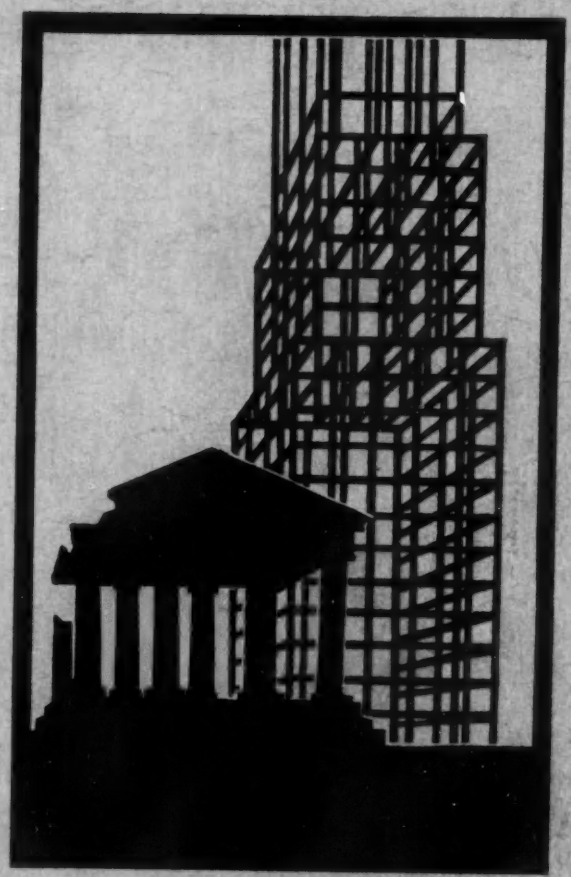
THE ARCHITECTURAL RECORD



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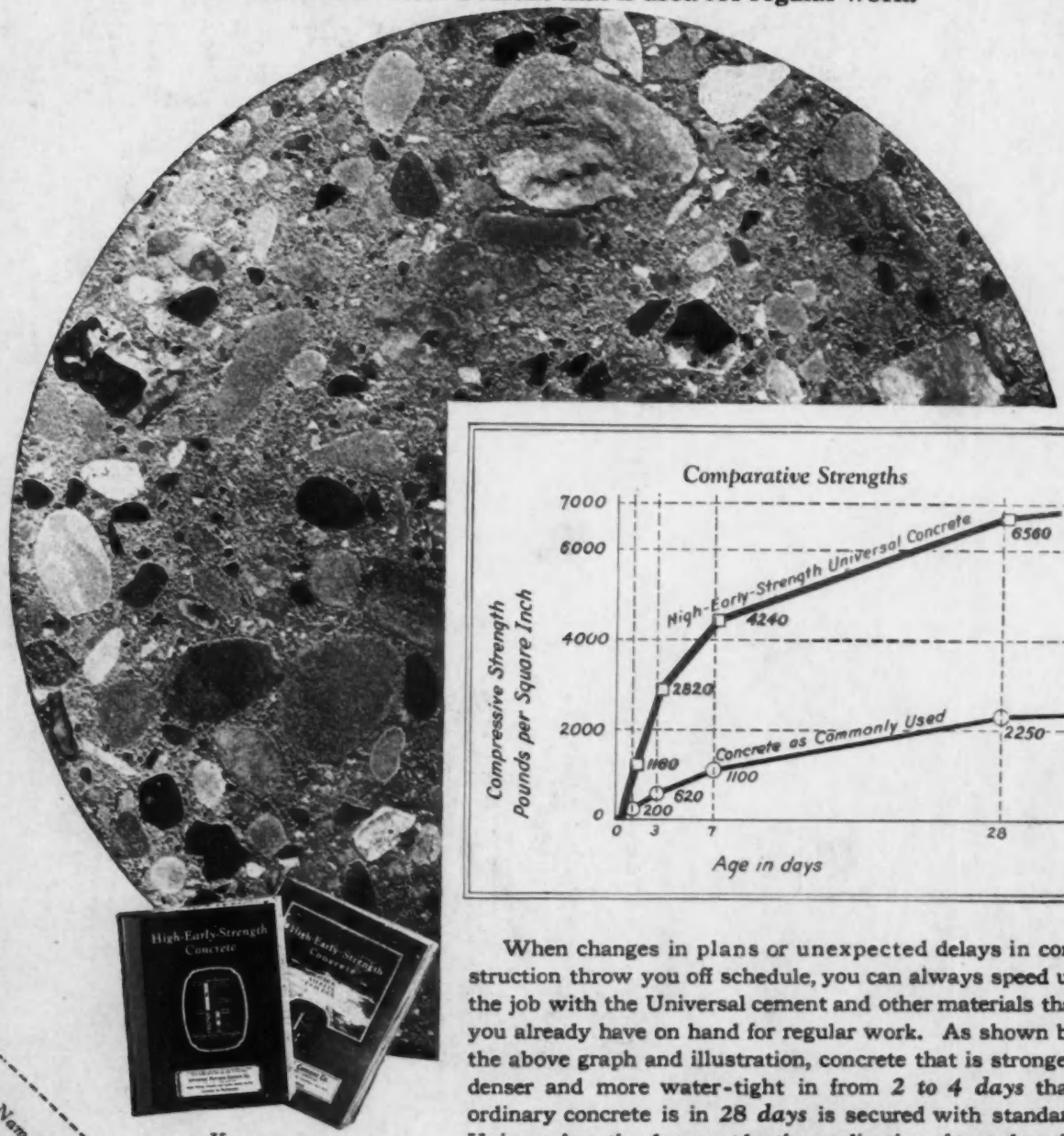

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THE ARCHITECTURAL RECORD

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CONTRIBUTORS

Mr. Lewis Mumford is already known to most of the readers of THE ARCHITECTURAL RECORD. The article in this number is his second on Mass Production and the Modern House, the first having appeared in January. Mr. Mumford is the author of *Sticks and Stones*, *The Golden Day*, *Herman Melville*, and other books and articles on American life and art.

•

We are pleased to present the editorial on Picturesque Architecture by *Mr. Henry Wright*. It is probably not an idle boast to say that *Mr. Wright* is the foremost community planner in the architectural profession in the United States. His work for the War Department and for such developments as those of the City Housing Corporation has been unique in scope and imagination. *Mr. Wright* will be remembered as the author of the article on apartment houses in THE RECORD last March. In the next issue (March, 1930) he will return to this subject again. With the manuscript in hand, the editors feel that this contribution is the outstanding one of a whole year and will make an international impression.

•

Mr. Gerhard Herschfeld is an economist specializing in shift of trade in the American city.

•

Having mentioned that *Henry Wright* is working on "The Place of the Apartment House in the Modern Community," we may as well conclude by saying that the March number is the annual Apartment House Number and will give an extensive showing to the latest American apartment house work of all sizes and all cities.

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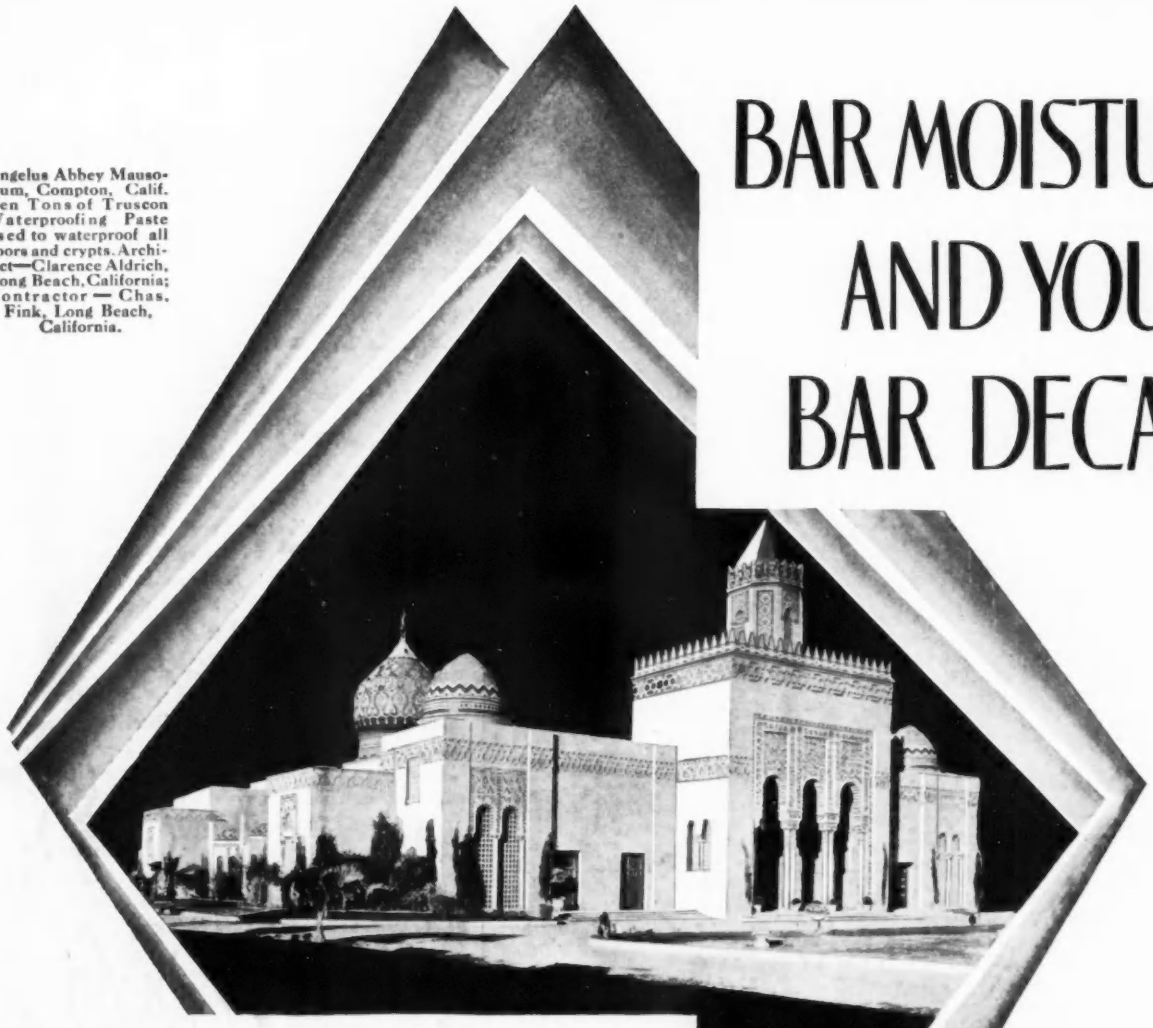
BAR MOISTURE AND YOU BAR DECAY



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POLYCHROME FLOORS

TWO PLATES BY ANDRÉ LECONTE

MAIOLICA FLOOR IN THE VATICAN_ROME
SCALE 1/20

ARCHITECTURAL RECORD SERIES.
POLYCHROME FLOORS
ANDRÉ LECONTE. MES ET DEL.

POLYCHROME FLOORS

BY HAROLD DONALDSON EBERLEIN AND ROGER WEARNE RAMSDELL

THE POLYCHROME enrichment of floors has never received the extended and illustrated treatment that the importance and interest of the subject both warrant. Writing in the London *Builder*, in 1855, William Burges deplored the meagerness of records respecting the decorated floors of the Middle Ages. He might well have extended his regrets to the whole field of floor decoration, both before and since the period with which he was particularly concerned. And since the days of Burges's complaint there have been plenty of treatises and partial contributions on this or that especial phase of patterned and vari-colored floors in Italy or in France, in England or in Spain, and elsewhere. Likewise, many learned and technical discussions of special topics have been hidden away in sundry archaeological reports and in the proceedings of antiquarian societies. But a general conspectus of floor enrichment, from the beginnings of the art to modern times, has so far been wanting, while polychromy in this connection, the means by which it was obtained, and the principles affecting its use, have fared even worse.

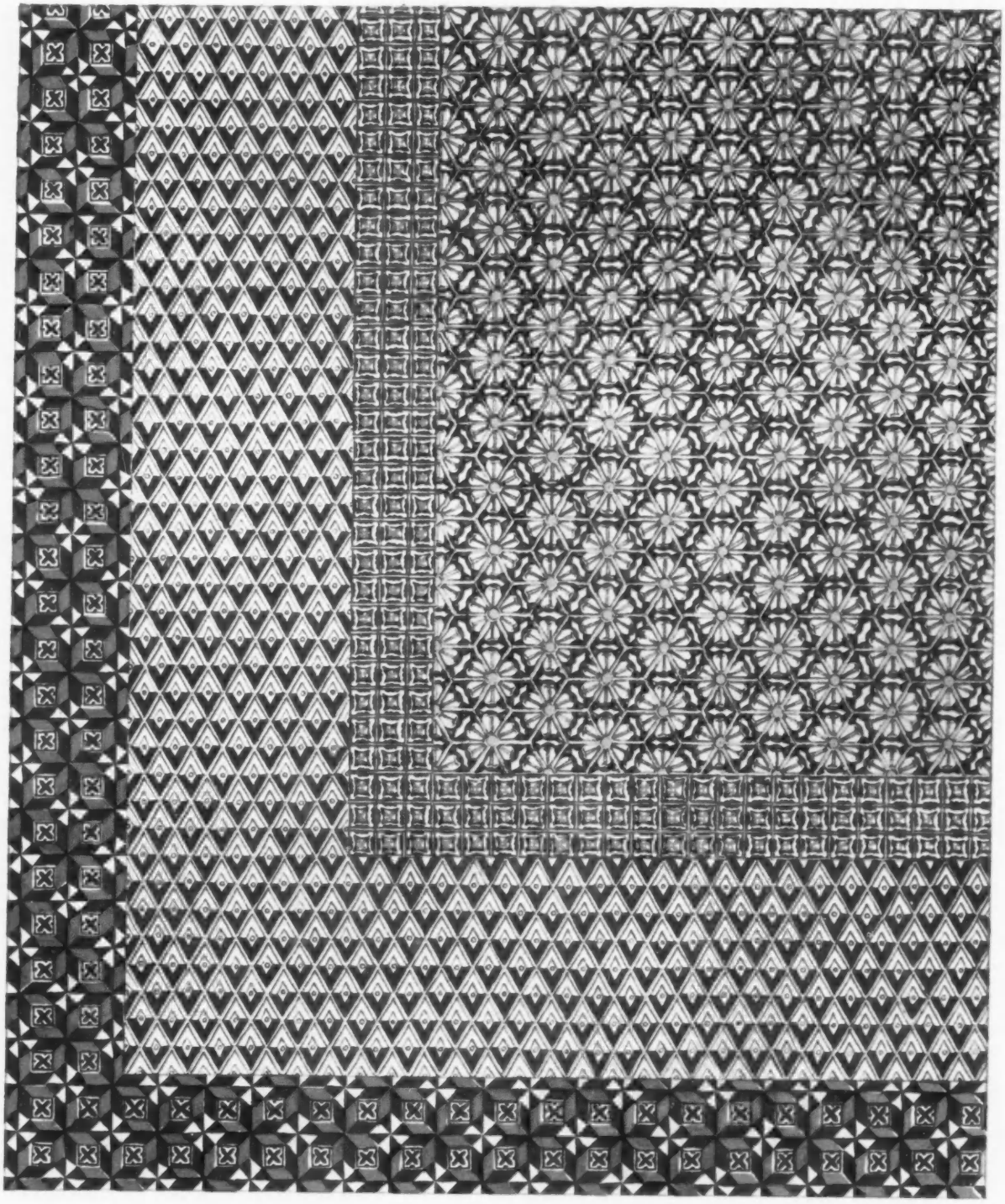
Of floor polychromy the factors are not color and pattern only, but material, and the technique of treating the material, as well. Technique, material, pattern and color are inseparably associated and interacting in any programme of chromatic paving decoration.

It is a curious fact that the color and pattern of decorated floors, and likewise the materials of which they are made, along with the technical processes accessory to the achievement, are usually the very last features of an interior to be noted and remembered, even by those who are trained and ordinarily close observers of all else.

How many people, who are fairly familiar with the interior of Saint Peter's in Rome, and can describe quite faithfully from memory all the details of walls and roof, can likewise tell you anything of the color and pattern of the devices in the pavement wrought with marble inlay? How many, indeed, are aware that there are any multi-colored devices there at all? How many people, who carry away a vivid recollection of Saint Mark's in Venice, can give an accurate description of the floor or even remember clearly of what materials it is made? How many people—architects and painters included—who can discourse intelligently at length on the Pinturrichio wall panels and the ceiling enrichments in the Piccolomini Library of the Cathedral at Siena, can also tell you offhand what the floor is made of, much less what colors and pattern it displays?

The list of materials employed includes marble, stone, brick or terra-cotta in divers forms, majolica or faience, mastic, lead and occasionally other metals, cement or concrete composition in one shape or another and, finally, woods so combined and juxtaposed as to ensure color interest. Stucco, painted or treated with some sort of applied pigment, has even figured in the list.

The technical processes for stone and marble include mosaic work, carving, inlay with stone or metal, and the making of incisions or cavities to be filled with mastic or lead; for brick or terra cotta, we find stamping or impressing patterns with dies, inlay of different colored clays on a tile body of another color, glazing, painting and enamelling, and the arrangement of different single-hued units to compose the desired pattern; for wood, there is inlay or intarsia, and likewise parquetry with all the variant effects obtainable through contrast of color and grain; while for cement, besides *terrazzo* with its manifold possibilities, there is also the embedding of tiles or pieces of stone at intervals in order to ensure variety of color and design.



