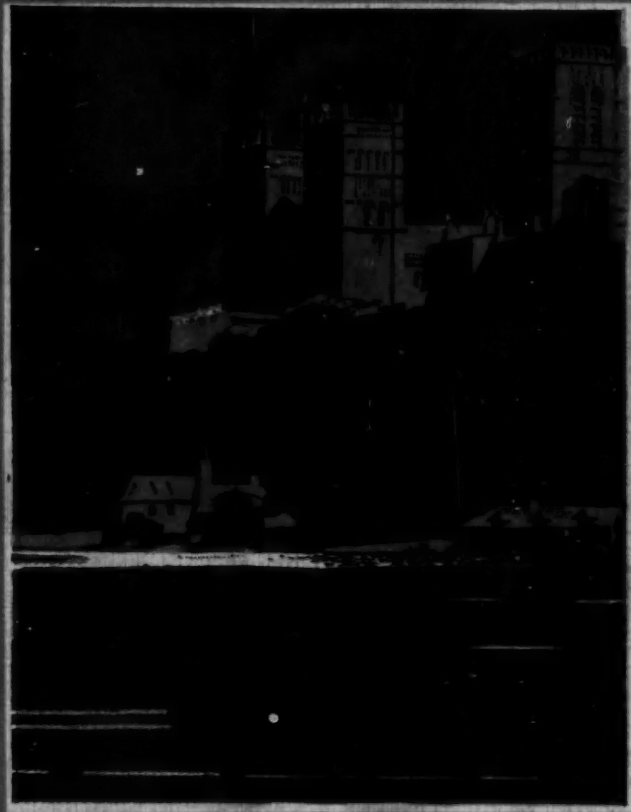


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THE ARCHITECTURAL FORUM



FEBRUARY
1926



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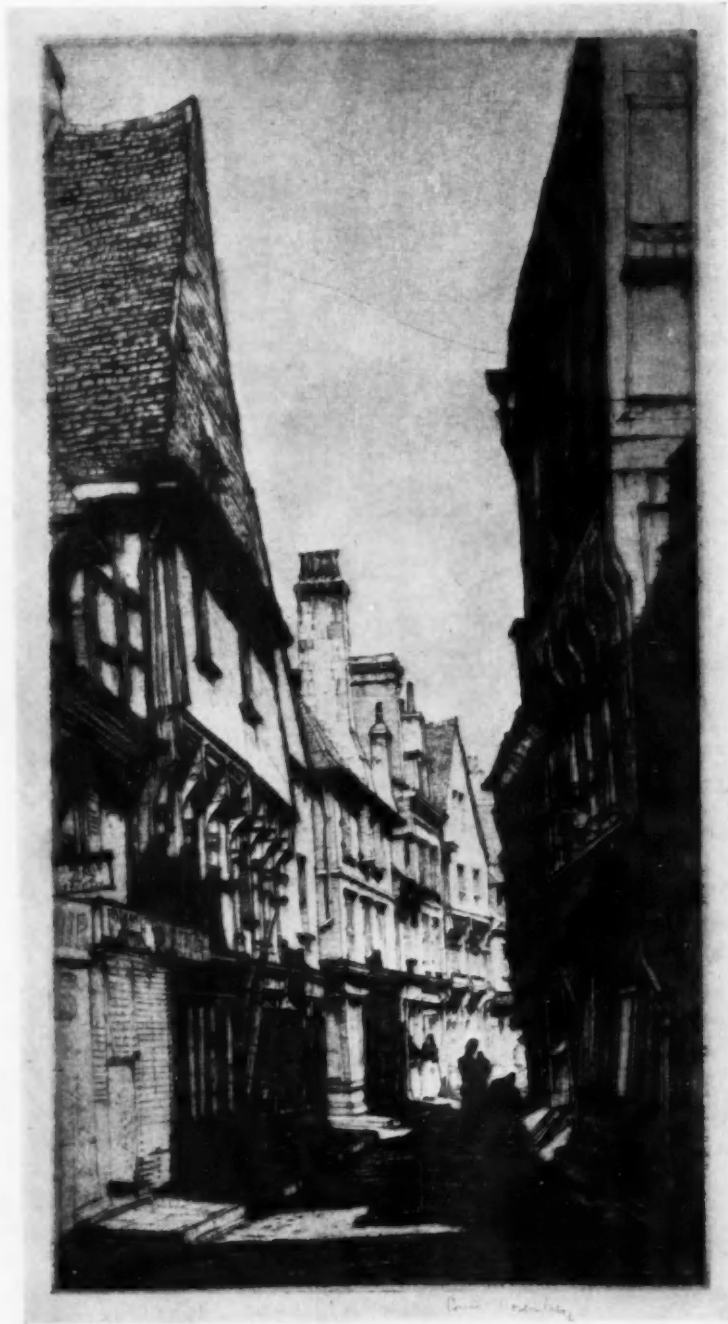
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The Architectural Forum

The ARCHITECTURAL FORUM

Volume XLIV

FEBRUARY 1926

Number 2

√ The Bridge as Architecture

By REXFORD NEWCOMB

Professor of Architecture, University of Illinois

THE SONG OF THE ROMAN ARCH

It comes with the arc of the blue day's light,
It comes with the spring of the rainbow bright,
And with the wedding ring's circle of power,
And it bridges the streams and it strides o'er the plain;
In its arms is the river it sets down again
For the fevered metropolis' dower.
—Durward's, "Building of the Church."

AMONG the most interesting and inspiring structural works of man stands the bridge, the antiquity of which is as great as that of architecture itself; indeed the impulse to get across topographical impediments of one sort or another has led even the lower animals to improvise means of spanning distances. How far back in the history of the human race came the first expedient of this character, it would be difficult to say. We know, however, that by the days of the Romans the bridge had taken on a fine religious symbolism and was considered as worthy of embellishment as were their great works of architecture. As a matter of fact, until comparatively recent times it has been difficult to find that man considered those structures that we now call "works of engineering" as separate or distinct from other structural works—architecture.

In the days of the Renaissance at Florence we hear of the celebrated sculptor and architect of the dome of St. Peter's, Michaelangelo, distinguishing himself as a military engineer during a siege of eleven months. Surely here was architect and engineer in one person! What has been said of Michaelangelo might be said of numberless others, among them Antonio Contino, Leonardo da Vinci, Michele Sanmichele, Andrea Palladio, Bartolomeo Ammanati, Fillipo Brunelleschi, Inigo Jones, and Sir Christopher Wren, at once celebrated as architects and engineers. In reality the mother art of architecture originally embraced all the structural arts, and for untold periods the architect acted as designer and builder of any material work, be it a temple, a fortification, an aqueduct or a bridge. As time went on, the architect who acted in military matters,—designed and built fortifications and engines of war,—became a "military engineer," and as war was often prevalent he was rarely without employment. Later on the peace-time works of pure utility were ex-

cutted by an individual known as a "civil engineer." It is to be noted, however, that before the advent of heavy construction in iron and steel, the bridge, since it was bound up with symbolism, was considered the work of the architect. To this the great bridges of the Renaissance period will universally testify.

The commemorative symbolism and triumphant significance of the bridge has always demanded, and still demands, something more than structural considerations. Here, as surely as in pure architecture, the demand for stability, utility and beauty is insistent. That steel enters largely into the construction of modern bridges is no reason why beauty should be crowded out, any more than it should be crowded out of the modern steel-framed skyscraper. Neither does the fact that a bridge is to be constructed of steel preclude the possibility of its possessing beautiful proportion. Beauty is not a matter of materials; it is a matter of line, mass, and proportion. If America has as yet done little to advance the argument of architectural beauty in bridges, certainly Europe with her wonderful heritage of interesting and beautiful old examples may offer us something in the way of suggestion in this connection. The bridge builder of today can find here inspiration for his work in the same way that the designer of steel-framed buildings finds inspiration for his essays.

In almost every country of western Europe one is impressed with the permanence of the roads that extend, web-like, in every direction, and with the strength and beauty of the bridges that span the innumerable streams that these roads encounter. There is, after all, a beautiful symbolism connected with the bridge that, rainbow-like, gracefully and triumphantly spans the distance between a here and a there, and bears one safely over the broad, swiftly moving stream or across the deep, rocky chasm as the case may be. And when one is carried by a rapidly moving express train from the black depths of some mountain tunnel out upon the slender-arched span of an Alpine bridge that bears him safely over the rushing mountain flood below, he cannot help feeling that man has triumphed, and triumphed gloriously, over his environment. It was with awe and admiration that the writer has considered some of



Fig. 1. Bridge of Stirling



Fig. 2. "Auld Brig o' Allan," near Stirling

the great and historic bridges of the Old World, and he resolved, on a recent trip, to keep notes and impressions of some of the beautiful and interesting bridges that he should see or pass over in his travels.

In descending the St. Lawrence River, bound for Liverpool, your steamer passes under the great Quebec Bridge, the longest of the world's cantilever bridges, with a span of 1800 feet at a distance of 150 feet above the water, which guarantees clearance to any vessel that may pass that way. The Quebec Bridge, even if not beautiful, is interesting not only because of its great span, exceeding as it does by 100 feet the span of the great Firth of Forth Bridge, but also because of the fact that it is the first important structure in which what has come to be known as the "K" system of web-bracing was employed. This tremendous structure was first conceived in 1899, but was delayed by the great disaster of 1907, when the south anchor and cantilever arms failed, killing some 80 workmen, and it was completed only about 13 years ago. It carries the double tracks belonging to the Canadian Government Railways.

It seemed rather appropriate that the writer should, after viewing one of America's great steel bridges, visit in the course of the next two weeks the second of the world's great steel spans, the Forth Bridge. As one speeds toward Edinburgh upon that most excellent Scottish railway, the Caledonian, the massive steel humps of the bridge loom up far across the country. A fine view of the structure and an idea of what it means to Edinburgh and Leith are perhaps best obtained by a view from Calton Hill, from the crown of which one commands a fine panorama of the cities, the Firth of Forth and the land beyond. The Forth Bridge, although of metal, has a fine majesty and power, even something of beauty, not found in the Quebec Bridge.

A trip to the ancient town of Stirling served to acquaint the writer with two of the oldest and most picturesque bridges in all Scotland; one, the "Auld Brig o' Allan" in the little village of the same name, some three miles from Stirling, and the other, the old Bridge of Stirling itself. The Bridge of Stirling (Fig. 1) is perhaps the most interesting in

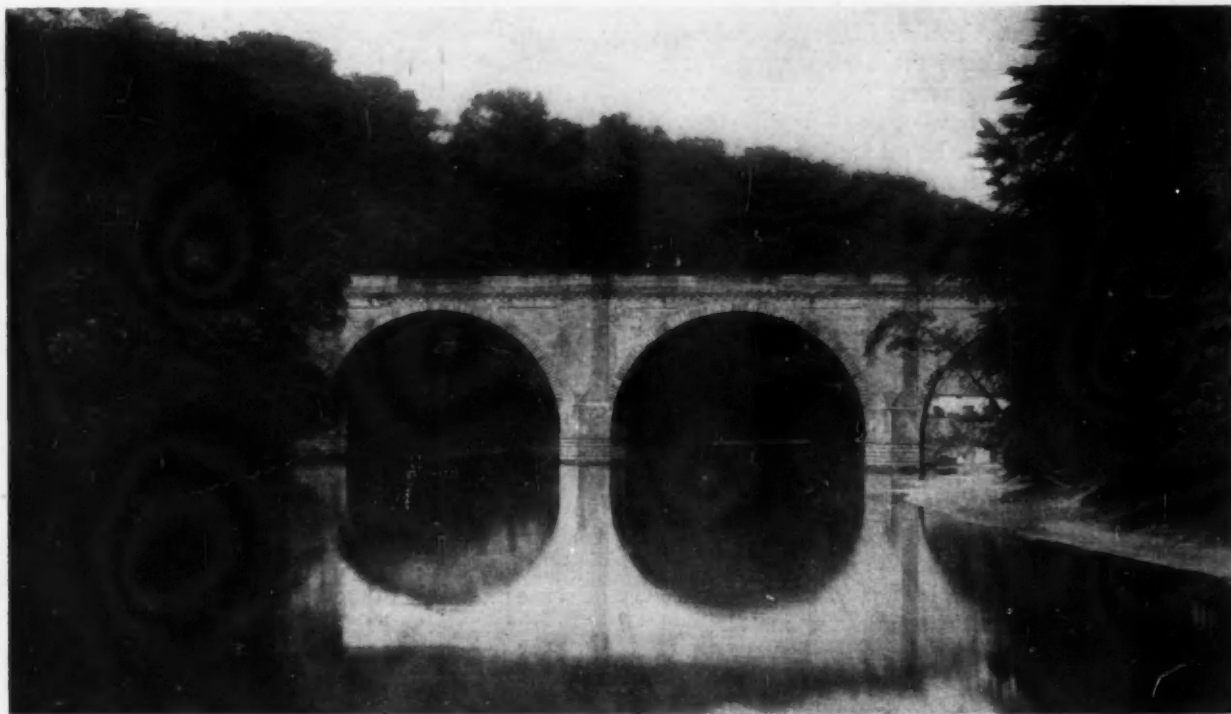


Fig. 3. Prebend's Bridge, Over the Wear River at Durham

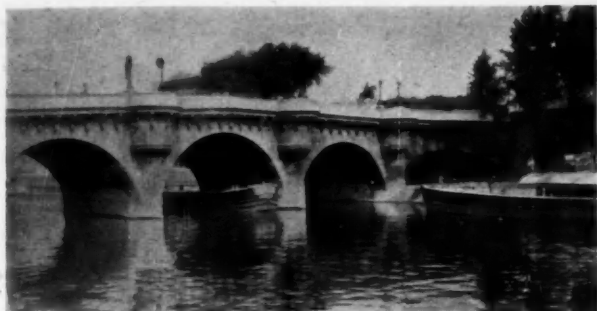


Fig. 4. Pont Neuf, Paris, Completed 1606



Fig. 5. High Bridge, Oxford

Scotland, due to its age, historical associations and beauty. From documentary evidence it has been established that the present "Old Bridge" dates from about 1409, although it was antedated by an older Roman structure, which crossed the River Forth at this point. Old Scottish bridges are rich in history.

The "Auld Brig o' Allan" (Fig. 2), beneath the great arch of which the writer had the pleasure of having a quiet lunch after a delightful three-mile ramble in the countryside, is quite as interesting as the Stirling Bridge and bears unmistakable evidences of having been widened, due to the growing demands of traffic. The piers are founded directly upon solid rock, and the ancient structure seems to bear the weight of the heavy modern motor trucks quite as competently as it bore that of the one-horse carts of a bygone day. Old Scottish bridges, although interesting in an artistic and historical way, are scarcely ever large or of distinguished design; but in a land as broken as is Scotland, the bridge is always an important landmark, and the Scot not only prizes his bridges but is proud of them

and wants the visitor to see and appreciate them.

Larger and often more beautiful are the delightful English bridges that span the pleasant streams that water old Britain. In selecting one for illustration, the writer could think of none more satisfying than the lovely old Prebend's Bridge (Fig. 3) over the River Wear at Durham. The Wear makes almost an island of the great promontory upon which stand the Castle (now the University) and the Cathedral of Durham. The promontory is connected with the remainder of the city by three bridges: The Framwell Gate Bridge, the Elvet Bridge and Prebend's Bridge. All three are old bridges, the Framwell Gate dating from the fourteenth century, but most beautiful is Prebend's. It is a distinguished bridge, beautifully proportioned and graceful in all its parts. Its cutwaters carry lookouts that provide places, safely outside the traffic's way, for the contemplation of the scenery in either direction and, situated as it is amid well wooded and beautifully parked banks and spanning the river above the dam, its graceful arches and

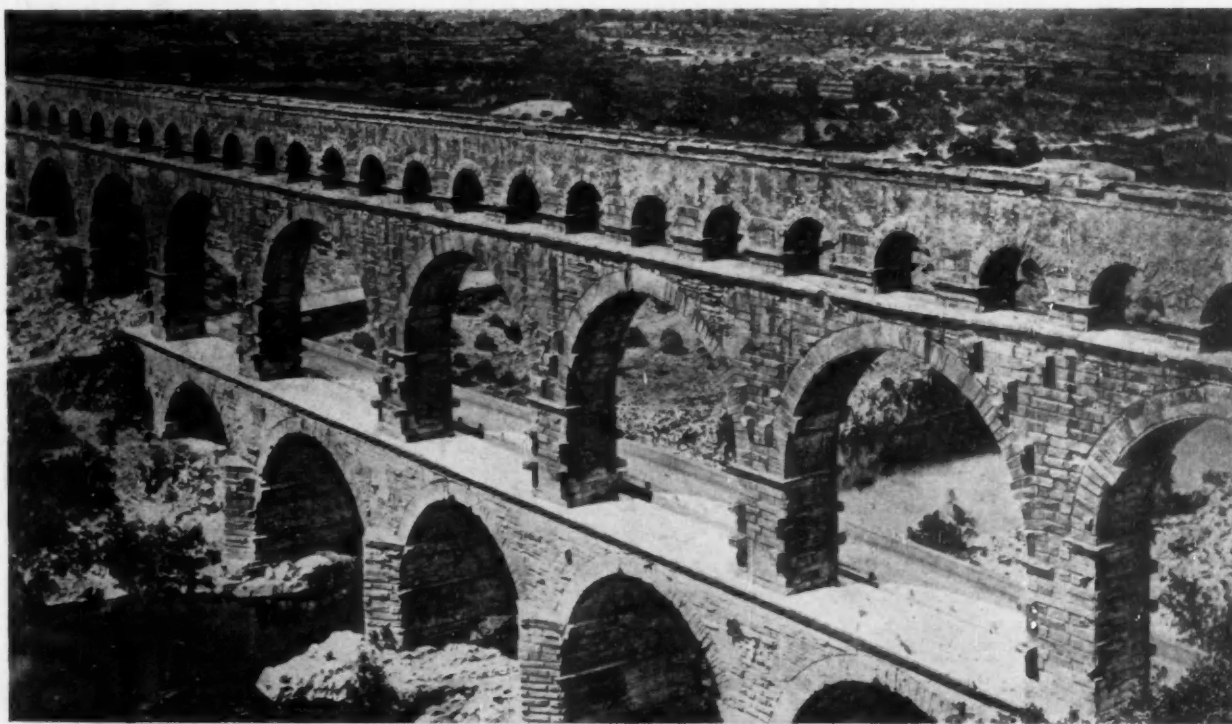


Fig. 6. Pont du Gard, near Nimes



Fig. 7. Tower Bridge, London



Fig. 8. Pont Marie, Paris

stately piers are usually charmingly reflected in the glassy waters. Beautiful is Durham from this bridge.

One of the most curious bridges in history is to be found at Crowland not far from Peterborough. The site had an ancient wooden bridge built before 943, at which date it is referred to in a charter. The present bridge was undoubtedly built by the abbots, as it betrays in every line its affinity with Gothic church architecture. It is a triangular bridge, built at a point where the Welland River divides into the channels known as the Catwater and the Nyne. The bridge consists of three pointed arches that have their abutments at the angles of an equilateral triangle and meet at the center, thus forming three roadways and three waterways. The profiles of the Gothic mouldings of the arches give a certain index as to the date of the bridge, which cannot have been earlier than the opening of the fourteenth century. It is a relic of a romantic period.

London has had, and has today, many interesting bridges. "Old London" Bridge, which has figured in all sorts of poetic lore, from the nursery rhyme

up, is perhaps more generally known to people than any other bridge in history, and the lore regarding it, if gathered together, would fill volumes. It was a most interesting old structure, built partly as a bridge, or rather a street of houses and shops over the river, and partly as a dam to raise the water level of the Thames upon its eastern side, thereby aiding shipping. There is supposed to have been a bridge over the Thames at London as early as 978, but authentic records are not available for the period before 1014. A fire in 1136 partly destroyed the first structure, so that in 1176 Peter of Colechurch began "Old London" Bridge and worked as its architect and builder until his death in 1205. The bridge was completed in 1209 by a monk brought from France for the purpose. A chapel dedicated to St. Thomas was constructed upon the bridge, and this chapel served as the resting place of Peter of Colechurch. In the matter of the chapel, "Old London" was like the Bridge of St. Benezet at Avignon, which still stands. "Old London" Bridge was, after many partial destructions by fires that ravaged the



Fig. 9. Pont Alexandre III, Paris

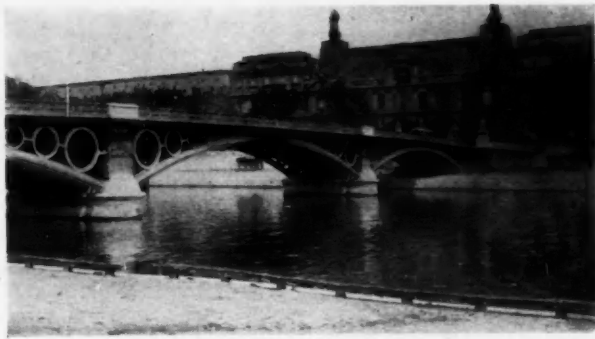


Fig. 10. Pont du Carrousel, Paris

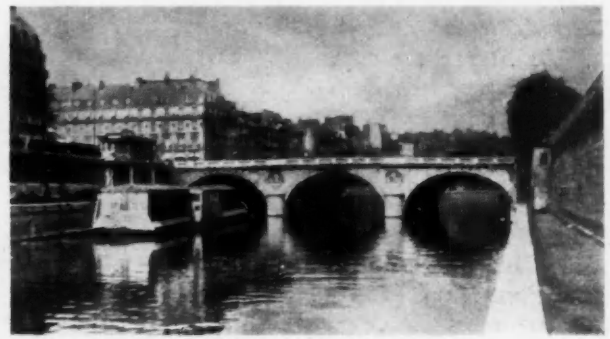


Fig. 11. Pont San Michel, Paris

timber houses which it carried, finally demolished and replaced in 1824 by new London Bridge. Until the completion of Westminster Bridge in 1750, the "Old London" was the only bridge across the Thames at London, and was consequently a very important structure,—one of the most important in London.

New London Bridge was designed by George Rennie, and erected by his brother, Sir John Rennie, who completed the work in seven years, a great contrast in the matter of time when compared with the 33 years that it took Peter of Colechurch and his successor to complete "Old Bridge." The new bridge was an excellent structure in its day, but it was conceived, like most London bridges, upon a small scale. But few London bridges accord with one's idea of what the bridges of a great city like London should be. New London Bridge is not only not distinguished in scale but has proved too small for the traffic, and consequently it had to be widened in 1902-4 from 56 to 65 feet, the present width.

Perhaps the most unique and picturesque of modern bridges anywhere is the Tower Bridge (Fig. 7).

This bridge gets its name not from its towers but from the fact that it is near the Tower of London. It is a suspension bridge with a secondary bascule (jack-knife) bridge in the center span to permit the passage of river traffic. Two great arched towers in the river and two towers on the shore abutments carry the suspension chains, the opening bridge between the two great towers consisting of two bascules, pivoted near the faces of the piers, which, rotating in a vertical plane, permit, when the leaves are open, a clear span of 200 feet and a clearance above high water of 141 feet. Londoners are very dependent upon and very proud of Tower Bridge, but the writer must confess that, although he admired the engineering prowess that made possible such a structure, he was not "thrilled" by the attempted "architecture" of the great bridge.

But if London is dependent upon her bridges and proud of them, Paris is even more so, and it is no exaggeration to say that Paris has more interesting and beautiful bridges than any other European city. A mere catalog of the more famous Parisian bridges

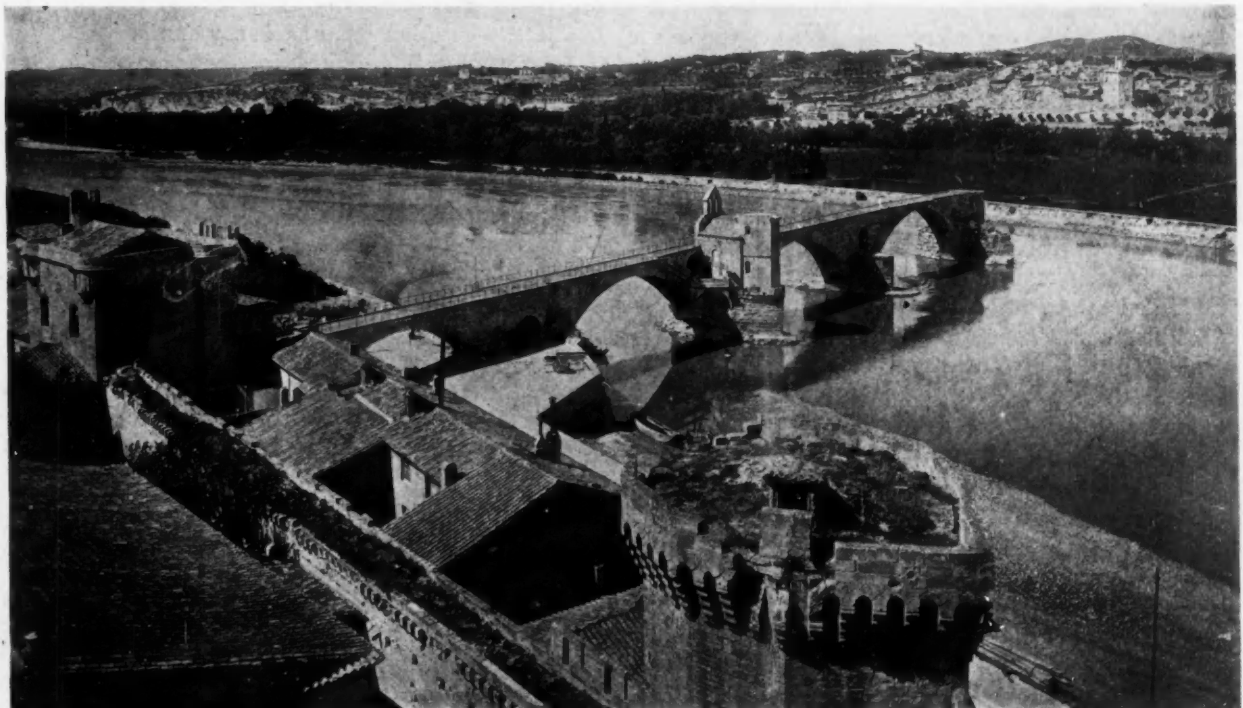


Fig. 12. Pont St. Benezet, Avignon

would make a formidable list, and the merest fragmentary remarks regarding the important bridges of the city would carry the present paper far beyond the limits allotted to it. From the Parisian's point of view the *Pont Neuf* (Fig. 4) is the most interesting and best loved. This famous old Renaissance structure, crossing as it does the western end of the *Ile de la Cite*, which

divides it into two sections, was begun in 1578 and completed in 1606. The bridge is decidedly architectural in its conception, the cutwater carrying corbeled or bracketed semi-circular lookouts or retreats which are provided with stone seats. The solid stone balustrade is carried along the bridge and out and around the lookouts by means of brackets, each adorned with a mask, while heavy bronze lamp posts, standing over the piers, flank the roadways. On the island between the two sections of the bridge stands a handsome bronze statue of Henri IV, with balustrades and seats of stone conveniently near, making a most interesting and delightful place to rest. Situated as it is, *Pont Neuf* always figures largely in Parisian celebrations, and on a memorable Bastille Day the writer, standing upon *Pont des Arts*, witnessed one of the finest displays of fireworks that it has ever been his pleasure to see, each and every star and sparkler of which was doubly enhanced by its reflection in the quiet waters of the Seine. *Pont Neuf* is one of the masterpieces of the Renaissance architect, Jacques Androuet du Cerceau, but it has been much altered since the days of the Renaissance. One might expand upon the history and lore that surround such bridges as *Pont Louis Philippe*, *Pont San Michel*, *Pont Marie*, *Pont au Change*, or the more modern *Pont St. Louis* and *Pont du Carrousel*. Each is beautiful, interesting or historic in its own way, and each has had its share in Parisian romance.

One of the finest bridges in Paris, and the widest (131 feet), is *Pont Alexander III* (Fig. 9). This modern structure, constructed of cast steel, was built at the grounds of the Exposition of 1900 to connect the *Champs Elysees* and the *Esplanade des Invalides*. The bridge is remarkable for its single span of 353 feet and its shallow rise of only 20 feet. At either end stand gigantic ornamental pylons, 75 feet high and justly celebrated as among the handsomest bridge pylons in existence. The *Alexander III* is further adorned by beautiful bronze electroliers and statue groups, making it one of the most ornamental and striking bridges in the world.

Outside of Paris there are many fine bridges. Nearly every French city or village situated upon a stream has an ancient masonry bridge, hallowed



Fig. 13. Old London Bridge, From an Old Print

tifes or Bridge-building Brotherhood which arose in the south of France during the latter part of the twelfth century and maintained hospices at the fords of principal streams, besides building bridges and looking after ferries, important functions at the time.

The bridge at Avignon is far from intact at the present time, but in spite of wars, floods and explosions, four of the original 21 graceful, elliptical arches and the chapel on the third pier remain. The bridge was originally 2,000 feet long, had a clear width of 13 feet between parapets, and was bowed slightly upstream in order to better resist the force of the current. The old structure, with its chapel to St. Nicholas, the patron saint of those who travel by the river, makes an interesting and picturesque ruin when viewed from the ramparts of the old fortified Palace of the Popes. The old structure figures in many a legend and in many a quaint dance or song similar to that of which the refrain is:

*Sur le pont d'Avignon,
L'on y danse, l'on y danse,
Sur le pont d'Avignon,
L'on danse tout en rond.*

Not far from Avignon, and on the road from this ancient papal city to Nimes, is one of the world's great ancient bridge structures, the old Roman aqueduct, *Pont du Gard* (Fig. 6). The aqueduct was built during the reign of Augustus to provide a water supply for the Roman city of Nimes, and consists of three stories of arcades (the lower of six arches, the second of 11 arches) and a waterway at the top carried upon 36 small arches. The lower tier was originally 20 feet, 9 inches wide, the second tier 15 feet, and the upper 11 feet, 9 inches. In 1743 comprehensive repairs were made, and the lower tier of arches was widened to make a roadway on one side. The stones are laid without the use of mortar, being clamped together with iron bars, while a lining of cement prevents the waterway from leaking. *Pont du Gard* is built of a yellowish oolitic stone of the locality and, in full sunshine against the deep blue Mediterranean sky, it makes a distinguished appearance and inspires in one a fine admiration for Roman structural genius which built so many great structures yet remaining and in use after many centuries.

Some Belgian Garden Suburbs

By EDITH ELMER WOOD

TO rebuild 80,000 war-destroyed dwellings is no small task for a nation of seven and a half million people, but the Belgians have accomplished it. A special government bureau, the *Office des Regions Devastees (O.R.D.)* under Ralph Verwilghen, one of Belgium's foremost town planners, was created for the work, and has functioned with efficiency and enthusiasm since the declaration of peace.

Much work, of course, especially where buildings of historic interest were concerned, has been merely a careful reproduction or restoration of what was there before. But the housing of working people, which left much to be desired in the old days, has been greatly improved. It has been the policy of the *O.R.D.* wherever possible to erect for them a series of small garden suburbs, in which four-, five- and six-room cottages, with all modern improvements (except bathtubs and pipeless heaters), are grouped around children's playgrounds or along grass-bordered roads. The houses are substantially built, usually of brick, with tile roofs. Every house has its garden, and the planting of trees, grass and shrubbery has been well carried out. Mr. Verwilghen has been successful in giving these little communities a cheerful, homelike aspect, even where the oddly shaped parcels of land procurable must have seemed least suitable for the purpose. Ligy, Logis and Kalfvaart, all these being situated in the outskirts of Ypres, are good examples of these developments, exhibiting their most admirable points.

Restoring 241 devastated communes might seem to be enough to absorb the building energies of contemporary Belgium, but its enterprising people have not been content to halt there. Plans had been made before the war to improve the housing of the working classes with the help of government loans for 66-year periods at 2 per cent interest. The work was to be done by local non-commercial housing societies of a semi-private, semi-public character, under the supervision of a national body wholly public. The carrying out of these plans was resumed in 1920, in spite of the spectacular rise in building costs to six times those of 1914, which made it necessary to add a provision for a substantial subsidy. Under this system nearly 30,000 cottages and apartments have now been built by over 200 local societies. Only the critical state of the na-

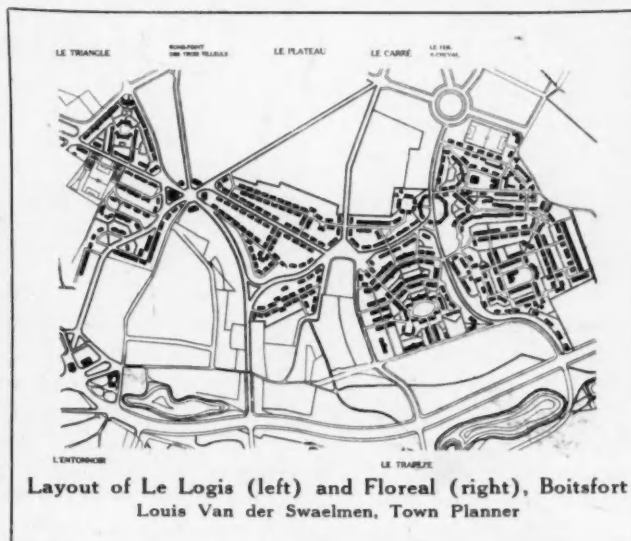
tional finances, due to reparation failures, has prevented an even larger output. Tenancy in these houses is limited to the groups having smallest incomes. The "white collar" people, only a trifle better off, were meanwhile feeling the pinch of the housing shortage and rising rents. Some of the more enterprising formed themselves into coöperative tenant societies, and applied for government loans and subsidies to build their own homes. After considerable controversy, they were granted loans, but no subsidies. With this the utmost has been done.

Two developments of this kind have been chosen for illustration because of their rare charm and distinction. They might almost be considered as one, since the same architect and town planner coöperated in the production of both; their sites are adjacent, and they are being developed in a harmonious though not identical manner. The locality, known as Boitsfort, is three or four miles to the southeast of Brussels on the line of what will be eventually an outer circle of boulevards. It is a hilly tract, commanding a wide view of rolling country, wooded and cultivated, and affording many excellent views.

