag, reminiscent of Della Robbia, and a table to match, the apron having the same rich colored decorations. A wrought iron daybed goes with this, with its upholstery in warm, rich Italian colors. A serving table with a wrought iron base and a siena marbleized top, with a pair of fine Canti-Galli urns would give a little formality where one would lunch, lounge and really live and enjoy that living.

I think one hardly realizes the great possibilities of the use of mirrors in porch rooms. They are but seldom used, and yet if placed well, nothing is more charming than to reflect a long garden walk with flower borders in a mirror placed opposite the French doors into the garden, or opposite a large window, and if a bowl of flowers is placed on a table in front of the mirror, one can scarcely tell where the garden ends and the flowers begin. A pair of wrought iron consoles with a mirror above framed in wrought iron, placed opposite the windows on the house side of the porch, make the room look much more open, as the mirrors look almost like formal, well balanced wir dows.

Treillage on walls of a sun room
Charles A. Platt, Architect

# Plate Description

ILLINOIS LIFE INSURANCE COMPANY BUILDING, CHICAGO. Plates 17–21.

This beautiful structure, of which Holabird & Roche are the architects, has been recently completed for the sole occupancy of a large insurance company. The building contains only executive offices, and since it occupies a prominent location in a section of the north side which is still almost wholly residential, it was desired that the building be of a character which would be in harmony with its surroundings.

Use has been made of a rich yet simple development of the French renaissance, the broad structure, two stories and mansard roof in height, being built of Indiana limestone, the roofs of black slate, and the roof covering of lead. Among the materials used for the interior are marble, plaster and bronze, while a number of the rooms are paneled in wood in forms which agree with the refined and restrained treatment of the building's exterior.

The plans show the disposition of the various departments and the arrangement of the vaults; the windows are of wood and of French forms; a direct lighting system is used, and heating is by steam. The total cost of the structure was about $500,000, and its erection occupied almost exactly one year, having been begun in December, 1921.

BUILDING FOR THE FRANK G. SHATTUCK CO., WEST STREET, BOSTON. Plates 22–27.

Designed for the exclusive occupancy of a company operating a number of restaurants and candy shops, this structure presents an instance in which excellence of design is combined with the careful planning which is necessary for the proper conducting of a somewhat complicated business. The exterior which fronts West street has been designed in a modified version of the Italian renaissance, the facade being of limestone, travertine and stucco, while the metal work about show windows, in grilles at certain windows and in railings at balconies, which adds greatly to the interest of the exterior and affords necessary relief to the materials of the walls, is iron, partly cast and partly wrought. The vigorous renaissance cornice across the top of the facade is polychromed. The purposes for which the structure is designed demand ample natural lighting, but the fenestration has been so managed that the symmetry of the facade has been preserved, much of the excellent architectural appearance of the numerous window openings being due to the use of small panes at all the windows above the ground floor.

Such departments of the building as are open to the public are planned throughout to be in keeping with the Italian character of the facade. For walls use has been made of travertine, stucco, hard plaster and painted canvas, woodwork being of walnut or brown oak. Ceilings are of plaster in various forms, while for floors use has been made of terrazzo, tile, marble and composition. For the service departments of various kinds the walls and ceiling are of hard plaster, floors are of tile or composition or else covered with linoleum, and the woodwork is of ash. In a structure of this character much depends upon the successful planning of the details of equipment. For lighting use is made of both gas and electricity; heating and cooking are by steam, and refrigeration is supplied by ammonia piping.

The structure proper, service rooms and all interiors except the tea rooms and store are the work of J.D. Leland & Company, while the tea rooms and store proper were designed by Charles E. Birge. The contract was dated June 5, 1922, and the cubic foot cost of the building was 65 cents.

HOUSE OF J. P. CAHILL, ESQ., GREENWICH, CONN. Plates 30–32.

Occupying the most unusual of sites, on an island off Greenwich, Conn., this house is in complete harmony with its surroundings. Being built partially upon one of the great boulders which in this part of Connecticut often form part of the earth's formation, the house is chiefly of stone laid with cement joints of an appropriately contrasting color, with certain parts of the building of plaster and wood arranged in half-timber fashion. The stone which is of considerable variety of color was quarried on the island, and much of the timber used was grown on the spot. The very nature of the building site necessitates the planning of the structure upon different levels, and the architect, Frank P. Whiting, has made skillful uses of the exigencies of planning to give to the building an appearance which is striking and unusual.