MAIOLICA FLOOR IN THE VATICAN _ ROME

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THE ARCHITECTURAL RECORD

AN ILLUSTRATED MONTHLY MAGAZINE OF ARCHITECTURE & THE ALLIED ARTS & CRAFTS

VOLUME 67 FEBRUARY, 1930 NUMBER 2

MIRALAGO BALLROOM AND SHOPS

GEORGE FRED KECK, ARCHITECT

THE BUILDING

Located on Sheridan Road between Kenilworth and Wilmette, Illinois (on an unzoned strip of land belonging to neither village) in the midst of Chicago's North Shore residential section. A hundred yards from Lake Michigan, on a steep bluff rising 75 feet above water level. Used as ballroom and for shops; roof to have roof-garden.

•

CONSTRUCTION SYSTEM

Steel and reinforced concrete. Roof of cantilevered continuous beam, entire load carried down through exposed columns in ballroom. Cantilevered drive through to parking space; entire store fronts cantisevered out for continuous glass if desired, and for maximum flexibility. Store fronts let out one foot from building face to permit continuous row of electric bulbs throwing light against building. For plans see pages 107, 109.

Note that three sheltered lobby entrances permit unloading five cars at a time; Miralago is accessible only by automobile.

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MATERIALS

Exterior: Walls, white cement stucco with white sand uneven in finish. Windows, wood casement with horizontal muntins; all exterior woodwork painted black. Between windows, gray Vitrolite, wood muntins for support. Copings, base and trim, black Vitrolite. Chromium plate on brass and copper for all metal work including store fronts, light standards, and canopy supports and lighting fixtures.

•

INTERIOR

Ballroom: Dance floor, natural maple; walls, green fabrikoid stretched on forms, trim green enamel to match; South wall, murals of downtown Chicago. Window drapes, silver fabrikoid.

Ceiling, silver leaf over dance floor, deep blue over promenade.

Columns, jet black Vitrolite.

Lighting over dance floor behind etched glass loose in wooden frames; 24 outlets for 3 colors in dimmer banks behind each frame.

Orchestra shell veneered wood silvered with a design.

Downstairs Lobby: Floor, polished black terrazzo, aluminum strips.

Walls, smooth plaster with low-relief ply-wood patterns glued on and painted. Blues predominate.

Ceiling, silver leaf.

Stairway: Rail of monel metal; carpet raisin-colored, ceiling silver leaf.

Photo. Bowman

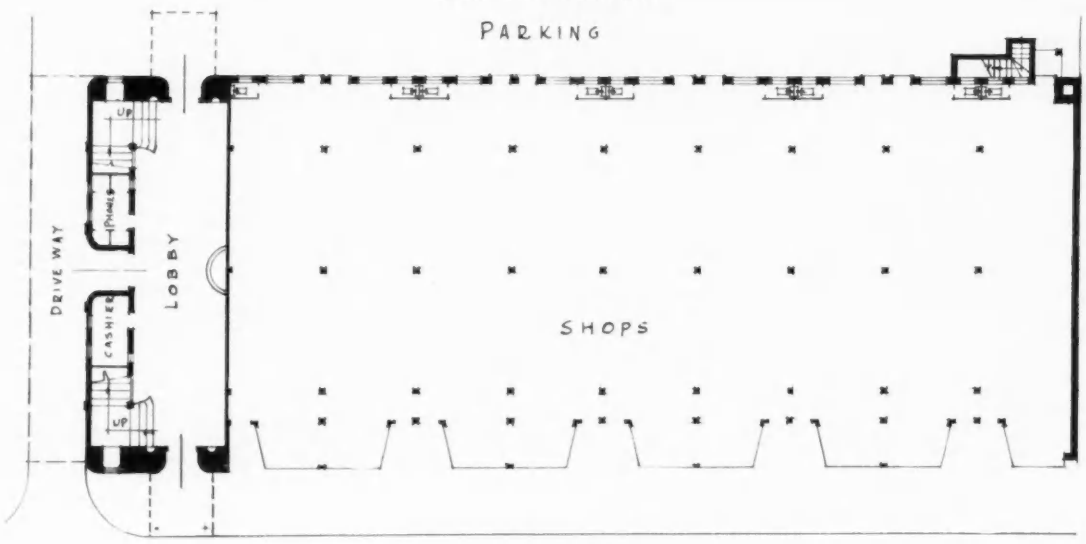
SHOWING CANTILEVER OVER DRIVE

MIRALAGO BALLROOM AND SHOPS, NORTH SHORE, CHICAGO

GEORGE FRED KECK, ARCHITECT

Photo. Bowman

VIEW FROM HIGHWAY



GROUND FLOOR

MIRALAGO BALLROOM AND SHOPS, NORTH SHORE, CHICAGO

GEORGE FRED KECK, ARCHITECT

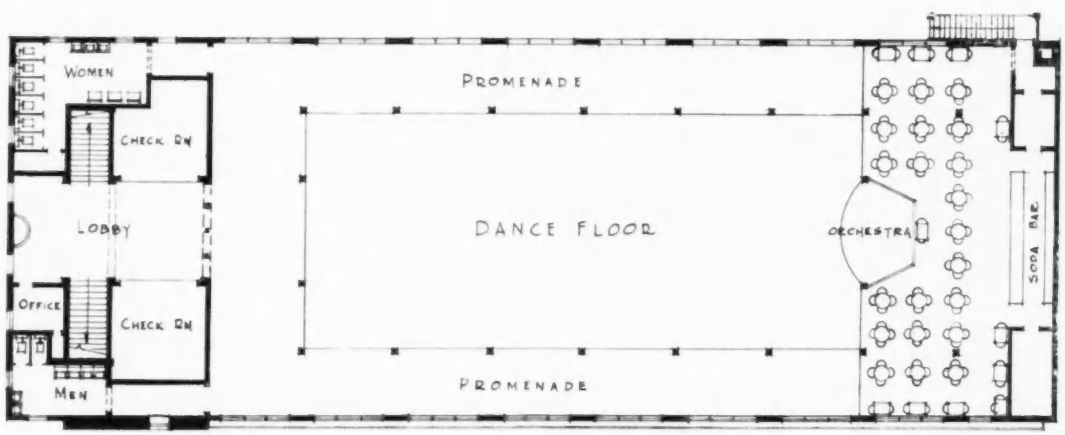
Photo. Bowman

STAIRWAY

MIRALAGO BALLROOM AND SHOPS, NORTH SHORE, CHICAGO

GEORGE FRED KECK, ARCHITECT

Photo, Bauman



DANCE FLOOR VIEW AND PLAN

MIRALAGO BALLROOM AND SHOPS, NORTH SHORE, CHICAGO

GEORGE FRED KECK, ARCHITECT

MASS PRODUCTION AND THE MODERN HOUSE

BY LEWIS MUMFORD

(Part Two)

IN modern architecture, I pointed out in my first article, the emphasis has shifted from building to manufacture. Since the parts of a building have been industrialized, it has naturally occurred to certain intelligent designers that the whole might eventually be treated in the same manner: hence various schemes for single family unit-houses, designed for greater mechanical efficiency. Those who approach the problem of the modern house from this angle suggest that the mass house may eventually be manufactured as cheaply and distributed as widely as the cheap motor car.

Although this development holds out promise for definite improvements in functional relationship and design, there is some reason to doubt, I pointed out, that costs could be cheapened as radically as the advocates of a purely mechanical improvement have supposed. A good part of the total cost of housing is represented by factors which, like the cost of money or land, are outside the province of factory production, or, like the numberless constituent parts of the house, are already cheapened by mass production. The mass house promises a better mechanical integration. That would constitute an advance; but not an overwhelming one; and the mere ability to purchase such houses easily and plant them anywhere would only add to the communal chaos that now threatens every semi-urban community.*

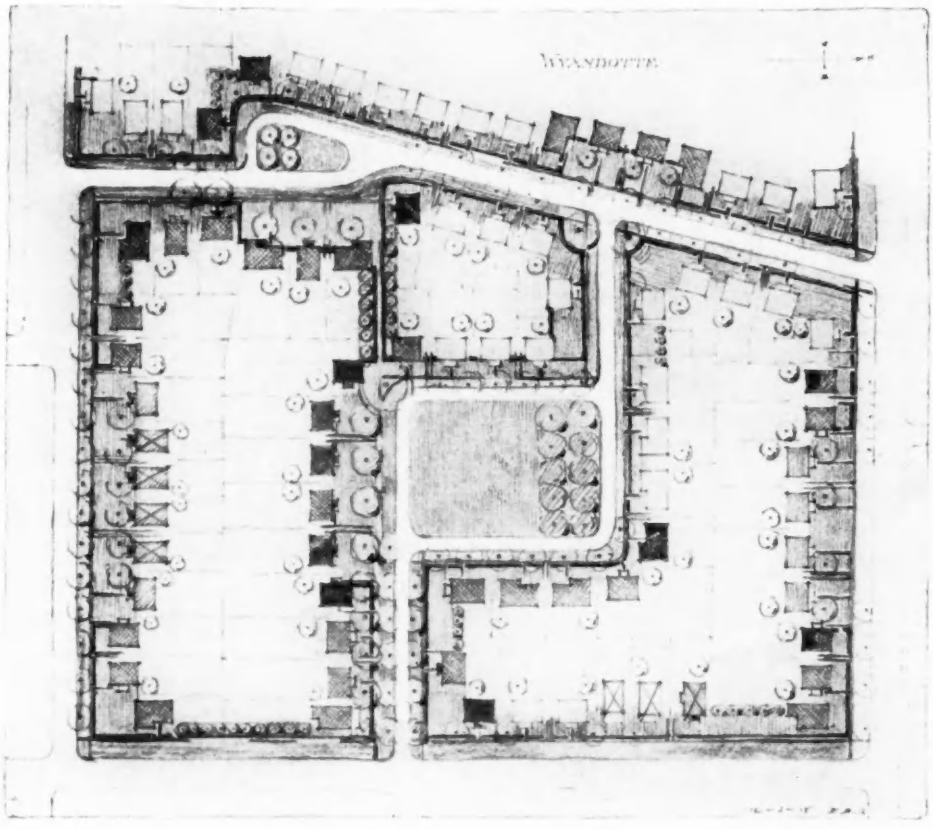
We have now to see whether there is not a different line of advance which rests upon a more thorough comprehension of all the social and economic as well as the technical elements involved. Without abandoning a single tangible gain in technique, there is, I think, a more promising road that, so far from eliminating the architect, will restore him to a position of importance.

II

Taking the individual house as a starting point, it is by now hopeless to attempt to restore it to a central position in domestic architecture. The individuality of such houses is already lost. Except for a bare ten or fifteen per cent of the population, such houses cannot be produced by individual architects, attempting to meet the unique wishes of a special client. The words Colonial, Cotswold, Tudor, in suburban architecture are mere attempts to cover by literary allusion the essential standardization that has taken place; and as soon as we approach the price level of the ordinary run of house dwellers, clerks, salesmen, skilled industrial workers, to say nothing of the more unskilled operations and the more poorly paid trades, the game is already lost; the manufactured shingle, the roughly turned colonial ornament, or the plaster "half-timber" show the strain on the purse.

Admirable as is the layout, the pervading conception, of our first American attempt at a "town for the Motor Age," for example, no candid critic can pretend that the individual one-family houses are particularly triumphant examples of modern architecture; and the reason is that even with large-scale organization and limited dividends, it is impossible to isolate such houses sufficiently and lavish upon them the attention that so graciously humanized the traditional house even as late as 1890. Architecturally, these studiously suburban types fall down badly beside the finer rows and quadrangles of Sunnyside, the work of the same architects; and if anyone thinks he can do better with the cheap free-standing house, let him try it.

* Mr. Buckminster Fuller already perceives this danger. "The Dymaxion Houses," he writes me, "cannot be thrown upon the world without a most adequate 'town plan,' really a universal community plan."



STANDARD HOUSES IN A COMMUNITY PLAN

A WAR-TIME DEVELOPMENT, WYANDOTTE, MICH., BY HENRY WRIGHT

These are still individual houses, but three main types suffice for both practical and picturesque requirements, because they are an integral part of a community plan

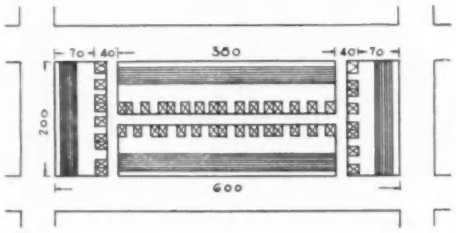
The isolated domestic unit cannot be made sound, beautiful, and efficient except at a prohibitive cost. If we wish to retain the single-family house, we shall have to accept it as a completely manufactured article; and in this event, we must throw overboard every sentimental demand. The advocates of the single-family house have never faced this dilemma: they dream of universalizing the work of Mr. Frank Foster or Mr. Julius Gregory; but the sort of domicile that their ideas actually effectuate for the majority of the population are the dreary rows of West Philadelphia and Astoria.

III

Now, a careful economic analysis shows that there are four possibilities from among which we must choose, if we are to have the renovated domestic architecture we so badly need, namely:

We may reduce the cost of housing from thirty to forty per cent by foregoing all the mechanical utilities we have introduced during the last hundred years. This would enable us to spend enough upon the structure and the materials to produce a fairly good looking traditional house. As a practical feat, this could be accomplished only in the country; and nobody would regard it as a serious remedy for the housing problem: so we may dismiss it.

Or, second: we may raise the wages of the entire industrial population to such an extent that they will be able to make a demand for houses of the same grade that the upper middle classes now create. This is not entirely outside the bounds of possibility; but it would necessitate an economic

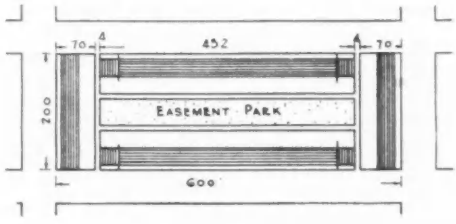


But *community* planning at Sunnyside, Long Island, has so rearranged the same type of block that the building space regained permits economical removal of cluttering garages to another block; there is

ARCHITECTURE AND OPEN SPACE

JERRY-BUILDING AND CLUTTER

There is no guarantee that this condition will be remedied by mass-production. The problems which most affect this community might be left untouched, or aggravated by the addition of more random contraptions.



revolution, not alone in the distribution of incomes, but in a maintenance of the entire industrial plant up to the pitch of wartime productivity. Since we cannot create decent single houses for the relatively comfortable middle class today, it is doubtful if this could be accomplished even under an energetic and efficient communism. In order to make good housing practicable, the wages of the lower income groups will indeed have to be raised, either directly or under the disguise of a subsidy; but no rise will bring back the one-family house in an urban area that possesses a complete municipal and civic equipment, including waterworks and sewers and schools.

Or, third: we can preserve the individual isolated unit at the price of accepting all the limitations that now accompany it: lack of open spaces, scantiness of materials, lack of privacy, rapid deterioration of equipment, and lack of esthetic interest. Some of these evils would be mitigated or removed completely in the ideal manufactured house; but others, as I showed in my first article, would remain under our current system of commercial production.

Or, finally, we may seek to establish an integral architecture. This means that instead of beginning with one aspect of the architectural problem, we will begin with the community first, and treat the problems of economics, community planning, technics, and architecture as one, seeking a solution not in terms of the individual "cell" but in terms of the larger unit. This last scheme would derive the character of the house or apartment from the particular social whole of which it is a part; and the solution would not be a fixed quantity, but a variable, adapted to soil, climate, landscape, industrial conditions, racial groupings, and the whole remaining complex that makes up a human community. Instead of crabbing our solution by asking before anything else how shall the single-family house be preserved, we ask the broader question: how shall the fundamental requisites of domestic life be embodied in a modern community program—and that is a radically different matter!

The last course is the only one that really sweeps the board clear of preconceptions and inherited prejudices and faces the problem of the house as it comes before us in the Western World in the year 1930. Unfortunately, there is a considerable vested interest opposed to it: not merely the interest of the small builder, used to doing things in a small way, or the individual home-buyer who has been vainly dreaming of the twenty-thousand dollar house he will some day buy for a thousand dollars down and the balance in installments, but against it are such organized bodies as the "own-your-own-home" movement, to say nothing of a good many sincere and honest people who have concerned themselves with the evils of congested housing. We have all these groups, to say nothing of the standard Fourth-of-July orator, to thank for the notion that the free-standing individual house must be preserved at any cost, as if "home" and America were inconceivable without it.

Most of the arguments that support this sentiment are specious and fundamentally unsound; but they still carry an air of respectability. The individual free-standing house was as much a product of the Romantic movement as Byronic collars: it was the formal counterpart of the completely free and isolated "individual," and to look upon it as an immemorial expression of the "home" is to betray a pretty complete ignorance of human history—an ignorance that one can condone only because an adequate history of the dwelling house in all its transformations has still to be written. Spurred on by this romantic conception of the home, its partisans blindly cling to the poor mangled remnant of a free-standing house that remains in the outskirts of our great cities, rather than the fact that these dwellings are, in fact, sardonic betrayals of all the virtues they profess to admire, and possess scarcely a single tangible advantage. Under the cloak of individuality, personality, free expression, the partisans

A STANDARD HOUSE

One of the repeated units in the plan on page 111. Properly designed and placed, even the individual standard house need not be unattractive

of the free-standing house have accepted the utmost refinements of monotony and unintelligent standardization.

Unfortunately, intelligent planning and design on a community scale cannot proceed until this prejudice is knocked into a cocked hat. It is not until the architect has the courage to reject the detached house as an abstract ideal that he will have the opportunity to embody in his designs some of the advantages and beauties that are supposed to go with such a house. That is the paradox of modern architecture: we can achieve individuality only on a communal scale; and when we attempt to achieve individuality in isolated units, the result is a hideous monotony, uneconomic in practice and depressing in effect. We have sometimes succeeded in our synthetic buildings, the hospital, the office building, the apartment house and the domestic quadrangle: we fail, we will continue to fail, in the isolated house. In my first article I pointed out the economic and mechanical reasons for this failure; and I have now to suggest in concrete terms a more favorable program of work.