Louis Van der Swaelmen is the town planner, and Jean Eggericx is the architect of the houses. To an extraordinary degree they have conceived their work as part and parcel of the landscape setting. Detached from their surroundings, these cottages and bungalows might seem unduly austere. As it is, one is supremely grateful for their sobriety and for the restful absence of ornament which would have attracted attention from what nature has so abundantly supplied. In the matter of color, too, instead of the usual straining after variety, the same scheme has been used throughout,—red tile roofs and brick walls covered with stucco of a soft, warm, "earthy" shade, difficult to define—neither khaki nor putty nor cream, but something between, which melts into

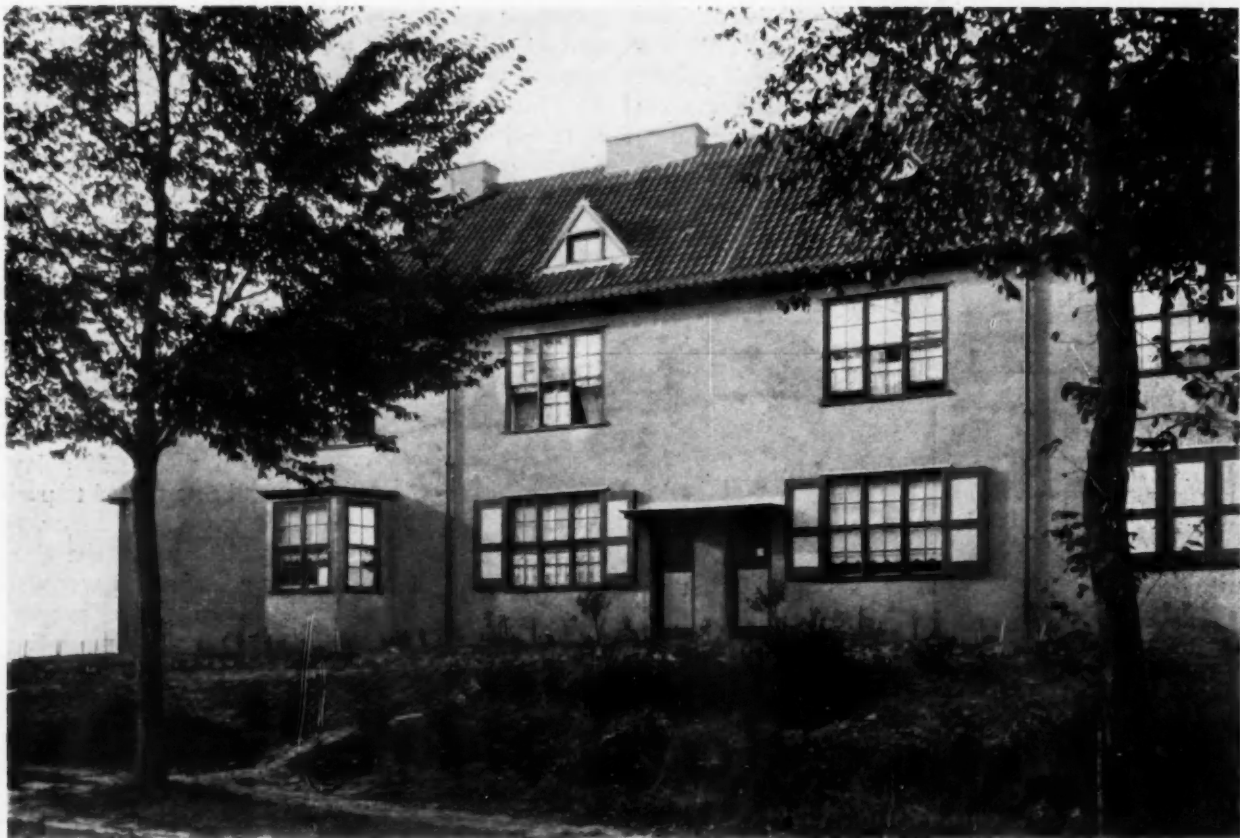
the landscape and makes this brand new settlement, even before it is finished, look as if it had grown there. If a layman be permitted to push the analysis further, I should say that the pleasure I received was also due to the good proportions and interesting and picturesque roofs of the buildings themselves.

The combined population of the two tracts will be between 5000 and 6000. Members of the Floreal society include mechanics, clerks and





Rear of Cottage, Kalfvaart Garden Suburbs for Working People, Built by the *Office des Regions Devastees* at Ypres
R. Acke, Architect



Part of Group of Homes at Floreal, Boitsfort
Jean Eggericx, Architect



Another View at Kalfvaart, Workingmen's Suburb at Ypres
R. Acke, Architect



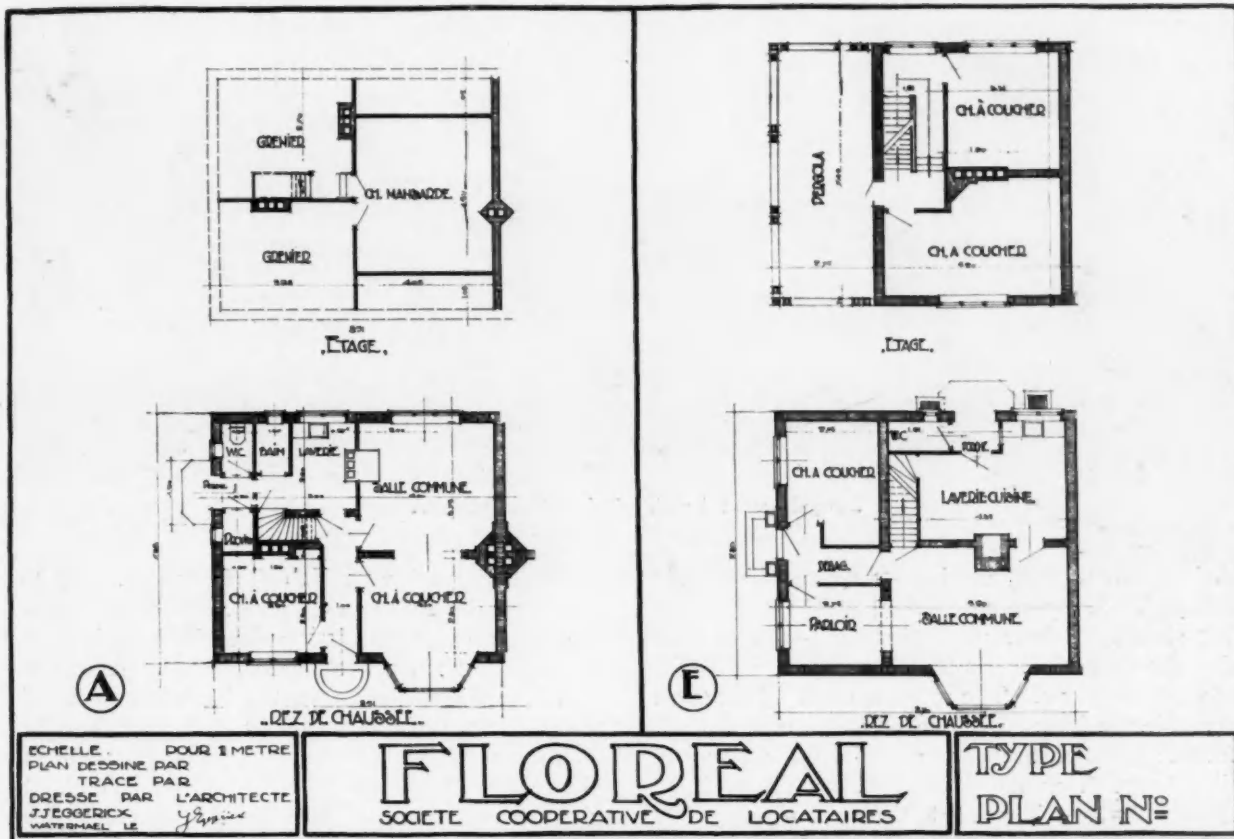
Ligy, Garden Suburb for Working People, Built at Ypres by the O. R. D.
H. De Bruyne and Ralph Verwilghen, Town Planners



Another View at Ligy, Ypres



Les Trois Tilleuls, Boitsfort
Jean Eggericx, Architect



Floor Plans of Two Types of Houses at Floreal; Five Rooms with Baths and Attics, and Six Rooms with Second Story Porches and Loggias
 Jean Eggericx, Architect

some professional people. They have about 40 acres of land, on which 450 families will be housed. The work is about three-quarters completed. The cottages are built on two hillsides. Football fields and tennis courts are in the valley between. One hilltop will be crowned by a community house in a little park, and the other by an apartment house. Provision shops, with apartments above them, will be placed around the horse-shoe at the entrance to the estate. The other society, Le Logis, has a more homogeneous membership, consisting of employes of the General Savings Bank and similar institutions. Their athletic association owns considerable adjacent land, including the beautiful woods in the valley at the foot of the funnel, which will be preserved as a park. Le Logis' development is called Les Trois Tilleuls, from the three fine lindens around which the Rondpoint has been designed. Its acreage is twice that of Floreal, and it will ultimately contain 800 bungalows and cottages. Much of the surface is on fairly level plateaus, only the funnel section being on a hillside. Here we have the houses built on the concentric terraces of an amphitheater, and on one side of the road only, so as not to interfere with the views from one another's windows.

Building costs have been rigidly kept down. Bricks are made on the spot. An inexpensive built-in bathtub has been evolved of concrete, surfaced with the little black and white mosaics we use in bathroom

floors. A combination cooking range and heater has been introduced from Russia. Every franc has been made to work. But even in the simplest of these houses it would be a pleasure to live; they are so compact and convenient and well planned. I liked particularly a 22,000-franc bungalow, in the center of which is a large living room, extending from the front to the back of the house. This room has wide casement windows with window seats, a high brick mantel above a spacious fireplace, a floor of deep red tiles, and a most glorious view of hill and dale. I suspect that it was this view which led the architect, Mr. Eggericx, to build a house for himself just beyond the Trois Tilleuls boundary. In it he has used the same color scheme and general architectural style of the other houses, while permitting himself a few luxuries of detail and finish, the use of which economic necessity made impossible for the cooperative societies, but which are reasonable here.

EDITOR'S NOTE

FROM the November, 1921 issue of *The Builder*, published in London, this extract is taken: "Perhaps for British ears there is no name more closely associated with the war than that of Ypres, and I was keenly interested in the work done there, because in our Belgian 'study circles' the fate of that unfortunate town was followed with the closest interest, and statistics were received from time to time which en-



Bungalows at Les Trois Tilleuls, Boitsfort
Jean Eggericx, Architect

abled us to check off the houses which were being destroyed. Many a discussion took place as to what should be done after the war,—whether the ruins should be left or not, what streets should be widened, and so on. The reconstruction of the town lies still in the future, and one may hope that as work goes on a somewhat more progressive spirit may prevail. Apart from the work done by the *O.R.D.*, there is little evidence of there being any enlightened policy, and proposals of 'reconstruction' which I was shown were enough to make one shudder. Properly conceived designs for the planning of certain localities, which would give beauty and convenience and even save expense, have been rejected for mechanical, soulless ideas, which may be all very well for decorating a road with houses on each side, but which lack the very rudiments of either site-planning or town-planning which is really successful.

"There are two garden suburb schemes at Ypres, one known as Kalfvaart and the other as Ligy. The method of building is entirely different. In the former case, brick houses of excellent proportions, with red roofs showing up in strong contrast with the whitewashed walls, present an excellent picture as one approaches the town from St. Jean, and the *O.R.D.* has been able to put some idealism into its work. In the second instance the wooden frame building with mansard roof is being used, and although not so striking as that at Kalfvaart, the indications are that by the time the site is covered the effect will be quite good. The scheme is really an excellent example of what can be done by site-planning to secure decent street pictures, even when the elevations are strictly limited. It is here that the site-planner scores, and it is here, unfortunately, that countless English municipal housing schemes have so miserably failed during the past few years.

"At Kalfvaart not only was there a site-planning policy but an important town-planning proposition, and although the *O.R.D.* is not entrusted with the preparation of a town plan, its proposals will greatly facilitate the improvements which must be carried out sooner or later. An endeavor has been made to

reproduce Flemish village conditions rather than to import English garden city plans, and in the small 'place' an excellent effect is gained by bringing the building line right up to the line of the pavement.

"Still further to conserve the local 'atmosphere,' the architecture of the houses has been put into the hands of M. Acke, of Courtrai, an artist with an intimate knowledge of the district, who, without trying to reproduce archæological features, which would be out of place in simple homes, has managed to preserve the general spirit of the little old houses of Ypres. In a like degree he has studied the typical disposition of the houses which made up the greater part of the old town, while correcting some of their obvious inconveniences. A striking feature of the houses is the utilization of heavy wooden sashes for the windows, which formerly had almost passed out of usage for generations. These have now been standardized and are being largely used in different parts of the country. The houses are mainly of three types, but all have their three bedrooms. They are a good deal larger than those at Roulers, and cost between 20,000 and 25,000 francs each. They were built during the summer of 1920. The work on the Ligy garden suburb was started about midsummer, 1921. The layout plan has a distinction all its own, and displays the versatility of the author. In addition to the central 'place,' to be used as a playground, there are several smaller 'places,' which evidently owe their inspiration to the work of Camillo Sitte. The introduction of so many pairs of houses has increased the site-planner's difficulties, but his use of setting back and the reservation of open areas have quite overcome these.

"As to Ypres itself, one is rather glad to get away from the place. And the town mayor's notice about this being 'holy ground,' from which no stone may be taken, does not always appeal, especially side by side with the catchpenny devices which exist for the allurements of the 'tripper'. And, incidentally, one may hope that all holy ground is not so expensive as Ypres hotels,—otherwise Heaven may be sparsely populated! Few could ever hope to attain it!"

The Chicago Union Station

GRAHAM, ANDERSON, PROBST & WHITE, Architects

By ALFRED SHAW

IT is a significant fact that a passenger terminal is one of the greatest visible expressions of a great railway system. Designed with impressive interior apartments and rising as a monumental structure in the center of a great city against a background of buildings of a more commercial nature, it represents more to the passing public than the terminus of important stretches of tracks and yards which run across the whole country. In addition, there is the fact that this kind of a building is used more by individuals of a community than any public structure, which suggests immediately the function of the building—namely, the reception and transfer of thousands of travelers from trains to lighter vehicles or sidewalks, and the reverse. Thus it was that with great enthusiasm the Chicago Union Station project was undertaken more than 15 years ago by the executives of the interested railroads, the architects, and the city fathers of Chicago. The ordinances governing the construction of the terminal and the many municipal improvements necessitated in connection with it were finally approved, and work was at length begun. It has now been entirely completed.

The general location is on approximately the same ground as the old Union Station, on the west bank of the Chicago River, between Harrison and Madison Streets, a stone arcade of vigorous design with heavy rustication screening it from the river. The two main buildings of the group, the Concourse and Headhouse, are located centrally in the plan, that is, between Adams Street and Jackson Boulevard, Clinton Street and the Chicago River. These two buildings are connected on the main station floor by using the space under Canal Street, thereby forming a passenger terminal which actually covers two of the large Chicago city blocks in area.

The track layout is for a double "stub-end" station, the only station of its kind in the country. There are 14 stub-tracks on the south and ten stub-tracks on the north, and in addition two other tracks which connect the two gridirons on the east side of the station along the bank of the river.

The available land for the whole terminal, which

was greatly enlarged from the property used by the old Union Station, was still so limited that the entire passenger facilities could not be placed between the two stub-end tracks. This, on the other hand, made possible the use of a single concourse, opening to the north for trains of the Chicago, Milwaukee & St. Paul Railroad, and to the south for trains of the Pennsylvania Railroad, the Chicago, Burlington & Quincy Railroad, and the Chicago & Alton Railroad. The design of the passenger concourse is carried out in steel and glass, somewhat similar to the design of the concourse of the Pennsylvania Station in New York, expressing frankly the structure and nature of the building. The central nave of the concourse has two smaller spans or aisles on either side, and is lighted by skylights in the roof and by windows in a clerestory, as well as by two great windows at either end, their motifs executed in terra cotta of a new and effective texture possessing decorative qualities.

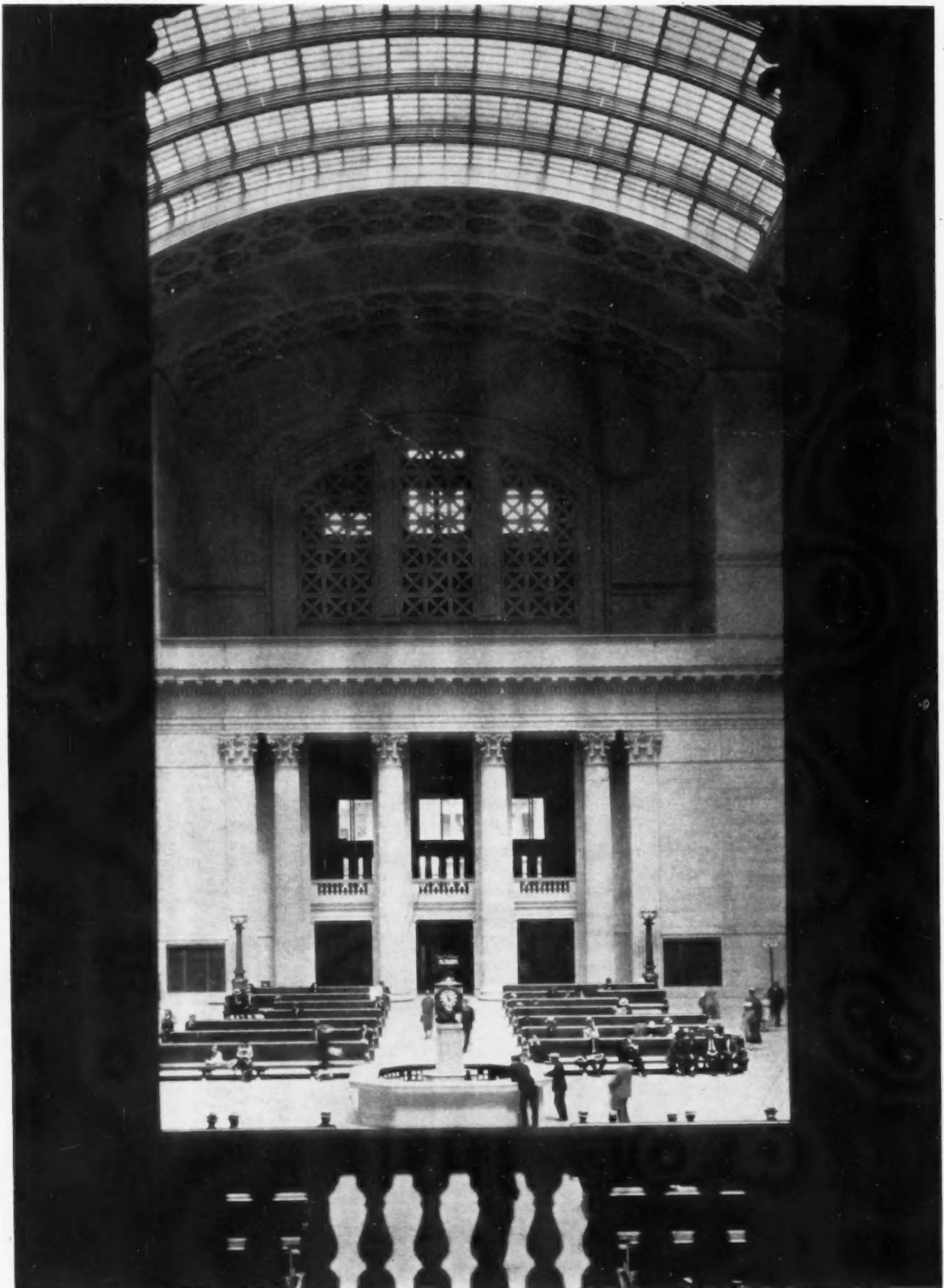
At each end of the concourse, that is, east and west, there is an entrance directly from the street, which is reached by ramps and monumental staircases, also in terra cotta and iron. On the station floor at the east end are shop fronts of a delicate design in metal, and at the west end the room opens up into a broad barrel-vaulted passage leading to various rooms designed for the convenience of passengers. Off this broad corridor at the right and left, immediately adjacent to the concourse, are the baggage checking and parcel checking rooms. The passage continues on out under Canal Street to

the two cab stands, which will be described later, finally reaching an ample ticket lobby where all railroad and Pullman ticket offices are grouped together; beyond this is the main waiting room, a monumental interior of classic design, the most imposing of the rooms in the station building.

The character of the main waiting room may be best described by referring to the thermal establishments of imperial Rome where, in the baths of Diocletian and the baths of Caracalla, the world witnessed for the first time the development, on a vast scale, of the system of round



River Front, Chicago Union Station



Photos, Tebbs & Knell, Inc.

MAIN WAITING ROOM, CHICAGO UNION STATION.
GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS



PORTICO FACING CANAL STREET, CHICAGO UNION STATION
GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS

arch and vault architecture. Those splendid structures, designed to furnish open space, recreation, light and air under cover to vast throngs of citizens, stand as the prototypes for the great concourses and waiting rooms in our modern railway stations, which are in reality the vestibules to our American cities.

This great hall is ornamented with a monumental Corinthian order, used in the openings as well as against the walls. The walls are laid up in Roman travertine, the color of which blends harmoniously with the soft green tones of the barrel-vaulted ceiling constructed of glass and steel, which rises 112 feet above the floor and lights the hall. The figures representing Day and Night, on the free-standing columns in this room, as well as the sculptural panels on the exterior, are the work of Henry Hering a New York sculptor. The general color treatment of the station is so handled as to express the actual materials used, and by means of painted surfaces a complete and harmonious scheme of interior is achieved. In the study of the interior color scheme, the station authorities and architects consulted with Jules Guerin, the eminent New York mural painter.

In the center of the west wall of the main waiting room is the entrance to the lunch room, adjacent to which is a quiet dining room away from the noise of the rest of the station, which provides a more leisurely type of service. Paneling in walnut forms a rich toned base around the walls of the room, the walls rising, light buff in color, to a coffered ceiling decorated in bright greens and brick red. This dining room is also approached through a small reception room off the main waiting room and from Clinton Street. On the north end of the west wall are located the women's waiting room, rest and toilet rooms, connecting with which is a beauty shop. At the south end is the barber shop, an interesting room with green tile walls, below which, in the basement, are located the toilets for men. The usual smoking room for men was intentionally omitted from the design of the station, perhaps as being unnecessary.

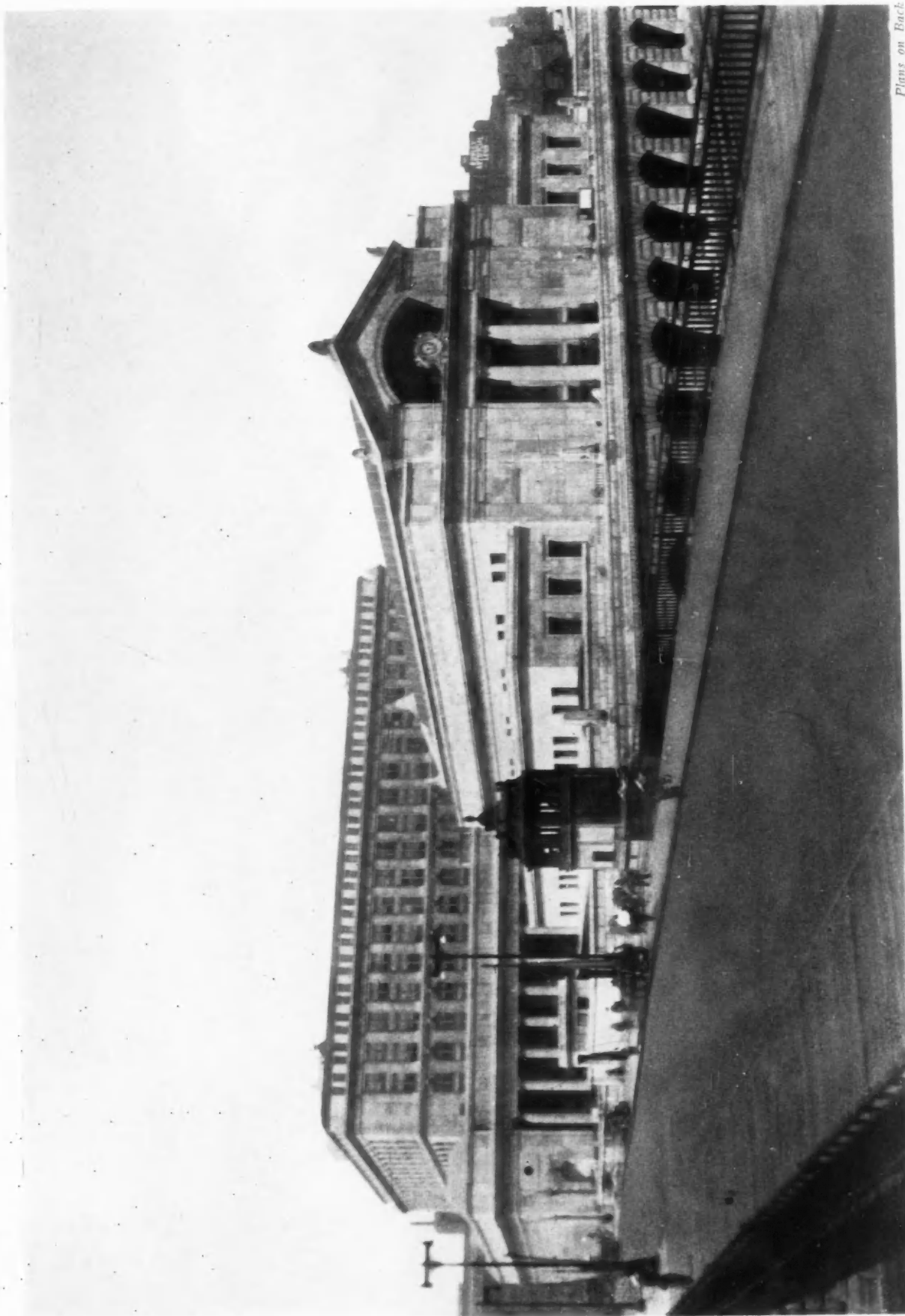
The exteriors of both the concourse and headhouse buildings are executed in Indiana limestone. The long colonnade of the headhouse, with the many stories of offices rising behind and above it, forms a monumental background for the concourse building when viewed from the east. As yet only eight stories of the headhouse have been built; the remaining 12 stories are expected to be erected at an early date. The headhouse building is 320 by 373 feet with colonnades and pilasters in the Roman Doric order running around the entire four sides. The set-backs on Jackson Boulevard and Adams Street form the cab drives. The office building portion of the structure sets back 20 feet from the street lines and runs around four sides of the central court, at the bottom of which is located the main waiting room.

The cab drives and passageways to the baggage room, located in the north and south set-backs just referred to, are among the most interesting features of the station. In the north and south pylons of the

Clinton Street facade are entrances to vehicle ramps which slope down so that at the line of Canal Street they are at the elevation of the main passenger terminal floor. At this point there is a small underground plaza where the cabs are loaded and unloaded. This plaza is at the ends of the connection under Canal Street; a great open area with a flat groin-vaulted ceiling. From the plaza the ramps turn and slope down to the west, and turn again toward each other to form a single drive down to the baggage concourse. Here is a large open area for trucking and a backing-up platform 400 feet long running along one side of the baggage handling area, which is approached also from the train platforms by the ramps already mentioned. This room, occupying the entire area under the passenger concourse, is likewise reached from the baggage check-room immediately above. In the operation of the station up to the present, the baggage handling has been found to be much more efficient than in any layout in operation elsewhere in the country.

The train sheds, which run north and south from the passenger concourse, to Harrison Street on the south and to Madison Street on the north, are of a new type developed from the "umbrella" shed. The whole area is completely protected from the weather, with smoke outlets immediately above the locomotive stacks, giving a direct exhaust into the air. A great increase in headroom above the passenger platforms is obtained here by a curved and pitched truss and roof of glass tile. The baggage platforms are left free of columns for easy trucking by an ingenious arrangement of cantilever trusses and columns, located at the centers of the passenger platforms. This makes for better service.

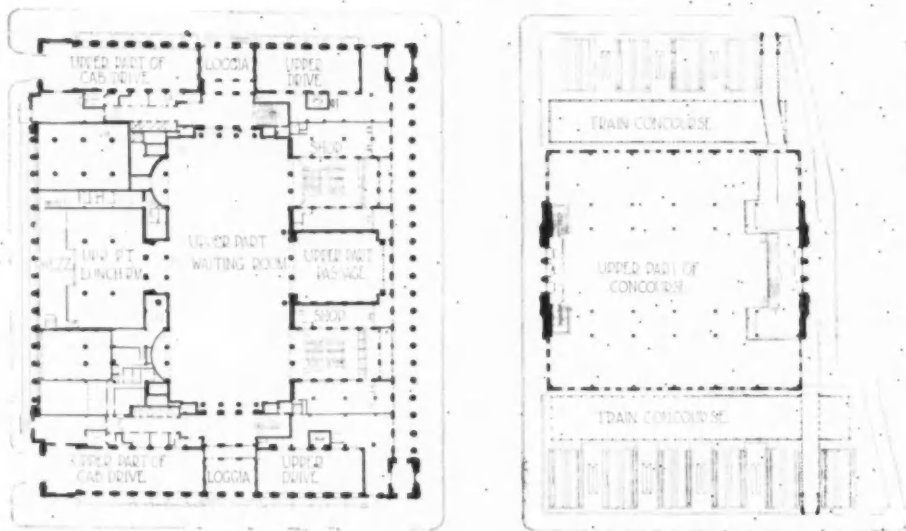
This is the first modern building in which a great system of streets for vehicles is contained entirely within the property lines. Ramps for teaming and passenger vehicles, as well as the backing-up area and unloading space for cabs, are all in the building, thus obviating the great inconvenience of having vehicles standing at curb lines on a street, as well as relieving the actual street traffic. In our congested modern cities this is considered an advantageous improvement. The station was opened for the public on April 18, 1925, although the formal opening was delayed until July 23, marking the completion of many years of constant effort on the part of railway engineers, the architects and city officials. A great terminal of this character, so important in its influence, represents the employment and heroic efforts of many men, men with vision and indomitable optimism, who kept the great undertaking always before their eyes; men who labored under electric lamps, who were relied upon for all kinds of minute mathematical calculations, and the multitude of other men, those disciples of tobacco and fresh air, who swung the hammers and set the rivets and the stones to make the great vision an enduring reality! The Chicago Union Station represents, today, the last word in the world's railroad terminals.



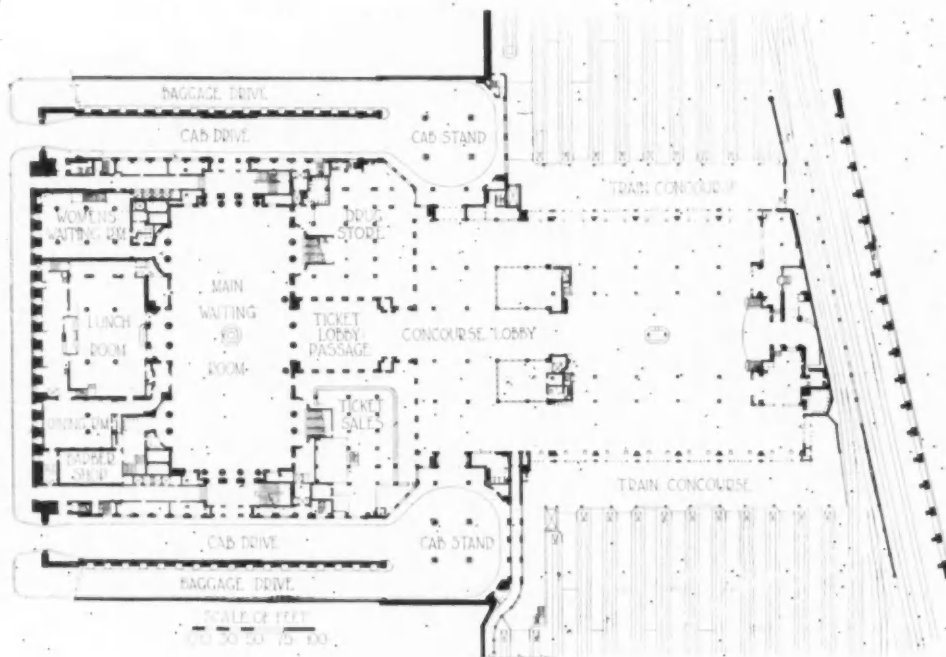
Plans on Back

GENERAL VIEW
CHICAGO UNION STATION
GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS

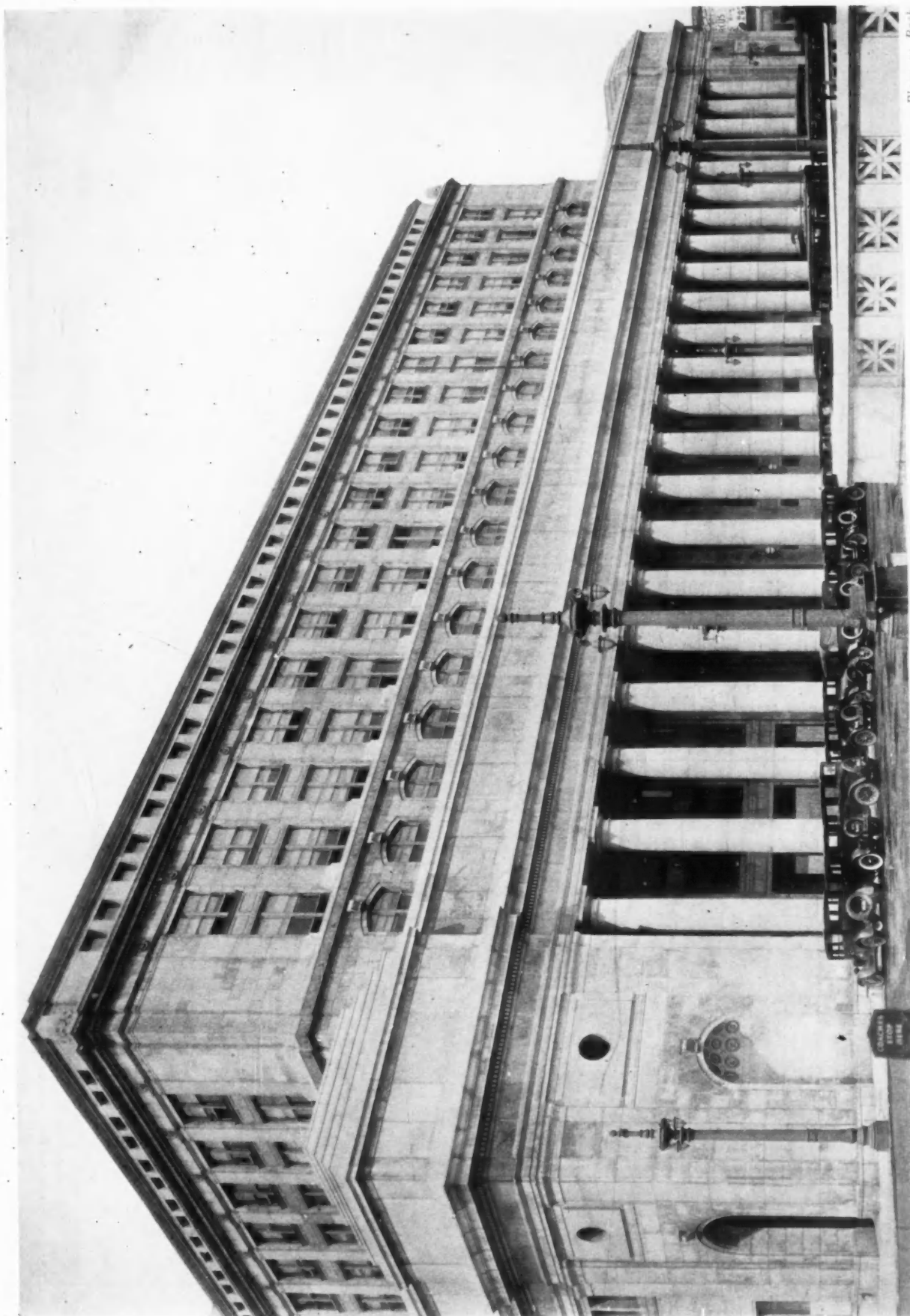
Photos, Tobbs & Knell, Inc.