Since the comparatively small island upon which the house is built is some little distance from the mainland, views from the house are over water in all directions, the exact site having been determined with regard to the most attractive views. A bridge has been constructed connecting the island with the mainland, the bridge being of a character which brings it into agreement with the house and the other buildings upon the island estate.

The stairs which lead to certain of the entrances are literally cut from the rock upon which the house is built; the large roof surfaces are covered with slates of different shapes and thicknesses and varying colors and textures, the slates being laid with unequal exposures. Windows are partly casements and partly double-hung, while the slender railings, use of which adds considerably to the interest of the exterior, are of wrought iron painted black. Interior walls are plastered for the most part, and the woodwork includes paneling and open timbered ceilings in a number of the rooms. Heating is supplied from a vapor system. Cost per cubic foot was about $1.08, and the contract was placed during March, 1921.

# EDITORIAL COMMENT

## THE BUILDING PROBLEM

THE present difficulties attending the building industry can generally be attributed to one basic factor—the shortage of skilled mechanics. It is perhaps the first time that numerous building operations have been suspended for this reason alone, and it indicates the continued difficulty that will attend efforts to build in proportion to the needs of our population. The reasons for the shortage are many, and no one group is willing to admit the responsibility.

Labor has been able to apply the principle of restricted output which gives it the present opportunity to demand and receive bonuses and unduly high wages; the employers have side-stepped the duty of training workmen and have delegated it to no one else, and the professional interests connected with building have been indifferent. Labor is the only party satisfied with the results of this *laissez faire* policy, but the whip hand it employs today will bring about a lowering of morale that will be destructive in the end to labor as well as to the other elements of the industry.

The problem must be faced and solved, and from the way in which the groups directly interested have failed to accomplish any results beneficial to the public, it would appear that hope now lies with the professional element of building. The construction industry of this country is too large and important to allow its supply of skilled workers to remain any longer a matter of chance. Sufficient numbers of men, adequately trained, must be made available.

Steps toward establishing working plans for the training of apprentices are being formulated in a number of cities, such as New York, Boston, Philadelphia, Portland, Oregon and others, through the medium of the local Building Congress groups which have been organized and promoted largely through the efforts of a few public spirited and far-seeing architects. These few local groups have found that the results of intelligent, non-partisan investigation of local conditions when placed before labor and contracting organizations and state educational authorities have elicited favorable attention and the direct promise of co-operation. The Building Congress idea has been sufficiently tested, and its results have been positive enough to prove that it is on the right track to smoothing out some of the building difficulties; it deserves the support and co-operation of every architect, and if in every city there were an influence at work such as exists in those few cities where the Congress idea has taken root, the aggregate effect would be a tremendous power for improvement and helpful stabilization.

## WILLIAM HOLABIRD

IN the death of William Holabird on July 19, the profession of architecture loses one of its strongest and most valued members. During the past 50 years architecture has made unparalleled progress when measured by material achievement, and by an ever increasingly strong position in the world of business affairs, and with progress of both kinds William Holabird was prominently identified. Buildings many and great bear witness to his skill as a master architect.

Born in the state of New York, September 11, 1854, Mr. Holabird was educated in the schools of St. Paul, and entered West Point in 1873 to remain for two years. Coming to Chicago, he entered the office of W. L. B. Jenney where he remained for a number of years before organizing the firm of Holabird & Roche. The eminence of the firm is proclaimed by the long list of great public and mercantile structures designed under the direction of Mr. Holabird. Among the many are the University Club, the Cook County Building and City Hall, the McCormick Building and numerous other office structures, the Hotel La Salle, the Sherman House, and residences not a few. In work of a wholly different character Grant Park and the University of Illinois Stadium bear witness to his skill. One of his firm's more recent works is the Illinois Life Insurance Company Building, illustrated elsewhere in this issue of THE ARCHITECTURAL FORUM.

Among the many causes which lead to the holding of Mr. Holabird's memory in grateful recollection is his prominent part in the development of the skeleton type of building, which has revolutionized construction not only in America but throughout the world. It seems, as one recalls the circumstances, not a great many years ago that the construction of the Tacoma Building at the corner of La Salle and Madison streets in Chicago focussed public interest and attention upon what was regarded by many as a somewhat visionary undertaking, and the success of the structure firmly established Mr. Holabird's eminence and led to the immediate adoption of such construction everywhere. With the Tacoma Building as a beginning, through many years other towering structures took form under Mr. Holabird's skillful direction, the long list being ended with the Chicago Temple Building at the corner of Clark and Washington streets.

Architecture, like Patriotism, records in letters of gold the names of those who not only faithfully serve but courageously lead in the advance of her sons, and among the most honored of these names must ever be that of William Holabird.