IV

The aim of an integral architecture, like the aim of the purely mechanical and constructivist architects, is to effect an economy which will raise and spread the standards of the modern house. Where is this economy to be effected, and how is it to be embodied in design? It is here that the difference in approach between the two methods comes out. Are we to attempt to incorporate in the individual house all the improvements made possible by a communal technology, duplicating every item as we now duplicate radio sets and vacuum cleaners, or shall the individual cell be simplified and the costs of all our new mechanical devices distributed through the whole group of cells, careful community planning being used to reduce the cost of equipment?

A concrete example will perhaps make the difference in approach a little clearer. Take a matter like the supply of fresh air. Apart from any human pleasure that may come from the gesture of throwing wide the window and taking in a breath of purer or cooler air, there is no doubt that the problem of pure air can be mechanically solved by means of an artificial ventilating system, which will clean, humidify, and warm at the same time. In certain places and under certain circumstances this system is highly desirable; but, however practicable it is, no one can doubt that its extension to the dwelling house would only add one further element of expense to that vexatious column of expenses which has been lengthening so rapidly during the last thirty years. Instead of working in this direction, an integral architecture, for the sake of economy, would endeavor to secure through site planning and site development, through orientation to sunlight and wind, a result that can otherwise be obtained only through an expensive mechanical contrivance. In a word: the mechanical system accepts all the factors in house production as fixed, except the mechanical ones: an integral architecture looks upon all the elements as variables and demands a measure of control over all of them.

This demand may seem to pass beyond the limits of pure architecture, and the architect may be reluctant to make it. No matter: he will be driven to it for the reason

that the house itself has passed beyond the limits of mere building. The modern house functions as a house only in relation to a whole host of communal services and activities. The rate of interest, the wage-scale, the availability of water and electricity, the topography and the character of the soil, and the community plan itself, all have as great a control over the design as the type of building material or the method of construction. It is fantastic to think that adequate design is possible if all these other elements are determined by forces outside the governance of either the architect or the community. There are, accordingly, two critical places which the architect must capture and make his own if he is to solve the social and esthetic problem of the modern house: one of them is the manufacturing plant, and the other is the community itself. With the part that the architect has still to play in industrial design, I can not deal here; but something must be said further of the relation of modern architecture to the work of the community planner.

V

The unit, bear in mind, is no longer the individual house, but a whole neighborhood or community; and the place where collective economies are sought is not merely in factory production, but at every point in the layout or development. In Europe, where a serious attempt has been made, particularly during the last ten years, to cope with the housing of the industrial worker, such schemes are usually fostered by an existing municipality, as in Amsterdam and London, since there are no constitutional limitations upon the housing activities of cities in most European states: in America, apart from dubiously paternal attempts at better housing, undertaken by mill towns, the integration of architecture and community planning has been the work of the limited dividend corporation, such as the Russell Sage Foundation of the new City Housing Company, or the more far-sighted real estate developers, such as the founders of Roland Park in Baltimore.

The right political and economic form for modern community building is perhaps one of the most important social questions that architecture must face; all the more because there is no likelihood that private capital will enter the field whilst fabulous profits can be wrung out of less vital business enterprises. The instigation of such enterprises is not the private job of the architect; but it is a public matter where the weight of professional opinion may legitimately be thrown on the side of the public interest. Plainly, the architect cannot solve by any magical incantations the problem of supplying new houses to families whose income is not sufficient to cover the annual charges. There is no answer to that question except, as I said earlier, in the form of higher wages or state subsidy; although a wilful blindness to this fact is almost enough to establish a person as a housing authority in the United States. An integral type of architecture, seeking economies at every point in the process, is possible only when the necessary corporate housing organization has been erected.

Economy begins with the selection of the site itself, since the modern city, with its underground articulation, cannot be cheaply produced on a rocky or extremely irregular terrain. The next step is in the design of the street and road system. Here the differentiation of domestic neighborhoods from commercial or factory areas, and their permanent protections through easements, restrictions, and zoning of the land, not alone keeps the land-values low—since there is no speculative temptation through possible changes of use—but reduces the cost of paving and utilities connections. Mr. Raymond Unwin made a great advance in community planning over twenty years ago, when he proved that there is "Nothing Gained by Overcrowding" since the burden of multiple streets beyond a definite point more than counterbalances the apparent economy of more numerous lots; and Mr. Henry Wright has more than once demonstrated that there is enough wasted street space in the average American neigh-

borhood to provide it with an adequate park—a demonstration which has now been effectively embodied in the plan of Radburn. The grouping of houses in rows and quadrangles, instead of their studied isolation, is a further factor in economy, not merely by making the party wall take the place of two exterior ones, but by reducing the length of all street utilities, including the paving of the street itself; and the result is a much bolder and more effective architectural unit than the individual house.

With control over these exterior developments, the problem of the interior economies is reduced and simplified; indeed, the two elements are co-ordinate in design, and if architects produced their work on the site instead of in the office, and did not habitually conceal the site costs from their clients —as "additional charges"—they would long ago have perceived this. Emerson said that one should save on the low levels and spend on the high ones; and one cannot improve upon this advice, either in living or in the design of houses. It is a mistake in esthetic theory to assume that the demands of vision and economy, of esthetic pleasure and bodily comfort, always coincide; and an important task of integral architecture is to balance one against the other. Where the means are limited, the architect must exercise a human choice between, say, an extra toilet and a second story balcony, between a tiled bathroom and a more attractive entrance.

This choice cannot be made on any summary abstract principle; it is determined by a multitude of local individual factors: the presence of mosquitos or the absence of large open spaces may, for example, decide the fate of the balcony. If the architect be limited in such local choices, he may have to spend riotously on mechanical equipment; if he have a free hand in community planning, he may let nature take the place of an extra heating unit, an awning, or what not. Again: if a family is forced to look out upon a blank wall, as so many rich people must do on Park Avenue or Fifth, expensive mouldings, draperies, fineries may be necessary to relieve the depression of the outlook: if on the other hand, sunlight and garden-vistas are available, a wide window may take the place of much footling architectural "charm."

In sum, mass production which utilizes all the resources of community planning is capable of far greater and more numerous economies than mass production which only extends a little farther our current factory technique. Such a program for the modern house holds out no spurious promises of a quick, ready-made solution for the difficulties that have been heaping up in every industrial community for the last hundred and fifty years. On the contrary, it isolates the problems of housing which are immediately soluble, from those that can be solved only through a drastic reorientation of our economic institutions; and it paves the way for necessary changes and adaptations in these institutions. If we are to modernize the dwelling house and create adequate quarters for our badly housed population—a far more important remedy for industrial depression than merely building roads—the architect must bring together all the specialized approaches to this problem, instead of merely trying to catch up with the latest specialty. The correct attack was initiated during the war in the governmental war housing program; it has been carried further during the last ten years, by architects and community planners such as Messrs. Stein, Wright, Ackerman, Kilham, Greeley, and Nolen; and although the designs of these men have so far kept close to traditional forms, their approach gives promise of a vital architecture which will in time surpass the work of the present pioneers as their own work surpasses that of the jerrybuilder.

Photo. Gottscho

HOUSE FOR A REAL ESTATE DEVELOPMENT ON LONG ISLAND

PEABODY, WILSON AND BROWN, ARCHITECTS

CUTTING DWELLING COSTS

WHERE do extra dwelling costs come in? An answer is suggested by two houses recently planned by the same architects on the same general lines but different in detail, due to a coincidence which occurred as follows:

Four architects were commissioned by a realty development company to design one house each for a subdivision with the agreement that the architect whose completed dwelling was first to be sold would be the selected architect for the development. The competition was definitely fixed with the number of rooms definitely specified. The contract price for the construction as well as the success of the design was a factor in inducing sale.

The house illustrated on this page was the winning design by Peabody, Wilson and Brown, Architects. This house, including landscaping, cost under $40,000 and serves as an instance of a low bid obtained when a house is contracted for a realty concern. Almost the identical house was erected for a private owner with modifications to meet personal preferences and for occupancy by the owner at a cost of $70,000. An analysis of specifications for the two houses indicates a fairly wide difference in interior finish and in allowance for extras. The cubic content is approximately equal. The house for the realty company is not jerry-built; and yet, by sacrificing personal preferences to more *typical demands*, it approaches the more expensive house *much more nearly in appearance than in cost*.

Photo. Gottsch

HOUSE FOR A REAL ESTATE DEVELOPMENT ON LONG ISLAND

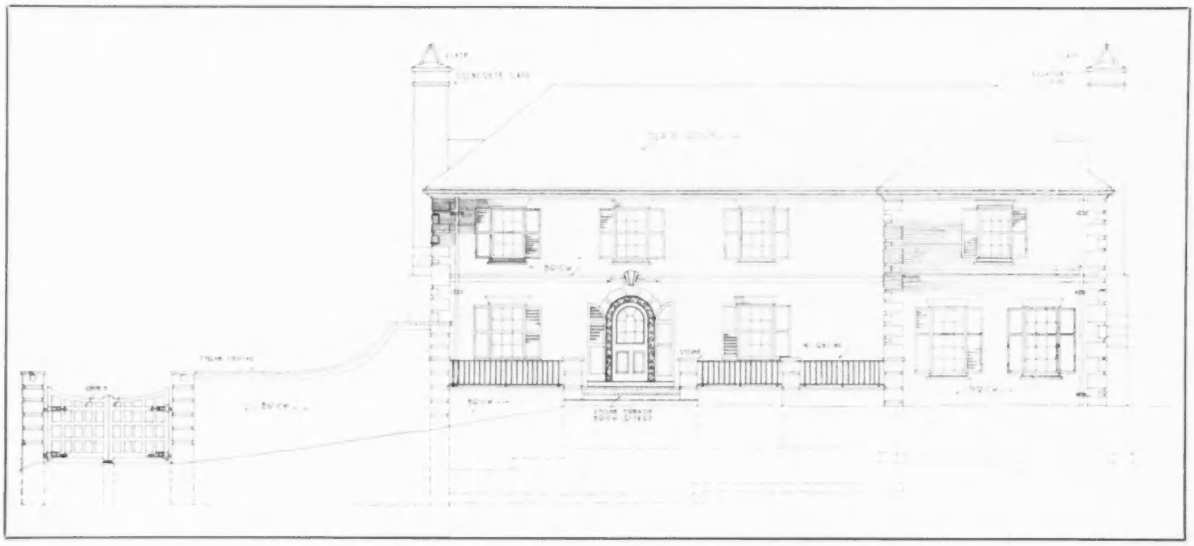
PEABODY, WILSON AND BROWN, ARCHITECTS

The plans made for this house were adapted without any essential differences in layout or appearance for the house on the opposite page. The difference in cost is explained by the parallel analyses below

REAL ESTATE DEVELOPMENT ON LONG ISLAND

Cost—$40,000

First floor area, 2,382 sq. ft.
Second floor area, 1,527 sq. ft.
Basement construction: Concrete block; upper walls 2″ x 6″ studs, sheathed and stuccoed.
Roof of 3/8″ slate 6½″ to weather.
Framed with 2″ x 12″ joists, 16″ C.-C.; plain oak flooring.
Kitchen with linoleum surface.
Brass water supplies throughout.
Plumbing fixtures of good grade, partly in color, with chrome plate fittings.
Vapor heating system; oil burner.
Radiators regular and enclosed.
Wood railing for terrace.
Garage doors hand-operated.
Millwork, partly stock and all simple.
Millwork finished stock.
Glass double strength A.
No special ventilation.
Simple bell system.
Coal and wood bin, ceiling radiator in laundry, work bench in garage, gas range in kitchen, pipe covering, 2 radiators in garage omitted from house as built.
Summer house.
Garage attached.
Road grading and planting.



DAVID M. MINTON, JR., HOUSE, PELHAM MANOR, N. Y.
PEABODY, WILSON AND BROWN, ARCHITECTS

DAVID M. MINTON, JR., HOUSE, PELHAM MANOR, N. Y.

Cost—$70,000

First floor area 2,631 sq. ft.
Second floor area 1,931 sq. ft.

Basement walls: Poured concrete; upper walls 8" brick veneer on 2 x 6 studs and sheathing.

Slate roof 5½" to 6½" to weather, random widths, ⅜" and ½" thick.

Reinforced concrete slab first floor with fill and wood floor over.

Joists 3" x 12", 12" C.-C.; plank oak flooring in living and dining rooms, balance of white oak.

Hall and porch with slate floor; rubber tile in kitchen and pantry.

Brass water supply piping.

Colored plumbing fixtures with chrome plate fittings throughout.

Vapor heating system; boiler provided for incinerator and domestic hot water; oil burner.

Radiators of brass and enclosed.

Wrought iron railing for terrace and special hand wrought gates in hall.

Garage doors electrically operated, special overhead type doors.

Millwork largely special with carved door spandrels and pilaster caps; wood wainscot in living room.

Library panelled in pine.

Finished woodwork of white oak in Master part of house, with uneven "hand-worked surface to give antique effect."

2 Cedar closets.

Built-in vault.

Plate glass for first and second floors.

2 ventilating fans with metal hood in kitchen; closets ventilated.

Bells with annunciator system.

Gas range, work bench, photographic room with sink, pipe covering and complete heating.

Garage in basement.

Electric refrigeration.

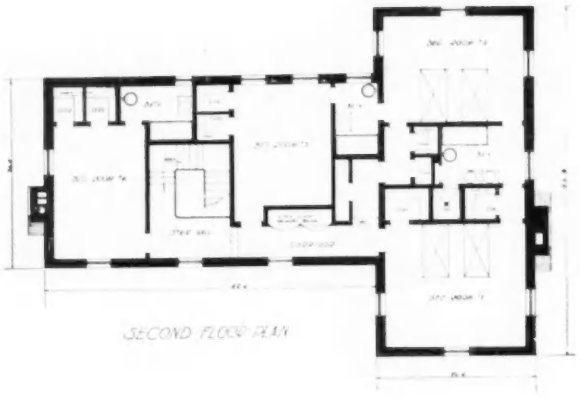
Marble floor and wainscot in owner's bath and shower; faience tile floors and wainscots in other baths and in toilet.

Special bathroom accessories.

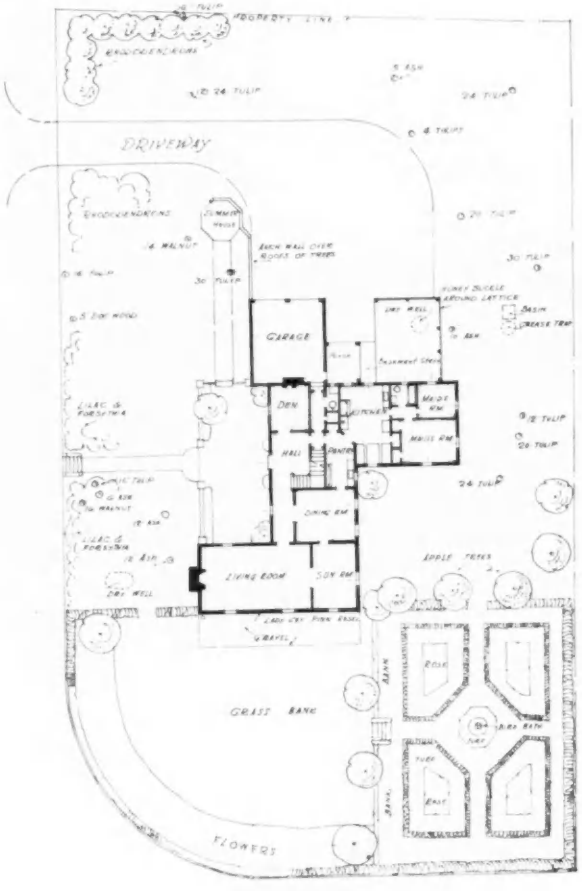
Gas range in kitchen.

Road grading, no planting.

SECOND FLOOR PLAN



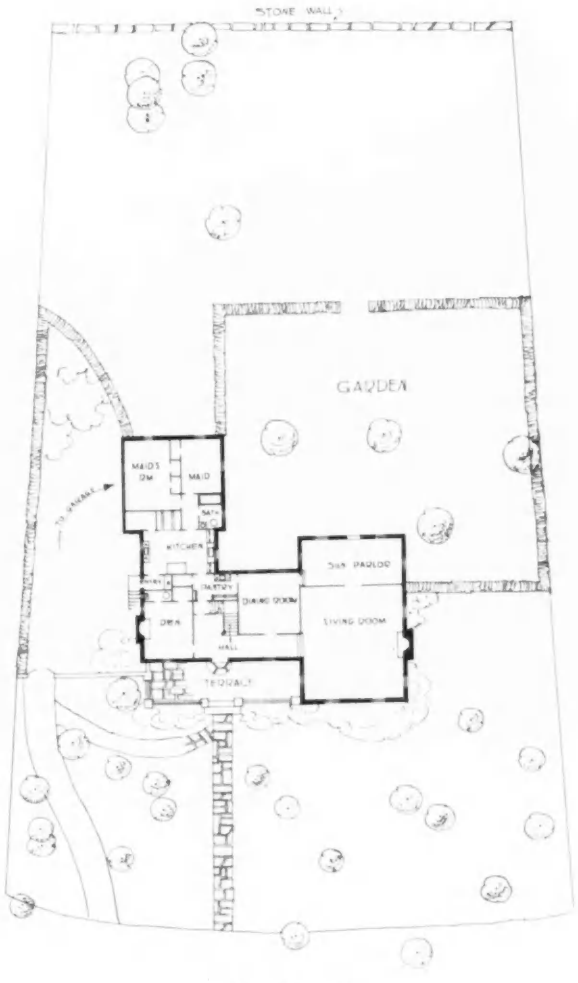
SECOND FLOOR PLAN



PLOT PLAN

HOUSE FOR REAL ESTATE DEVELOPMENT, LONG ISLAND

PEABODY, WILSON AND BROWN, ARCHITECTS



PLOT PLAN

DAVID M. MINTON, JR., HOUSE, PELHAM MANOR, N. Y.