STREET LEVEL

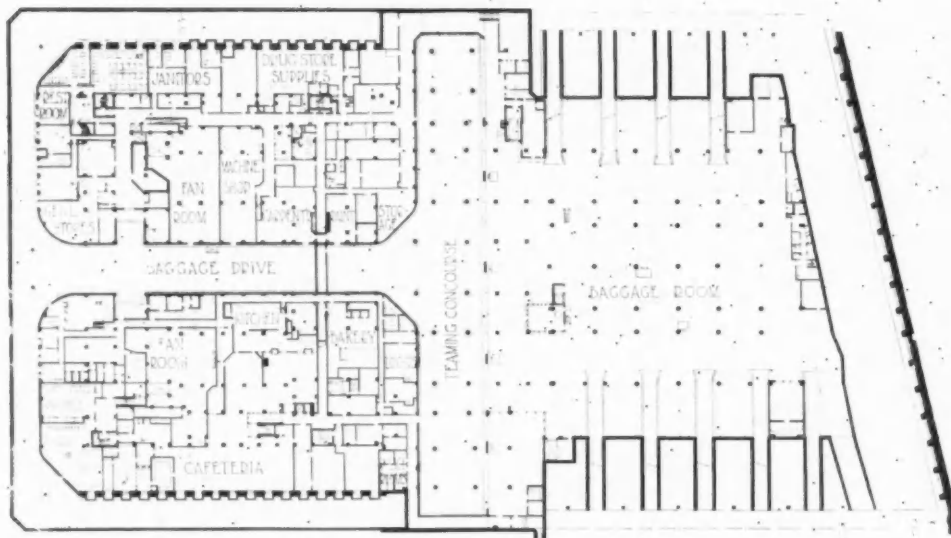


WAITING ROOM LEVEL
 CHICAGO UNION STATION
 GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS



Plans on Back

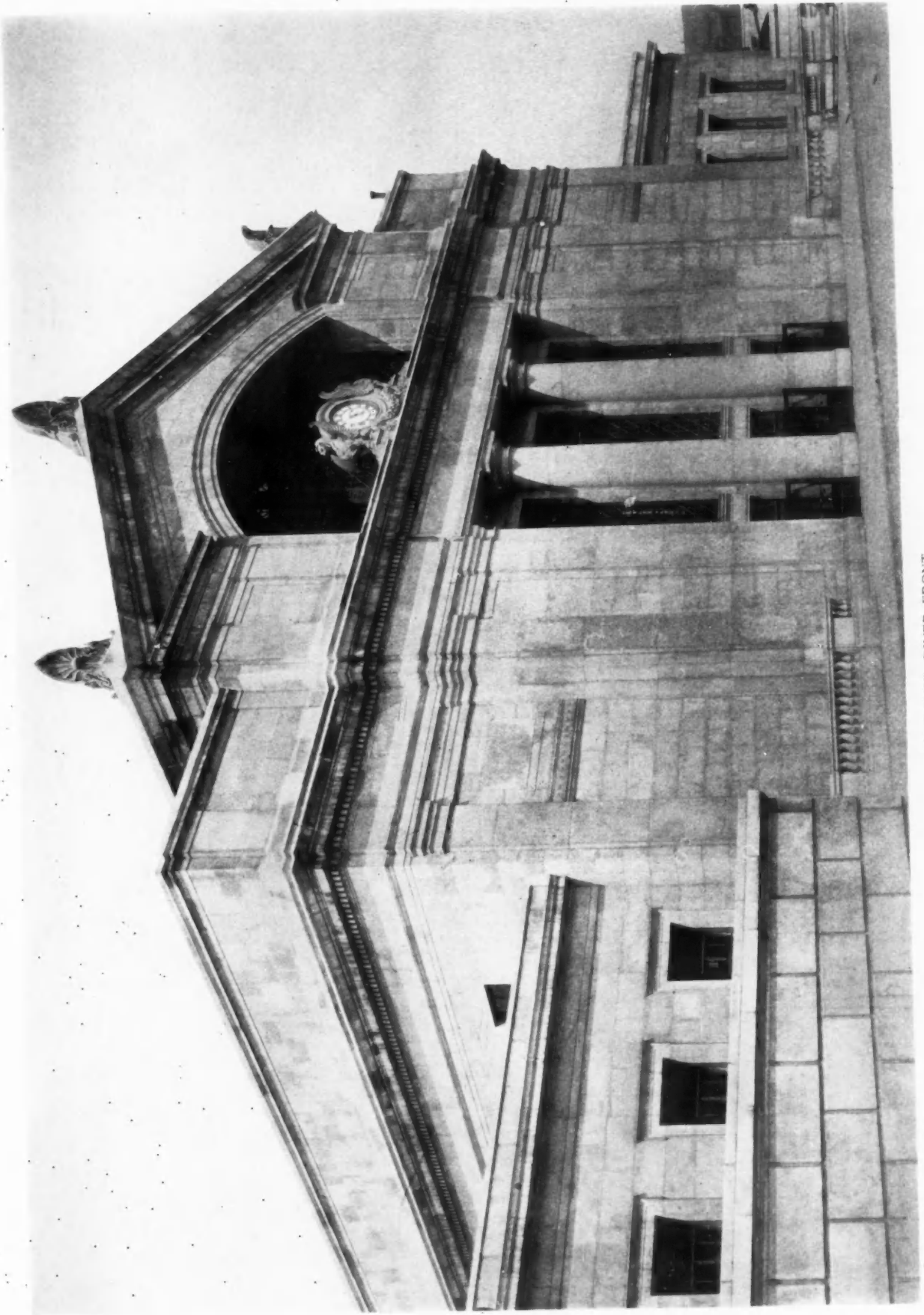
CANAL STREET FACADE
CHICAGO UNION STATION
GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS



BASEMENT LEVEL

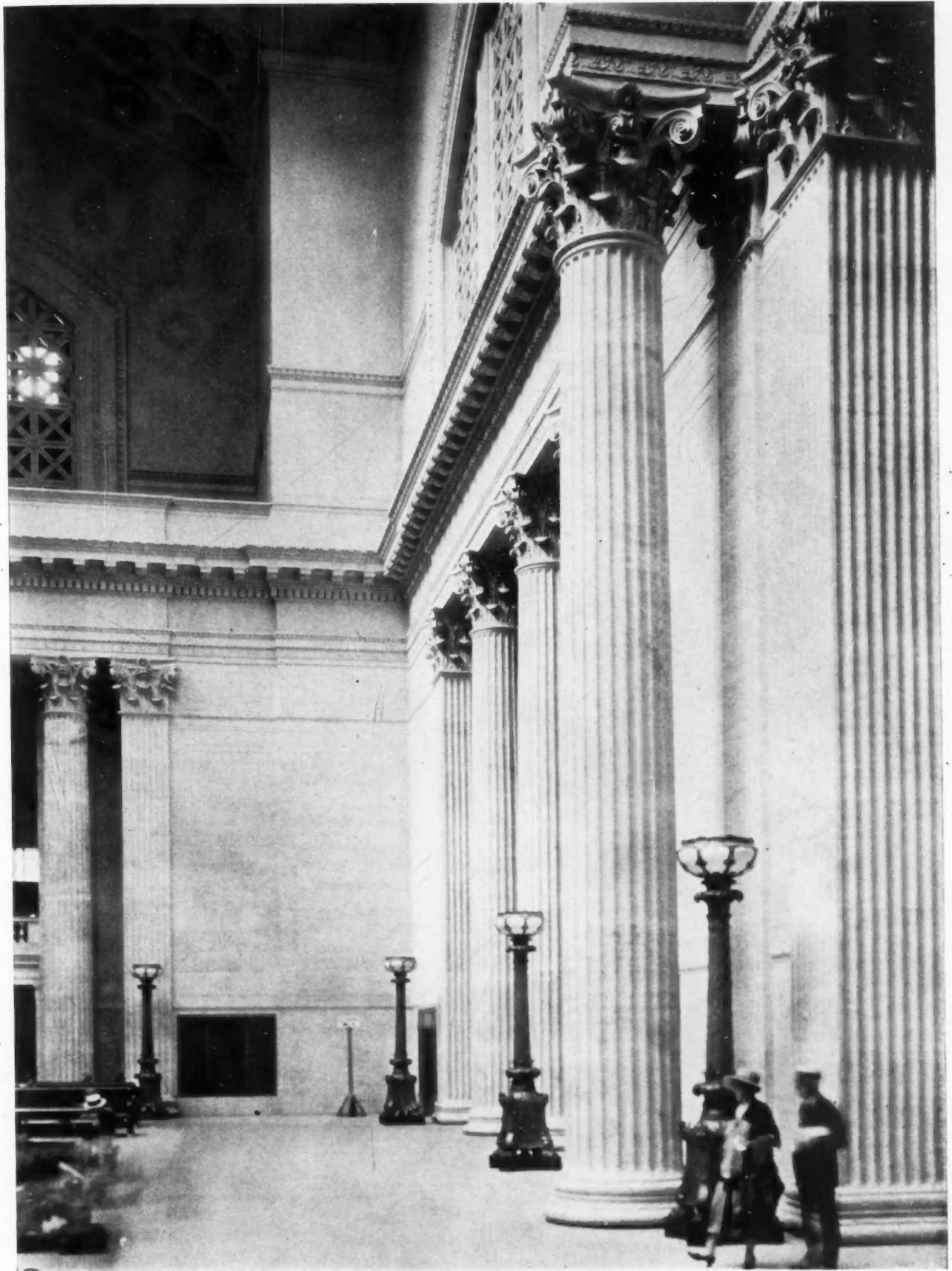
CHICAGO UNION STATION

GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS



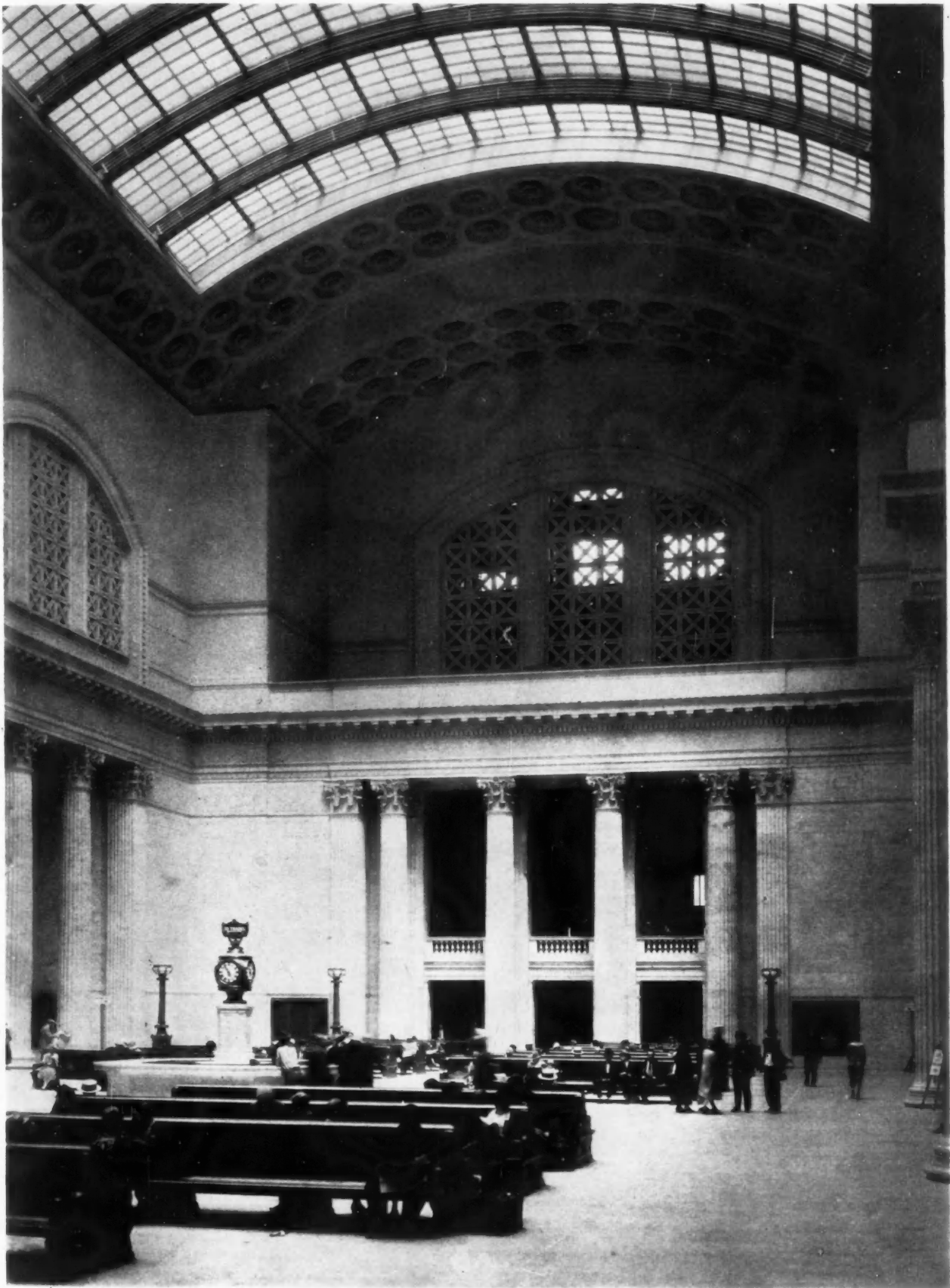
ENTRANCE, RIVER FRONT
CHICAGO UNION STATION
GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS





DETAIL, MAIN WAITING ROOM
CHICAGO UNION STATION
GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS





MAIN WAITING ROOM
CHICAGO UNION STATION
GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS





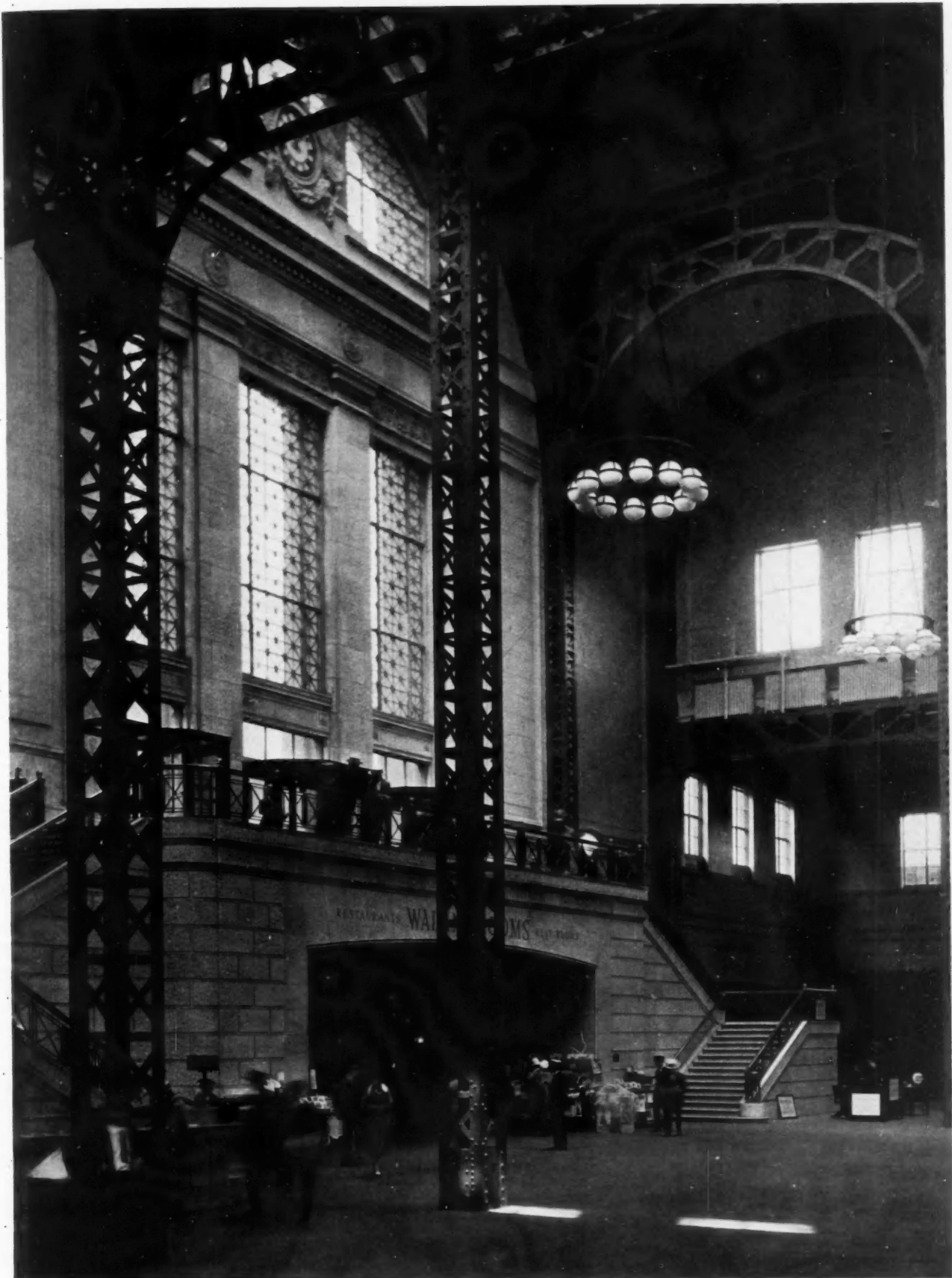
MAIN WAITING ROOM FROM TICKET LOBBY
CHICAGO UNION STATION
GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS





SECONDARY CONCOURSE
CHICAGO UNION STATION
GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS





SECONDARY CONCOURSE, SHOWING ENTRANCE TO MAIN WAITING ROOM
CHICAGO UNION STATION
GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS



A Memorial Arch at Kingston, Ont.

By LEIGH FRENCH, JR.

ENTRANCE upon the field of war memorial design is in itself a challenge and an invitation to criticism from all quarters,—criticism that may be either adverse or laudatory. The war memorial touches an unusually wide range of interests and persons. It ordinarily represents a common and collective sacrifice on the part of the general public, which the people very naturally feel they have a deeply personal and intimate interest in commemorating. And just because of this common and collective interest, all sorts and conditions of men, from the bank president down to the grocer's boy, seem to consider it their bounden duty as well as their proper prerogative to take part in the inevitable criticism.

It is a splendid thing to stir up lively interest of this sort and to stimulate such all-round criticism. If it happened oftener and with respect to all kinds of buildings there would be a more definite architectural consciousness developed among laymen, even though some of the criticism might not always be well directed. But the prospect of being confronted by so eager an array of critics, quite ready to express opinions, sometimes induces on the part of the architect a state of mind close to stage fright, and impels him to a species of self-consciousness in designing that is nearly always unhappy in its results. Realizing that what he is about to do will be an object of searching scrutiny to a wide circle of observers who look to him to bring forth something very unusual

or striking, many an architect loses, for the time being, more or less of his accustomed poise and self-possession, takes leave of most of his better judgment and, in the frenzied endeavor to create something the like of which has not been seen before, commits sundry indiscretions or even produces monstrosities, which unfortunately are usually permanent.

If we take a cursory glance at a number of the war memorials that have been put up in both America and England since the termination of the Great War, it will be plainly apparent how large a part this self-conscious straining for effect has played; how much the anxious aim for achievement that shall have the stamp of novelty and fully measure up to public expectations has affected design; how far the forsaking of precedent has both stifled spontaneity and destroyed poise. It would be grossly unfair, of course, to make this censure general. A great many admirable war memorials have been designed and erected, and they richly deserve whatever commendation has been bestowed upon them; but, on the other hand, there are far too many memorials that have undeniably turned out disappointments, to say the least, although there was every ground at the outset to expect more gratifying performances. Many indeed have been the mistakes made.

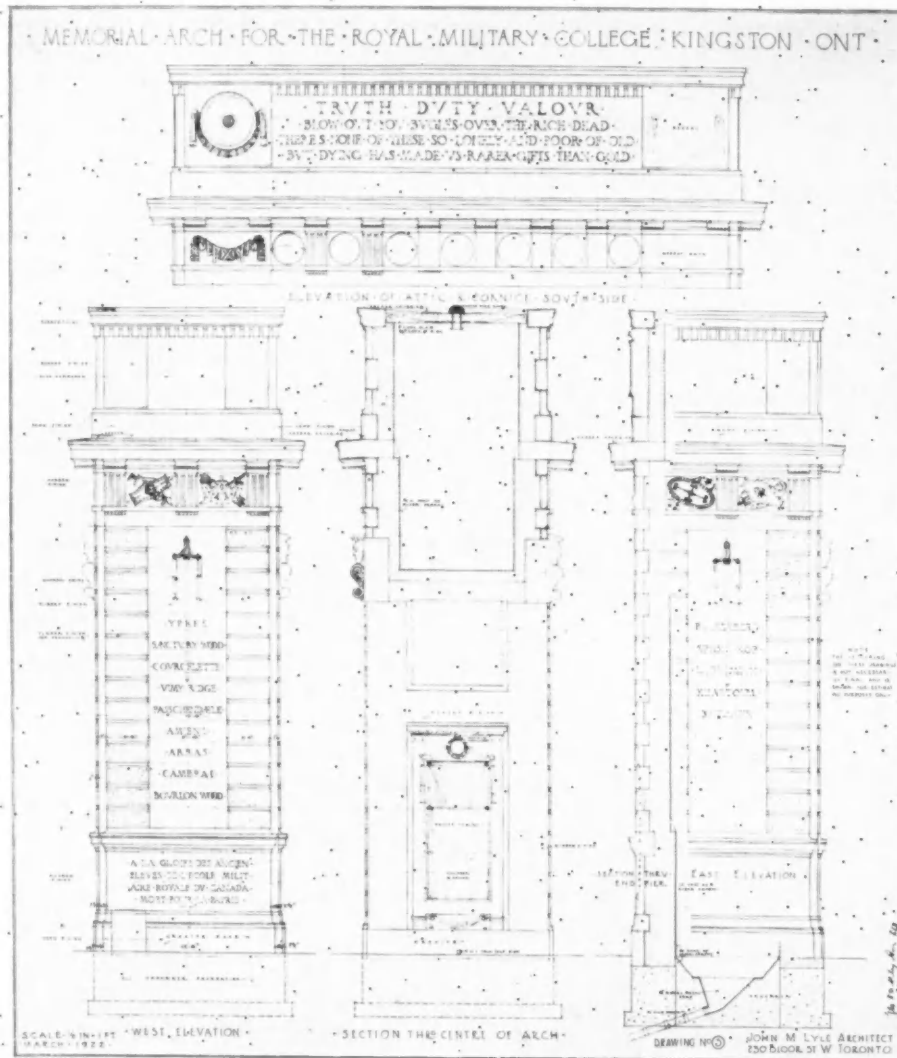
One of the most amazing instances of this sort of thing occurred not long after the close of the war. There was held in the galleries of the Royal Insti-



Photo Fringle & Booth

Memorial Arch, Royal Military College, Kingston, Ont.

John M. Lyle, Architect



Detail Drawings, Memorial Arch, Kingston, Ont.

John M. Lyle, Architect

tute of British Architects, in London, an exhibition of the designs submitted in competition for a monument to be erected at Zeebrugge to commemorate the naval action at that place. The site proposed presented every advantage for a memorial of distinguished character, and was really an inspiration in itself. The competition was open not only to British architects and sculptors but to those of France and Belgium as well. Out of all the many designs exhibited, only a very few merited any serious consideration at all as eventual possibilities. Some were feeble, some were hopelessly crude, others were grotesque, while several of them were frankly brutal. In general effect they ranged all the way from the absurdity of what would have made a good tea pavilion in a public park to the dreary semblance of a magnified unhewn monolith. The qualities of grace, dignity and fitness were conspicuous by their absence. Not the least noticeable characteristic of more than one scheme was the distorted and muddled scale manifested. After viewing the whole

show, it was impossible to escape the conclusion that the mental equilibrium of those who had sent these designs was still disturbed by fevered recollections of too recent tragedy—that and the sort of “stage fright” already noted. The general impression was anything but reassuring. By way of sharp contrast to all this, one may point to the sanity and excellence of some of the subsequent conceptions of war memorials, which later assumed tangible, structural form on both sides of the Atlantic,—rational conceptions, that showed an adequate grasp of the subject on the part of their authors. In these cases it had evidently been determined, with nicely balanced discernment before the structures took visible form, whether a war memorial should be architectural or sculptural or exhibit the harmonious combination of both of these arts.

In view of all the incoherence and uncertainty of aim that attended the projects for war memorials immediately after the events of November, 1918,—a state from which, by the way, we have not yet entirely emerged,—it is refreshing to point to the War Memorial at Kingston, Ont., as an outstanding example of coherent purpose and well considered form. It was designed by John M. Lyle, of Toronto, and erected by the College Club of the Royal Military College of Canada at Kingston, an establishment that corresponds to our West Point. The design for the Memorial was thrown open to a competition in which seven Canadian architects were invited to participate. Professor Ramsay Traquair, of McGill University, Montreal, was the judge, and the prize was awarded to Mr. Lyle. The accompanying illustrations show the Memorial as a monumental archway forming the principal entrance to the grounds of the College. Rising as it does from the level ground near the edge of a lake, it has every opportunity to display the vigorous conception that renders it an especially appropriate structure for the place it occupies and the character of the establish-

ment it adorns. The splendid sturdiness and strength of its aspect dominate the approach to the College, without any distracting elements or irrelevant features to detract from the excellent effect.

The memorial is constructed throughout of buff Indiana limestone, save for the base, which is of granite from the Province of Québec, and the two large bronze tablets, set on each side within the archway, whereon are inscribed the names and rank of 155 officers, alumni of the College, who fell in the Great War or in previous wars. While speaking of the materials employed, a detail to which attention should be especially directed is the interesting variety of textures imparted to the limestone. No less than five distinct textures, in fact, are easily discernible. The mouldings display a rubbed finish; the quoins are worked in coarse point, giving a surface somewhat resembling fine vermiculation when seen from a little distance; the margins of the quoins are tooled with three bats to the inch; the attic story presents a sawn finish; and the face of the ashlar masonry is finely tooled and scored with steel wire filings. The result of this nicely studied textural treatment is

remarkably pleasing. The surface of the granite base exhibits an axe finish. It is rarely that one finds the subtleties of contrasting texture values more happily developed, particularly when the variations occur in one single material.

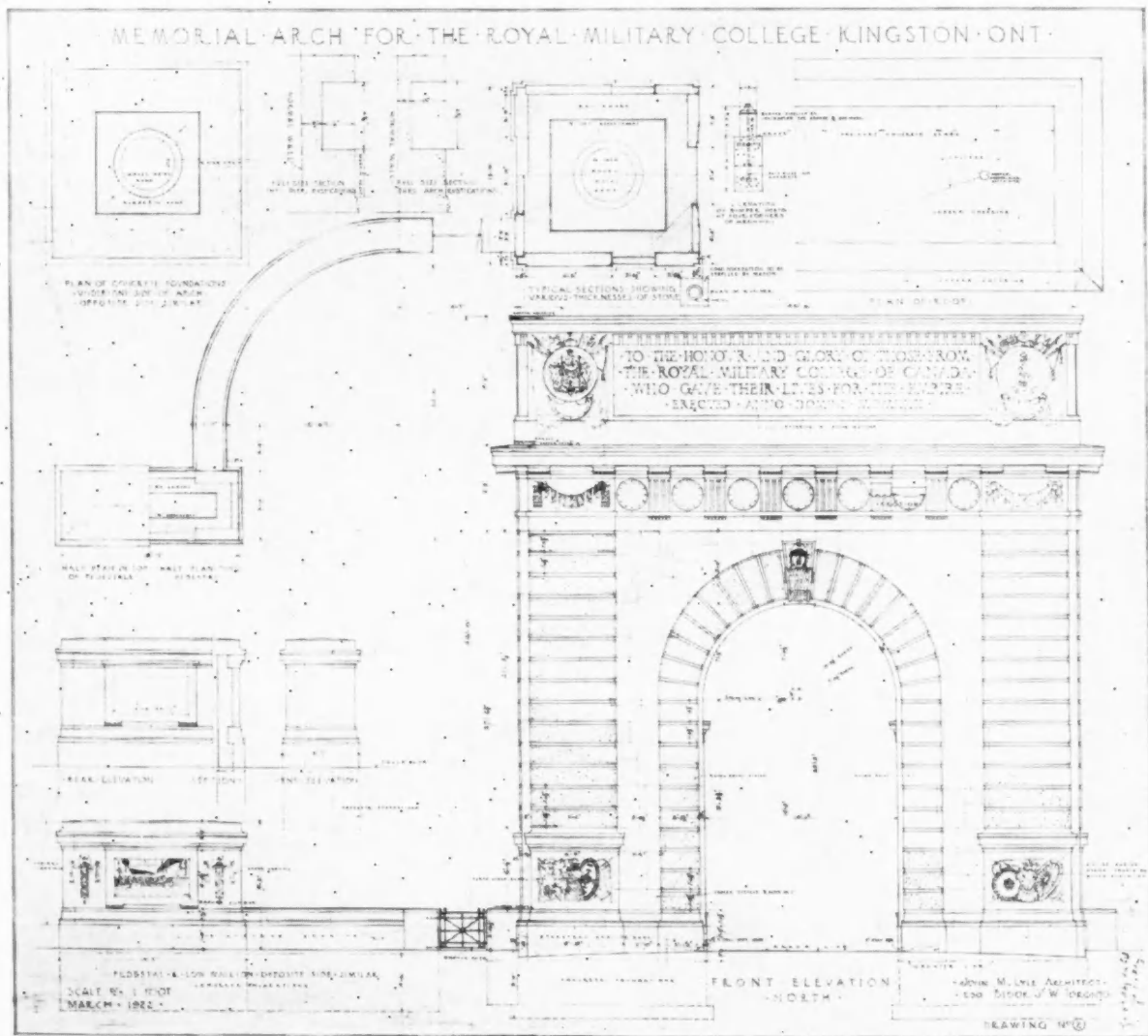
The facade of the arch toward the roadway is of what might be termed documentary import. The long panel of the attic story bears this inscription: TO THE GLORIOUS MEMORY OF THE EX-CADETS OF THE ROYAL MILITARY COLLEGE OF CANADA WHO GAVE THEIR LIVES FOR THE EMPIRE.

ERECTED ANNO DOMINI MCMXXIII.

At each end of this panel, carved in bold relief, are roundels surrounded by military emblems; on one roundel is carved the coat of arms of the College, and on the other the coat of arms of the Dominion of Canada. The other facade, facing toward the College, bears in the panel of the attic story the College motto,

TRUTH: DUTY: VALOUR

while immediately beneath it, cut in somewhat smaller lettering, are the lines from Rupert Brooke:



Front Elevation and Details, Memorial Arch, Kingston, Ont.

John M. Lyle, Architect

"Blow out, ye bugles, over the rich dead!

There's none of these so lonely and poor or old;
But, dying, has made us rarer gifts than gold."

The helmeted head, sculptured on the keystone crowning the archway of this south front, shows vigorous action, the mouth being open and seemingly shouting the "*Ave*" of the old Roman legionaries; the corresponding head on the north facade, toward the roadway outside, is in complete repose. These heads, as well as the rest of the sculptured enrichment on the arch, deserve more than merely passing notice. The carving throughout is instinct with fine, nervous quality and lively vigor. Other inscriptions occur on the bronze tablets inside the archway. At the top of one are the lines: "Hark how the Drums beat up again, For all true Soldiers, Gentlemen!" In the head of the opposite tablet is the inscription, "*Pro Deo et Patria*. Erected by the Royal Military College Club of Canada, Anno Domini, 1923." On the pedestal base eastward of the arch is carved the legend "*Je Me Souvien*," with reference to the French Canadian cadets of the College, a graceful tribute to their memory and to their sacrifices.

Apart from the various inscriptions, which unmistakably proclaim the martial and memorial character of the structure, symbolism has very appropriately played an important part in the scheme of decoration. The groupings of military attributes, empaneled above the base and in the frieze and at the ends of

the arch, are not the only items that emphasize by their emblematic character the purpose of the structure, for the force of allusion is seen in another feature also. The two tall panels on the outer sides of the arch show the sword of sacrifice piercing the names of the places of engagements in which fell the officers whose memory is perpetuated.—Mons, the Marne, Ypres, Vimy, Gallipoli, Passchendaele, Arras, Canal du Nord and other hard fought fields, the names of which will live forever in history.