PEABODY, WILSON AND BROWN, ARCHITECTS

TWO SIMILAR HOUSES OF DIFFERENT COST

(See page 117)

PORTFOLIO
OF
CURRENT WORK

Photo. Gillies

House for Theodore Bodenweiser, New London, Conn.
FRANK J. FORSTER, ARCHITECT

FEATURING
A HOUSE FOR THEODORE BODENWEISER
A HOUSE FOR HUGH GOFORTH
A STORE FRONT FOR LOFT, INC.

Photo. Gillies

House for Theodore Bodenweiser, New London, Conn.
FRANK J. FORSTER, ARCHITECT

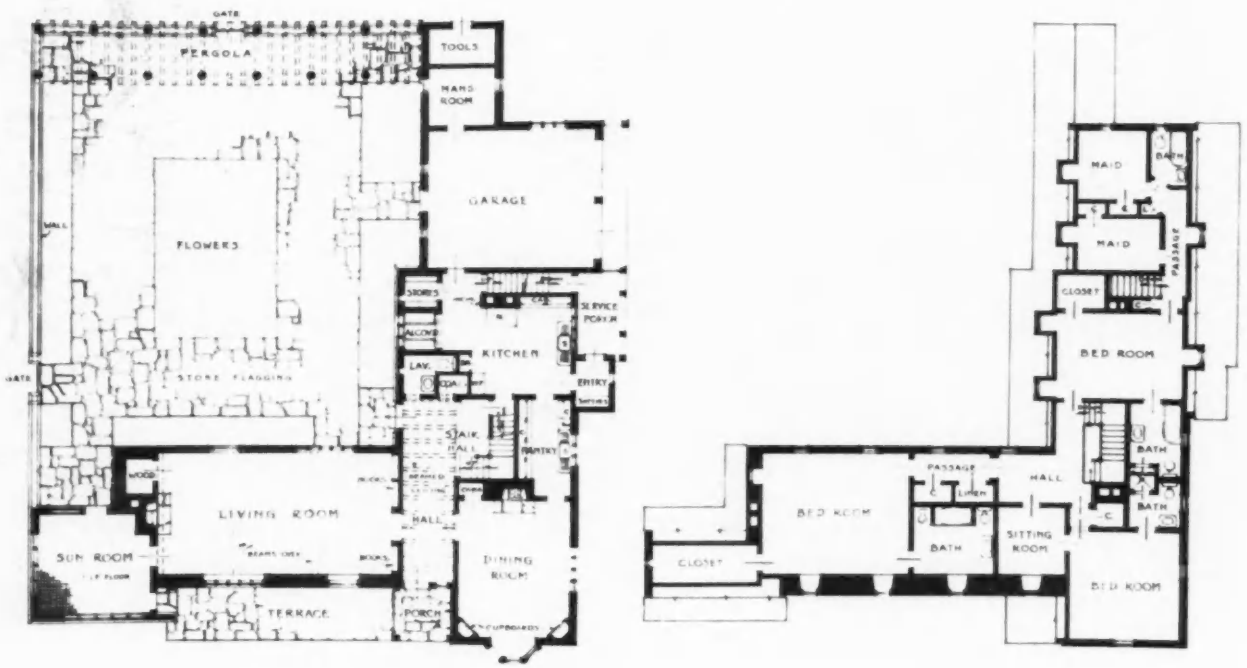


Photo. Gillies

Gateway Looking Toward Main Entrance
House for Theodore Bodenweiser, New London, Conn.
FRANK J. FORSTER. ARCHITECT

Photo. Gillies

Garage at Left, Main Entrance at Right
House for Theodore Bodenweiser, New London, Conn.
FRANK J. FORSTER, ARCHITECT

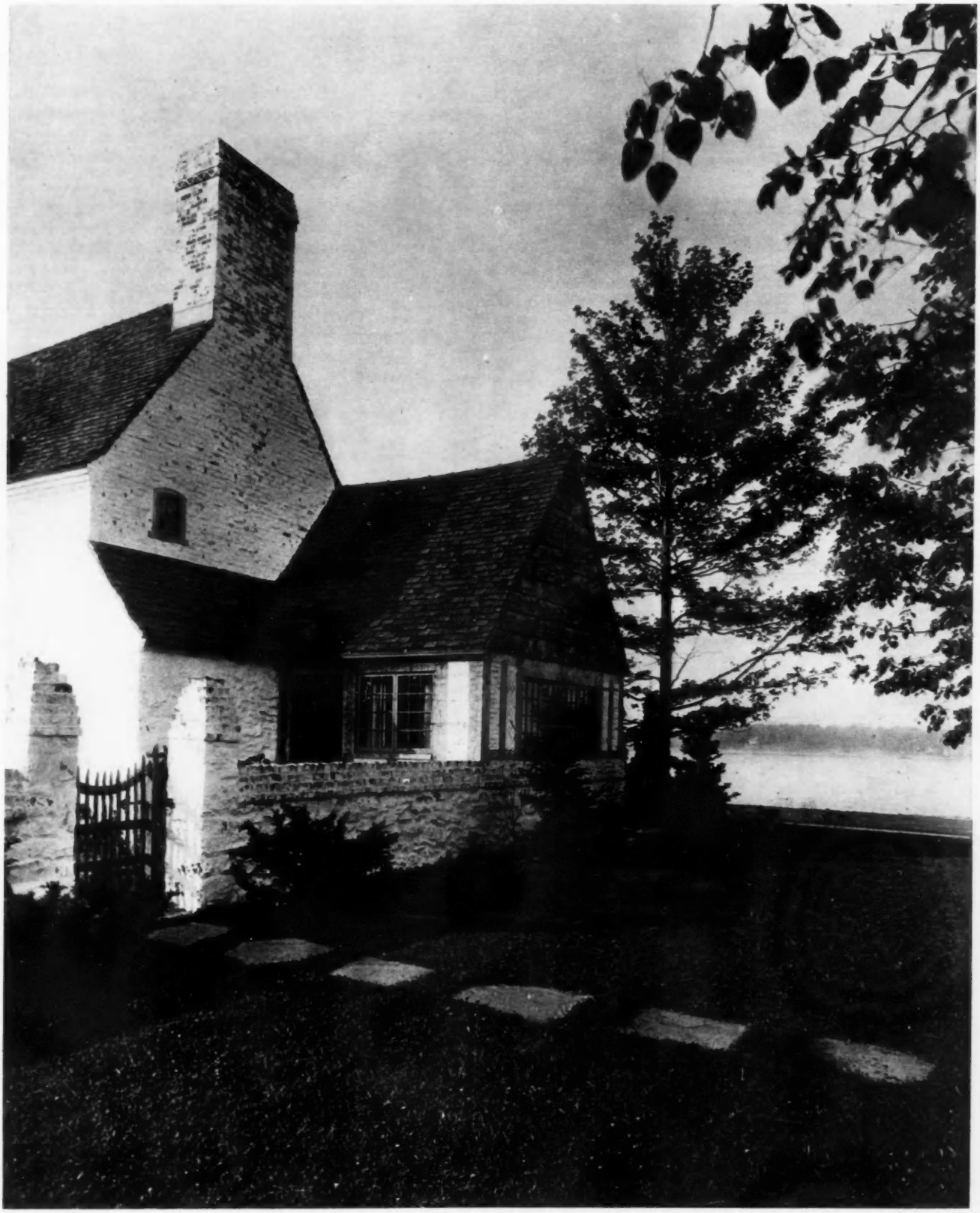


Photo. Gillies

Gate and Sun Room
House for Theodore Bodenweiser, New London, Conn.
FRANK J. FORSTER, ARCHITECT

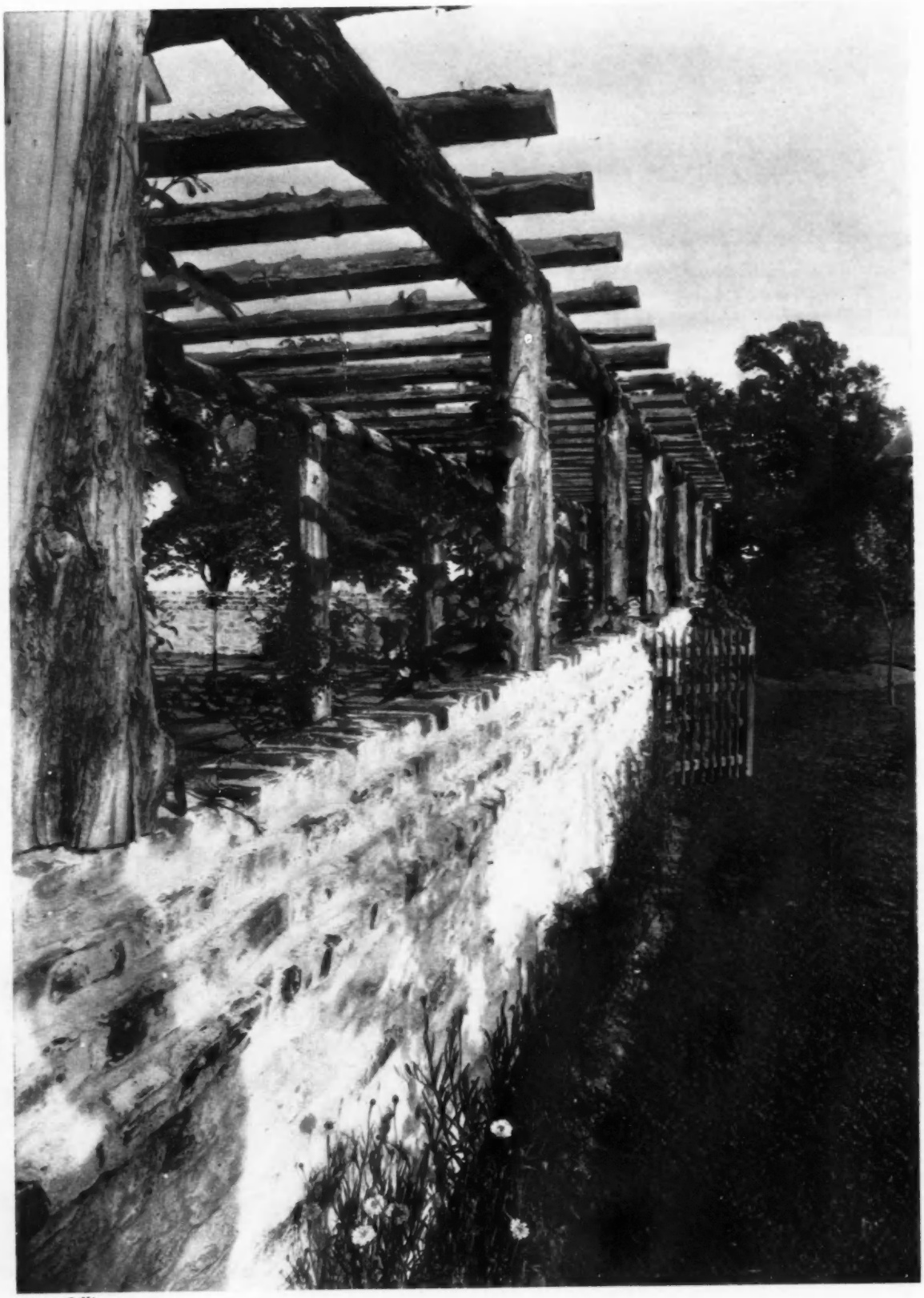


Photo. Gillies

Pergola and Gate
House for Theodore Bodenweiser, New London, Conn.
FRANK J. FORSTER, ARCHITECT

Photo Gillies

Service Wing
House for Theodore Bodenweiser, New London, Conn.
FRANK J. FORSTER ARCHITECT

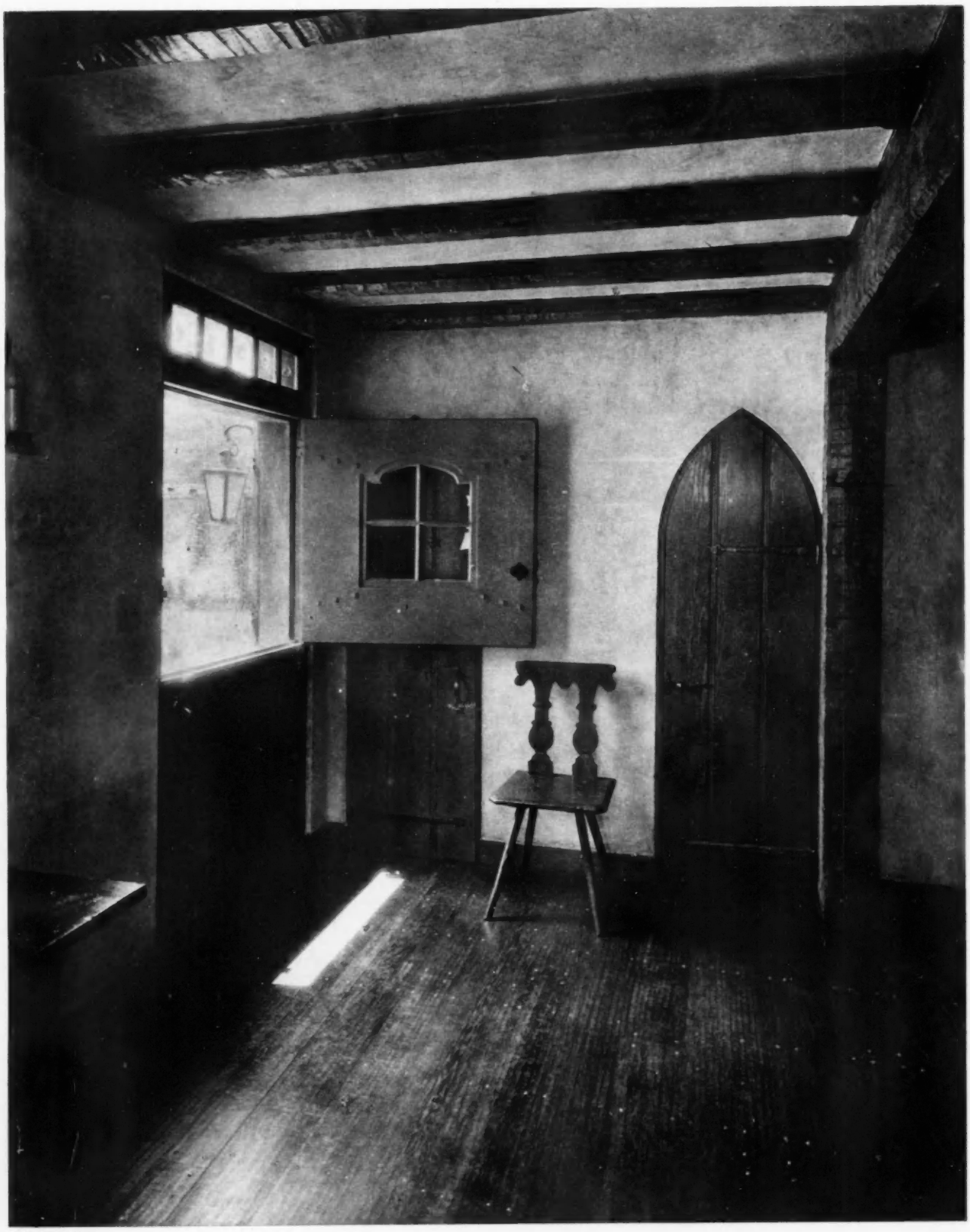


Photo. Gillies

Vestibule
House for Theodore Bodenweiser, New London, Conn.
FRANK J. FORSTER, ARCHITECT