While the memorial at Kingston is unmistakably of Classic inspiration, the architect has not set out to imitate any one particular work of antiquity. On the contrary, he has exercised independent, creative facility along with due respect for precedent and tradition, using them as aids and means to an end, not groveling before them as inexorable masters. In the freedom of his handling he has displayed a scholarly command of the situation and of the resources at his disposal. Without egotism, without any suggestion of the agonizing attempts at incoherent and delirious ultra-modernity so appallingly exemplified in some of the creations seen at the recent Paris Exposition, and without any of the troubled vagaries that have marked so much war memorial design, Mr. Lyle has pursued a calm and equable course and produced a piece of sound, decorous and vital architecture, eminently appropriate to its purpose, which it is a pleasure to chronicle here.



Detail, Front Elevation, Memorial Arch, Kingston, Ont.

John M. Lyle, Architect

ENGINEERING DEPARTMENT

Two-Way Reinforced Concrete Slab Construction

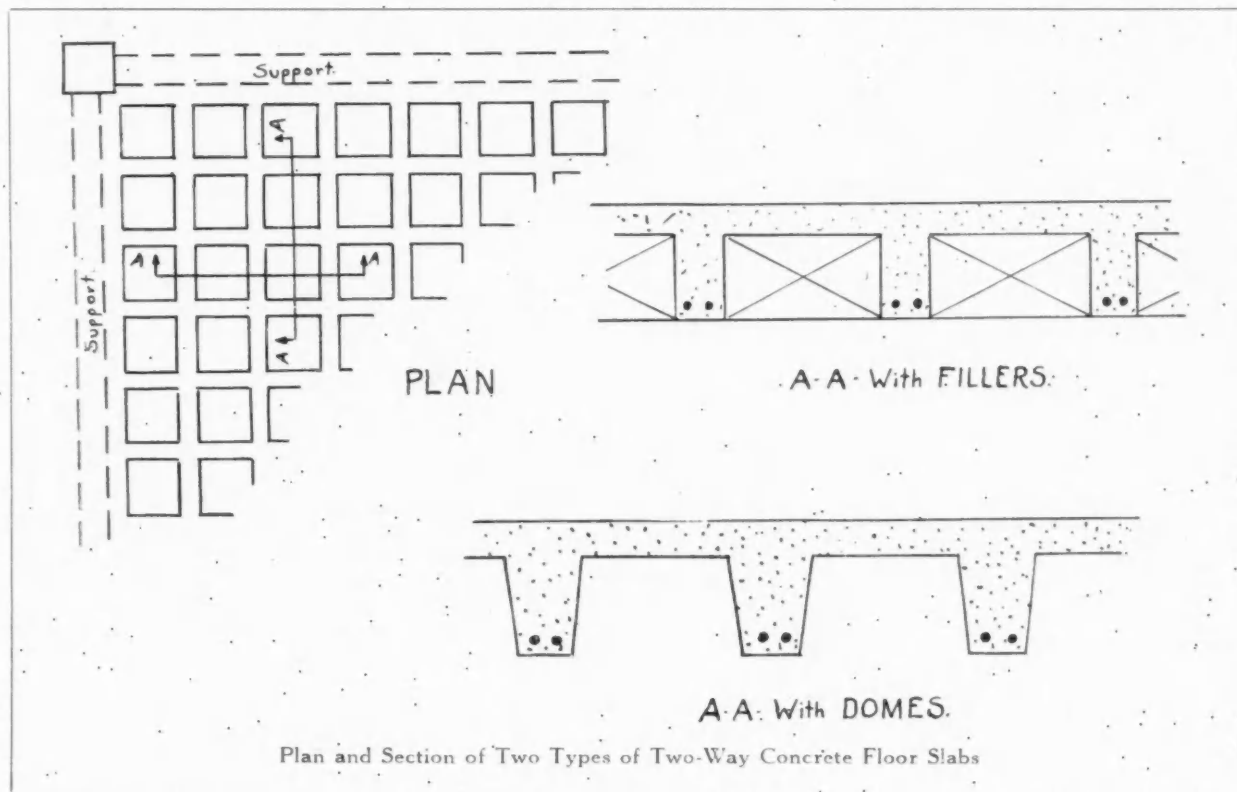
By K. F. JACKSON

IN dealing with the subject of two-way reinforcing in concrete construction, a distinction should be made between slab panels supported at the four corner points and those supported along the four sides. The first belong to the broad classification termed "flat-slabs," of which there are several varieties; the second, which are wholly different in their action and consequently in design and usefulness, and which are commonly described as "two-way slabs," will be discussed in the present article.

Generally considered, the two-way slab does not assume the importance which it should in construction; it has not come into its own, probably because of a lack of appreciation on the part of architects and engineers of its value. It is not yet instinctive with a designer to consider it unless it is manifestly apparent, as the structure assumes form, that it is the one type of construction most adaptable. In short; it might be said that it is now employed only when some circumstance or combination of circum-

stances virtually demands that the framing shall take that form. It is worthy of much more consideration; its peculiar advantages should exert a large influence in the laying out of a plan. It would frequently be of distinct benefit were the architecture conceived in such manner as to accommodate two-way framing. It has, in fact, many advantages.

As with other types of reinforced concrete construction, the two-way slab is represented by a variety of forms or systems. In all, however, the principles are the same, although each may possess its own particular feature rendering it most suitable for use under certain conditions. In passing, some of the best known of the systems will be enumerated and briefly described. To begin with, there is the solid concrete two-way reinforced concrete slab, the basic form and parent of all others. This slab consists simply of a flat plate containing two sets of reinforcing steel bars, both near the bottom, and one just above and at right angles to the other. It rests



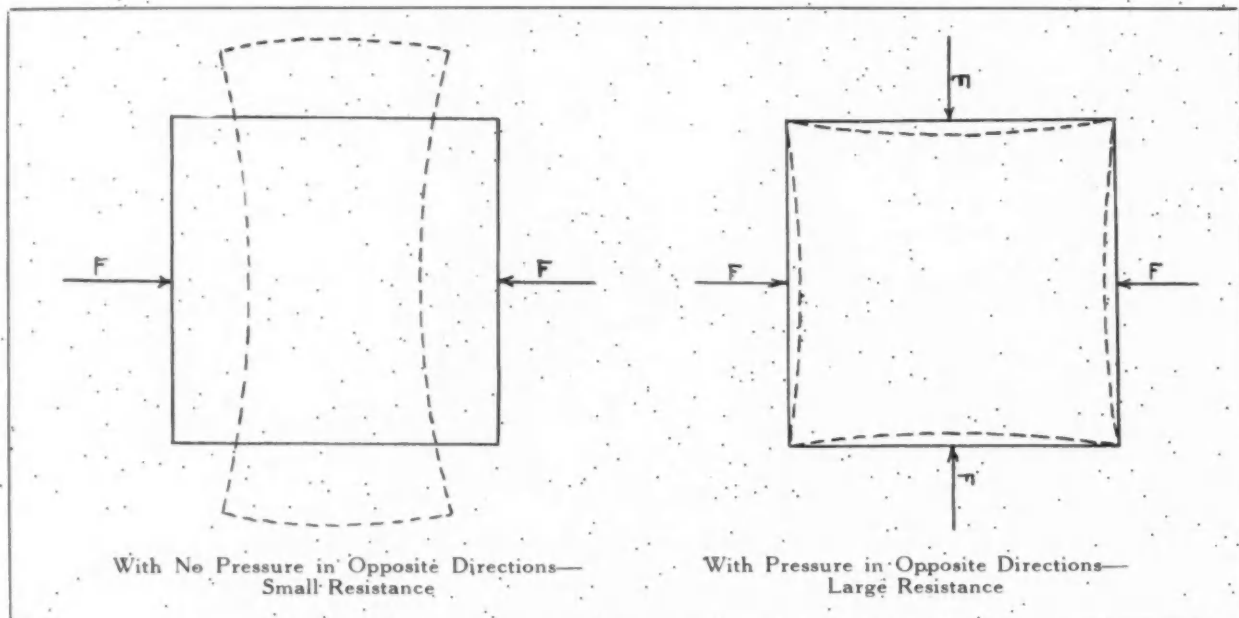
upon, or is monolithic with, some kind of support along each of its edges. Then there are the varieties in which the solid concrete is replaced by series of parallel and intersecting ribs or joists, these being formed by the introduction into the slab of some sort of incombustible hollow blocks. These blocks are laid on the wood formwork in rows and with spaces from 4 to 5 inches wide between them on all sides. Cross channels are thereby created, in the bottom of which are placed the steel bars with the required bending, and into which is poured the concrete. The slab may be carried up only to the tops of the blocks or fillers and stopped flush; or, as is more often the case, it can be continued to the point where the fillers are completely immersed and covered with a continuous uniform topping of concrete. In this way the joists become miniature beams of tee section. Other systems involve the use of terra cotta blocks with ends closed or with the block flues left open, permitting the inflow of concrete to whatever extent it will—30 per cent or more, probably. Also for this purpose gypsum block construction is used, and a comparatively new block of slag concrete is now being marketed. These blocks are manufactured by a high-pressure process and are of such consistency that the shell itself is capable of taking stress in the construction. Still another system is that in which actual voids or pockets are formed between joists by inverted basins of metal or wood.

All of the foregoing systems are equally suited to a reinforced concrete or structural steel-framed building. As already explained, each of these systems has its especial appeal or merit. In general, solid slabs are best for use when the spans are short, the building small, or the dead weight of little significance. The joist systems are best for use where the saving in weight, due to the voids, results in a saving in materials and labor throughout the superstructure and foundations;—the fillers being used

where a solid ceiling is desired, the domes where a pocket effect is not objectionable or where a ceiling of lath and plaster can be added. Some of the fillers are more fire-resistant than others and more effective in sound deadening. Some also provide a superior surface well adapted for receiving plaster.

The requirements for the use of a two-way slab are bays or panels, roughly square as opposed to long and narrow (although 90° angles are not essential); and a support, whether it be a beam or wall, along each side. By "roughly square" is meant a ratio of spans which does not exceed one and four-tenths to one, or one and six-tenths to one, depending upon the code under which the work is being designed. The most effective ratio of spans, considering the economy factor only, is from one to one up to one and three-tenths to one, or thereabouts.

As a result of the lack of complete data and on account of divergences of opinion in regard to two-way slabs, there is found considerable variation in their treatment in city building ordinances and codes, and there is common to all a tendency to "play safe." There are differences in the regulations as to the percentage of total load to be carried in the one direction and in the other; in the arrangement of reinforcing bars in the two sets, and within the sets; in the handling of the load imparted by the slab to its supporting member, whether to consider the member uniformly loaded, or whether its load is distributed according to the ordinates of a parabola. Because of these safe tendencies, all are undoubtedly satisfactory, although some favor certain parts of the construction unnecessarily and inconsistently, others, other parts; some approach nearer than others to providing the greatest resistance to stress where it is a maximum. The writer has never heard of an accidental failure in two-way construction. There is a vast inherent strength in two-way slabs, and therefore all methods of design in common practice are



sufficient. Briefly, the reason for this ultra strength peculiar to two-way slabs is twofold; first, the arch action, that is to say, the tendency for the panel to act as a unit like a flat dome; and second, the restraint placed upon the concrete, or in other words, the use of compressive forces in two directions.

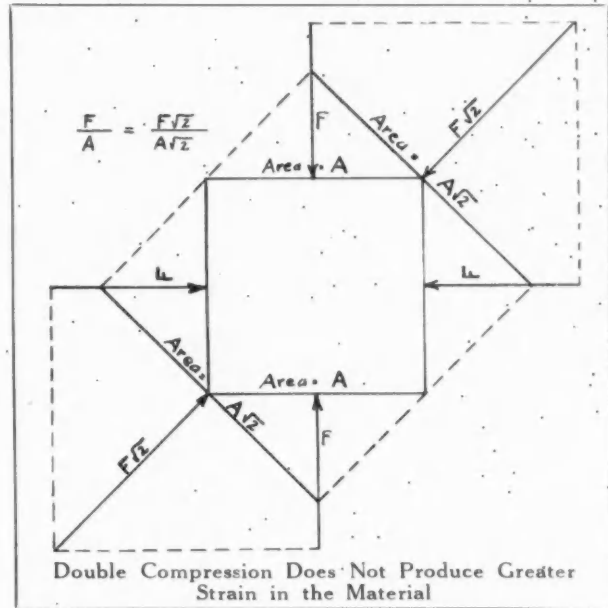
It is well known that a solid, being compressed in one direction and unrestrained against elongation in the other, has not the same power of resistance to the force exerted as has a similar solid under compression, but with a restraining force against distortion the other way. For illustration, assume a cube of rubber with pressure applied to two opposite faces. The rubber is distorted rather easily, the two faces, upon which the forces act, crushing closer together, the other two faces being forced outwards. The top face of the cube, originally square, becomes rectangular. If, now, at the time of application of pressure to the two opposite faces force is also acting upon the other two faces, the resistance of the rubber to both compressive forces is greatly increased. For the same reason and in the same manner, concrete, in a slab reinforced two ways and thereby subjected to compression in two directions at right angles, has a greater resistance to each than would the same concrete in a one-way slab which sets up compression in one direction only. This double compression, furthermore, does not produce any greater strain in the material itself. This fact may be easily proved. If the forces F - F act in one direction on a cube of concrete, the area of the face of which is A , a certain unit compressive stress is

developed which is equal to $\frac{F}{A}$. If another set of

forces F - F are applied to the cube at right angles to the first and of the same intensity, a unit stress of $\frac{F}{A}$ will likewise be developed in that direction.

Since any two adjacent forces may be combined in a resultant, represented graphically as the diagonal of the force diagram, two of the adjacent F 's may be combined, as may also the other two, and the result is two forces, each equal to $F\sqrt{2}$ and opposed.

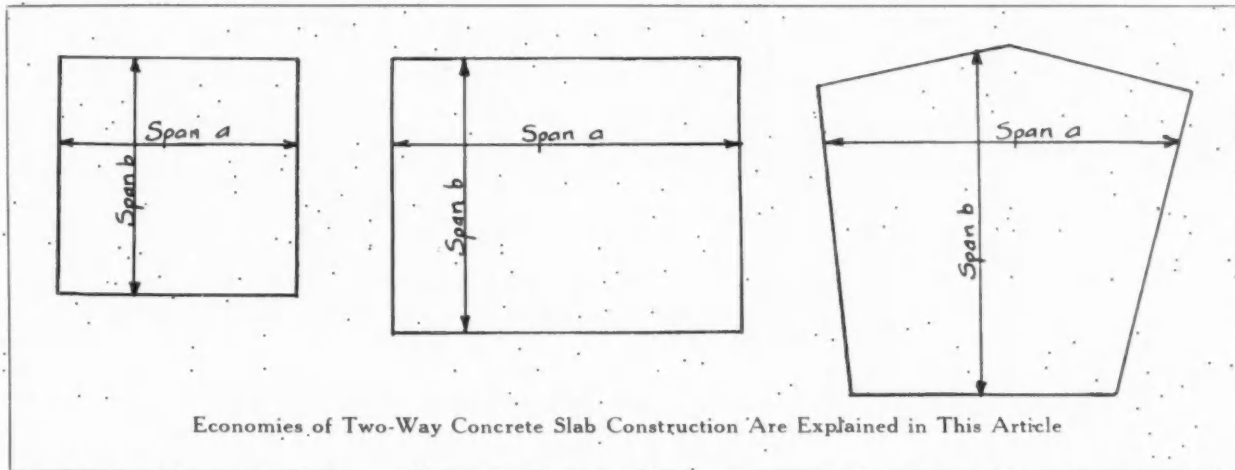
Each, however, acts on an area which is $A\sqrt{2}$, so that the unit stress produced equals $\frac{F\sqrt{2}}{A\sqrt{2}}$, which equals $\frac{F}{A}$, the same as is caused by either of the two original compressive actions. The same is true



whether the two compressive actions are equal or not; the strain produced by the two is no greater than that produced by either of the two alone.

The foregoing facts lead up to the point where the economies and merits of two-way slabs may be presented under five general heads. First, either thinner floor slabs are provided, which means a saving in total height or a greater clear height per story, or a greater number of stories; or else with a prescribed thickness of floor slab, fewer beams are required as supports. In both circumstances a saving in material and labor is effected; there are required less concrete, less steel, less formwork, and less wall material per unit of floor area, all this economical.

Second, there is a reduction in dead weight, which



in terms of architectural effect means fewer or smaller columns. The reduced requirements for foundations, and the decreased space occupied by columns, result in more and better available floor area.

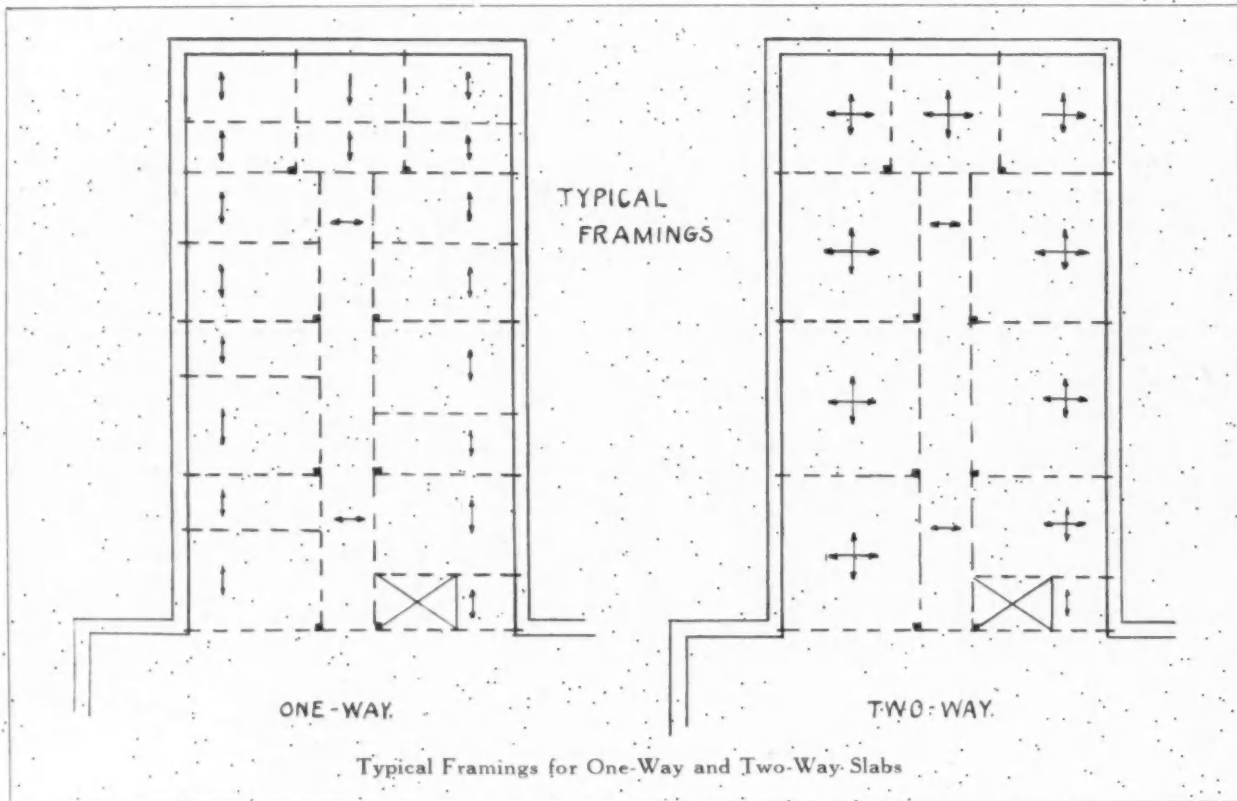
Third, the greater spans which can be carried with slabs and beams limited as to size allow more freedom in the location of columns. This has an immediate appeal and needs no further elaboration.

Fourth, a structure is provided which possesses stiffness and stability. The slabs in themselves are peculiarly fitted to sustain concentrated or moving loads. The crossed system of reinforcing tends to disperse concentrations over wide areas, and hence more readily withstands them. In like manner, with moving loads the shock of impact is lessened by virtue of the spreading of load effect. Focusing attention on the beams, there is a similar condition involved. With strong carrying members in both directions, there results a building which is extremely stiff. The frame is tied and braced throughout its length and breadth. Still another consideration is that the loads are most rapidly brought to the columns and down to the ground. Floor load moves directly to the beams and thence to the columns. The intermediate transfer from beams to girders is eliminated; there is one less chance of there being a weak link, the weakest of which determines the strength of the structure. It is an axiom of life that the elimination of intermediate handling, of the "middleman," is a step in the direction of economy.

Last of all, the concrete is utilized twice. There are two separate systems of reinforcement to take care of the tensile stresses, but the same concrete

serves for the compression in both directions. So far as the concrete is concerned, there are virtually two slabs in one. Here is a genuine item of economy. Also, through the agency of double compression and the resultant enhanced power of resistance in the concrete, there is opportunity to provide a super-factor of safety, or to accomplish a saving by reduction of the live load or increase in the allowable stress, contingent for its amount upon the area of the panel. This saving is permitted by many building codes, notably that of Boston, which provides for a 10 per cent reduction of prescribed live load where the area exceeds 100 square feet, 15 per cent where it exceeds 200, and finally, 25 per cent where more than 300 square feet comprise the supported area of a single two-way panel. Two-way panels of an area up to 1000 square feet or over are quite within the range of possibility and feasibility. The only buildings in which live load reductions are inadvisable are those of the assembly hall or storage warehouse type.

To summarize briefly in conclusion, the necessary conditions for two-way slabs are panels nearly square or with spans at 90° approximately equal, and available supports along all sides. In proceeding with this method of framing, good architectural effects may be procured, and there follow freedom in column location, thin floors, few beams, light weight of construction, good provision for concentrated and moving loads, great strength and stability, and last but not least, economy. Architects, engineers and builders must secure the most at the least cost, and the possibilities of this system are great.



The Villa Maria, Southampton, N. Y.

EDWARD P. MELLON, Architect

ON the southern side of Long Island there exists a sand bar which separates from the sea Great South Bay and Shinnecock Bay, and which has a length of about 50 miles, with a fairly even breadth of about 1000 feet. On the sea side of the bar there exists a continuous line of dunes, some of which rise to a height of 50 or 60 feet. At the extreme western end of this bar stands the far-famed Fire Island Light, and at the extreme eastern end the bar connects with the mainland of Long Island, at which point stands the house known as the "Villa Maria." This junction of bar and mainland forms approximately the western limit of the historic and picturesque town of Southampton.

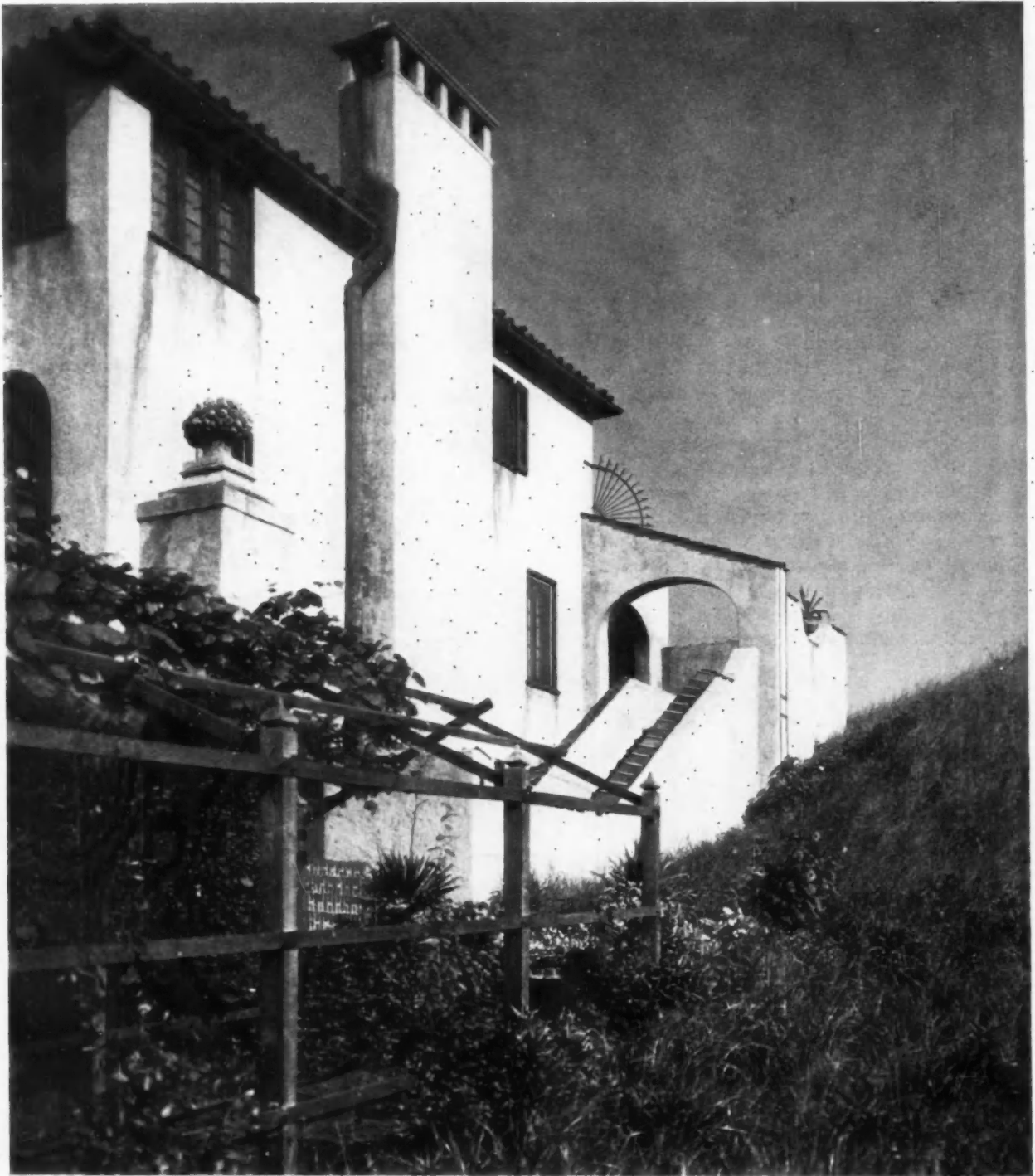
No large houses had been erected on this strip of sand bar until its possibilities were seen and appreciated by the architect of the "Villa Maria." The location appeared to lend itself as an exceptional site, with its outlook and environment suggestive of the Italian coast, for the creation of an early Tuscan house, such as are seen scattered here and there among the friendly hills of ancient Tuscany. The beauty and natural contours of the dunes played an impor-

tant part in the layout of the property itself, as well as in the designing of the buildings. As it was desired that the dunes should not in any way be disturbed, the buildings of the estate were designed to conform to them. In solving any architectural problem the architect generally succeeds best when he designs his building to conform to the topography of the property and its environment, rather than when he attempts to make the property conform to the buildings. Color was here one of the chief features to be considered. In this particular section of Long Island during most of the summer the sky is as blue as that of Italy, and the sea on the one side and Shinnecock Bay on the other possess at times the vivid blues of the Mediterranean. As the dunes are covered by long, waving, gray-green grass, and as the beach at this point is broad and clean, it was thought best to make the color of the house conform to that of the beach sand, which contrasts naturally in its color with the dune grass and the sea.

The development of the property and the erection of the buildings on this estate formed a pioneer undertaking. No road or other means of access



The Villa Maria, House of Edward P. Mellon, Esq.
Southampton, N. Y.



Detail, Facade, The Villa Maria, Southampton, N. Y.

Edward P. Mellon, Architect

existed on this piece of land until after the "Villa Maria" was begun, when Meadow Lane, 50 feet wide, was built to and through the property. On the westerly side of the estate lies one of the highest dunes along the coast, and it was considered desirable to locate the house in such a position as to gain the protection from the prevailing westerly winds afforded by this dune. Therefore, the walls of the house and the property were designed to conform to the natural undulation of the dunes. This necessitated making the northerly or entrance side

of the house three stories in height, and the southerly or ocean side of but two stories. The level of the main floor is 42 feet above low tide. Advantage was taken of the existing depressions on the property for the location of the driveway, entrance and service courts and gardens; also an open lawn or vista, lined on both sides with high hedges, was constructed from the entrance court through the length of the property to provide a view of Shinnecock Bay, which at this point is known as Taylor's Creek. As the sand bar provides no soil, top soil for the



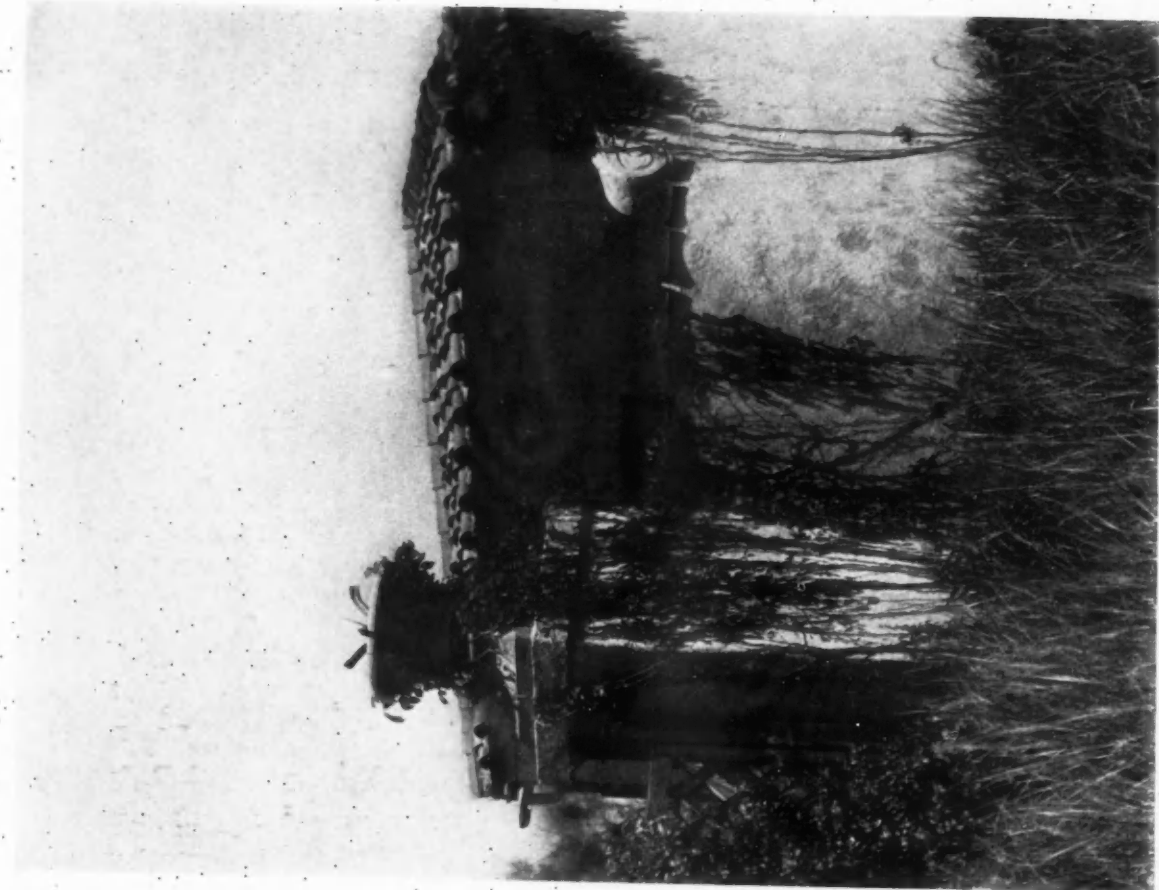
Driveway to Entrance, The Villa Maria, Southampton, N. Y.

Edward P. Mellon, Architect

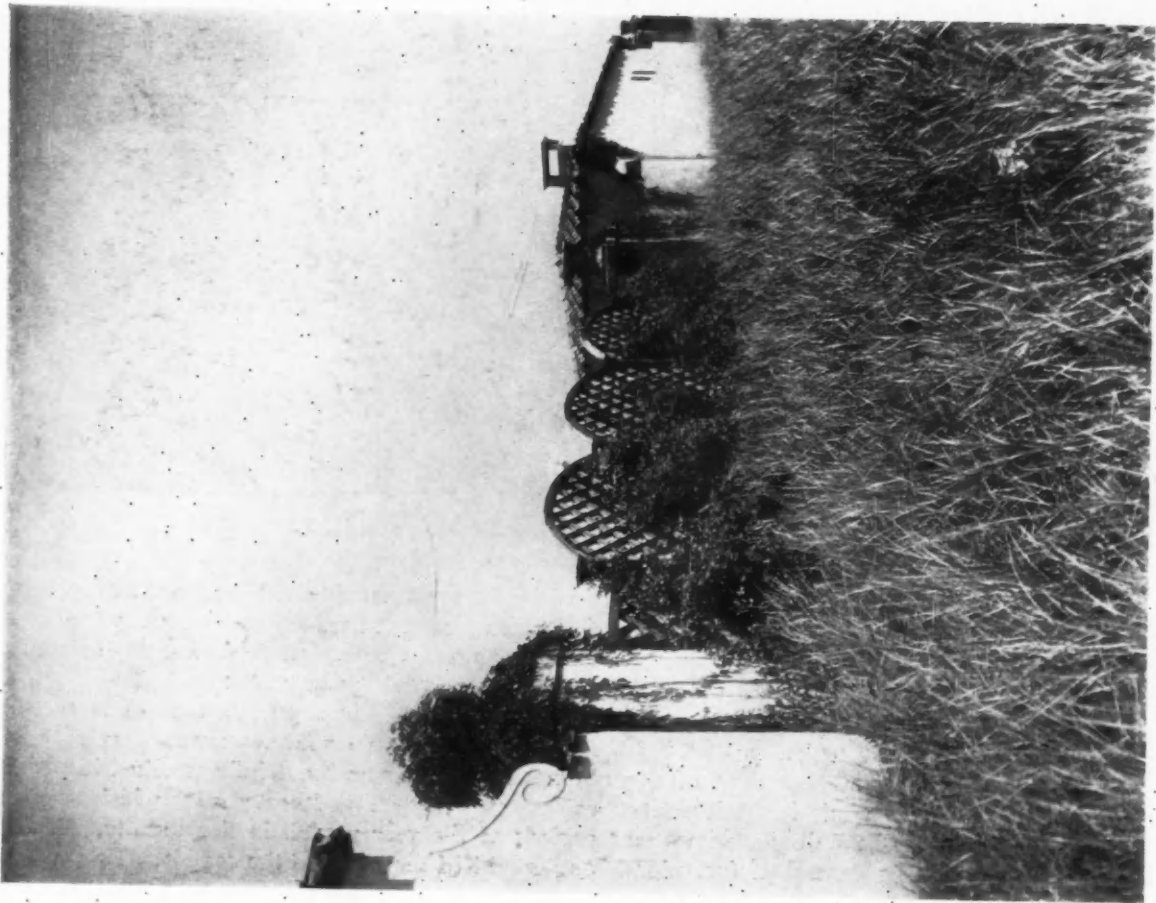
vista lawn and gardens had to be brought to the site, and the property was filled to a depth of 6 feet. This rich surface soil, together with the moisture of the sea air, makes possible in the gardens the production of the finest varieties and the greatest abundance of flowers and vegetables which can be had.