Photo. Tebbs and Knell

House for Hugh Goforth, Knoxville, Tenn.
BARBER AND MCMURRY, ARCHITECTS

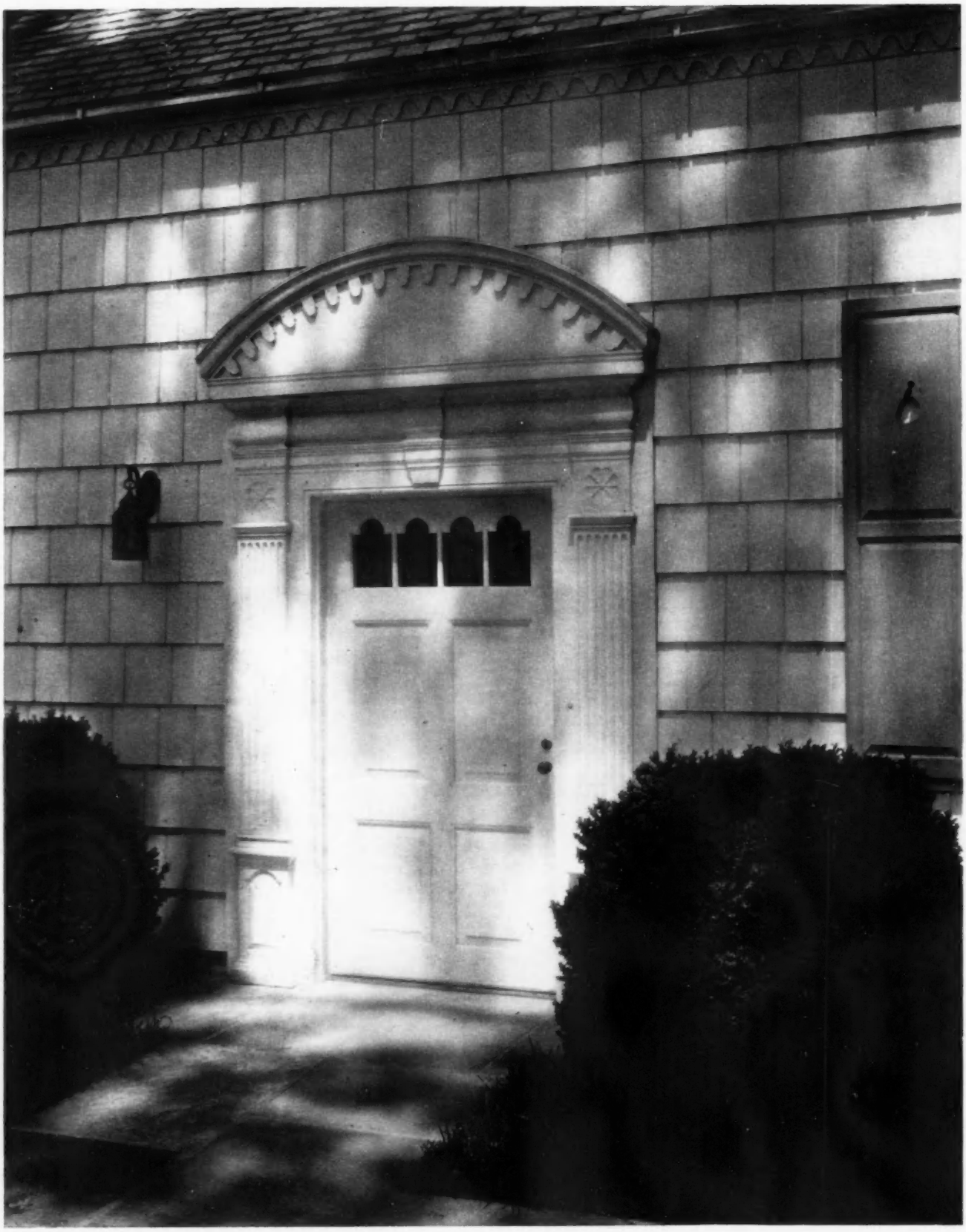


Photo. Tebbs and Knell

Entrance Detail
House for Hugh Goforth, Knoxville, Tenn.
BARBER AND MCMURRY, ARCHITECTS

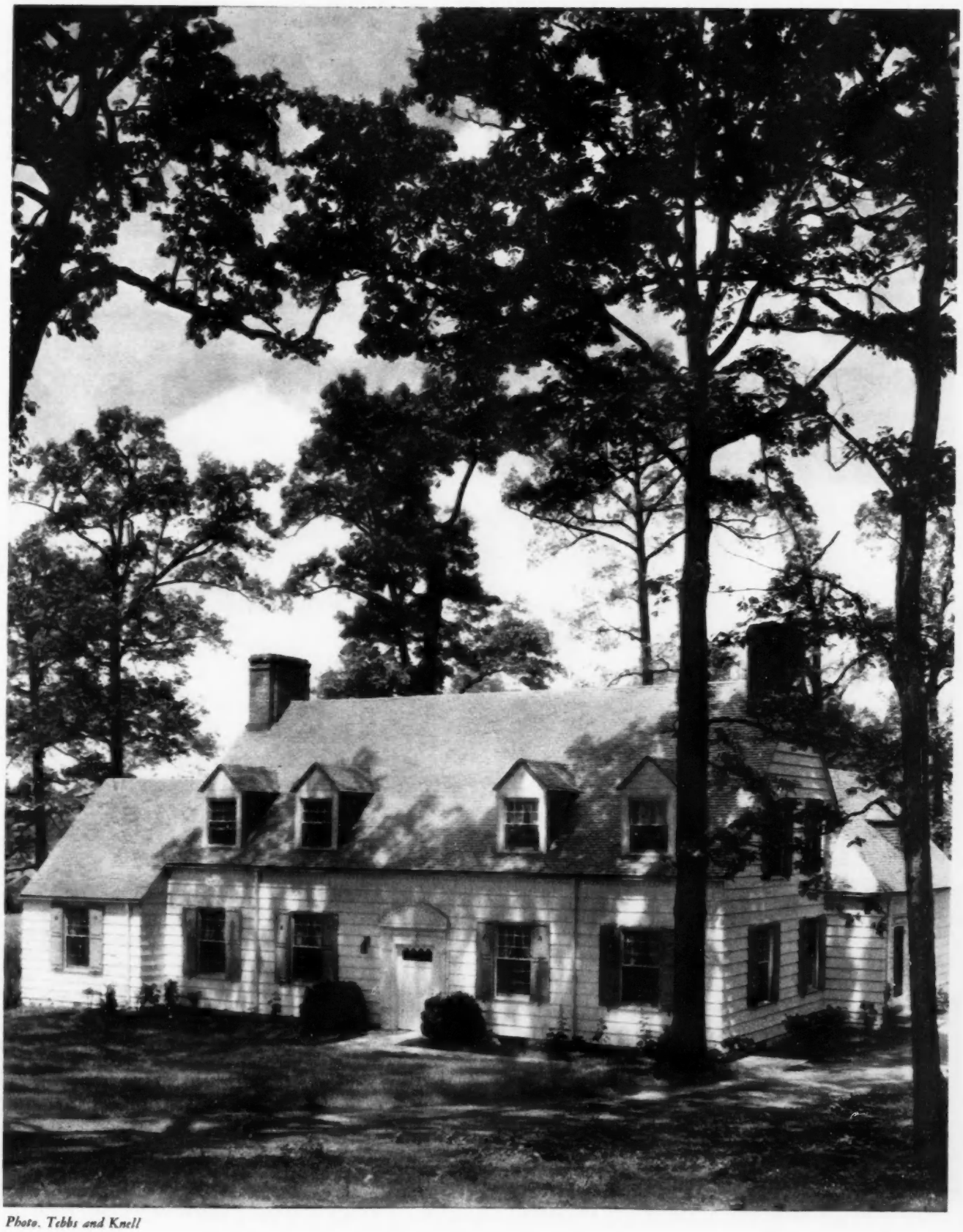


Photo. Tebbs and Knell

House for Hugh Goforth, Knoxville, Tenn.
BARBER AND MCMURRY, ARCHITECTS

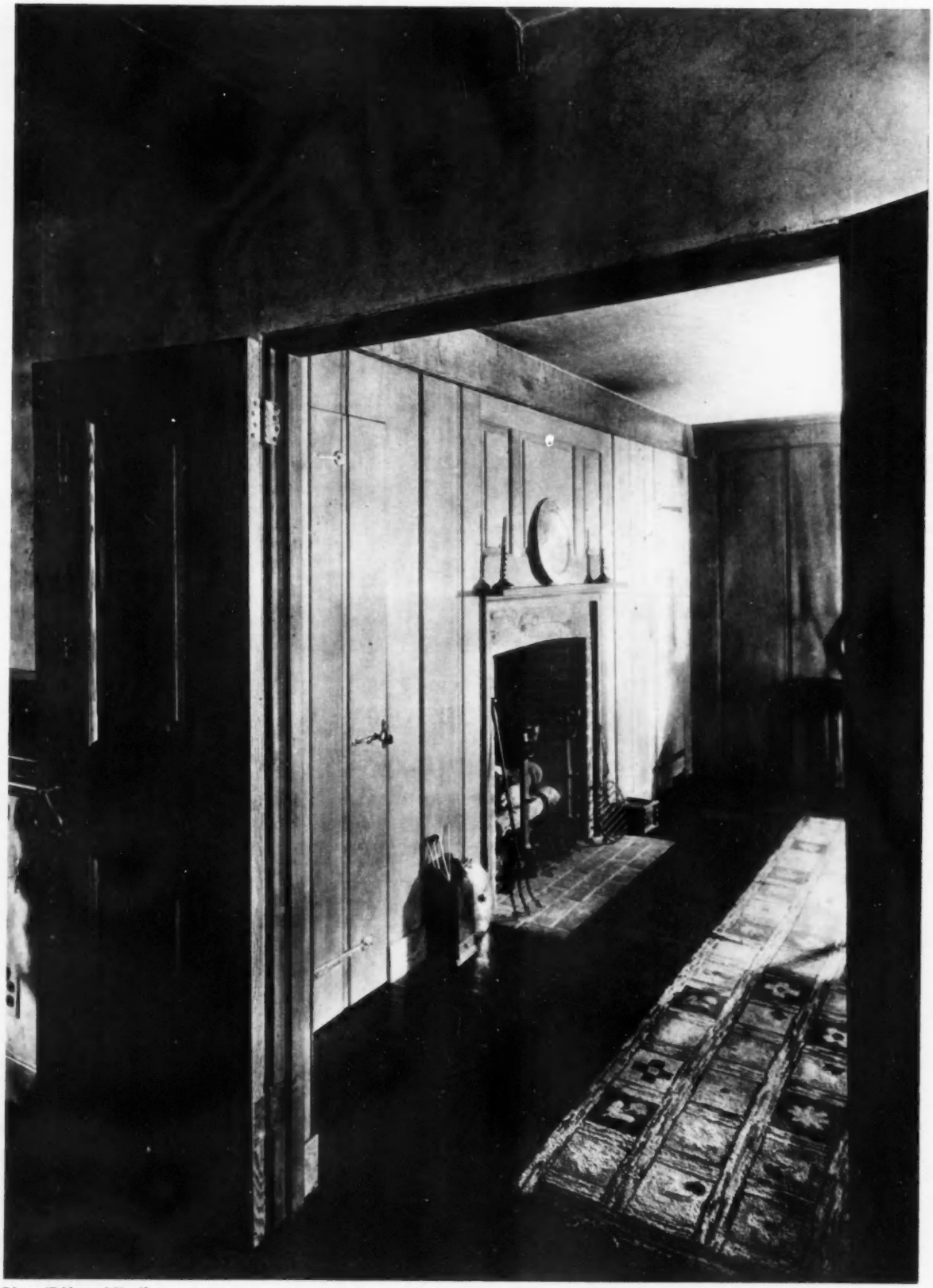


Photo. Tebbs and Knell

Fireplace in Dining Room
BARBER AND MCMURRY, ARCHITECTS
House for Hugh Goforth, Knoxville, Tenn.

Photo. Tebbs and Knell

Library and Living Room
House for Hugh Goforth, Knoxville, Tenn.
BARBER AND MCMURRY, ARCHITECTS

Interior of a Café, Avenue Wagram, Paris
ROB MALLET-STEVENS, ARCHITECT

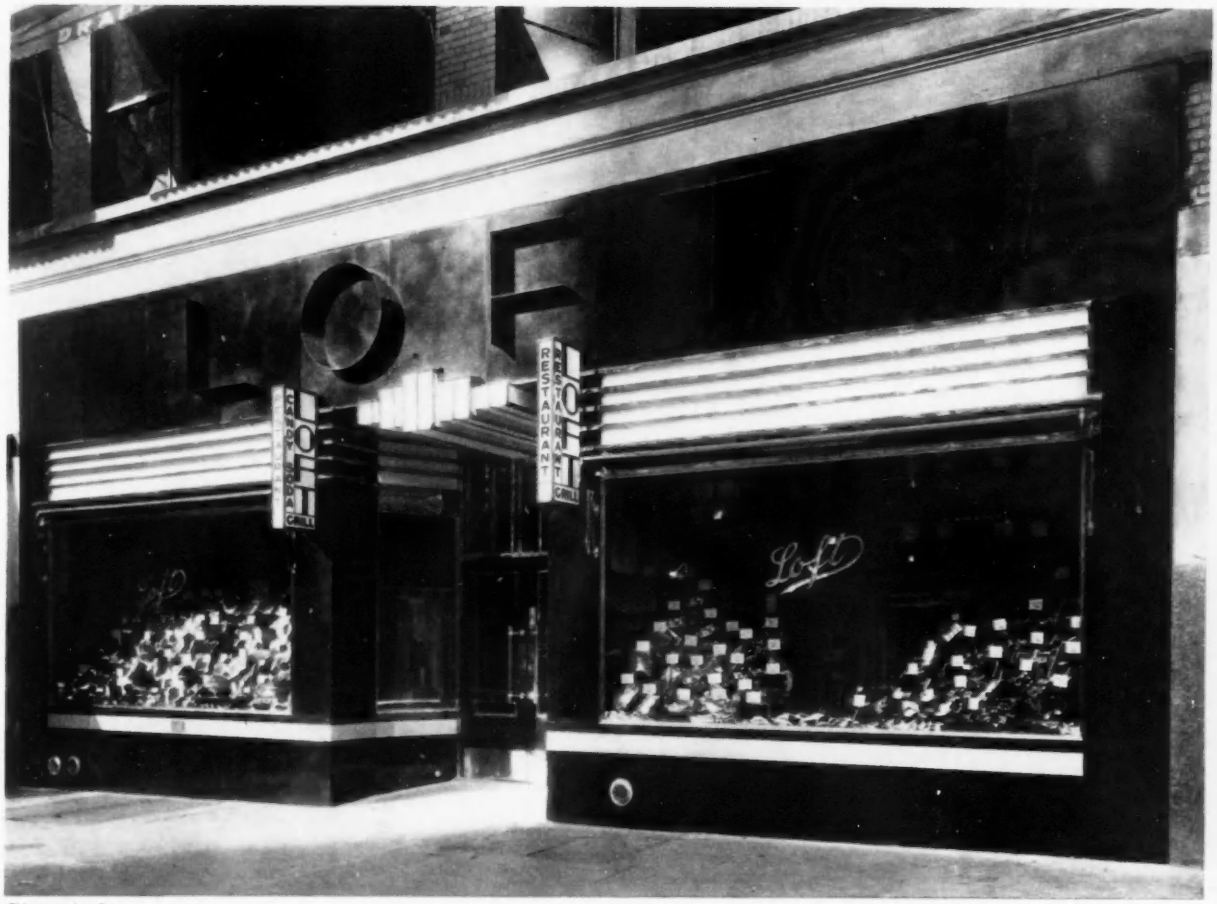
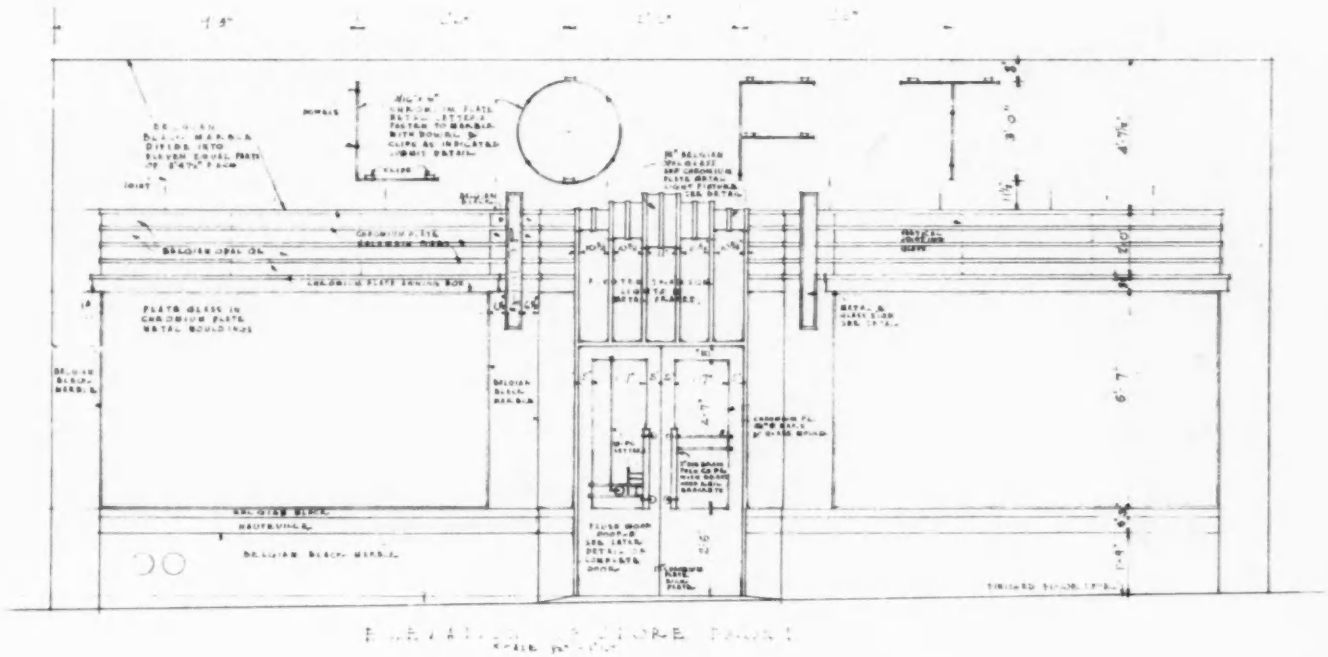


Photo. Apeda

Store Front



Loft, Inc., 2465 Broadway, New York
THOMPSON AND CHURCHILL, ARCHITECTS

Photo. Apeda

Store Front
Loft, Inc., 2465 Broadway, New York
THOMPSON AND CHURCHILL, ARCHITECTS

BASEMENT GRILL ROOM
STORE FOR LOFT, INC.
THOMPSON AND CHURCHILL, ARCHITECTS

The awkward beams were accepted and converted into an asset by clever mural painting done by Alfred V. Tulk, of Rambusch, Decorator

Photo. Apeda

STORE FOR LOFT, INC., NEW YORK CITY

THOMPSON AND CHURCHILL, ARCHITECTS

This is a combination candy store, soda counter and restaurant occupying the basement and ground floor. There were few opportunities for any innovations in interior planning and the architects' advice against elaborate ventilating and air cooling systems taking up the small available space was not followed. The architects' contribution was mainly in the treatment of the basement and in the store front.