The brilliant sunlight, which during most of the year prevails in this district, equals in its intensity the sunlight of Italy, and casts the deep shadows on which Italian buildings are so dependent for coloring and contrast. This contrast of color was height-

ened by the variation obtained in mixing and applying the stucco, each wheelbarrow-load of which was mixed separately with darker colors, so that when applied there was wide variation. The finished coat of stucco, which was made smooth in texture although uneven in surface, weathered rapidly, so that the house is now beautifully streaked in places, as the result not only of heavy rains which at some periods of the year prevail in this locality, but also on account of exposure to the sea air. This weathering gives the impression that the buildings have

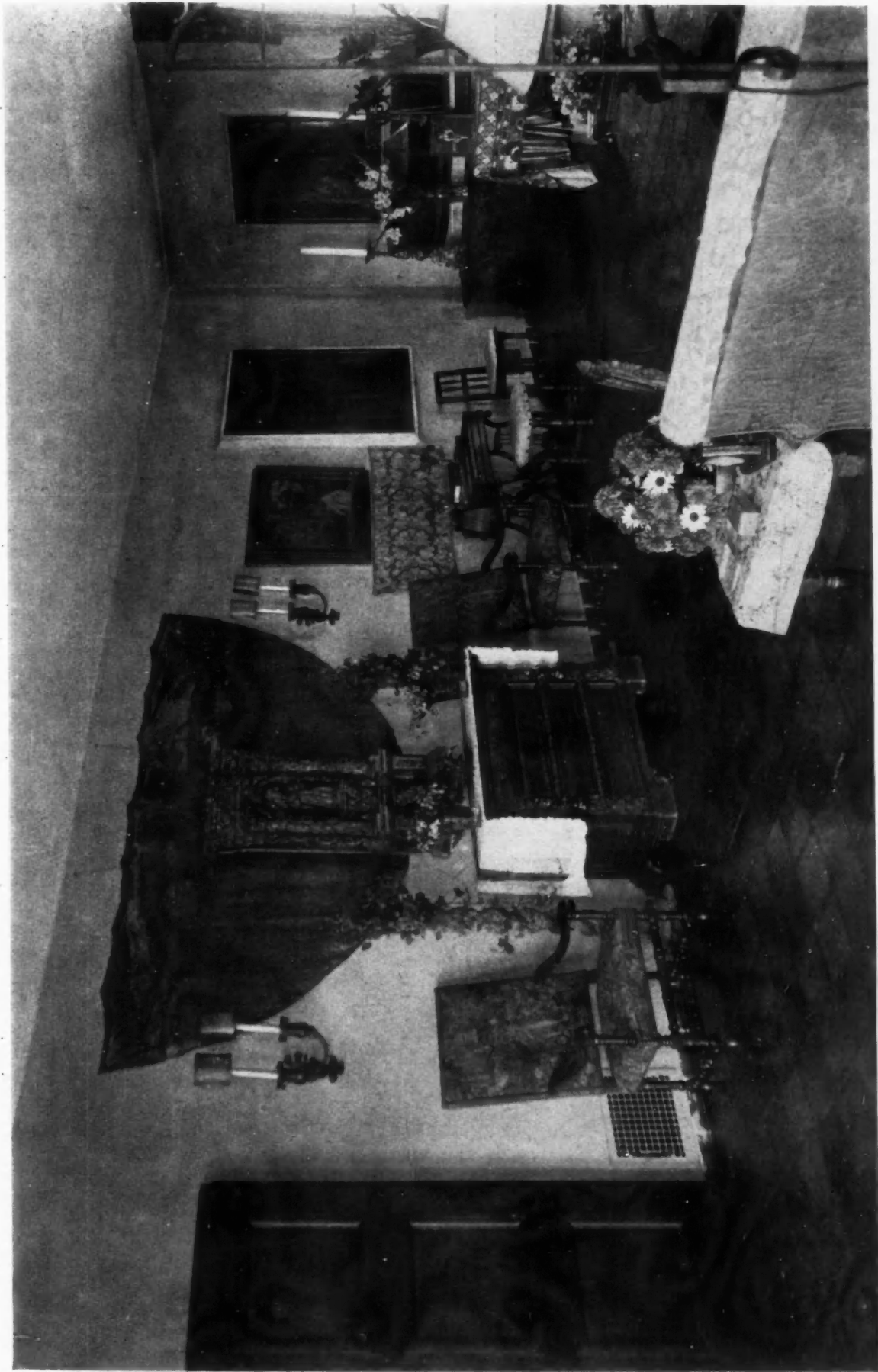


DETAIL OF THE CHAUFFER'S COTTAGE



LATTICE CONNECTING GARAGE AND COTTAGE

THE VILLA MARIA, SOUTHAMPTON, N. Y.
EDWARD P. MELLON, ARCHITECT



DETAIL, LIVING ROOM
THE VILLA MARIA, SOUTHAMPTON, N. Y.
EDWARD P. MELLON, ARCHITECT



Loggia, The Villa Maria, Southampton, N. Y.



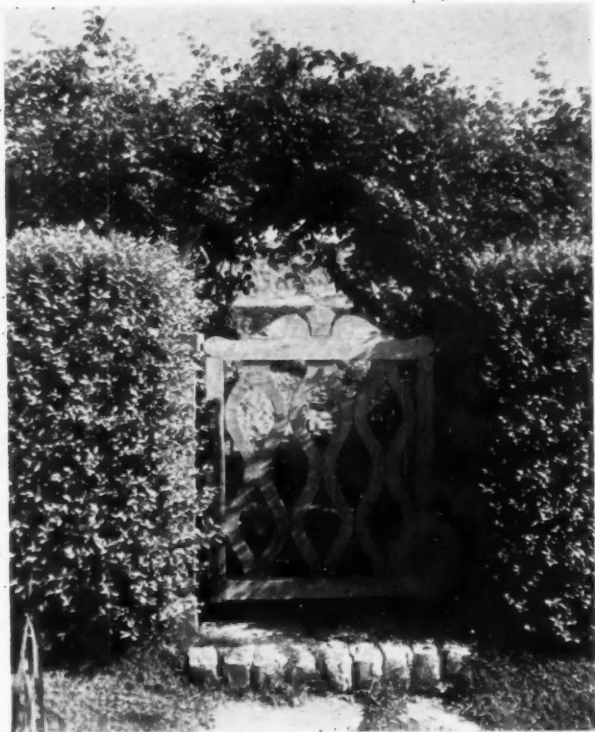
Dressing Room, The Villa Maria, Southampton, N. Y.

been standing for decades; though actually they were erected less than two years ago, but have aged quickly. The architectural detail of the main entrance is executed in honed stone, above which, in a recessed plaster panel painted a deep sky blue, is a bas-relief of the Virgin and Child. Around the smaller win-

dows the wide raised stucco bands are painted a deep seal brown. The unglazed tiles used for the roofs and for the copings of the property walls were specially designed and made by hand for these buildings; they vary in color from deep brown to soft red and orange, and are laid in irregular lines and grouted



Dining Room, The Villa Maria, Southampton, N. Y.



Garden Gate, The Villa Maria, Southampton, N. Y.



Stairway, The Villa Maria, Southampton, N. Y.

with cement to give the impression of age. The interior and exterior ironwork, which is mostly old, was selected and bought in Italy by the architect-owner. The garage and chauffeur's cottage, which are located on the side of Meadow Lane opposite the main property, are built into the main wall, fol-

lowing a precedent often adopted in Italian country architecture. The house, which is fireproof and absolutely dry even during damp and foggy weather, is constructed of terra cotta blocks covered with stucco, and the floors are built of reinforced concrete. The interior walls are finished in rough, un-



Living Room, The Villa Maria, Southampton, N. Y.

dulated plaster and tinted a number of various delicate colors, which give the effect of mother of pearl. There is no trim anywhere in the house, the plaster being returned back against the window frames. The window sills throughout the house are formed of dark red tile, which are also used for the floors of the bathrooms. Every window of the house has an extensive water view. The finished floors, mostly of black and white marble, having an unusual texture and patina, were taken from old buildings. In one or two instances the floors are covered with imported, antique, dark mottled red tiles. The stone mantels throughout the house were purchased in Perugia previous to the war, so that there was no trouble in taking them directly from the old buildings in which they were found, and shipping them.

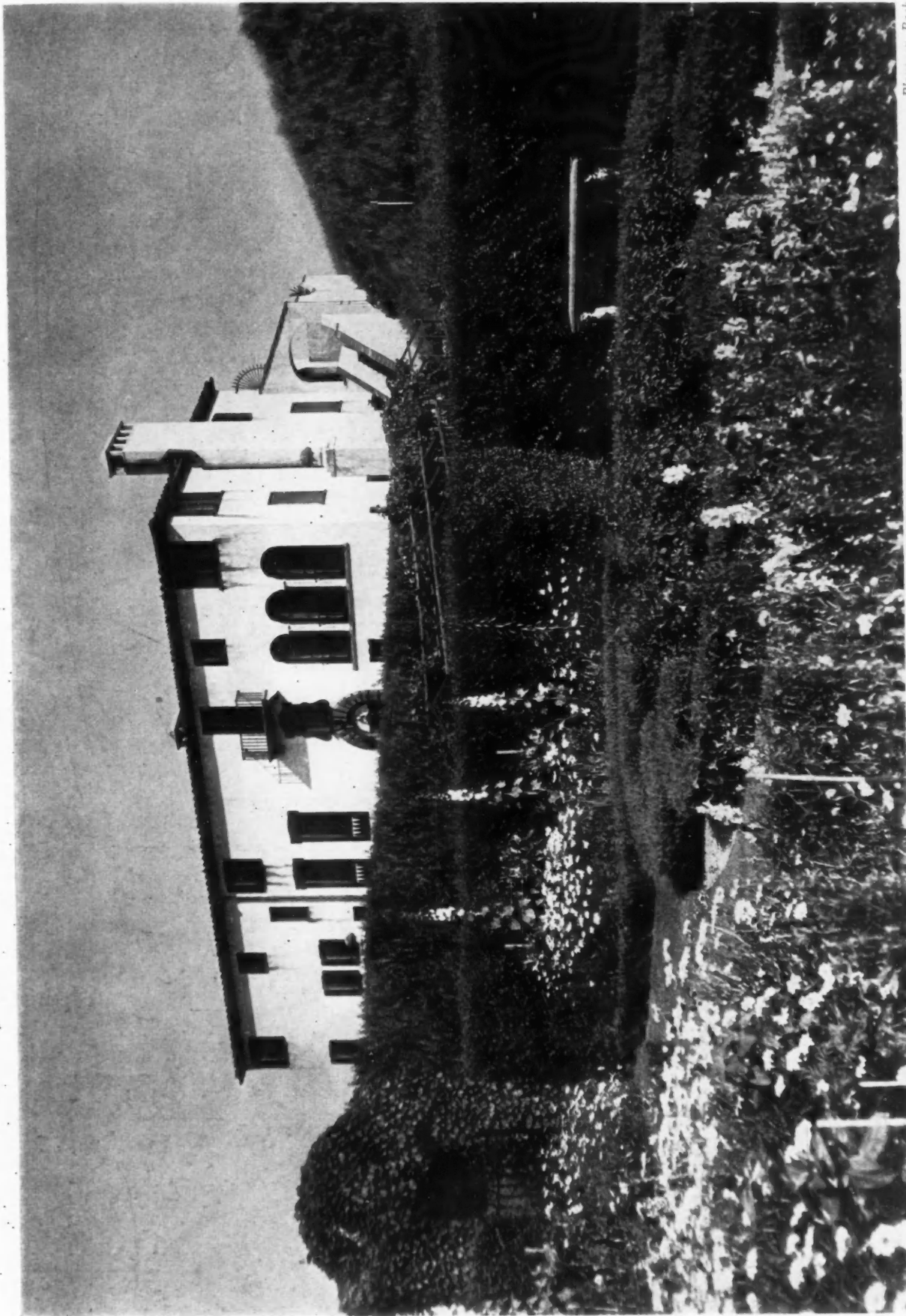
Particular attention should be called to the very unusual frieze which runs around the dining room. This frieze, of soft blue and gold, was taken out of the famous Torlonia Palace in Rome, which was torn down to permit of the erection of the Victor Emanuel Monument on the Piazza Venezia. The frescoes on the walls of the dining room were also taken from the same palace. The library walls are painted a rich, brilliant gold, highly varnished, and the doors and bookcases are made of dark walnut, with the panels picked out in gold. The semi-circular staircase is constructed of cement painted white, with the sharp edges worn off to simulate the results of wear.

Most of the hangings, furniture and pictures in the "Villa Maria" were purchased directly from their original owners in Italy and Spain, although to meet the American demand for comfort, a few pieces of English furniture were introduced and so arranged as to form an exceedingly harmonious effect, in conformity with the character of the house itself. Furniture of widely different types is here found in complete agreement.

Where a home is designed and planned in a definite, historic architectural style, it gains greatly when into its fabric there are built details from old buildings, and when its furnishings are at least partially pieces belonging to the period represented. This is particularly true when the architectural type being interpreted is as strong and vigorous as the Italian or Spanish, and, as has already been suggested, the Villa Maria owes much of its interest to the use of mantels, wrought iron, tiles and terra cotta which have been made parts of the actual structure, and particularly to the use of interior fittings, such as furniture, fabrics, paintings and other objects. Due largely to the use of these old details of structure and furnishing, the Villa Maria suggests today not the usual American country house, new and likely to be a trifle raw, but an old villa in Italy, weathered by the sun and rain of many years, and filled with the treasures in the way of furnishings which accumulate during several generations in an Italian country home.



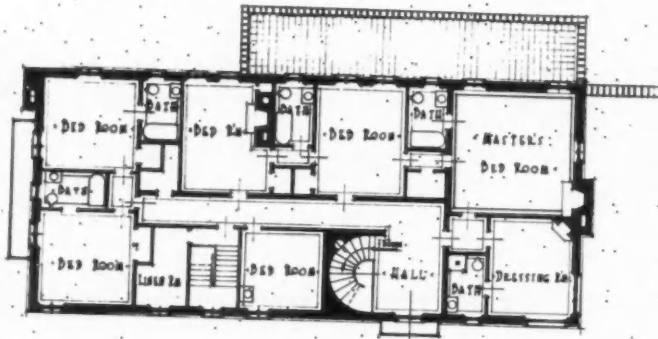
Garage and Chauffeur's Cottage, The Villa Maria, Southampton, N. Y.



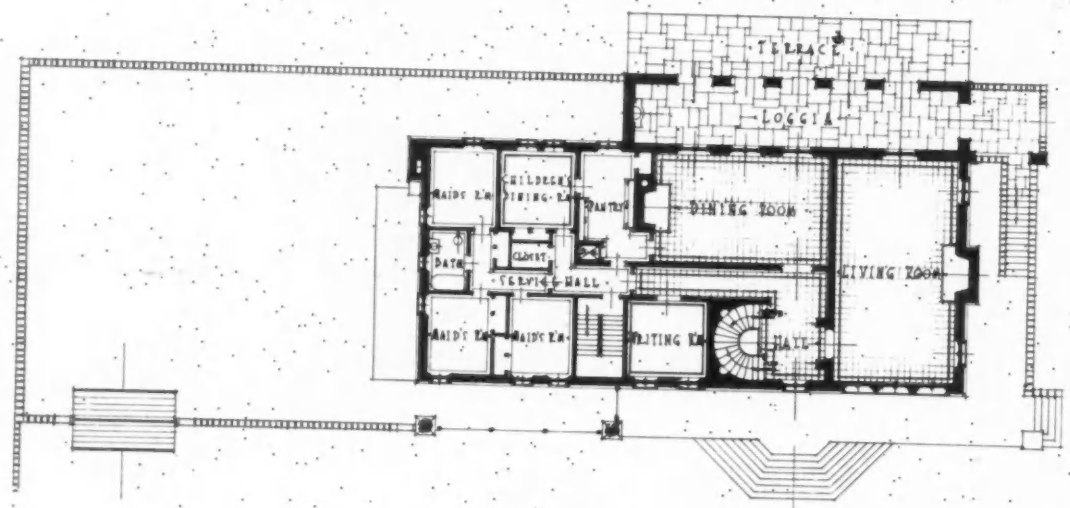
Plans on Borch

THE VILLA MARIA, SOUTHAMPTON, N. Y.
EDWARD P. MELLON, ARCHITECT

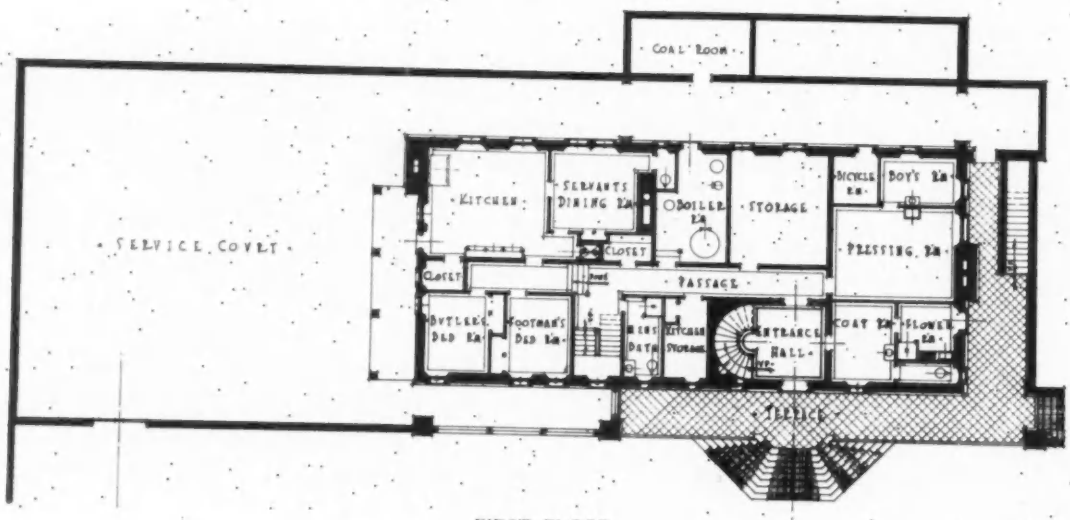
Photos, George H. Van Anda



THIRD FLOOR



SECOND FLOOR



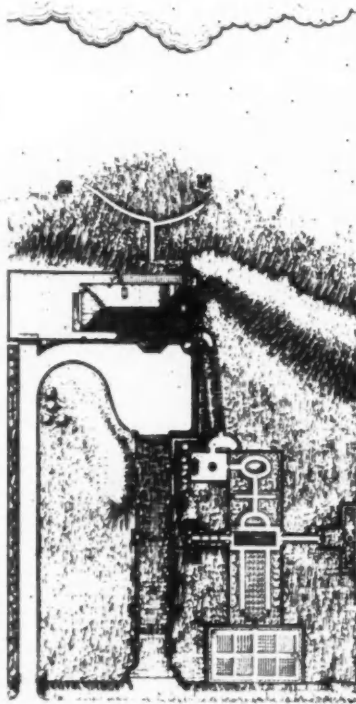
FIRST FLOOR



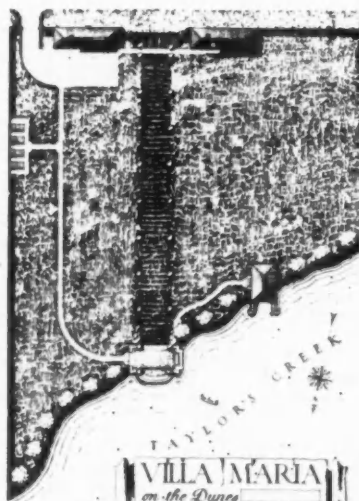
Plans on Back

GATEWAY, THE VILLA MARIA, SOUTHAMPTON, N. Y.
EDWARD P. MELLON, ARCHITECT

ATLANTIC OCEAN



MEADOW LANE



VILLA MARIA
on the Dunes
SOUTHAMPTON - LI

PLOT PLAN OF ENTIRE ESTATE



PLANS, GARAGE & CHAUFFEUR'S COTTAGE



ENTRANCE FACADE, THE VILLA MARIA, SOUTHAMPTON, N. Y.
EDWARD P. MELLON, ARCHITECT





ENTRANCE, THE VILLA MARIA, SOUTHAMPTON, N. Y.
EDWARD P. MELLON, ARCHITECT

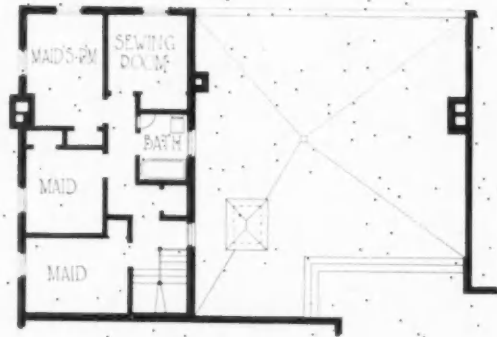




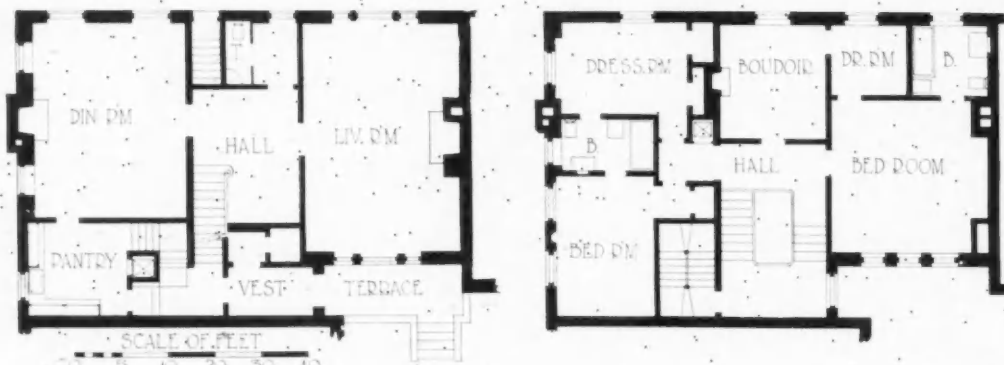
Photo, S. J. Hayward

SUMMERHILL TERRACE, LOOKING TOWARD CHELSEA PLACE, MONTREAL
BAROTT & BLACKADER, ARCHITECTS

Plans on Back



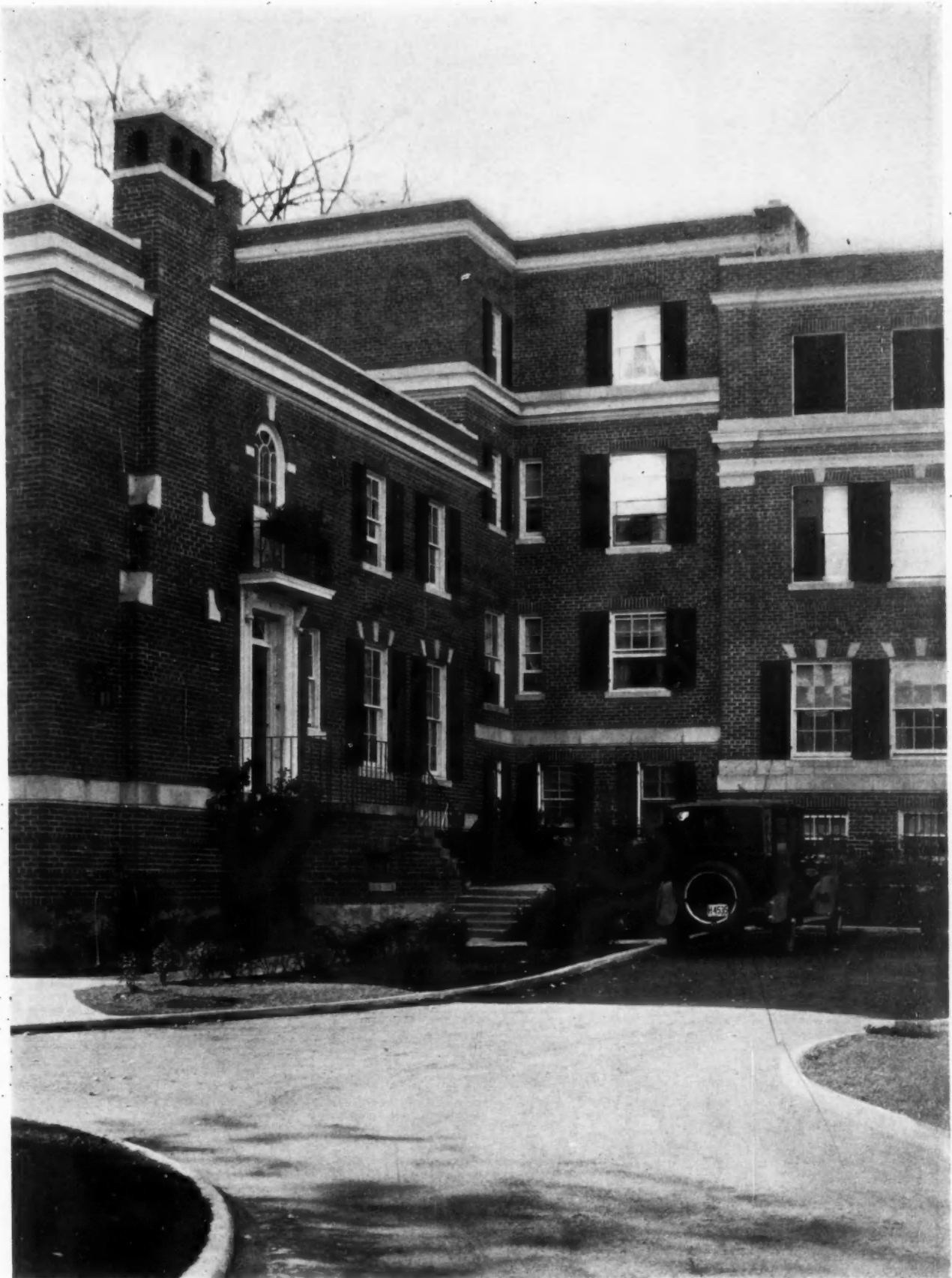
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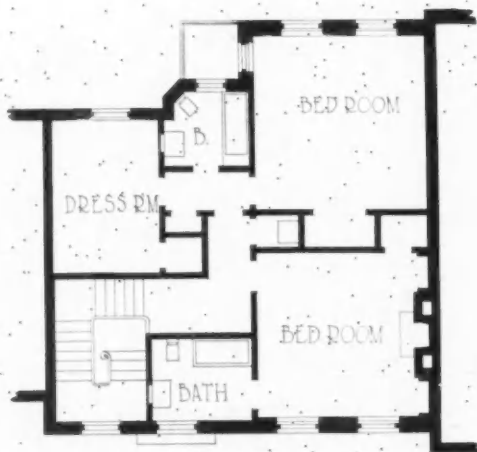
SECOND FLOOR

HOUSE NO. 5, CHELSEA PLACE, MONTREAL
 BAROTT & BLACKADER, ARCHITECTS

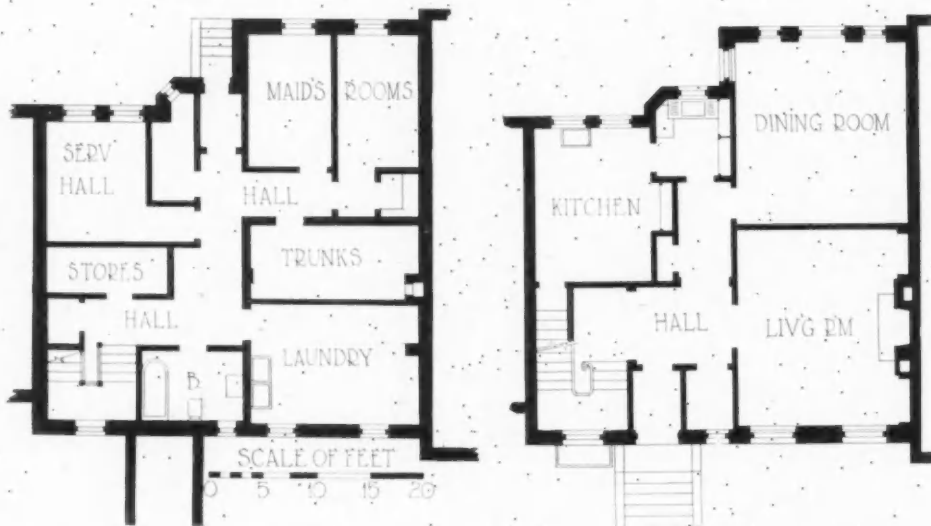


DETAIL, CHELSEA PLACE, MONTREAL
BAROTT & BLACKADER, ARCHITECTS.

Plans on Back



SECOND FLOOR



BASEMENT

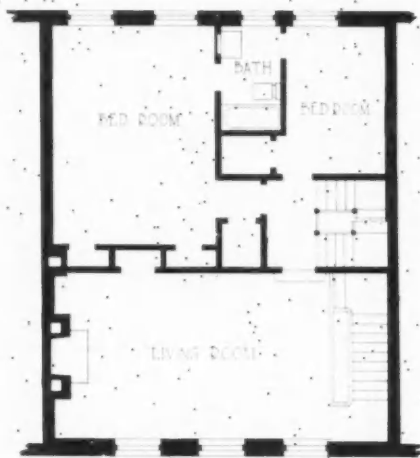
FIRST FLOOR

HOUSE NO. 6; CHELSEA PLACE, MONTREAL
BAROTT & BLACKADER, ARCHITECTS

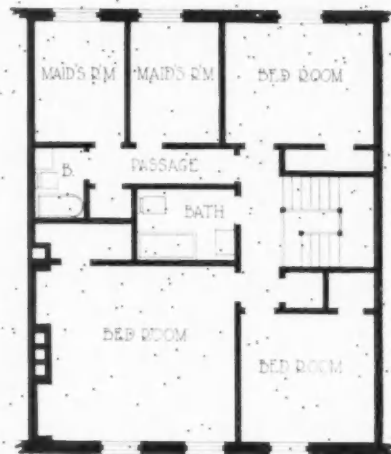


DETAIL, ENTRANCES, CHELSEA PLACE, MONTREAL
BAROTT & BLACKADER, ARCHITECTS

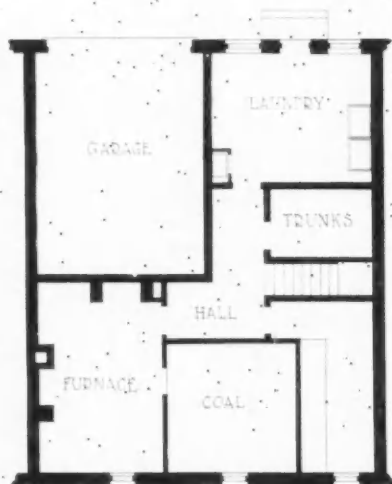
Plans on Back



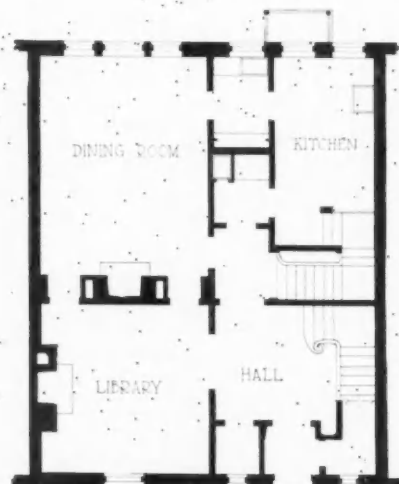
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THIRD FLOOR