•

MURAL PAINTING ON CEILING BEAMS

In the basement was found a complicated arrangement of posts and beams that it was thought better not to cover with furring. A novel and amusing solution was to have the beams painted in a conventionalized imitation of steel trusses and have structural steel workers painted on the ceiling. The painting was done by Alfred V. Tulk, of Rambusch, Decorator.

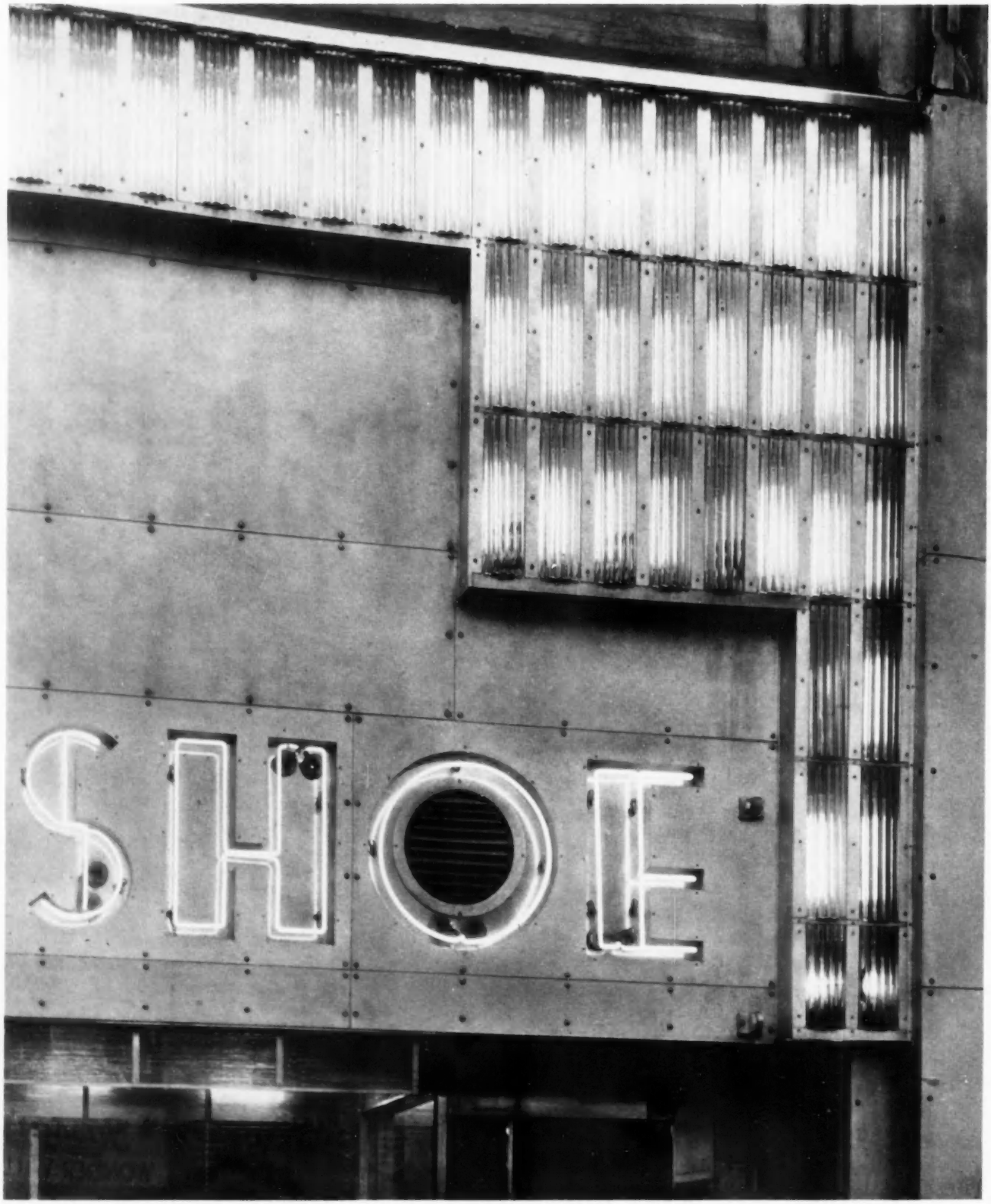
•

SHOP FRONT

The color of the front is a striking contrast of black and chromium nickel with the rear panels of the show windows in the warm brown of zebra wood. The facing is of Belgian black marble, with a band of Heauteville yellow marble under the glass. The lettering and trim are chromium plate and the louvres above the windows of Belgian opal glass.

Two niches in zebra wood flank the entry way and give an opportunity for a special display of a few objects.

Movable wooden display forms were provided in geometric shapes to harmonize with the rest of the design.



DETAIL

SHOP FRONT FOR "LONDON CHARACTER SHOE," SOUTHERN BOULEVARD, NEW YORK CITY

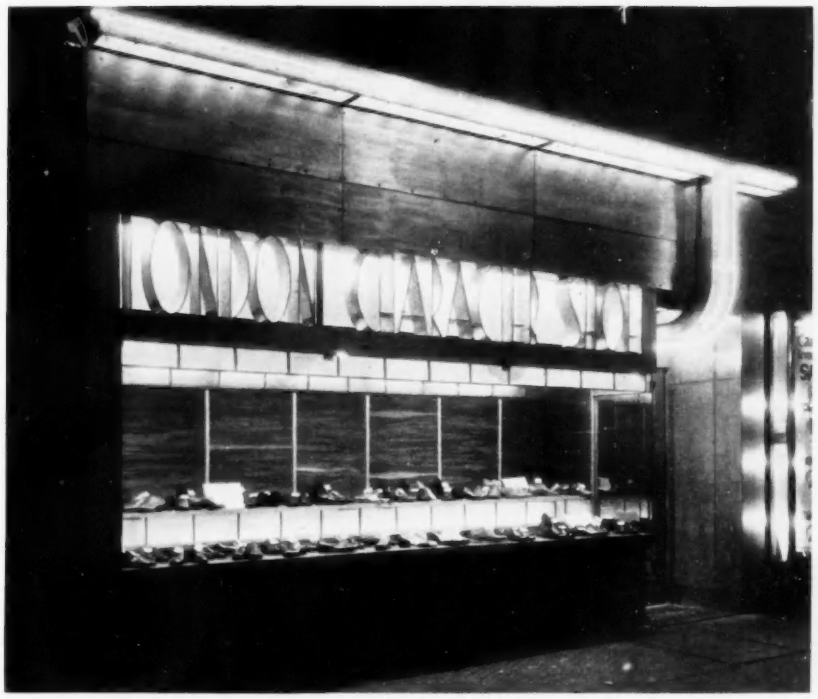
VAHAN HAGOPIAN, ARCHITECT

BY NIGHT

•

SHOP FRONT FOR "LONDON CHARACTER SHOE" NEWARK, N. J.
VAHAN HAGOPIAN, ARCHITECT

The Neon tubes lead the eye to the entrance. The sheet aluminum letters lit from behind, preserve the "thick and thin" elements of type



THREE "LONDON CHARACTER SHOE" STORES

VAHAN HAGOPIAN, ARCHITECT

DESIGN ELEMENTS

Store show windows are frequently too high. The eye is led upwards and away from the display of goods. The glass catches reflections from across the street and has no positive color of its own. By reducing the window height the designer of these stores has made possible a better focused display. Meanwhile the large area above the glass is regained for use as a *publicity poster*.

In all cases (see the succeeding pages) the aim has been to "group the interests", and in all of them the lines of the "poster", an integral part of the design, lead the eye to the entrance.

A further theory expressed in the design is that the men for whom these stores are planned will not go out of their way to do much "window shopping", so the display is, so to speak, brought out to the sidewalk: the window with its display shelf gives this impression because it projects beyond the base of the store.

FITTING TWO STORES UNDER ONE FRONT

The Pitkin Avenue store was first intended as a "tax payer" of 25-foot frontage. The client was to use 15 feet and his tenant 10 feet. By reducing the glass area the architect was able to run a large sign for the owner all the way across the 25-foot frontage and still give the tenant due publicity. By building the sign integrally with the sheet metal front he sidestepped cumbersome legal provisions requiring that the sign must be at a setback.

•

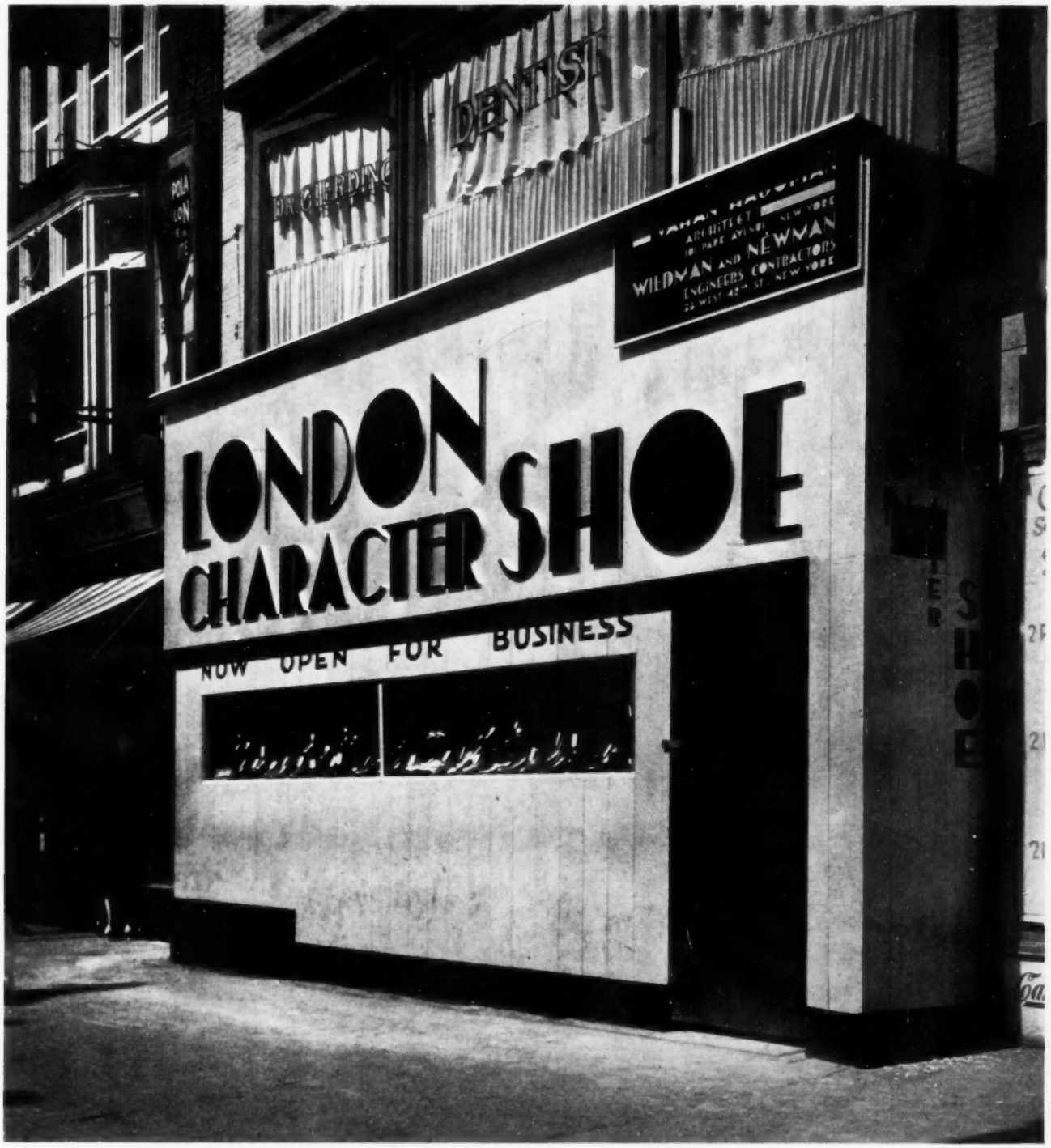
MATERIALS

The material used (see also page 145) to face the buildings is chiefly aluminum. It requires no complicated support; its color always attracts attention, and it was considered the easiest metal to keep clean. The sheets are the largest obtainable, in heavy gauge; the bolting allows free expansion and contraction.

BY NIGHT

BY DAY

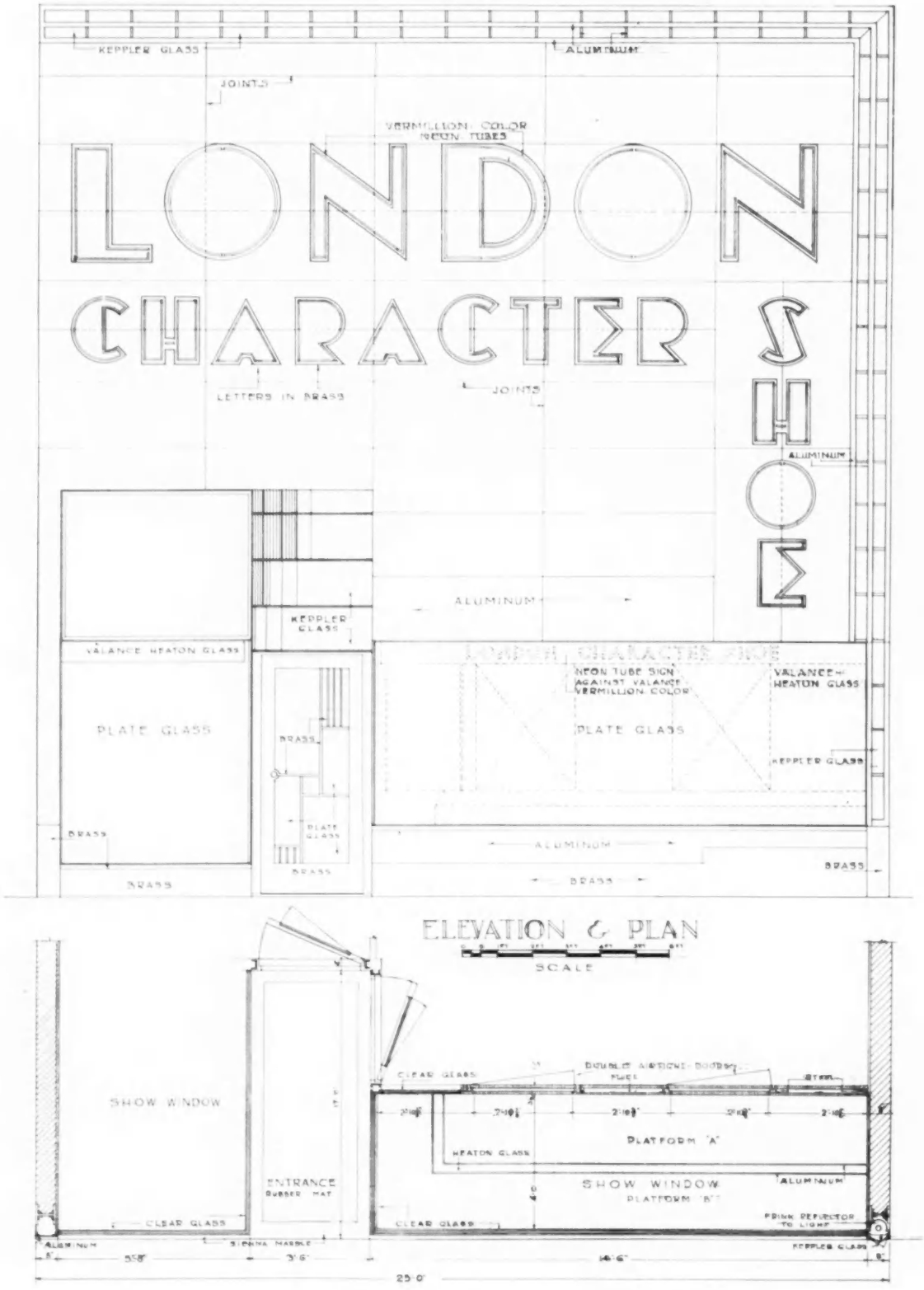
SHOP FRONT FOR "LONDON CHARACTER SHOE,"
957 SOUTHERN BOULEVARD, NEW YORK CITY
VAHAN HAGOPIAN, ARCHITECT



TEMPORARY WOOD FENCE

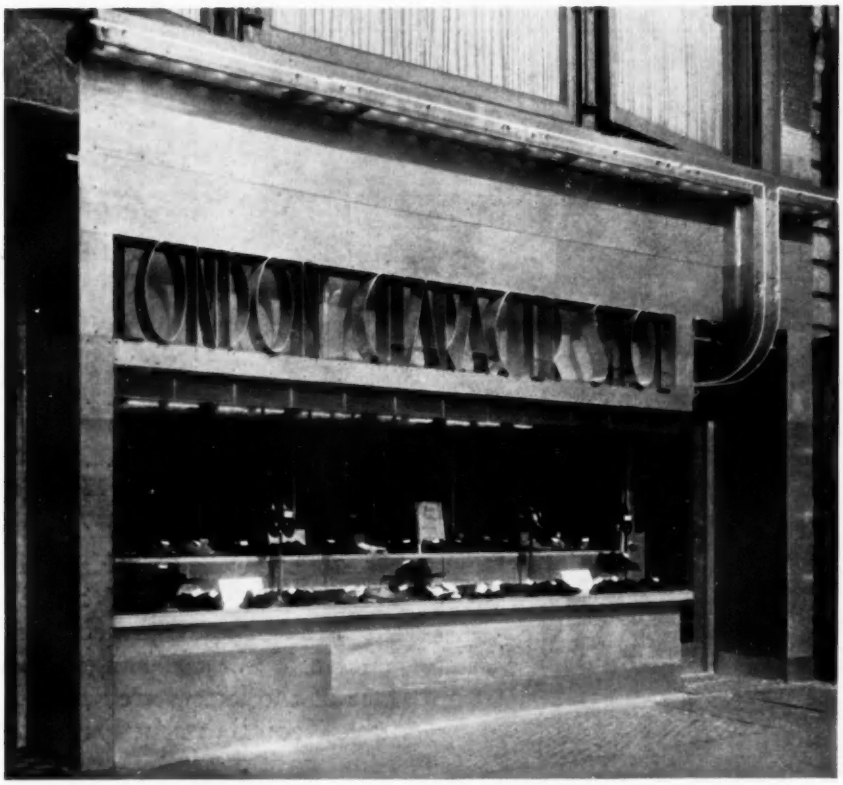
VAHAN HAGOPIAN, ARCHITECT

Built in place at the Broad Street, Newark, store, this was taken apart and re-erected on the Southern Boulevard job (pictured on page 139), enabling the shoe company to carry on business uninterrupted