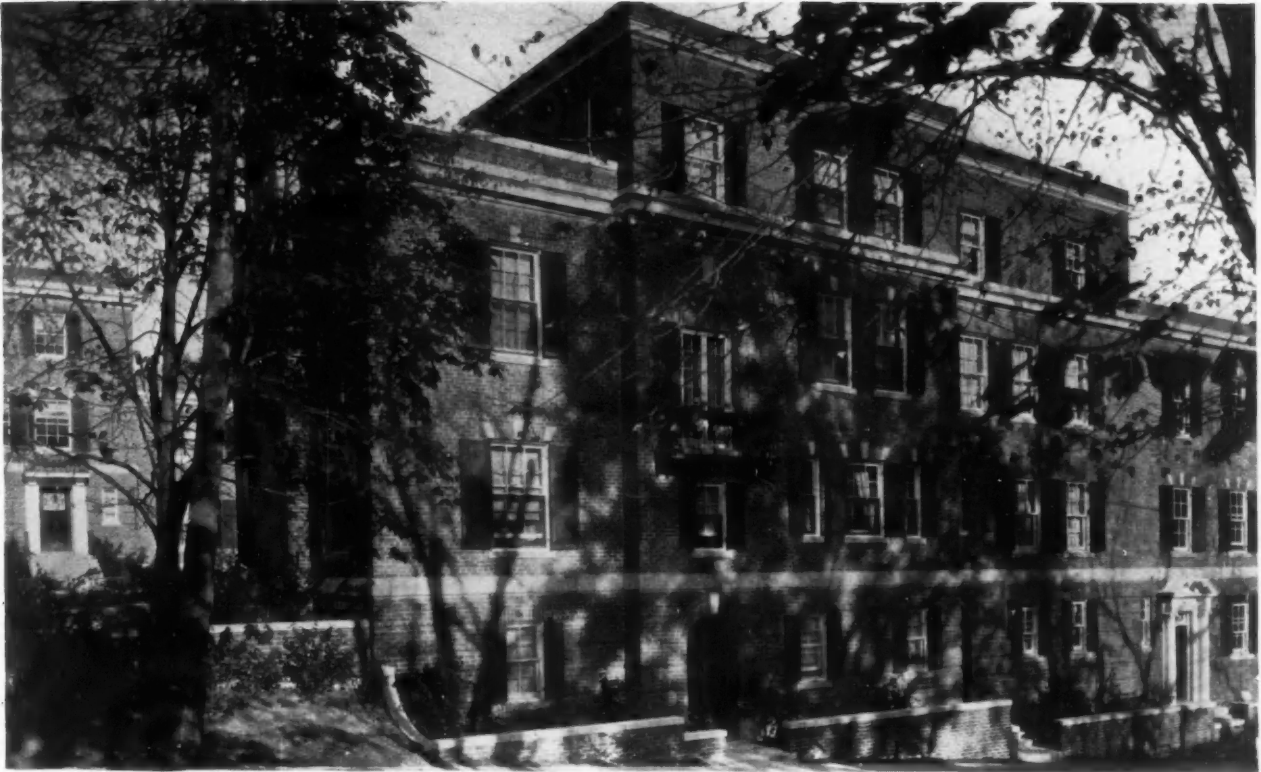


BASEMENT



FIRST FLOOR

HOUSE NO. 3, SUMMERHILL TERRACE, MONTREAL
 BAROTT & BLACKADER, ARCHITECTS

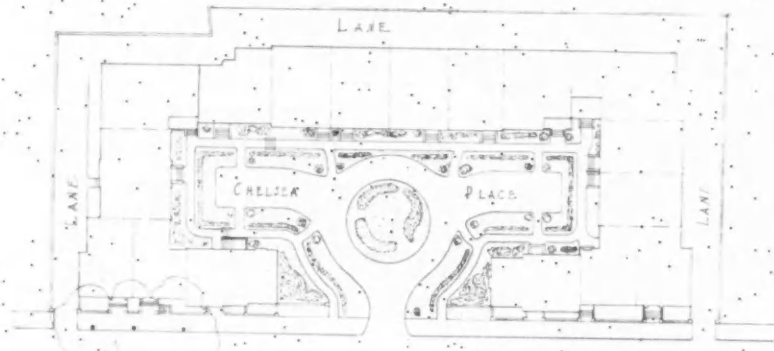


VIEW OF CHELSEA PLACE FROM SUMMERHILL TERRACE

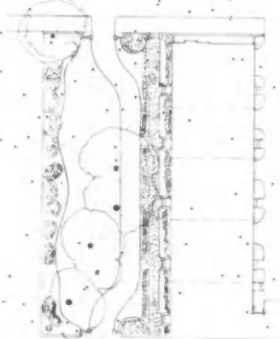


SUMMERHILL TERRACE, VIEW FROM SIMPSON STREET, MONTREAL
BAROTT & BLACKADER, ARCHITECTS

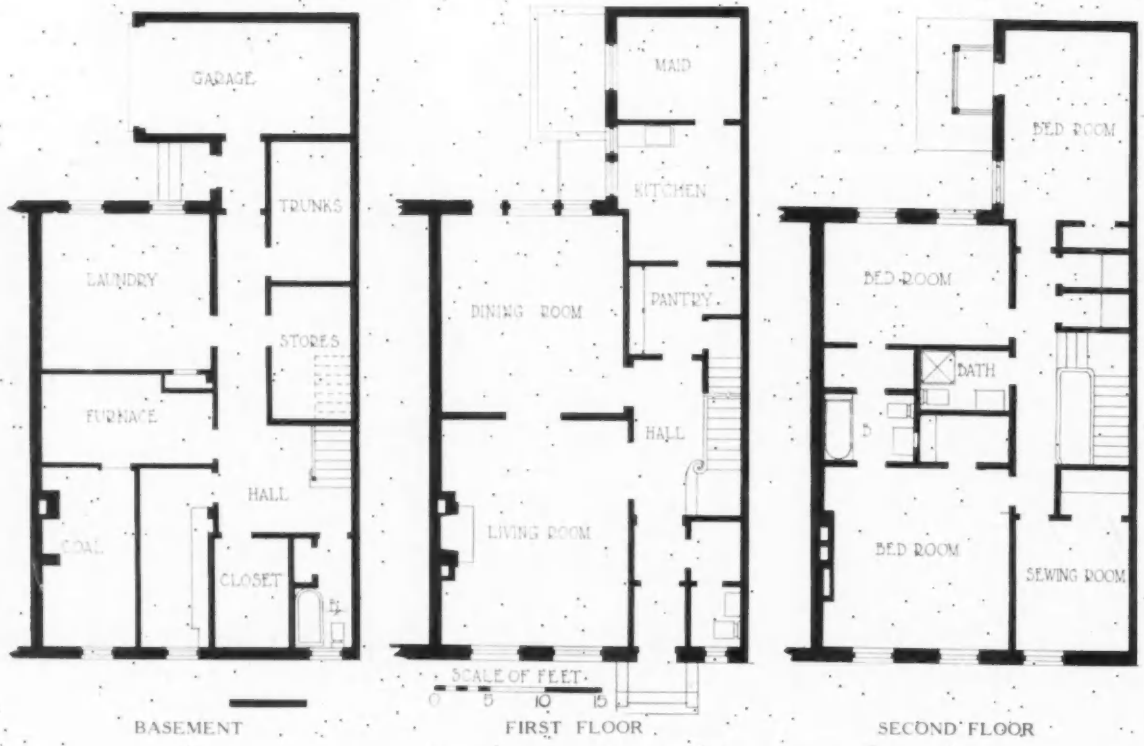
Plans on Back



SIMPSON STREET



BLOCK PLAN
OF CHelsea PLACE AND SUMMERHILL
TERRACE DEVELOPMENT
SCALE OF FEET
0 10 20 30 40 50



HOUSE NO. 5, SUMMERHILL TERRACE, MONTREAL
BAROTT & BLACKADER, ARCHITECTS

The Skyscraper in New York

By EDWARD RUSH DUER

THIS is a setting down of some impressions that the skyscraper makes upon me,—an average man, quite uninstructed in architecture, engineering and civic planning, equipped for the task only with the modern citizen's hazy, superficial knowledge of too many subjects. I am a very bull's-eye of a man, in that I represent that happy center of mediocrity which most architects and all politicians aim to hit. Such being my situation, I feel privileged to discourse on the skyscraper, or what you will, without responsibility to anyone, in the firm belief that these introductory lines have the merit of absolving me in advance from all charges of pretense to any knowledge of the canons of art.

F

IT is obvious that the largest American cities are fast being rebuilt as great aggregations of skyscrapers. This is particularly true of New York, where the skyscraper originated (though Chicago disputes this); where it has reached its greatest development, and whence it has spread throughout the length and breadth of this country. Canada has adopted it in moderation, Europe not at all as yet. Increasing land values in the lower part of Manhattan Island and within the "Loop" in Chicago resulted in a demand for greater revenues from the buildings within those areas. Accordingly, the development of a steel structure that would carry more stories

than could be supported by bearing walls was undertaken by the engineer, and his successful accomplishment was presented to the architect, who was expected to dress the evolved framework in appropriate clothes. The result of their joint efforts has been a tremendous triumph—at any rate for the engineer.

The engineer's responsibility ends when he has successfully conformed to the regulations of the various departments of city government, and his object is achieved if he has produced a *safe* structure and satisfied his client's demands. He is not concerned with the outward *appearance* of his building, and is quite indifferent to it as a contribution to the livableness of the city. Where thus the responsibilities of the engineer end, those of the architect begin. More often than not they may be one and the same man, yet the purposes of this article will best be served by regarding him as two. The public gives no thought to the architect's work. The attention of the man in the street is entirely focused on the spectacular adding of story on top of story. His admiration and the intense pride which still inspires the question put to every visiting foreigner—"What do you think of our high buildings?"—mean altogether, or have meant until recently, admiration of the engineer's performance, a worship of a thing big and practical accomplished,—something "American."

What to the engineer has been no more than a practical and straightforward problem, the solution



Photo, Fairchild Aerial Surveys, Inc.

Airplane View, Grand Central District, New York, Showing Shelton Hotel



Photo: Kenneth Clark

American Radiator Building, New York
Raymond M. Hood, Architect

of which has meant, however, a highly important development of his craft, must, when he first faced it, have appeared to the architect as an invitation to a voyage to nowhere on a completely uncharted sea. I have no means of knowing, but I am nevertheless persuaded that our leading architects have neither liked the skyscraper nor approved of it. It is only within the last few years, recognizing its economic necessity, I assume, and the consequent inevitability of its spread, that the men at the top of their profession have undertaken the work of designing it. The improvement that has only recently begun to show would seem to justify and to prove this theory.

To men steeped in the traditions of the past, and nowhere is precedent so studied and so venerated as in the architectural profession, the advent of the skyscraper could have propounded nothing less than a revolutionary problem,—I had almost said “revolutionary.” To be asked to design an interpretation of steel beams laid at right angles to each other! Undoubtedly the first reaction to this demand constituted objection Number One. A further and even more serious objection (Number Two) was the disproportionate size of the colossus to its environment, and the gloomy, canyoned streets that resulted from its overwhelming height. It was, of course, impossible for the best architectural minds to endorse the

idea of denying or disguising the steel construction by dressing it in borrowed Gothic and Romanesque plumes (with the pretense, insisted upon over and over again, that a lot of little columns and arches and pilasters were supporting the vast weights supposedly superimposed upon them) which characterized the efforts of the commercial architect-builder who designed the first “coverings.” It was equally impossible to ignore the advent of a new factor in American civic life. Here was unquestionably the dawning of an epoch in the community's existence which called with increasing insistence on architecture to express its ideals. Is not this the Iron Age? Then, in its great interpretative capacity, must architecture proclaim it to a waiting and expectant world!

The call has apparently been loud enough and insistent enough and (let us not be ashamed to admit it) financially promising enough to attract some of the “best minds” and to overcome their objections. The results are beginning to appear here and there, results in which attempts at disguise and denial are done away with, and in which the steel uprights, the main support of the structure underneath, are emphasized boldly and simply in the long vertical lines of the facade, lines which run the full height of the building and which serve to accentuate this, its most distinctive feature. It is a long step forward when the truth is at last fearlessly faced and asserted, and the form of the steel structure thus acknowledged, its spirit caught and expressed. This spirit is not only a revelation of what is underneath; it is framework, steel, commerce, trade, the age itself idealized; the particular purpose of the building is indicated; it is all these taken at their best, their sordidness forgotten, their high and legitimate aspirations alone remaining. Buildings so conceived and so executed are as yet but few, very few, in number, for let us not deceive ourselves by assuming that mere masses of masonry must necessarily be architecture, though in the mist their outlines be interesting, or impressive!

II

EFFORT during the last 25 or 30 years to find an appropriate expression for the new city, which New York is constructing on the wreckage of her past, has resulted successfully in that certain standards have been raised whose ennobling influence, it is to be hoped, will be very far reaching. Unfortunately, however, the story of the new New York does not promise to be simple in its essentials when finally told. The way out from its present welter of architectural confusion is only faintly indicated as yet; nor do we seem to be very clear as to the method of solving a number of other problems to which the skyscraper has contributed complications of its own. Two of these problems are causing considerable concern at present, and will probably cause a great deal more later on; they are (1) traffic congestion, which is constantly becoming more and more of a problem, due to the continual crowding of very high buildings within a limited area, as a palliative for which

double- and triple-decked streets are talked of, though that sounds very dreary and depressing to me; and (2) a sociological problem involved in the herding of thousands of substantial middle class families into cramped and restricted apartments. I don't know how they will ever solve that problem comfortably, unless the tenants avoid having any children—or very few—or move to the country. To lose the most valuable class of its citizens, through not providing adequate houses for them, leaves the city in the unbalanced possession of the very rich and the very poor,—not a satisfactory civic condition. To be fair, the skyscraper should not be held responsible for the latter problem. Increase of population and high costs of living are the real causes behind it.

However, we must bear in mind that it is no light task for such a vast and heterogeneous city to rebuild itself intelligently within a comparatively short period of time, while concurrently it has been increasing its population at an unheard-of rate, and more-disturbing still has been the radically changing character thereof. How could all these extraordinary complications be foreseen, and provided against? How could there readily be found a fixed and harmonious architectural expression for such a tumultuous community? I do not mean to say that if there were such a thing as *static* chaos it could not be architecturally expressed; but surely it is not surprising that the *dynamic* chaos which has been New York during the first quarter of the twentieth century has baffled the effort to express it. If there is any evidence, however slight, of that expression appearing today, we may be sure it is because the city is beginning to find itself, and because its character and its meaning are taking fresh forms to such extent as will permit the architect to cognize them.

In what style is this character and meaning being expressed in those few skyscrapers which I have claimed reveal the spirit of the new era? What is the new standard that is being raised? There are two of several buildings which seem to me to provide very satisfying answers to these questions. One is the Shelton Hotel on Lexington Avenue. The other is the office building of the American Radiator Company, opposite Bryant Park. They have nothing to do with Europe or the past; they are symptomatic of America, and they are conceived in a spirit which so far as I know represents this country's only contribution to architecture of an entirely original style. These buildings are not beautiful,—they are, on the contrary, rather grim, which is obviously due to their color, though I should be inclined to believe that their contours contribute even more to this effect. In the case of the Radiator building there is a grotesqueness and a hint of *bizarrierie* that is delightful. But the extraordinary thing, to my mind, is the successful treatment of the heights. They are both quite evidently very tall buildings, and yet one instinctively asks—why shouldn't they be? And indeed even more than that,—for were they not as tall as they are their significance would be lost, and in the case of the

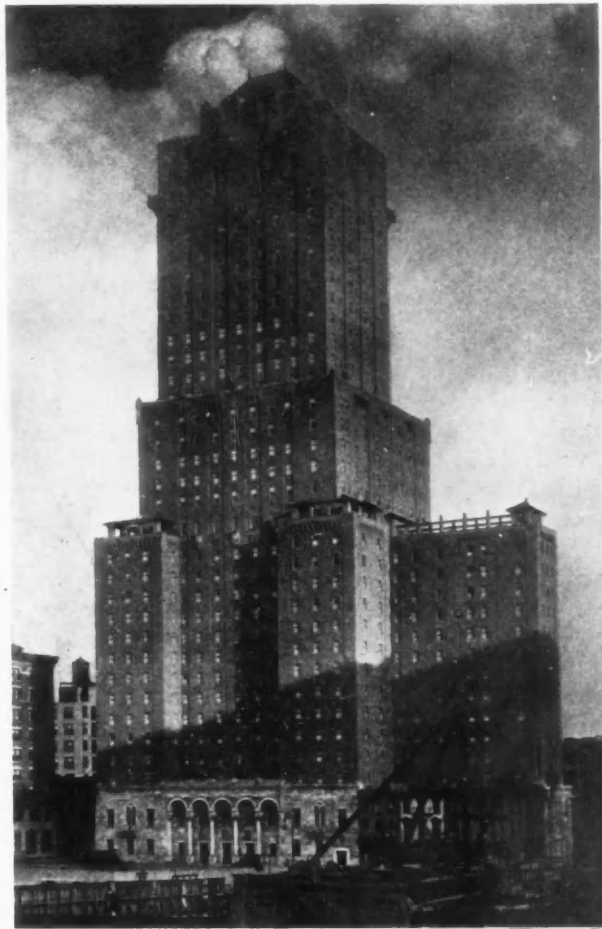


Photo. Sigurd Fischer

Shelton Hotel, New York
Arthur Loomis Harmon, Architect

Radiator building the effect would be merely absurd. If these intuitions of mine are approximately correct, does it not follow then that height and design are so interwoven in the new style as to be indistinguishable the one from the other? And this, I cannot help but believe, must be a very marvelous accomplishment; for up to the present time the disproportionate height of the skyscraper has been overpoweringly and unpleasantly prominent. Even the much admired Woolworth Tower has always impressed me more by its extreme height than by its undoubted beauty. In other words, in looking at it, I think of the two things separately; and I suppose that is because its style is reminiscent of the days of bearing walls, and of heights that were attainable without elevators. Its beauty to be truly enjoyed must be viewed down some long perspective, or from the water; but then we are judging it by standards of another time, and subconsciously fooling ourselves by placing it outside the new development. The rather ridiculous idea has often occurred to me that the Woolworth Tower in its distinguished Gothic dress is as inappropriately placed on its present site as the Statue of Liberty would be were that heroic lady removed from her island to the City Hall Park. Our traditional knowledge of statues would constantly remind us of the pleasure we

might enjoy were her size reduced to such proportions as our glances could take in and comprehend!

It took considerable time and a great deal of bad architecture to learn that in the interests of truth the engineer's work must be interpreted and not disguised. When that point was reached, a few fine buildings were erected, of which the Woolworth Tower was far and away the most successful. The second important step has now been taken,—the spirit of the giant building has been at last found.

I do not think I exaggerate the seriousness of the creation of a style which one might say is the skyscraper. New York has embarked, for better or worse, on a career of reconstruction involving high buildings almost exclusively. It becomes therefore a matter of first importance to her that the styles in which these buildings are designed should fit their sizes, their purposes, their time, should exhibit the working of intellect, and should inspire a sympathetic understanding among the people,—in short that the styles should be *architecture*, and not decoration only, nor mere walls of deadly plainness.

It savors something of the heroic—or is it delirium?—this crashing ahead of New York into the unknown,—this destroying of her past, both bad and good,—this scrapping of the work of Stanford White and Richard M. Hunt, who were with us only yesterday; along with the contractor's obsolete jobs. Not satisfied with anything that has been offered her, is New York reaching out to high heaven for some tremendous expression almost beyond men's power to conceive,—or is it merely ruthless mate-

rialism, rank utilitarianism amounting almost to a hatred of the beautiful as a weak and contemptible diversion? Of course it is neither the one extreme nor the other. While the community's attention is concentrated almost exclusively on earning its living and on solving problems of transportation, the reckless real estate speculator has been given a free hand, and, to his selfish skyscraping developments, every quarter of the town has been surrendered. Our parks are walled in; our avenues are sunless; architecture has been neglected. But the American architect did not allow himself to be neglected for long. He may have sighed over the destruction of what he had already done for New York, but he did not hesitate to come to grips with this new situation, discouraging and disheartening as it may have appeared. The thing that happened was his combination with industry in the latter's desire to advertise itself appealingly! Hence the Woolworth Tower and the buildings of the new development that I have cited as two of its leading and conspicuous examples.

The new style is in part a justification of the destruction of the past. The question hopefully arises;—will it stimulate a taste which, increasing by what it feeds on, will demand satisfaction through a curbing of the speculator, and through the establishment of segregated areas, where some architectural peace and aspiration may be enjoyed? Certainly if the new style expresses adequately and profoundly the modern American civic ideals, it will not fail of recognition, and its very truth is the force which will surely establish it. The question is interesting indeed.



Photo, Fairchild Aerial Surveys, Inc.

Aërial View of Numerous Recent Examples of Setback Buildings

SMALL BUILDINGS

✓ Designing the Small City Hotel

By WILLIAM L. STODDART

IT is safe to say that there are few architectural projects, if any, that must fulfill individual requirements more exactly than the small hotel. In this classification are grouped hotels of from 100 to 350 rooms, and figures gathered throughout the country show that these are vastly more numerous than larger hotels, and that they represent the real substance of the country's hotel business, the big hotels being the "high spots." Every traveler from Europe is impressed by the American hotel, by its service, by its comfort and attractiveness. And those of us who look back to the smaller, and even the

larger, hotels of 50 years ago must be equally impressed. We take no vain stand, then, when we point with pride to the hotel of today, and see in it one of our most successful and really national achievements. The hotel is definitely a national quite as much as it is a local institution, for one hotel follows another in an unbroken chain across the continent, and from north to south. Much of life in this country, both socially and commercially, is lived in the hotel, and the smaller the town the more keenly is the modernity of its best hotel regarded as the index or measure of the progressiveness and prosperity of the community.



George Washington Hotel, Washington, Pa.
William L. Stoddart, Architect



Hotel Patrick Henry, Roanoke, Va.
William L. Stoddart, Architect

It is not difficult to make distinctions in different towns and cities and to determine for each, after due consideration of special or unusual factors, the size and type of hotel which will be most likely to prove a profitable investment. The place that is primarily industrial is obviously not so good a "hotel town" as the place that is more a trading center, or a university town, or a town at a strategic crossroads of travel or in a resort locality. The commercial traveler, the tourist by rail, boat or motor, convention crowds,—these are the prospective patrons of the hotel, and it is according to their number, present and prospective, that the hotel is generally planned.

The small city hotel, being essentially a community project, is likely to be launched by representative local business men with the cooperation of the Chamber of Commerce as the need for it becomes evident. It is upon the requirements of local conditions, as presented by these men, that the architect must base his plans, though if the lessee or operator is also called in at this point, further valuable advice and knowledge are pooled. It is advisable for the small hotel to build conservatively, very little ahead of its immediate needs, unless special indications insure a very rapid growth for the town. Provision should be made for enlarging as the town or city grows. These additions were provided for in the buildings illustrated in these pages. Experience has shown that a modern fireproof hotel of less than 100 rooms is not



George Vanderbilt Hotel, Asheville, N. C.
William L. Stoddart, Architect



Charlotte Hotel, Charlotte, N. C.
William L. Stoddart, Architect

a safe economic proposition; it will not pay for itself, and such public portions as the dining room will operate at a loss, although modern coffee rooms assist greatly in reducing losses on dining rooms.

As governing the location of the hotel in the small city, the chief consideration should be given to the choice of the site, and its cost should not cause the rejection of the most desirable plot. Any experienced hotel man will agree that location is a factor of prime importance in the success of a hotel, whether it is large or small. The best site will be one located in or close to the best retail shopping district and the theaters, on at least one main car line, and preferably in the direction of the residential part of the town. The best and most far-sighted knowledge of local real estate trends should be taken into account here, in order to avoid locating in a part of the town which may become run down or unfashionable. A location close to the railroad station may not be compatible with the conditions just outlined, but in these days of taxi service, it is very doubtful if this is as important as locating in the more permanently fashionable part of the town. One reason for this importance is found in the high rentals for shops on the street floor of a hotel, as it has been found that these will pay 25 per cent of the cost of the building; or better still, they should return at least 10 per cent interest on the cost of the property, a most important consideration.

From the nature of the small city hotel project, economy is the keynote where economy can be effected without too much loss of efficiency or effect. In laying out floor plans, for instance, it is highly



San Juan Hotel, Orlando, Fla.
William L. Stoddart, Architect



Sir Walter Hotel, Raleigh, N. C.
William L. Stoddart, Architect



Poinsett Hotel, Greenville, S. C.
William L. Stoddart, Architect

desirable to plan as many floors alike as possible. The arrangement of the floor plan will be based on the requirements in each particular instance, and these differ from those of the large metropolitan hotel. It has been found that there is not a universal demand for rooms with baths, so that it is perfectly feasible to provide a number of single rooms on each floor with only lavatory and toilet equipment. These rooms, with single beds, may be located on the courts, while larger rooms, with baths and twin beds, can be located on the street fronts, while the best rooms, arranged in suites, can occupy the corners of the buildings. Every room should have lavatory and toilet facilities, and each should have a closet of at least reasonable size.

Provision for sample display rooms will depend upon the nature of the business of the town; and as such space is only in use part of the time, it should not be given too much area. In many small hotels bedrooms are utilized for this purpose by the installation of "disappearing beds" and the arrangement of rooms en suite, while in others private dining rooms, with folding partitions, may be thrown together into one large room when occasion requires.

Because of limited local patronage it is always well to conserve space in the public portions of the hotels, as these are largely non-productive, though modern customs demand an attractive lobby, lounge and dining room, with lunch room and coffee shops as profitable adjuncts on the street level floor. The best small hotel plan, in the matter of lobby, lounge and dining room, is that which is the most flexible, because its patronage varies on occasions. An effective solution is a design which combines the dining room and lounge in such a way that the dining space may be enlarged or contracted by means of screens. This will take care of any unexpected overflow, and at the same time will prevent the dining room's, during times of normal patronage, seeming empty. With this scheme it is necessary to provide space for an easily accessible storeroom to take care of the extra dining room furniture or the temporarily removed lounge furniture, according to the needs of the day.

The inclusion of a large ball room or assembly room is a matter to be determined entirely by local conditions. If the town is located strategically as a convention center, or if it has a large Kiwanis or Rotarian body, there will be profitable use for such a room, often amply guaranteed in advance, and there can be no question but that facilities for handling large assemblies add tremendously to the prestige of any hotel as the headquarters of important gatherings. It is in this connection that the hotel in the



O. Henry Hotel, Greensboro, N. C.
William L. Stoddart, Architect

small or moderate sized town fulfills its function as a community building and becomes an essential part of American life.

The mechanical equipment of the small hotel has become largely standardized by practice, and an architect who has had any experience in this type of building knows almost to a dollar the cost of heating plant, elevator system, kitchen installations and so forth. One

point, however, finds hotel managers of divided opinion,—that of the house laundry plant. It may aid in reaching the decision to know that a laundry plant for a hotel of 200 rooms costs about \$12,000 to install, so that its inclusion in the plans may depend somewhat upon the total investment possible.

Little has been said here about the exterior appearance of the small hotel, or of such elements of architectural style as may appear in the public and semi-public parts, such as the dining rooms, lobby and lounge. A justly popular stylistic treatment is a modified version of Georgian Colonial, brick with white trim, not only because this type of building is in harmony with the average American environment, but also because it has a certain "homelike" appearance that most people like. It is a style which lends itself well to the small hotel, because it may be greatly modified by economy without too much loss of effect, or on the other hand it may be considerably elaborated. The type is readily adapted to conditions.

The architect of the hotel today, moreover, has a great advantage in the vastly improved design of lighting fixtures and moderate priced hotel furniture. The keynote of the modern hotel interior,—and in this the smaller hotels directly follow the larger,—is toward a certain kind of smart simplicity. Walls in lobbies and principal hallways are likely to be of cast travertine or textured plaster, and the whole character of the decorative scheme has become as different from that of the ornate hotels of the "Waldorf type" as these were different from the hotels of the Civil War days. Hotel standards change quickly.

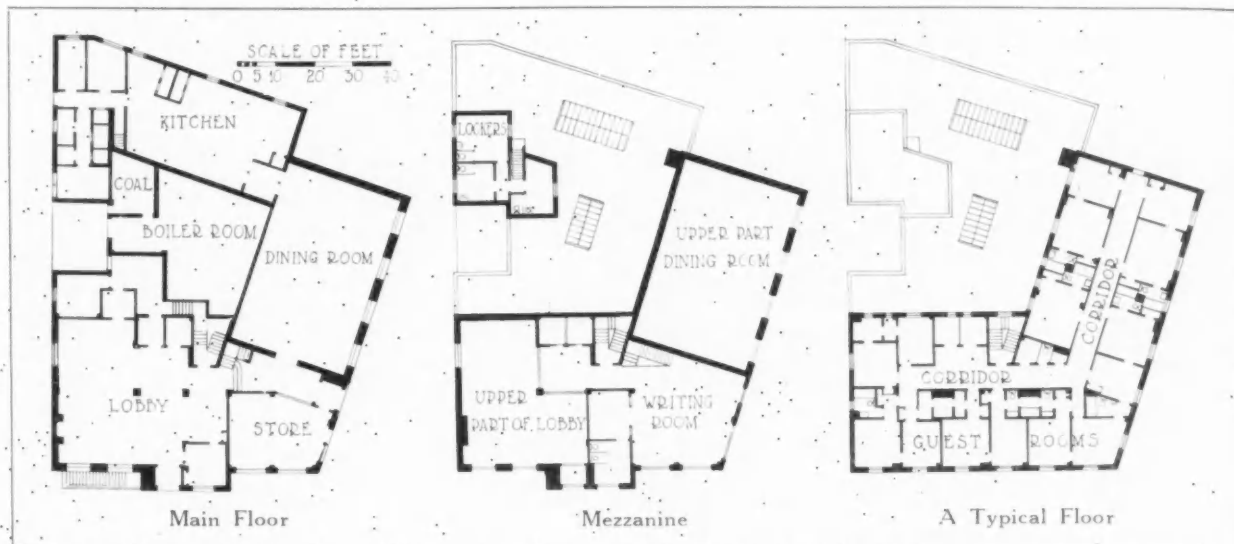
Hotel management in this country, regardless of the size of the hotel, has reached a high development of efficiency in catering to the varied demands of its public, and this efficiency has been met, and even more often advanced, by the architectural specialization that has been expended on its design. So marked indeed is the improvement in hotel design,—not only of vast hotels in large cities but even of houses in much smaller places,—that the building of a well designed hotel has been known to exert a beneficial effect upon the architecture of a town as a whole. A new and better standard for the community is thus established by the hotel or by its architecture.

IN designing a hotel for a small city or a large town, it is often necessary to build on a lot of moderate size because it is the only centrally located site available for the purpose. The cost of the building is much less when the height rather than the ground area is increased. To put a nine-story building on a plot of ground 75 by 75 costs less than it does to erect a five-story building on a plot 100 by 100. In consequence, most of the recently constructed hotels in small cities are likely to rise conspicuously and ostentatiously above the low and simple office buildings, churches and houses which surround them. Such is the case with this 96-room hotel in Bridgeton, N. J.

To keep the cost down, the building is practically devoid of all architectural ornament excepting for simple pilasters and cornice executed in limestone in the basement stories of the building, and in brick and terra cotta in the top story. The design, which is as straightforward as it is simple, is much helped by the excellent proportions



HOTEL CUMBERLAND, BRIDGETON, N. J.
DREHER & CHURCHMAN, ARCHITECTS



FORUM SPECIFICATION AND DATA SHEET—88
Hotel Cumberland, Bridgeton, N. J.; Dreher & Churchman, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:

Steel; reinforced concrete; concrete piles.

EXTERIOR MATERIALS:

Granite, limestone, brick, and terra cotta.

ROOF:

Slag.

WINDOWS:

Wood frames and sash; plate glass.

FLOORS:

Tile, terrazzo; maple, and cement.

HEATING:

Vapor.

PLUMBING:

Galvanized iron and brass.

ELECTRICAL EQUIPMENT:

Rigid iron conduit; elevators.

INTERIOR MILL WORK:

Brick, oak, and metal.

INTERIOR WALL FINISH:

Plaster, painted.

DECORATIVE TREATMENT:

Plaster pilasters and paneling in lobby, dining room, mezzanine and ball room.

NUMBER OF GUEST ROOMS:

94.

APPROXIMATE CUBIC FOOTAGE:

470,525.

COST PER CUBIC FOOT:

55 cents.

YEAR OF COMPLETION:

1924.

of the windows in the seven upper or bedroom stories.

Located on an irregular corner lot, an entrance from each street leads into the main lobby of the hotel. The dining room is located along one of the street sides of the building, so that it may be directly approached from the hotel entrance on this side. Arrangement has been made for only one store on the ground floor plan, unusual in these days of high taxes and high land values. The irregular-shaped plan is logically and conveniently arranged. The main lobby, the manager's office and large dining room are located on the two street sides of the structure, while space at the rear is occupied by a

large service department, boiler room and various storerooms. Two passenger elevators, centrally located, connect with the floors above. The mezzanine floor contains a writing room and a women's retiring room and lavatory. Each of the seven bedroom floors is divided into 15 bedrooms, some with individual baths and some with baths so arranged as to be accessible from each of two rooms. Practically all the baths are inside, and no outside wall space or window areas are taken up by them. The upper stories of the hotel cover much less of the lot space than the first floor, where the kitchen, service and heating departments are only one story high.



Lobby



HOTEL FRANCE, PARIS, ILL.
JOHNSON, MILLER, MILLER & YEAGER, ARCHITECTS

THIS small, 75-room hotel shows care and thought in the refined architectural details of the front elevation. The introduction of the slightly projecting center bay, which breaks the front facade into

three parts, is an excellent idea. In this case there would have been considerable improvement had the three upper stories of this bay been constructed entirely of limestone or terra cotta instead of lime-



FORUM SPECIFICATION AND DATA SHEET—89

Hotel France, Paris, Ill.; Johnson Miller, Miller & Yeager, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:

Reinforced concrete; skeleton construction.

EXTERIOR MATERIALS:

Mat red brick; white mortar.

ROOF:

Tar and gravel.

WINDOWS:

Wood; double-hung and casement.

FLOORS:

Terrazzo, composition and cement carpeted.

HEATING:

Steam.

PLUMBING:

Showers or tubs in practically all rooms.

INTERIOR MILL WORK:

Gum.

INTERIOR WALL FINISH:

Plaster, decorated.

DECORATIVE TREATMENT:

Public rooms, ornamental plaster; guest rooms, smooth plaster walls, decorated in oil.

NUMBER OF ROOMS:

75.

APPROXIMATE CUBIC FOOTAGE:

354,850.

COST PER CUBIC FOOT:

46 cents, without equipment.

DATE OF COMPLETION:

July, 1924.

stone and red brick. Such a treatment would have given the bay added emphasis and dignity, and would have obviated the rather thin, ladder-like effect of its six windows. The filled-in arches and the casement windows or doors, which are protected by iron railings, carry a pleasing balance on either side of the main entrance, while the detail of the colonnette and entablature of these casements is refined and interesting. A suggestion of the detail of the Adam brothers in this simple hotel facade is particularly noticeable in the iron and glass marquee over the front door and in the lights on either side.

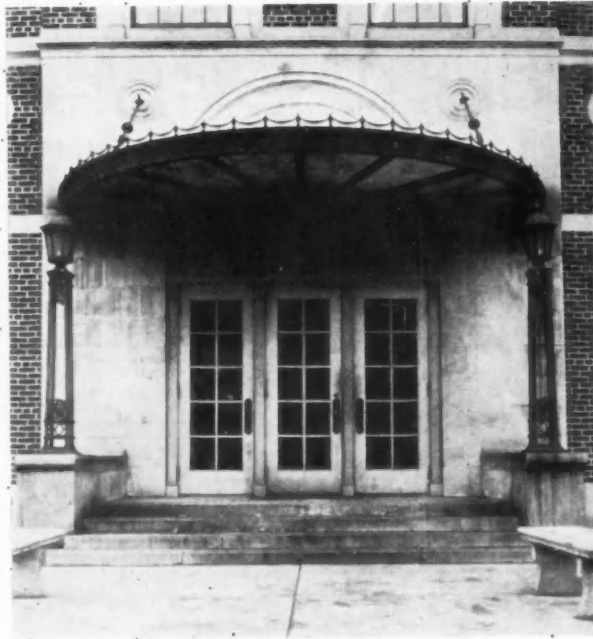
The lobby is logically placed across the front of the first floor. To the rear are located elevators, offices, dressing rooms, etc., a small cafe called the "Italian Room," and a long, narrow dining room

opening directly into a good-sized kitchen. It seems rather strange that the kitchen, instead of the dining room, should occupy the street side of the building. The basement contains a barber shop with bathrooms connecting, beauty parlor, laundry and repair shop, in addition to boiler and coal rooms, toilets and storage space, which is used for various purposes.

Each of the three bedroom floors is cut up into 25 small bedrooms, off each of which is a small toilet room; and in connection with the eight larger bedrooms individual bathrooms are included. The lavatory and main stairway are centrally located, and a rear stairway affords an additional means of escape in case of fire. On the whole, the plan is well arranged for a small hotel, where the number rather than the sizes of the rooms is the important factor.



Detail of Lobby

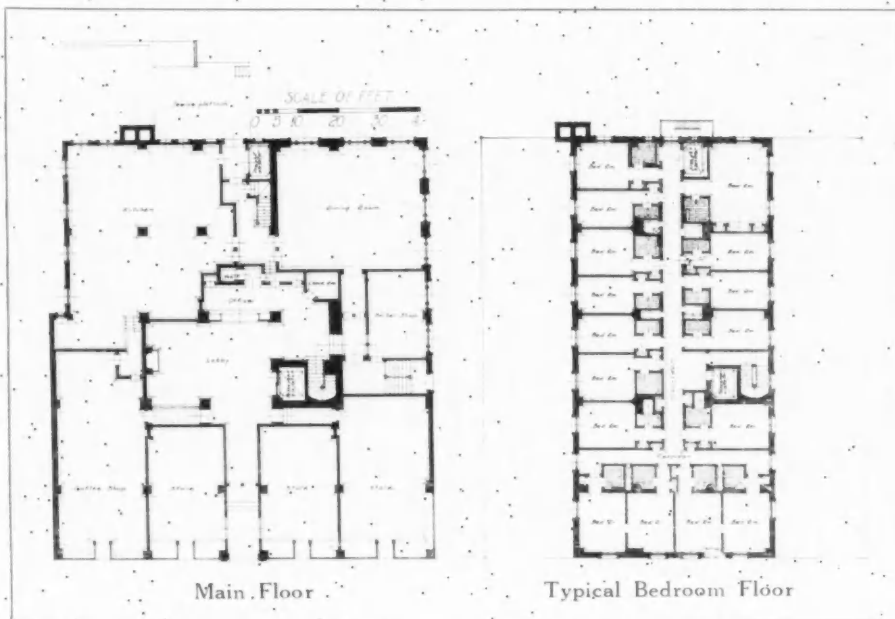


Detail of Entrance



Photo. Courtesy of American Hotels Corp.

HOTEL ELLIOTT, SUFFOLK, VA.
PÉEBLES & FERGUSON, ARCHITECTS



ANOTHER modern fire-proof hotel of the type which is bringing joy to the heart of the tourist has just been opened in historic Suffolk, Va. Containing just 100 rooms, the Hotel Elliott, a project of the Suffolk Chamber of Commerce, cost \$500,000, subscribed by the citizens of the city. In design the hotel consists of a central building carried up to a full height of eight stories, flanked on either side by two-story wings which help to give scale and importance to the central part of the building. Part of the second floor of the

FORUM SPECIFICATION AND DATA SHEET—90

Hotel Elliott, Suffolk, Va.; Peebles & Ferguson, Architects

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:

Fireproof; concrete frame.

EXTERIOR MATERIALS:

Brick, stone and terra cotta.

ROOF:

Composition.

WINDOWS:

Wood frames and sash.

FLOORS:

Cement, tile, and marble.

HEATING:

Vacuum steam.

PLUMBING:

Galvanized iron pipe.

INTERIOR MILL WORK:

Pine, painted white.

INTERIOR WALL FINISH:

Plaster.

DECORATIVE TREATMENT:

Public rooms, decorated in oil paint; guest rooms, papered.

NUMBER OF ROOMS:

Guest rooms, 100.

APPROXIMATE CUBIC FOOTAGE:

600,000.

COST PER CUBIC FOOT:

50 cents.

DATE OF COMPLETION:

August, 1925.

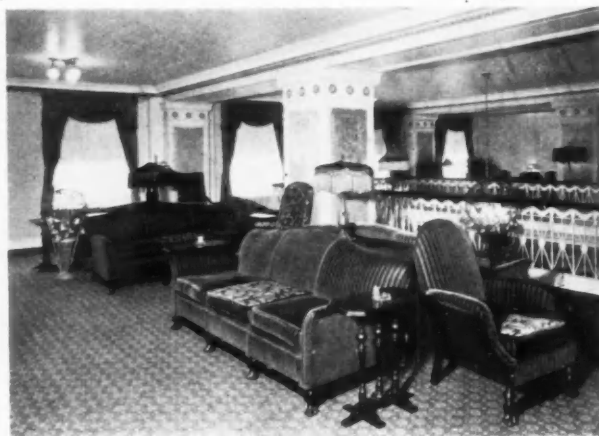
low flanking wings of the building is given up to open porches, a very desirable feature in a hotel located in a perpetually mild climate. In plan the main floor shows the main entrance, a coffee shop and three good-sized stores on the principal street front, and a secondary entrance, barber shop and dining room located on the minor or side street.

The main lobby, with office, passenger elevator and main stairway, is located at the center of the first floor, directly back of which is a large kitchen with service hall, stairway, elevator and entrance. On the mezzanine or second floor are located the women's parlor and writing room, banquet and ball room, private dining rooms and card rooms. The banquet room, directly above the dining room, connects with the large open porch on this side of the building. The room is decorated in the Colonial style, with wood wainscoting and trim, and is painted in tones of old ivory. It is of such size and shape that it may be used either as a ball room or as a convention hall. Had a greater ceiling height been possible for this room, a much more effective and architectural interior and better ventilation would have been secured.

The six bedroom floors of the hotel are practically identical in plan, each containing 16 bedrooms, with individual baths. All the bedrooms have outside windows and are so arranged that they may be taken singly or in suites. The walls of these rooms are covered with wallpapers copied from old Colonial designs. Carpets of interesting color and design entirely cover the floors of the rooms. At the rear of the second story is a large linen room and a service pantry to be used in connection with the banquet room. The end of the clothes chute, through which all soiled linen can be dropped from the floors above, is in the linen room. Adequate shelf spaces for the storage of reserve linen, as well as sewing machines for repair work are included in this room. In the basement is the mechanical plant of the building, which consists of the refrigerating apparatus, steam plant for both heating and cooking, the electrical switchboard, general hotel storeroom, and a storage space for each of the shops located at the front of the street floor. Lockers and toilet rooms for employes are also in the basement. The hotel has been planned and constructed to provide for enlargement.



Dining Room



Mezzanine

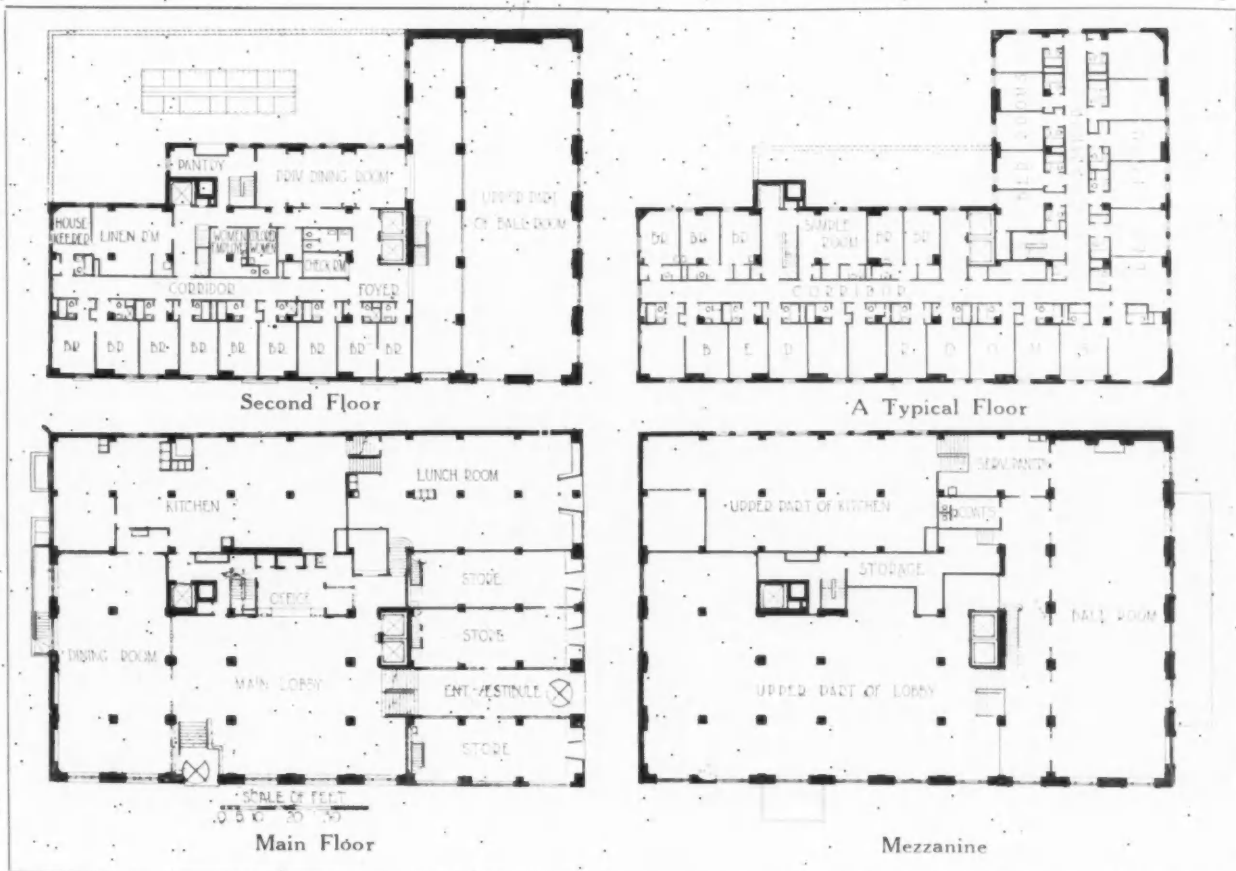
THE Yorktowne Hotel is by no means a small house, containing as it does 220 rooms, yet in comparison with the metropolitan type of hotels it can justifiably be included in this group. The simple design of the exterior façade is executed in red brick with terra cotta architectural ornamentation designed in an adaptation of simple Renaissance motifs tastefully and effectively used.

Located at the corner of two principal thoroughfares, the lower part of the building shows a distinguished architectural treatment. The front, on East Market Street, which contains three stores, a lunch room and the principal entrance, suggests in its design a two-story pavilion. The basement wall of this pavilion is broken up into large, open shop fronts with piers between, above which, six tall arched windows with individual balustrades give a monumental effect to this part of the façade. Above the arched windows, which are connected by a string course, is a high entablature with a decorated frieze, which turns the corner and follows along the South Duke Street façade. The arrangement of arched windows also turns the corner of this street, but



Photo. Courtesy of American Hotels Corp.

YORKTOWNE HOTEL, YORK, PA.
WILLIAM L. STODDART, ARCHITECT



FORUM SPECIFICATION AND DATA SHEET—91
Yorktowne Hotel, York, Pa.; William C. Stoddart, Architect

GENERAL SPECIFICATIONS

GENERAL CONSTRUCTION:

Reinforced concrete; structural steel girders.

EXTERIOR MATERIALS:

Brick and terra cotta.

ROOF:

Plastic slate roofing and flashing.

WINDOWS:

Double-hung, wood windows.

FLOORS:

Main lobby, terrazzo; dining room, wood and cement; ballroom, wood; guest rooms and corridors, cement carpeted.

HEATING:

Vacuum heating system, vacuum pumps.
Street steam supply and exhaust ventilation.

PLUMBING:

Bath or shower for every room.

ELECTRICAL EQUIPMENT:

Complete light and power system.

INTERIOR MILL WORK:

Gum wood finished a walnut color.

INTERIOR WALL FINISH:

Plaster, painted.

DECORATIVE TREATMENT:

Main lobby and dining room, imitation Caen stone. Guest rooms, papered.

NUMBER OF ROOMS:

220.

continues only a short distance, just far enough in fact to permit the introduction of three large windows. The treatment of the rest of the South Duke Street facade is quite different on the lower stories from the monumental pavilion design used across the entire East Market Street front. The necessity of locating a large main lobby, only a few steps above the street level on this side of the building prevents the more logical architectural treatment of continuing the basement shops and tall arched windows all across the minor front, as on the principal street.

The eight remaining stories of coupled and single window openings are so broken up by terra cotta string courses, window trim, wall panels and heavy roof cornice that a feeling of variety rather than monotony is secured. The single windows, wide wall areas and brick quoins give strength to the corners of the building, in regard to which it can only be regretted it was not possible to locate the single windows on the centers of the large arched windows of the main or first story, to add to the symmetry of the building.

These arched windows excellently indicate the grand ballroom, which extends across the entire East Market Street front of this floor. As stores and lunch room are located below this ballroom, its floor is some 6 feet above the floor of the main lobby, necessitating a short flight of steps down to the lobby. The street floor also contains a large dining room with serving pantry and a

large, well equipped kitchen at the rear. Secondary stairways, the hotel office, passenger and service elevators and checking rooms are also included on this floor. A mezzanine floor containing private dining rooms, women's retiring room, serving pantries, men's and women's toilet rooms and entrance to the ballroom balcony is located above the main lobby, and takes up the difference in level between the ceiling of the lobby and that of the ballroom.

The bedroom floors are practically all alike in plan, each containing 36 bedrooms. Each of the bedrooms has an individual bathroom, some equipped with bath tubs and others with showers. As is usual in modern hotel planning, the bathrooms are located on the inner sides of the rooms, opening off small entries. Some rooms are arranged with beds which disappear into closets, making the rooms available for use either as bedrooms or as sample exhibition rooms.



Dining Room

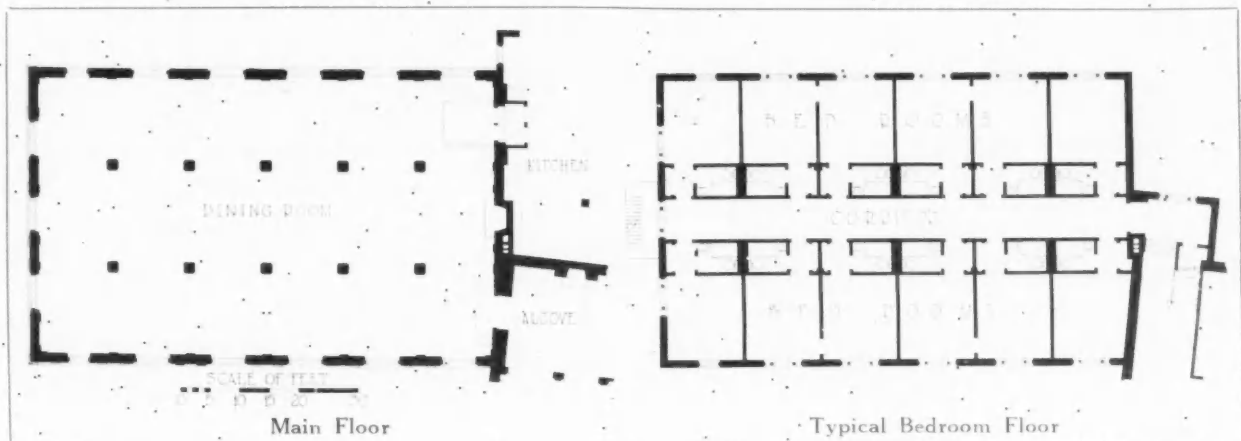


ADDITION TO THE HANOVER INN, HANOVER, N. H.
LARSON & WELLS, ARCHITECTS

THE growth of Dartmouth College rendered the size of the old Hanover Inn, which was built about 1870, quite inadequate to take care of the large crowds frequently drawn to Hanover for college games and commencements. It was quite a problem to decide just what type of addition should be built to the old hotel, which could not claim any definite stylistic classification. It was an old brick building with a mansard roof, characteristic of the period in which the original inn was built. It seemed wise, therefore, to ignore the architecture, or rather the lack of architecture, of the old structure and to design the new wing in a straightforward, simple adaptation of Colonial architecture, which has been so success-

fully used by Larson & Wells in a number of the recent buildings of different types at Dartmouth.

The exterior shows a five-story building, the top floor of which is under a sloping hip roof and lighted by a series of dormer windows. The first story is given considerable dignity and prominence by the use of wooden pilasters, entablature and large arched windows having small panes. Above these window openings are triple and single windows equipped with blinds. The scale of the large, arched windows of the first story might have been improved had their division into small panes been slightly less marked. The white painted trim and window frames, string courses and cornice contrast pleasantly with the red



FORUM SPECIFICATION AND DATA SHEET—92

Addition to Hanover Inn, Hanover, N. H.; Larson & Wells, Architects

GENERAL SPECIFICATIONS

GENERAL CONSTRUCTION:

Steel and concrete interior frame; tile partitions.

EXTERIOR MATERIALS:

Brick; stone and wood trim.

ROOF:

Slate.

WINDOWS:

Wood, double-hung.

FLOORS:

First floor, linoleum, guest room floors, granolithic carpeted; service floor and halls, composition.

HEATING:

Vapor; steam from central plant.

PLUMBING:

Brass piping; vitreous and enameled iron fixtures.

ELECTRICAL TREATMENT:

Lighting and bells; telephone; power.

INTERIOR MILL WORK:

Whitewood.

INTERIOR WALL FINISH:

Plaster.

NUMBER OF ROOMS:

48 guest rooms.

APPROXIMATE CUBIC FOOTAGE:

271,000.

COST PER CUBIC FOOT:

53½ cents.

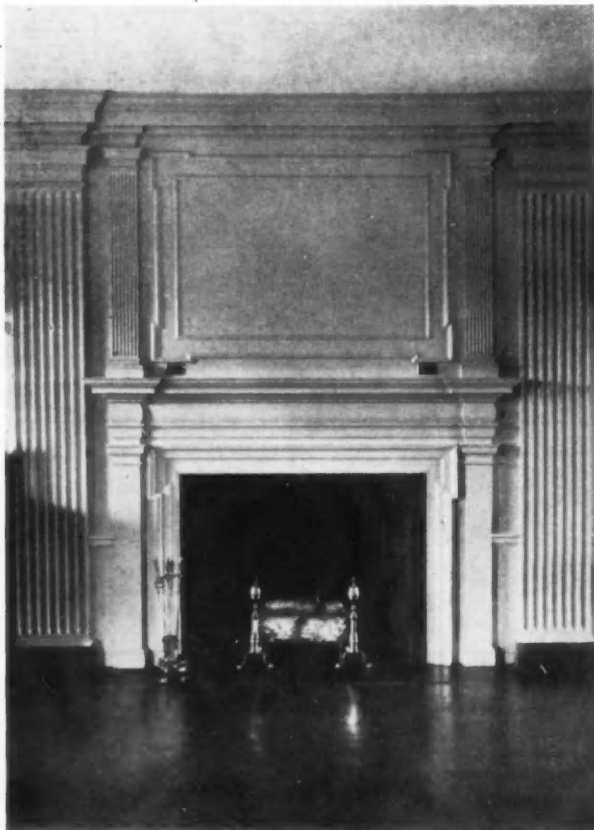
YEAR OF COMPLETION:

1924.

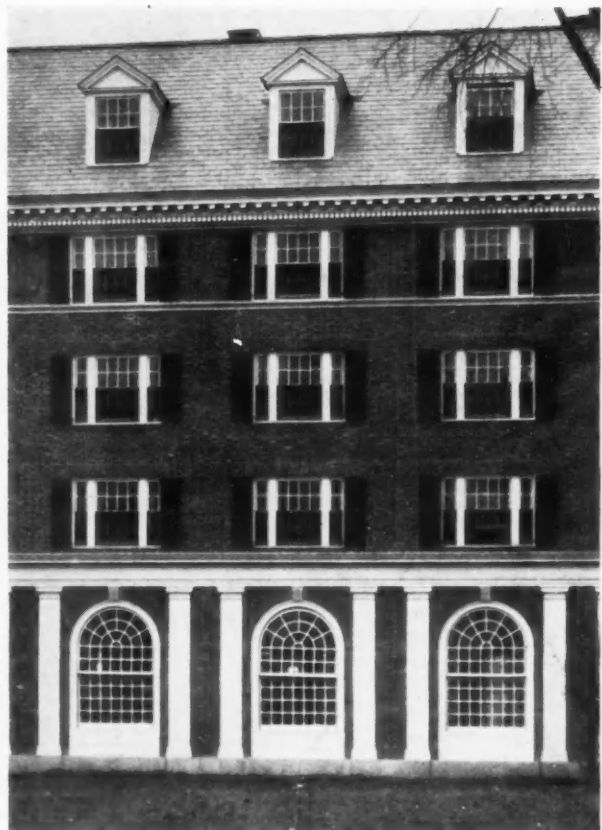
brick and green blinds, which, taken together, give the desired Colonial effect to the building. The strong similarity between the porch and cornice details of the original building and those of the new help to tie together these two structures.

In plan, the new wing has a large dining room occupying the entire first floor. This room connects directly with the main kitchen in the older and original part of the inn. The four floors of bedrooms are identical in plan, containing six bedrooms

located on each side of a long central corridor. Each bedroom has an individual bath. Access to these new floors of bedrooms is had through a connecting stair hall built at the rear corner of the original building. The illustration of the dining room shows that much care has been exercised in the refinement and scale of its Colonial trim, which reminds one of the late Colonial detail found in some of the houses in Maine built even as late as the first decade of the nineteenth century, trim of refinement and delicacy.



Detail, Dining Room



Detail, Facade



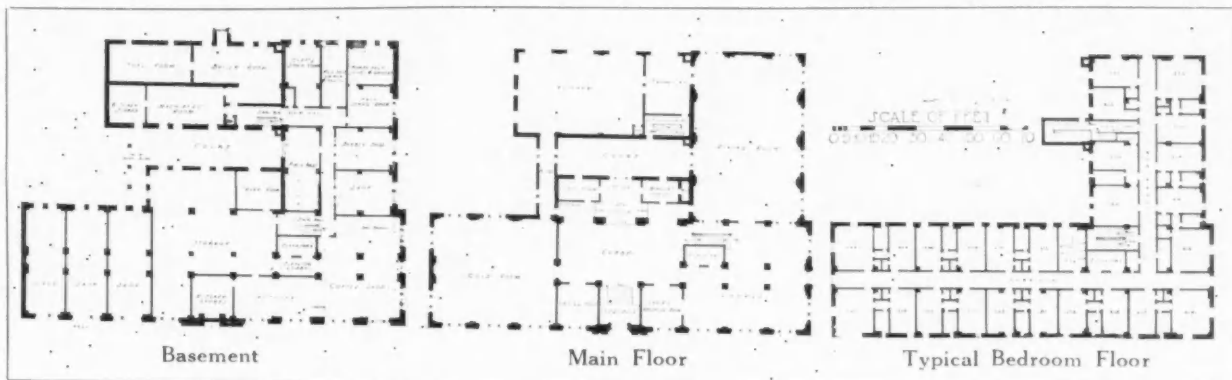
Photo. Courtesy of American Hotels Corp.

GEORGE WASHINGTON HOTEL, WINCHESTER, VA.
CLARENCE L. HARDING, ARCHITECT

THAT the building of good small hotels is not restricted to New York, Pennsylvania and New England is clearly evidenced by a glance through the pages presenting these eight small hotels. Here is a small city of Virginia, hardly known to New Yorkers, which possesses an excellently planned, comfortable and commodious small hotel containing 102 bedrooms and well appointed public rooms.

The rather monumental entrance on Piccadilly Street and the severely dignified side entrance on Market Street are both indicative of the care taken to give to the detail of the building a genuine Colonial character. The important rooms of the first, or main, floor are successfully indicated by large triple

windows which would have been more pleasing to the eye and in better scale had the heavy transom bar, which cuts the windows in two horizontally, been omitted. The width of these windows required unusually heavy lintel stones. A more pleasing effect might have been obtained had these lintels been made a continuous stone course, which would have added to the apparent height and importance of the entablature marking the top of the first story. The windows of the top floor are the same width as those immediately below, but slightly lower in height, forming a sort of frieze above the top string course. Small panes in all the window openings further add to the attractiveness of the design. Careful placing



FORUM SPECIFICATION AND DATA SHEET—93

George Washington Hotel, Winchester, Va.; Clarence L. Harding, Architect

OUTLINE SPECIFICATIONS

GENERAL CONSTRUCTION:

Reinforced concrete frame and floors; brick enclosing walls; partitions of gypsum tile.

EXTERIOR MATERIALS:

Walls of sand-faced brick; Indiana limestone trim; terra cotta ornaments and belt courses; galvanized iron cornice.

ROOF:

Reinforced concrete slab with felt and slag-finished roof.

WINDOWS:

Double-hung; wood sash and frames, except in kitchen and service portion, where metal factory sash are used.

FLOORS:

Concrete floors carpeted in bedrooms; oak floors in dining rooms; marble floors in lobby and lounge; rubber floors in bedroom corridors and Coffee Room; tile floors in all bathrooms.

HEATING:

Vacuum system.

PLUMBING:

Modern open plumbing; bath tubs built in;

syphon jet water closets with flush valves; enameled iron lavatories; pedestal urinals.

ELECTRICAL EQUIPMENT:

Two electric passenger elevators; motors for pumps and incandescent lighting.

INTERIOR MILL WORK:

White painted gum wood and mahogany stained birch.

INTERIOR WALL FINISH:

Hard plaster throughout; with smooth finish.

DECORATIVE TREATMENT:

Public rooms: walls painted in tints to harmonize with draperies. Guest rooms, papered throughout. Corridors and bathrooms, painted.

NUMBER OF ROOMS:

102 guest rooms.

APPROXIMATE CUBIC FOOTAGE:

666,487.

COST PER CUBIC FOOT:

53 cents.

DATE OF COMPLETION:

June 15, 1924.

of the windows, those of the bathrooms as well as of the bedrooms, adds much to the architectural balance and dignity of the exterior of the building.

The well balanced first floor plan shows two entrances, one through the large vestibule in the lobby, while another, leading from Market Street, is reached by a broad flight of granite steps leading directly into the entrance lounge, off which opens the large dining room. On one side of the front vestibule is a writing room and on the other a women's recep-

tion room. The so-called "Gold Room" occupies one entire end of this hotel. A spacious serving pantry joins the kitchen and dining room, and has a small service stairway adjacent. In order to obtain cross draft as well as to light the cloak room, clerk's room and manager's office, a good sized court is located at the center of the building. The four bedroom floors show little variation in style or arrangement. Each of the 27 rooms on each of these bedroom floors is provided with a built-in wash basin.



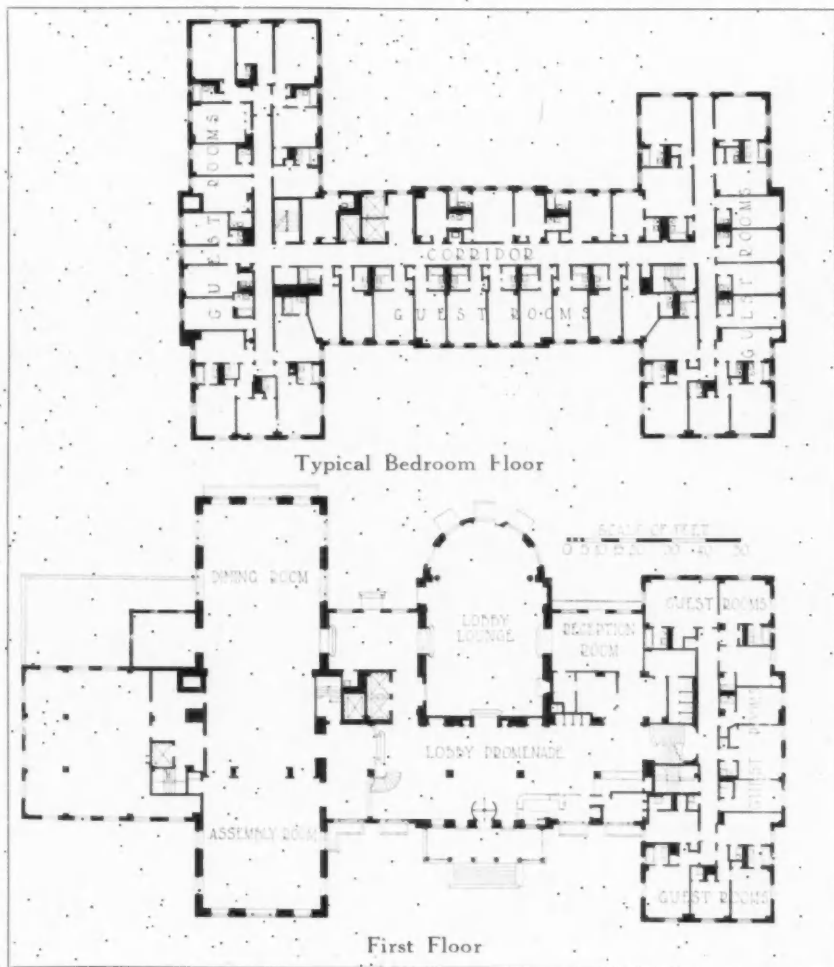
Coffee Shop



Detail of Lobby



VAN CURLER HOTEL, SCHENECTADY, N. Y.
H. L. STEVENS & CO., ARCHITECTS



SCHENECTADY can boast of having one of the best planned 200-room hotels in the country. Unfortunately, the exterior design fails to possess the excellence readily granted to the plan. An unfortunate and disconcerting restlessness has been caused by the numerous small spots of white trim scattered over the entire facade. Stone, button-like discs or rosettes, oblong detached panels, broad belt courses, in which brick and stone panels alternate, all contribute to that feeling. The high stone basement, in which stores are placed in either wing, has a simple dignity which could well have been emulated in the rest of the design for the building.

The high entrance portico or living porch, which forms the entrance to the hotel, gives a hospitable note to the design which is both appropriate and pleasing. The details of this porch, however, possess the same quality of thinness found in the other exterior details. In the top story of the main building four brick pilasters

FORUM SPECIFICATION AND DATA SHEET—94

Van Curler Hotel, Schenectady, N. Y.; H. L. Stevens & Co., Architects

GENERAL SPECIFICATIONS

GENERAL CONSTRUCTION:

Reinforced concrete; brick curtain wall, backed with tile, and tile floors.

EXTERIOR MATERIALS:

Brick and stone; wood entrance features.

ROOF:

Slate.

WINDOWS:

Wood.

FLOORS:

Cement, carpeted; public space, terrazzo.

HEATING:

Steam heat.

PLUMBING:

Standard fixtures.

INTERIOR WALL FINISH:

Guest rooms, plaster and wallpaper. Public space, canvased plaster, walls painted and glazed.

DECORATIVE TREATMENT:

Public rooms: Colonial treatment; private dining room, scenic papers. Guest rooms: Colonial papers.

APPROXIMATE CUBIC FOOTAGE:

1,129,000.

COST PER CUBIC FOOT:

66.1 cents.

NUMBER OF ROOMS:

200.

DATE OF COMPLETION:

March, 1925.

separate white-filled, arched-topped windows. The white caps, bases and small brackets of these slightly projecting pilasters, together with the several horizontal stone panels above the windows of this top story and the alternating brick and stone panels which form a sort of base course for it, all help to produce the restless, disturbed effect of the exterior details of the building. The first story above the basement shows Palladian windows, large arched-topped windows and rectangular windows, causing confusion in the design which could have been avoided.

Having frankly criticized the exterior architectural appearance of this hotel, it must now be admitted and definitely said that the plans have been most carefully and successfully worked out. The general arrangement of the first or main floor is convenient, spacious and appropriate for a hotel in a small city. Three main entrance doors, reached through the front porch, open directly into a large lobby which, in this case, is called the "promenade" or "exchange." The latter term is often applied in English hotels to the principal assembly or meeting room. Adequate and well lighted space is arranged for the hotel desk and manager's office. Stairs at either end lead down to the basement as well as up to

the floors above, stairways which are well placed.

Owing to the fall in grade, in order to place the basement floor shops on the sidewalk level it was necessary to raise the first floor several feet. It was, therefore, wisely decided to place bedrooms on the first floor of the right wing of the hotel. Several of these rooms are sufficiently large to be used for exhibition or sample purposes. Directly opposite the main entrance of the hotel four steps lead down into the large lounge with a semi-circular bay at one end. A reception room and a private dining room are located at the right and left of this room. The passenger elevators are easily accessible from both this lounge and the main lobby. The first floor of the large wing of the hotel is occupied by a large oblong dining room and an assembly room, which, by the use of folding doors, may be either joined to or shut off from the dining room. A large service pantry separates the dining room from a spacious, well lighted and adequately ventilated kitchen. The five bedroom floors are similarly and successfully planned. Every bedroom in the entire hotel has an individual bath or toilet room. The sixth floor, which does not extend over the wings, contains some of the pleasantest of the bedrooms.



Lobby Promenade



Lobby Lounge

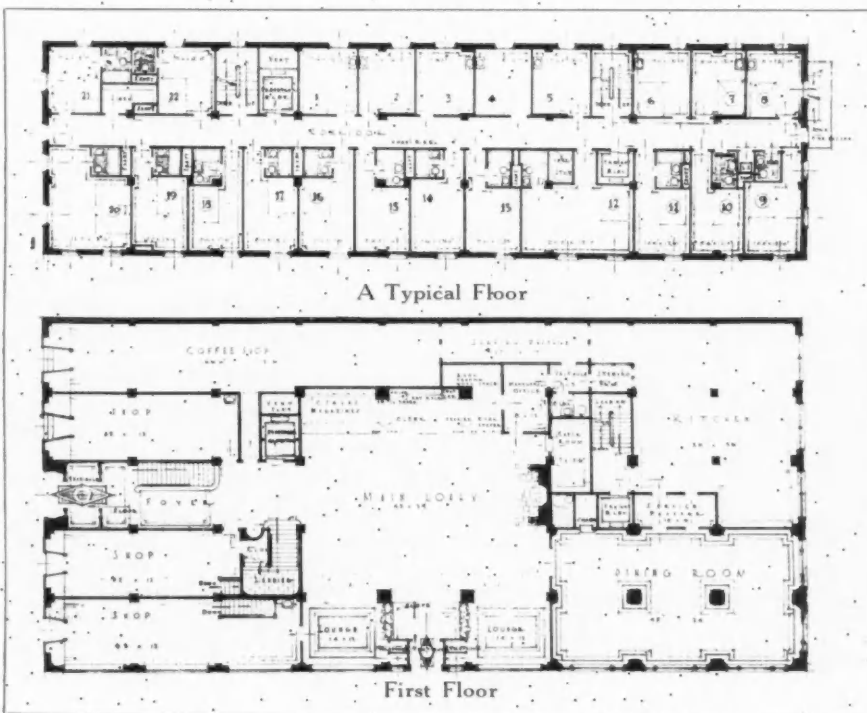


HOTEL GREYSTONE, BEDFORD, IND.
NICOL, SCHOLER & HOFFMAN, ARCHITECTS

IN the very heart of the limestone country, it is not surprising to find this small hotel built entirely of native stone. Such dignity and solidity are obtained from the use of limestone, marble or granite

for exterior walls that it is a pity it generally costs too much to use these materials. Similar in design to the Hotel Elliott at Suffolk, Va. (p. 117), this hotel shows two-story projecting wings extending the entire length of the hotel on either side. Instead of porches on the second floors of the wings, a number of additional guest rooms are here included.