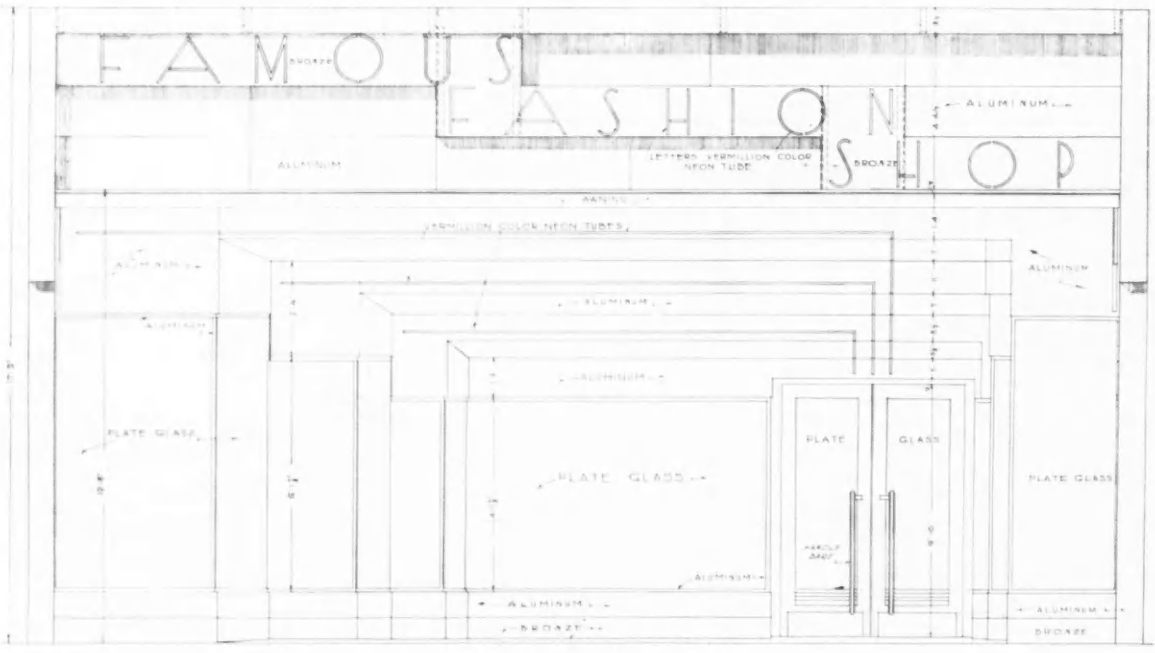


SHOP FRONT FOR "LONDON CHARACTER SHOE," PITKIN AVENUE, BROOKLYN

VAHAN HAGOPIAN, ARCHITECT



SHOP FRONT FOR "LONDON CHARACTER SHOE," BROAD STREET, NEWARK, N. J.
VAHAN HAGOPIAN, ARCHITECT



ELEVATION
Scale

SHOP FRONT FOR "FAMOUS FASHION" SHOP
VAHAN HAGOPIAN, ARCHITECT

STORE FRONT LETTERING, VAHAN HAGOPIAN, ARCHITECT. SEE PAGE 140 FOR PHOTO

LETTERING AS AN ELEMENT OF STORE DESIGN

THE successful commercial building has its lettering designed as an integral part of the architecture. The character of lettering used and its placement aid in creating a composition. And, above all else, attention must be drawn to the letters by any means whatsoever; by their size, by surrounding space or by color or illumination. Besides attracting attention, they should be easily read. Legibility and a free decorative quality combine as essential attributes for the shop sign.

The alphabet of sign lettering is derived from advertising or poster art and has very little in common with the usual architectural capitals of classical origin.

For the sign that is not illuminated the letters should generally be bold face and contrasted in color and material with their background. Boldness may also be obtained by use of sheet aluminum, monel, chromium plated steel or other metals with letters having depth rather than width (as in illustration, page 143).

The increasing prominence of luminous tubes for signs has placed a new medium of expression at the command of the architect, requiring a new technique and a recognition of the great possibilities for combining color and illuminated designs with building identification. Lighting tubes may compose letters with the freedom of script or they may be combined with cut-out shapes of wood or metal to make the sign effective both by day and night.

Illustrations

The store by V. Hagopian, architect, (page 142) has letters made of sheet iron with 2″ flanges projected from the face. The inside of the flanges and the exposed face of the letters are painted dull red, and have Neon lights (red) on the under side to illuminate the letters.

The letters used in the Newark store are of sheet aluminum, seen on edge in elevation, 3/8″ thick and 6″ deep. These letters are seen in perspective with sun shining upon them by day, or light projected from the back at night. They have the thick and thin elements that you would have in ordinary flat letters.

In the Southern Boulevard example the letters are cut out of the surrounding sheet aluminum and sunk back 2″, the back being of brass. A Neon tube is brought flush with the face so that at night the letters are very distinct.

The store by Thompson and Churchill (pages 135–137) has a very effective lettering design. The illumination over the doorway is so designed as to suggest entry, and the lines above the windows also lead naturally to the door.

The architects state that on future similar projects with black background they will use some other material such as dull aluminum, since chromium plate reflects too much black to stand out as it should.

HONORE PAYAN

HONORE PAYAN
PARIS
ERIC BAGGE, ARCHITECT

Editions Moreau

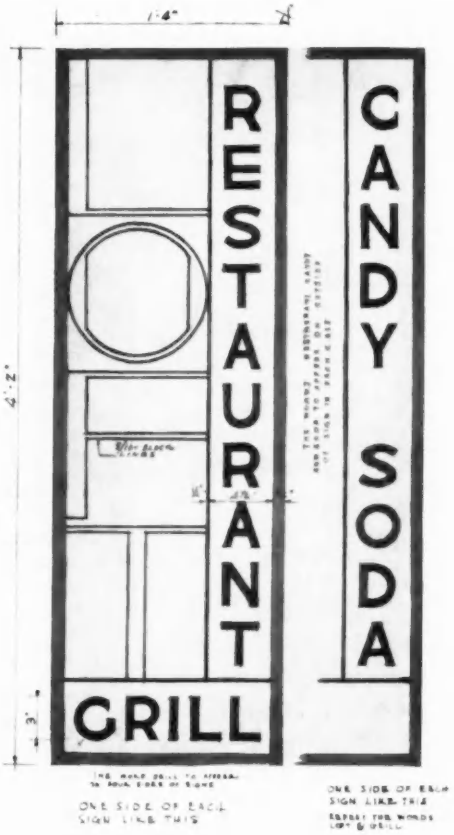
ALFA-ROMEO

ALFA ROMEO GARAGE
PARIS
ROB. MALLET-STEVENS,
ARCHITECT

Editions Moreau

Editions Moreau

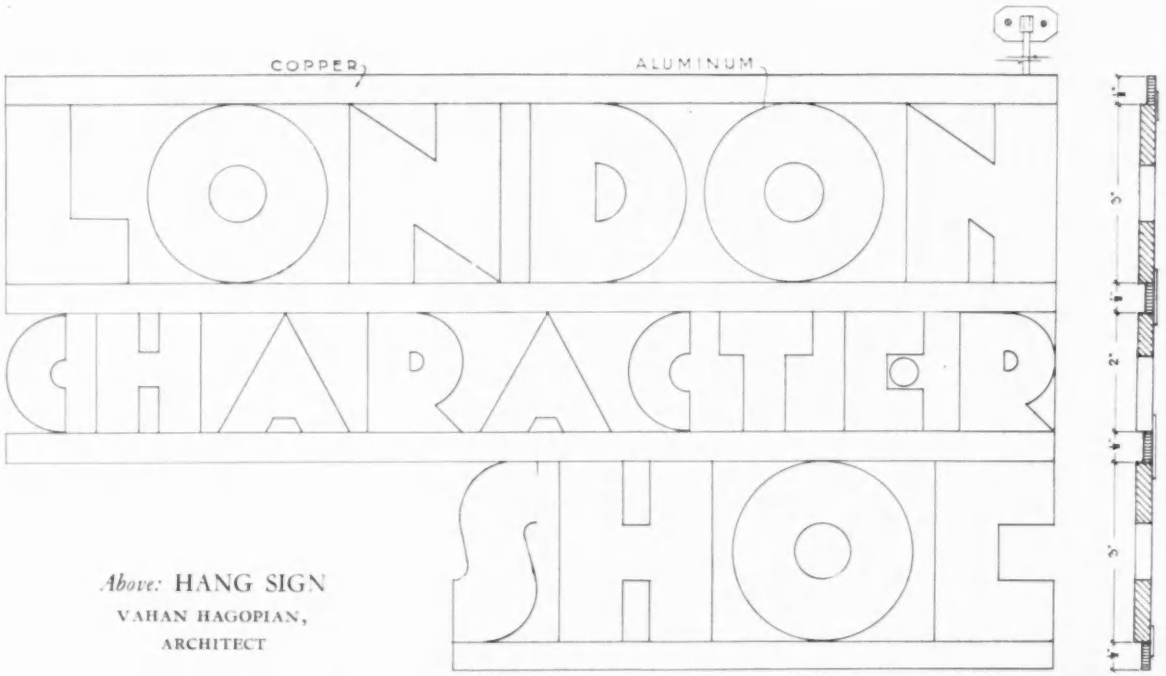
Editions Moreau



ILLUMINATED BOX SIGN
STORE FOR LOFT, INC.
THOMPSON AND CHURCHILL, ARCHITECTS

Upper Left: CLARIDGE'S SHOP, PARIS
FRANCIS JOURDAIN, ARCHITECT

Lower Left: L INTÉRIEUR MODERNE, BRUSSELS
VAN TONDEREN, ARCHITECT



Above: HANG SIGN
VAHAN HAGOPIAN,
ARCHITECT

At Right: PHARMACY
CONSTANT SMEULDERS
SERVRANCKX, ARCHITECT

Editions Moreau

Below: WINDOW SIGN
VAHAN HAGOPIAN
ARCHITECT

Courtesy C. Morgan

COVANNA SPORT CLOTHES

PATOUT, ARCHITECT

The lettering is delicate. The emphasis on the entrance

SCHOCKEN DEPARTMENT STORE, STUTTGART, GERMANY

ERICH MENDELSOHN, ARCHITECT

Note the glass tower at the further end. The lettering is an integral part of the architectural design

STANDARDIZING ARCHITECTURAL DRAFTING ROOM PRACTICE

BY THOMAS E. FRENCH

THE architect is an individualist, as rightly he should be, and his ideas done into brick and stone are the ultimate expression of his individuality. Authors, too, are individualists. Bernard Shaw and G. K. Chesterton each has a style of his own and the writings of one could not be mistaken for the other. But in writing, both Shaw and Chesterton follow the rules of English grammar and use the same alphabet, the same spelling, the same kind of punctuation marks, all standardized by the dictionary that both accept and with which their readers are familiar.

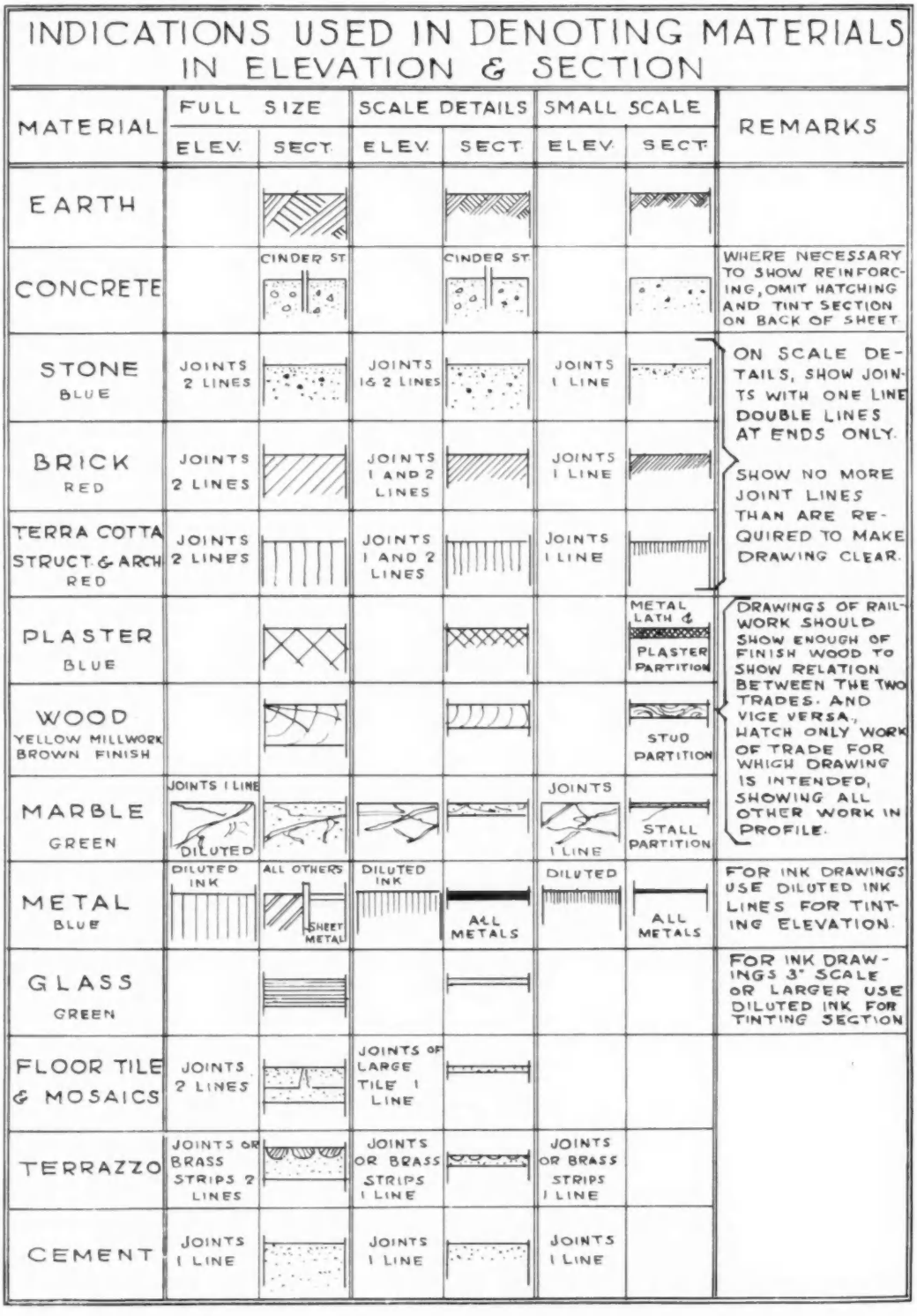
The architect in recording his ideas for his readers, the builders, uses a *graphic* language with an alphabet of lines instead of letters, his grammar the systems of projection, and his idioms the various symbols and conventions designed to represent different features and materials. Why then should there not be a standard dictionary of this graphic language, so that architectural draftsmen might all be able to speak it in the same way and be understood by their readers, instead of each having a dialect of his own? Does it not seem almost presumptuous for an office to say to a contractor, "If you wish to read our drawings you will have to learn our local language." Is there, for example, any more reason for there being a half-dozen different symbols for representing concrete in section than there would be for having six different ways of spelling the word concrete?

There is no doubt that the feeling of individuality tends to prevent the architect from being much interested in any apparent attempt to dictate his means of expression. He dislikes even the word "standardization". But it is a question whether a better uniformity in the "instruments of service" would in any way hamper his freedom or originality in design, while if a code of procedure adequate in its scope and economical in time could be adopted, it would certainly be of great advantage to both readers and writers of the thousands upon thousands of drawings produced yearly by the architectural profession.

In the interrelation of professions, other engineers, mechanical, civil, electrical, as well as contractors and material men, must read and work from architects' drawings, and architects very often have to read machine and structural drawings. The graphic language should be fluent enough and flexible enough that a writer in any one of these professions could express himself perfectly in it, and be understood easily by one in another profession.

There has already been a recognition in one case, of the advantage, really the necessity, for some accepted system of symbols in the interrelation of architectural drawings. The American Institute of Architects together with the American Institute of Electrical Engineers and the Association of Electragists, International, sponsored the project of the American Standards Association for the standardization of symbols for the electrical equipment of buildings, adopted as an American Standard in 1924. There is also being considered at the present time a tentative proposal for plumbing symbols.