It is unfortunate that it was necessary to locate shops on the street front of this hotel, because the large window openings thus necessitated detract greatly from the apparent structural strength of the basement walls. However, these large shop front windows have been treated quite simply and frankly and are as inoffensive as any objectionable architectural feature can be made. The windows of the second story, as well as those of the main building above, center on these shop windows. This, of course, aids the composition of the design



FORUM SPECIFICATION AND DATA SHEET—95

Greystone Hotel, Bedford, Ind.; Nicol, Scholer & Hoffman, Architects

GENERAL SPECIFICATIONS

GENERAL CONSTRUCTION:

Fireproof; reinforced concrete frame.

EXTERIOR MATERIALS:

Bedford stone.

ROOF:

Reinforced concrete; tar and gravel roofing.

WINDOWS:

Double-hung; white pine, plate glass.

FLOORS:

Marble and terrazzo in public spaces; white maple in ball room; carpet on cement elsewhere.

HEATING:

Vacuum steam; low pressure.

PLUMBING:

Overhead loop in attic; tank above; built-in tubs.

INTERIOR MILL WORK:

Figured red gum, walnut finish.

INTERIOR WALL FINISH:

Smooth plaster, painted in oil; flat finish.

DECORATIVE TREATMENT:

Public rooms, painted.

Guest rooms; flat oil paint.

NUMBER OF ROOMS:

87.

APPROXIMATE CUBIC FOOTAGE:

510,300.

COST PER CUBIC FOOT:

40 cents.

DATE OF COMPLETION:

July, 1923.

as a whole. A well designed balustrade crowns the cornice of the two first stories, relieving the severity of the lower part of the building. Wrought iron marquees, seemingly a necessary convenience in hotel designing, shelter the front and side entrances. Thus the well proportioned arched opening which marks the principal entrance is unpleasantly cut in two by the heavy suspended marquee or canopy.

It appears that the building laws of most cities are unreasonable and inconsistent. Would it not be safer from a structural point of view, and admittedly better from an architectural standpoint, to construct a covered porch or portico across the sidewalk? Supporting piers or columns could be located on the curbing, where they would certainly be no more of an obstruction than the very heavy, clumsy concrete electric light supports seen in the accompanying illustration. It is to be hoped that some time in the near future the use of sidewalk arcades and porticos will be legalized and that they will come into common use, as they are today in the cities and towns of Italy, Spain and Mexico, but rarely in this country.

The four bedroom stories rising above the lower two stories of the hotel are broken up by well pro-

portioned and carefully placed window openings. Simple iron balconies are used to give notes of interest and color. Very simple cartouches and mouldings relieve the plainness of the top story, which is crowned by a rather heavy, severe parapet.

The plan is direct and well balanced. The main lobby is located at the center, with entrance corridors to both the front and side streets. A coffee shop and three small stores are located on the main street front, while the principal dining room, adjacent to the side entrance, looks out on the side street. The elevator and main stairway are located at the left and right of the entrance from the main street to the lobby. Clerk's desk, manager's office, telephone booths, coat checking room, freight elevator, service pantry and a large kitchen occupy the rest of the first floor. Stairs from the main street entrance lead down to the basement, where a barber shop, billiard room, men's lavatory, boiler and coal rooms are located. The mezzanine, reached by the main stairway, contains a writing room and rest and toilet rooms for women. The interior architecture, as may be judged from the accompanying illustrations, is carried out in a dignified, carefully studied style.



Main Dining Room



Main Lobby and Desk

INTERIOR ARCHITECTURE

Entrance Hall, Hotel Gouthiere, Paris

By C. HAMILTON PRESTON

TWO of the rooms of the justly celebrated Hotel Gouthiere in Paris have already been presented in these pages,—the library and a salon, both unusual and uniquely charming. The subject of this sketch, the entrance hall, both as to design and color scheme, has all the charm and uniqueness of the other two rooms.

As has been said before, the house was built as the private domain of Gouthiere, a *ciseleur* of the time of Louis XVI. It is late Directoire merging into the Empire, the exterior severely classical in the Empire manner, the interior earlier in feeling. One enters a small vestibule with the stairway leading up on each side; panels of processional classic figures being set in the wall. Beyond this vestibule, and forming the central feature of the house with rooms leading off from right and left of it, is this entrance hall. The room possesses individuality and charm.

The proportions of it are pleasing, the design and color treatment delightful. In plan it is nearly square. On two opposite sides occur round-arched doors; on the other two sides, square-headed doors carrying up nearly to the subordinate cornice which, forming the caps of the pilasters, carries around the entire room. The strictest balance and symmetry are maintained, a true door being balanced by a false, while the breaks in this smaller cornice are even painted on where there is no break or projection. Above is a wide space resembling a magnified frieze cut into on two sides by the round-arched windows or doors, and on the other two sides filled with a most beautiful bas-relief, very classic in feeling and very free in drawing and execution, especially as regards the candelabra where they frequently occur.

Surmounting this is a cornice most unusual in



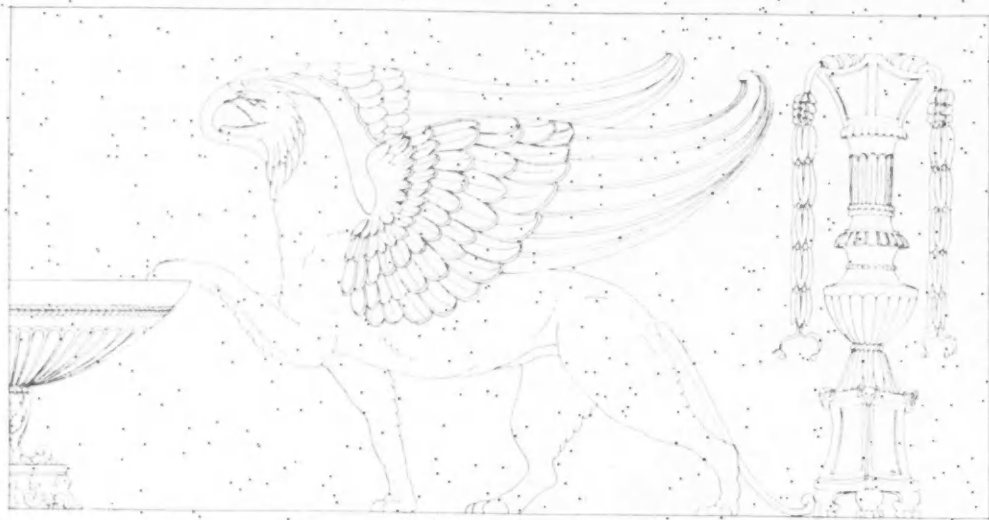
Detail, Entrance Hall, Hotel Gouthiere, Paris

section, carrying around the room in a circle from which springs a domed ceiling of rare beauty and delicacy of form, from the center of which drops an elaborately decorated pendant. The soffits of the corners of this ceiling between circle and square are filled with a most unusual design,—an elliptical central motif framed by a very beautiful egg and dart moulding, very flat and exquisitely modeled; within the field are winged torches and tiny rosettes; on either side scrolls delicately modeled, with a tiny vine and honeysuckle ornaments filling in and rounding out the design to give symmetry.

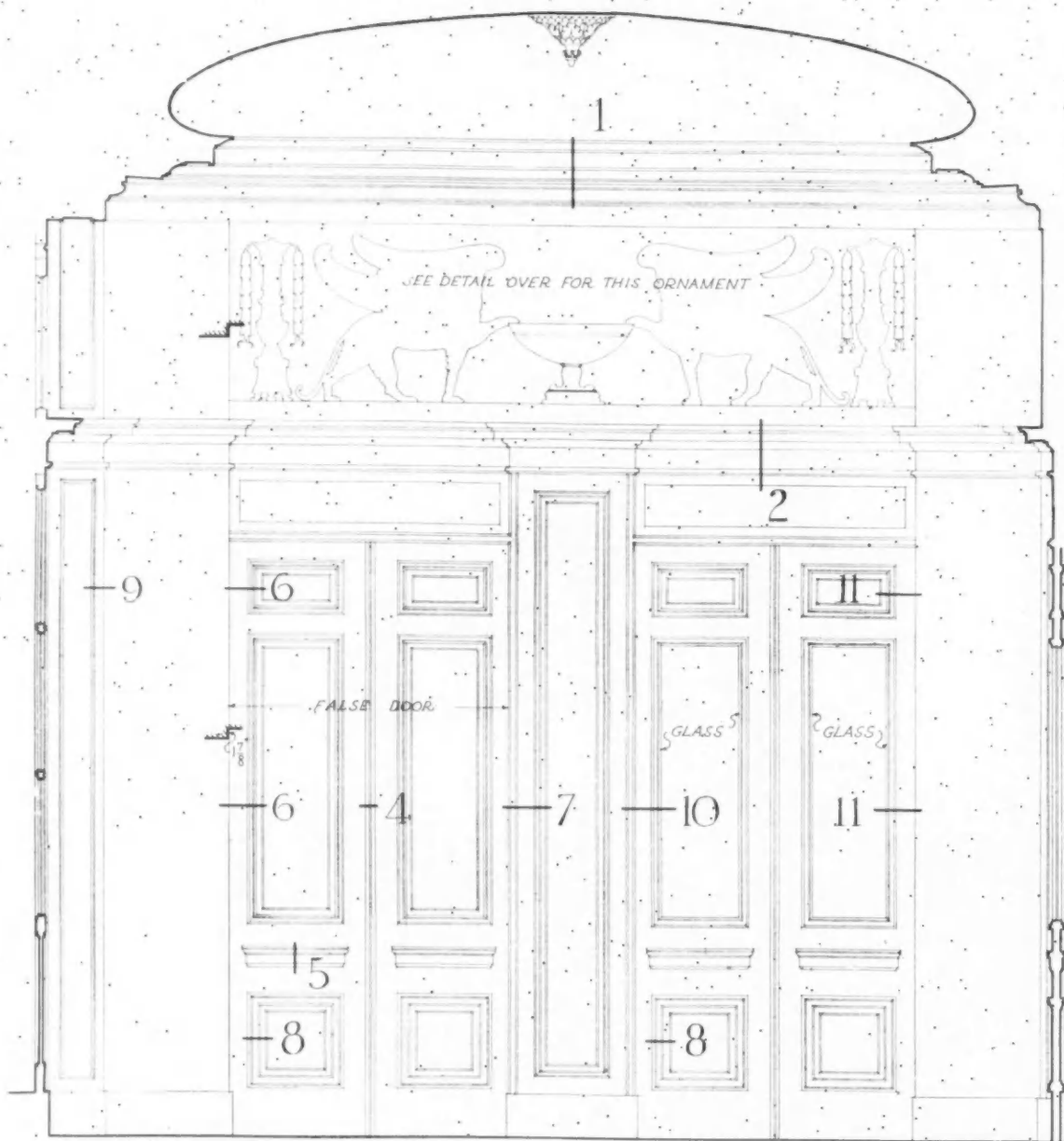
The walls are slightly marbled and are predominately yellow in color with veinings of rose and mauve. The panels marked "painted

on" in the drawings are picked out in different tones from the wall and varied from it both in color and technique of marbling. All the mouldings occurring in the room are very flat and typically Empire. The marble floor, of interesting pattern, is of several different colored marbles, varying from dark to light.

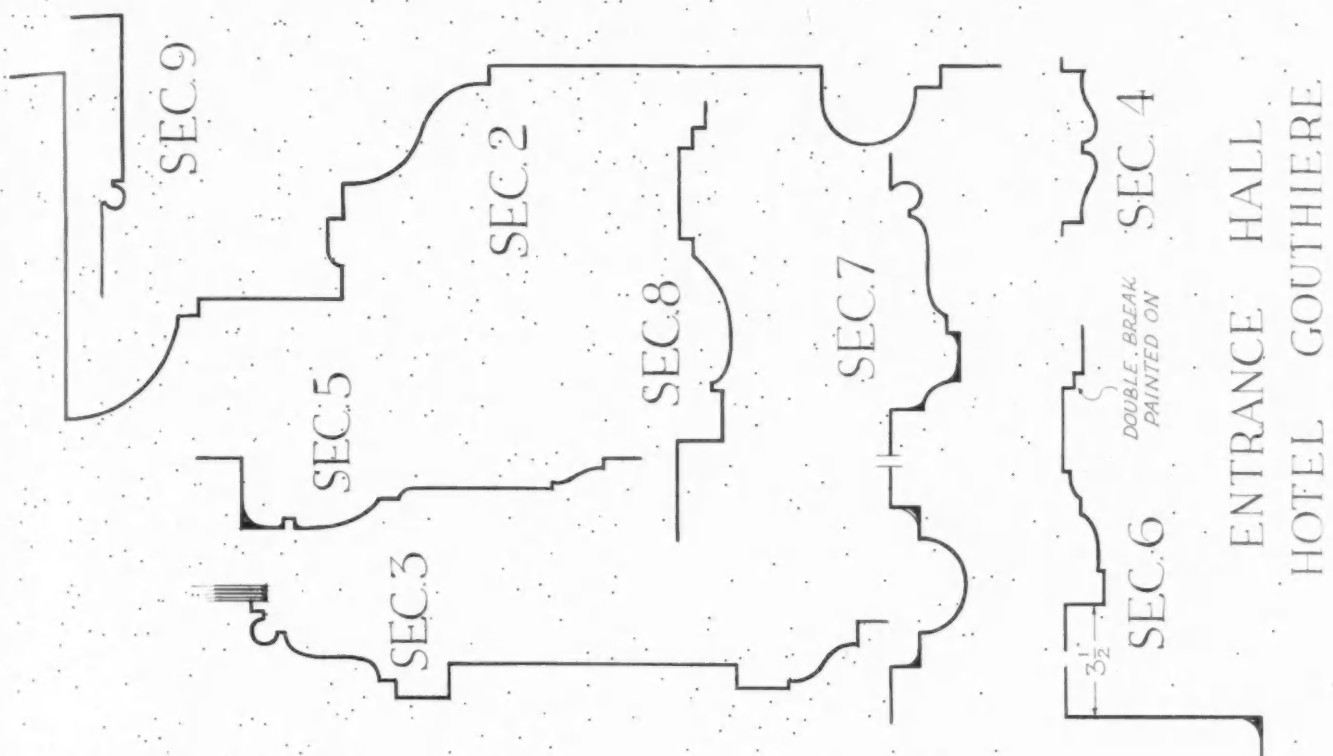
For a small hall this is one of the most distinctive and original to be found in all France. To the left is a salon with interesting Empire detail over the circular windows. Beyond this is the library, of unique charm, which has already been published in this series of drawings. The doors between these two rooms are noteworthy. They are of mahogany with long central panels, octagonal in shape, in the fields of which are classic dancing figures in color. To the right of the entrance hall is the major salon of the house. This room is more typically Empire in treatment than any of the others, hence later in feeling. It is very ornate, the cornice, panels and doors being practically covered with intricate detail.



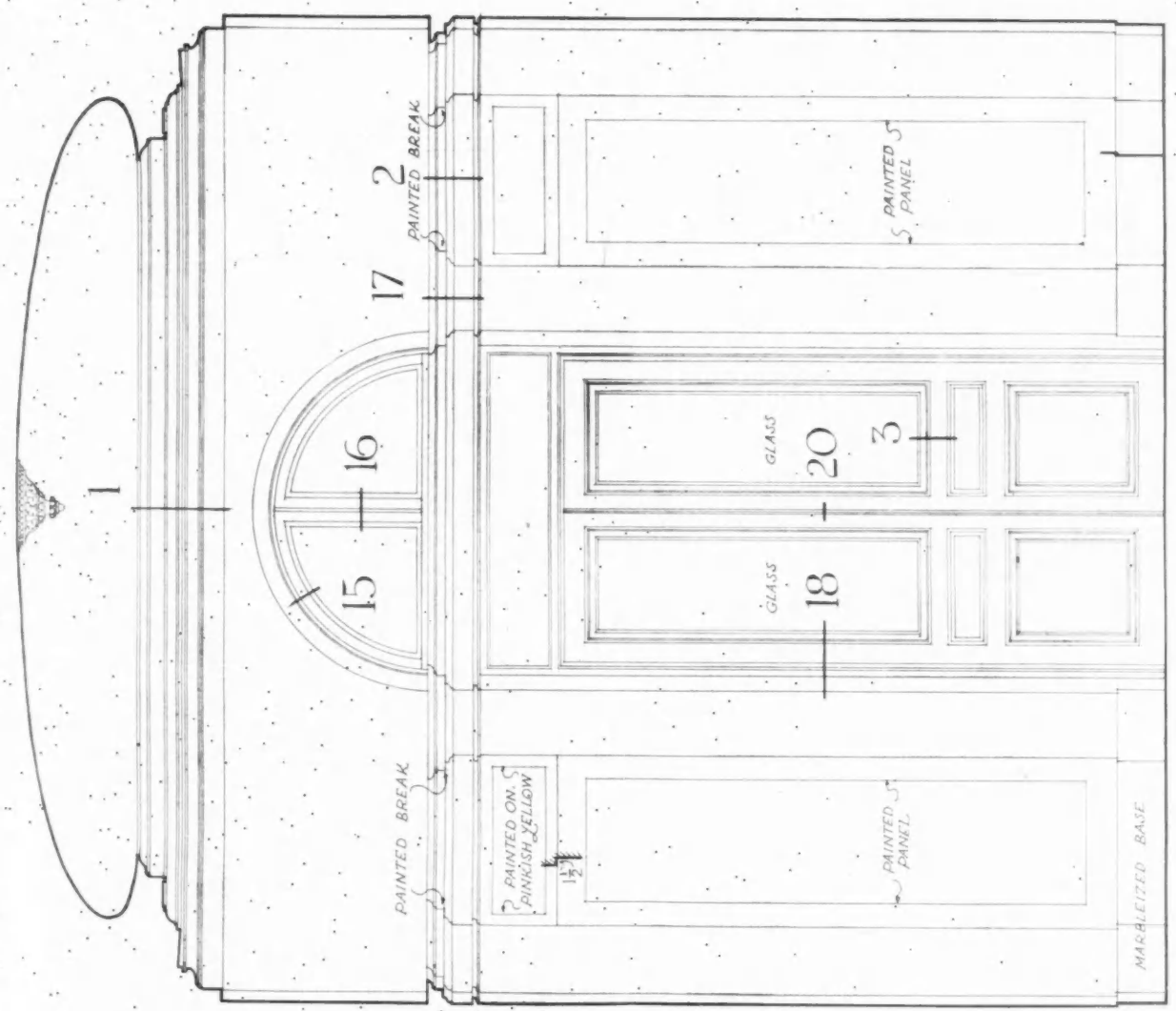
ONE HALF OF BAS-RELIEF IN PANELS ABOVE DOORS
Scale 1" = 1' Foot



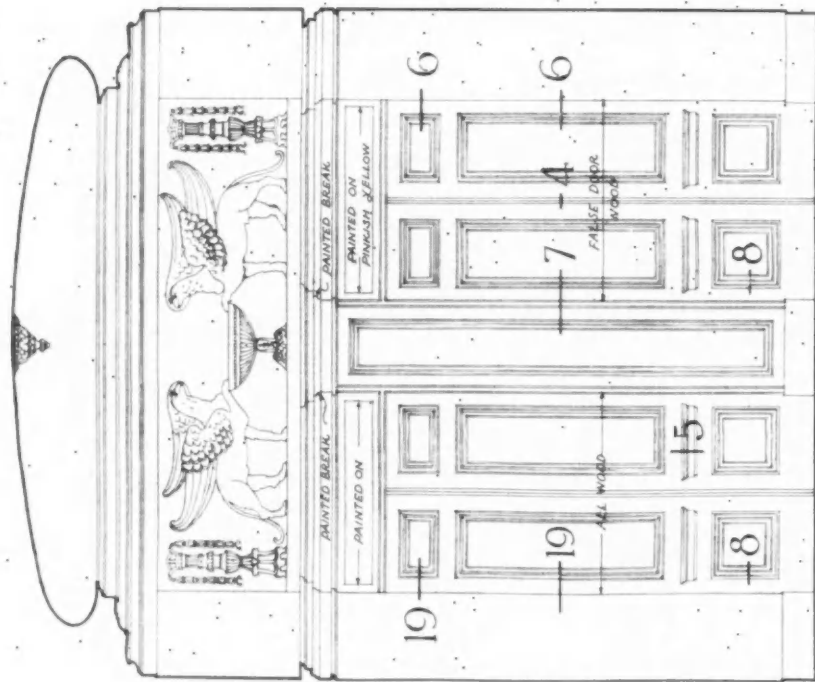
ELEVATION A-A Scale $\frac{3}{8}$ " = 1' Ft.
ENTRANCE HALL
HOTEL GOUTHIERE PARIS



ENTRANCE HALL
HOTEL GOUTHIERE
PARIS

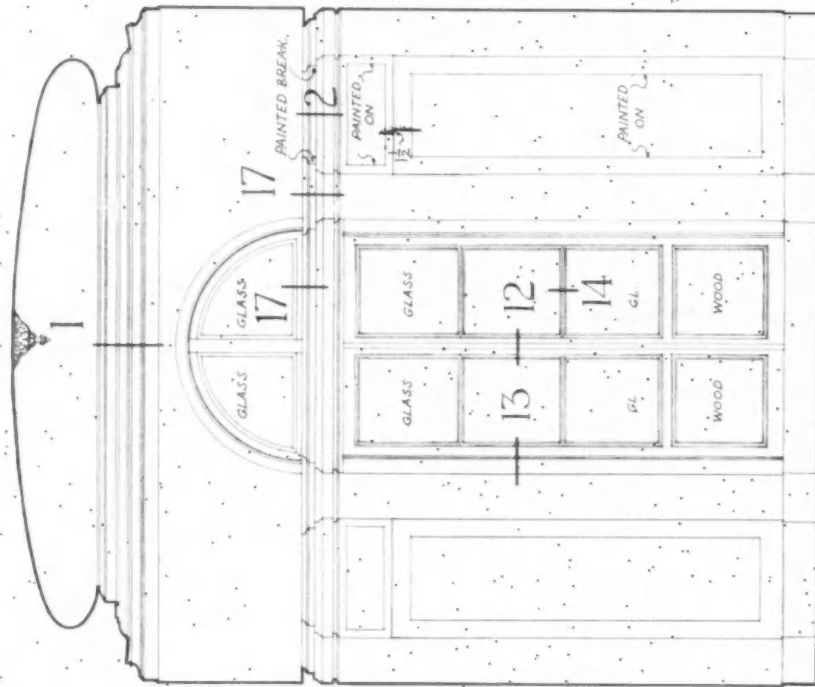


ELEVATION B~B
Scale $\frac{3}{8} = 1$ Foot.



ELEVATION C~C

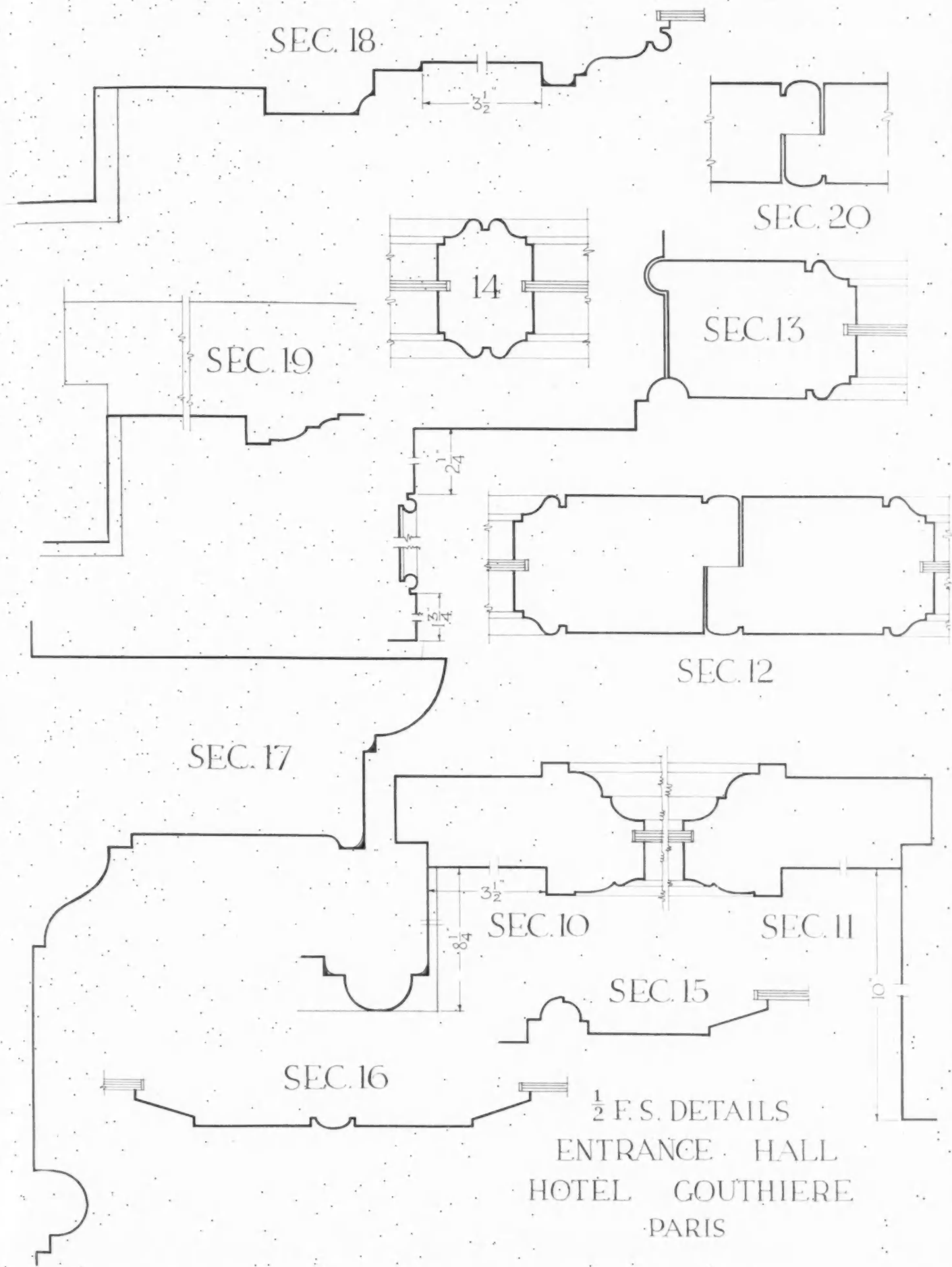
Scale $\frac{1}{4}$ - 1 Foot



ELEVATION D~D

Scale $\frac{1}{4}$ - 1 Foot

ENTRANCE HALL
HOTEL GOUTHIERE
PARIS



DOTTED LINES SHOW
SEC. 1A

SEC. 1

"A"

"C"

"B"

"D"

"B"

"D"

MARBLE
FLOOR

IA

ONE HALF REFLECTED
PLAN OF CEILING

REPEAT

"A"

PLAN

"C"

Scale $\frac{3}{8} = 1$ Foot

ENTRANCE HALL
HOTEL GOUTHIÈRE
PARIS

DECORATION & FURNITURE

Furniture With a Past

By ALFRED LOWDEN

WHAT is the secret of the lure of antique furniture, or of any work of art that is old? Why do we moderns desire it as the ancients desired the Fountain of Youth? It is a question both simple and hard to answer. Sentiment counts for much, though it does not supply the entire answer. There is a stimulus to the imagination about rare old things which can be appreciated only by the connoisseur, and which may be overlooked or ignored entirely by the more prosaic. To the average person, the name Louis XIV. or Louis XVI. is merely that of a king, whereas to the collector it immediately suggests an era of artistic development since unrivaled. Old furniture is like a secret drawer; history, dramatic episodes, intriguing affairs of the past are contained in each curve and line! Each piece is a story, a serial, more fascinating with each succeeding installment! To sit in a Venetian chair is to be magically wafted back to the grandeur of the doges. Machinery and the hurry and scurry of the modern commercial age are forgotten. We glide gently about in gondolas, with no fear of accidents from rushing taxis. We enter sumptuous halls. On all sides are the actualities one reads about in the fascinating novels of the past. Everything suggests splendor and mystery.

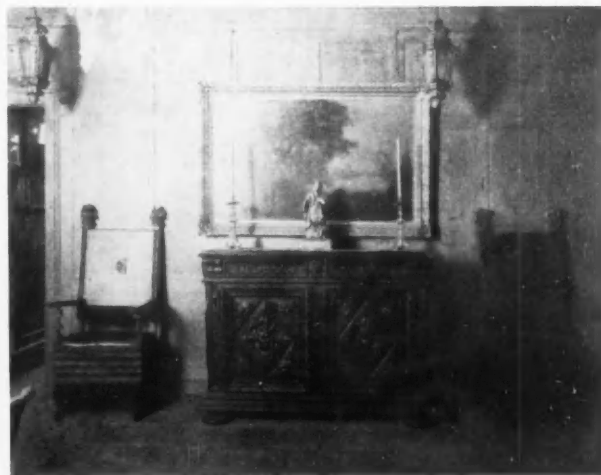
To understand old furniture, one must love it. To the devotee alone will it reveal its charms. Anyone can buy an old piece, but the mere purchase of it does not buy its spirit, which is revealed only to those who really understand it. I do not mean to

say that the value of antiques is measured alone by their sentimental association. Their beauty of line, inspired design and comfort are all to be considered. Each tiny detail, carefully wrought by its maker, tells what pride and care were devoted to making it a perfect whole. The old artisans took great pride in their work, so that even the simplest piece possesses a distinction that no modern machine-made copy can possibly achieve, be it as elaborate as it may. One must not infer, however, that the makers of antique furniture wrought only for pictorial effect. Comfort was also thought of, and contrary to the general belief, it was attained. As an experiment, sit in a Chippendale, Hepplewhite or Louis XVI chair, and you will find physical ease as well as mental solace. Modern chairs derive their comfort from use of springs and overstuffed backs and seats. Antique furniture accomplishes the same result by a careful study of anatomy and the use of curves and lines which fit the human torso. It is replete with beauty and symmetry, character and charm. Even to touch a beautiful antique is exhilarating. To touch a fine old piece of wood, mellowed by time and polished by vanished hands, is to experience a thrill unthought of in connection with modern furniture. When looked at from a business point of view, the purchase of antique furniture means an investment which never depreciates, but increases in value yearly, as antiques become scarcer.

One absorbs the atmosphere and character of one's surroundings. With surroundings which are



A Modern Arrangement of French Furniture



A Rare Old Italian Credenza and Armchairs

beautiful and refined, one becomes cultured and able to understand the finer things of life. Much thus depends upon the type of furniture, with which we fill our homes. Furniture made by craftsmen who imparted a little of themselves to each piece, cannot but help to strengthen the susceptibilities of the eye and mind to beauty. John Quincy Adams once said that the whole trend of his life was altered by having a Chippendale chair in his possession! This may be easily understood by any lover of antiques. To gather beautiful furniture is like setting forth on a quest, beginning to travel a shining road, lined with the fruits of knowledge. It is like acquiring the key to a glorious and romantic past. Queens, kings, courtiers, and all the magnificent and colorful pageantry of a vanished age appear before the mind's eye. Possession of a few pieces of antique furniture,

will help to make us forget the many shortcomings of most of our modern so-called creations.

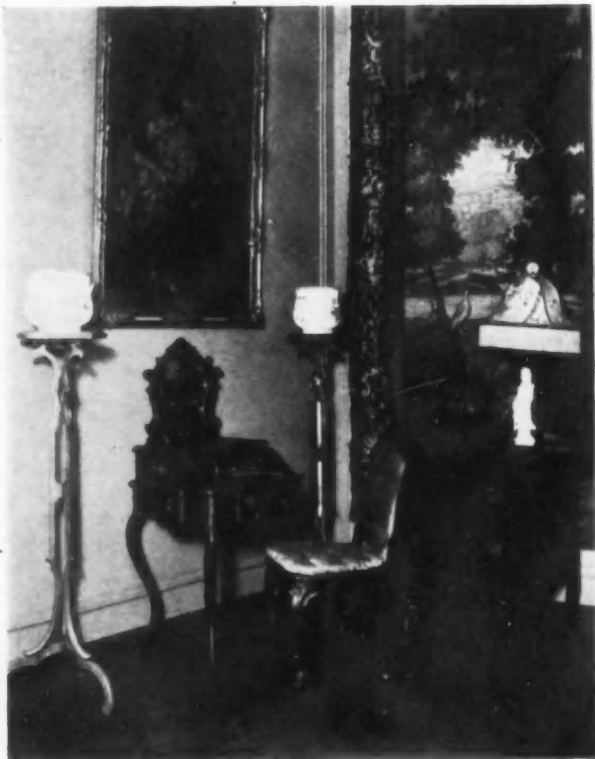
Good furniture placed in a hovel would still be beautiful and distinctive.

If only our modern designers would study the history of each piece, and use the basic principles of the artists whose skill can never be surpassed, what a relief it would be! Unfortunately, few understand that real beauty in furniture design lies in simplicity. They take an Italian Renaissance chair and modernize or "adapt" it to suit their own taste and the supposed taste of the general public, with a result which is monstrous. To improve on the work of a Chippendale, Boulle, or Adam is like gilding the lily—more attractive,

possibly, to the untutored mind, but hideous to the connoisseur with trained judgment. All ages have their eras of decline in the matter of design, but it is a very simple matter to cull the good from the bad.



Miscellaneous Furniture Tastefully Grouped
Photos loaned by John H. Hutaff, Inc.



French Pièces Grouped in a Dining Room



A Well Balanced Grouping of French Pieces