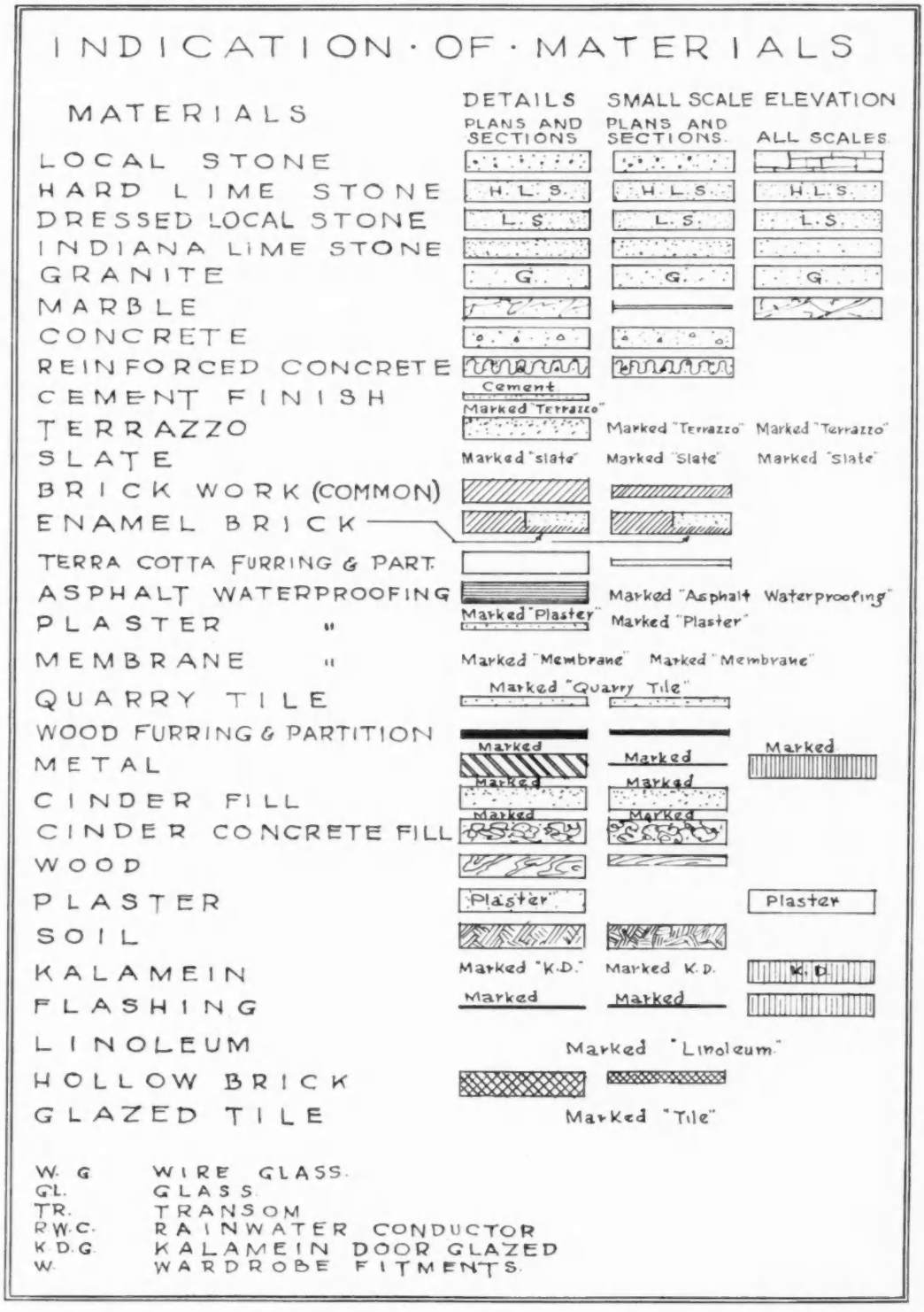
While there may be on the part of the architect, as an individual, an aversion against anything connected with standardization, there is an appreciation of its value. He will, for instance, insist that if manufacturers wish him to preserve their advertising matter they must print it to a certain size and with certain kinds of title, in conformity with the A. I. A. Standard Filing System, even though he might resent any proposal that architectural drawings be made to certain specified sizes. In subjects other than those connected with drawing, the American Institute of Archi-



FROM DRAFTING ROOM MANUAL

OFFICE OF HOOD, GODLEY AND FOUILHOUX, ARCHITECTS

The indication of materials is determined by personal selection irrespective of the practice in other offices



DRAFTING PRACTICE

OFFICE OF CHAS. Z. KLAUDER

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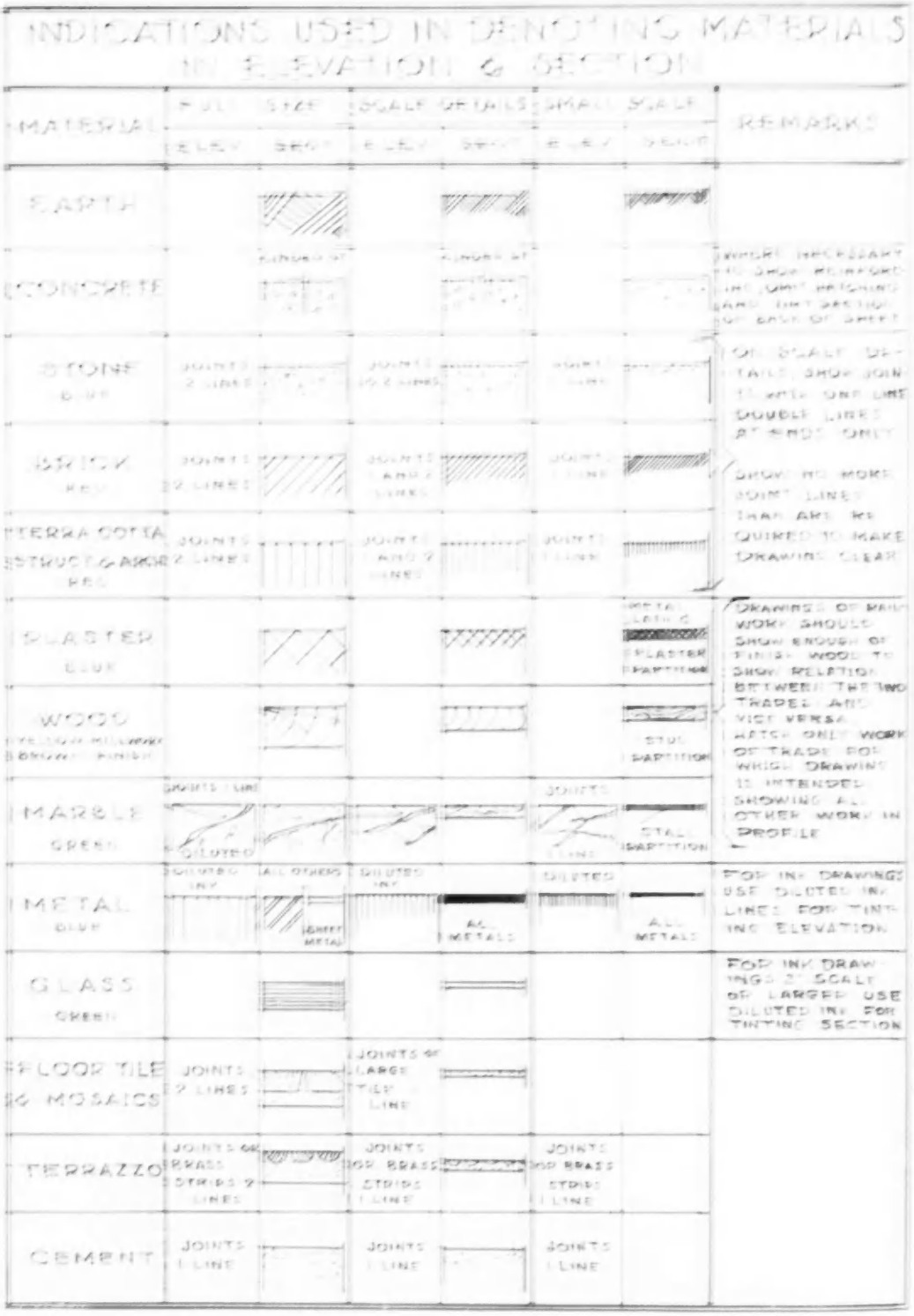
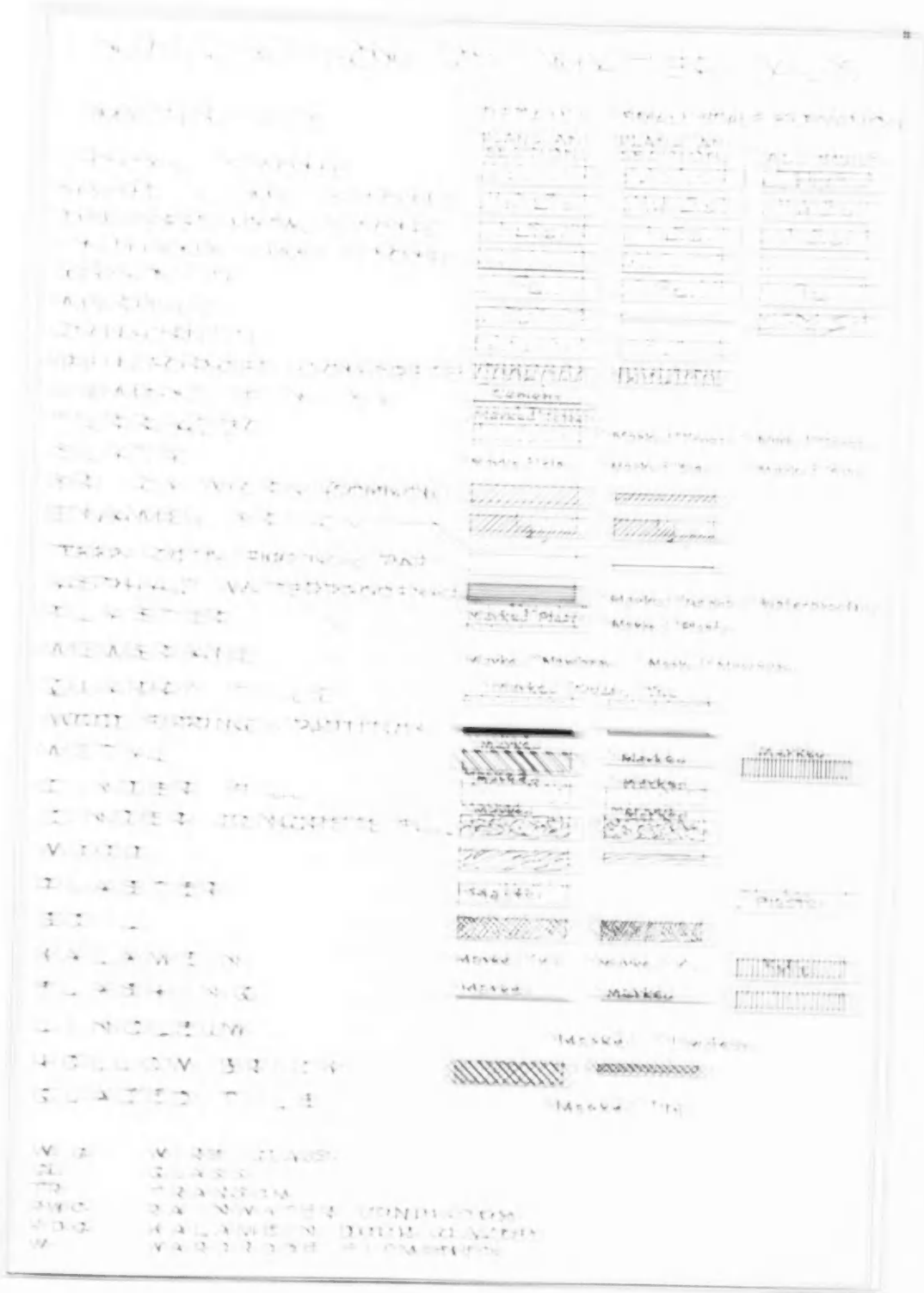


FROM DRAFTING ROOM MANUAL

OFFICE OF HOOD, GODLEY AND FOUILHOUX, ARCHITECTS

The indication of materials is determined by personal selection irrespective of the practice in other offices.



DRAWING PRACTICE

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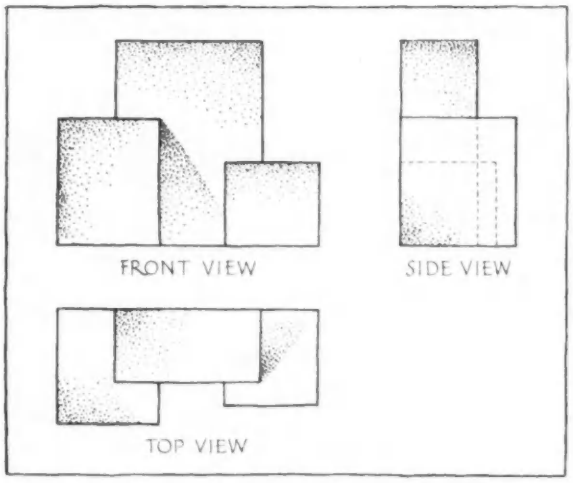


FIGURE 1
FIRST ANGLE PROJECTION

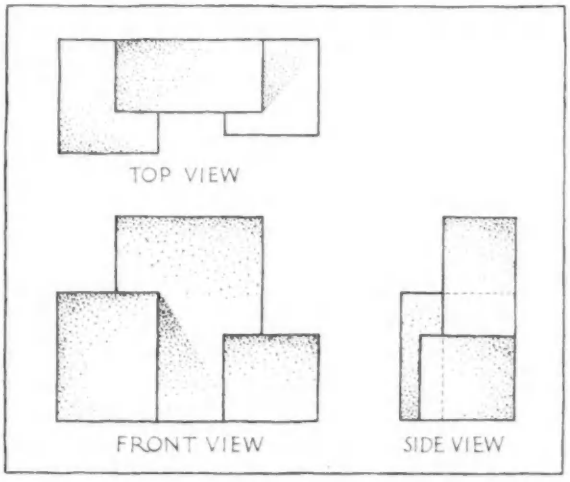


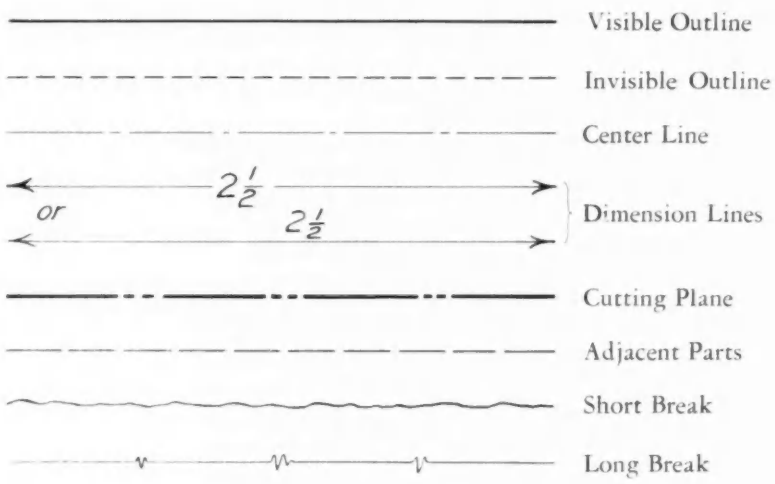
FIGURE 2
THIRD ANGLE PROJECTION

"There is occassionally a danger of error . . . An architect made the details of a rather expensive piece of cut-stone work in one system and the stone-cutter read the drawings as in the other system . . . The work was all finished reversed left for right"

tects is cooperating with the American Standards Association in no fewer than twenty different standardization projects, of such a variety as to include standard specifications for Portland cement; fire test methods; building exits code; safety codes for construction work, elevators, floor and wall openings, walkways, electric work and gas; identification of piping; lighting of school buildings; architectural terra cotta; brick masonry; refrigerators, etc., all of which will be of distinct advantage to the profession.

Several years ago the American Standards Association took up the question of standards for drawings. After some correspondence with the American Institute of Architects the title of the project was made "Standards for Drawings and Drafting Room Practice (Exclusive of Architectural Drawings)". The committee for this project, comprising representatives of some thirty national societies, with the U. S. War and Navy Departments and Bureau of Public Roads, is at present at work on a comprehensive study of the subject assigned, including not only methods of representation but sizes of drawings and filing cabinets, methods of folding and punching, specifications of materials for drawings, etc., etc. When this work is completed and formally adopted by the American Standards Association there will for the first time be an authoritative American Standard for the graphic language, to supersede the local codes and rules of practice now existing in the drafting rooms of the country.

It will be based on the conception that drawing is a universal language, with different vocabularies for the different professions, but having fundamental principles and methods common to all. No doubt one of the first principles to be officially adopted will be the system of third angle projection, or, as it is known in Europe, "American projection". This has been the almost exclusive practice in manufacturing concerns in this country for a good many years, but architects' drawings are frequently seen drawn in the first angle. Architects have on more than one occasion remarked to the writer that it made no difference to them whether a drawing was in first or third angle projection. As a matter of fact it not only makes considerable difference to the reader of the drawing but there is occasionally a danger of error. A local example comes to mind, in which the architect made the details of a rather expensive piece of cut



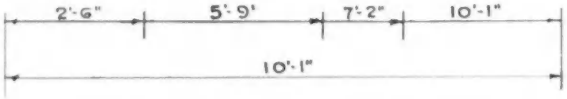
stone-work in one system and the stone cutter read the drawing as in the other system, with the result that the work was all finished reversed left for right.

The terms first and third angle (or quadrant) taken, as will be recalled, from descriptive geometry, refer of course, to the arrangement of views and not to the views themselves, and so do not apply to drawings with only one view on a sheet, but to drawings containing two or more projections of an object. Figure I illustrates a first angle projection and Figure II a third angle projection of the same object. This principle does not preclude the placing of a building plan under an elevation. A plan is really a horizontal section and as such can be put wherever convenient. A common application of this occurs in structural drawing practice as in the plan view of the lower member of a truss, placed under the elevation and read as a section above the flange looking down, not as a bottom view looking up.

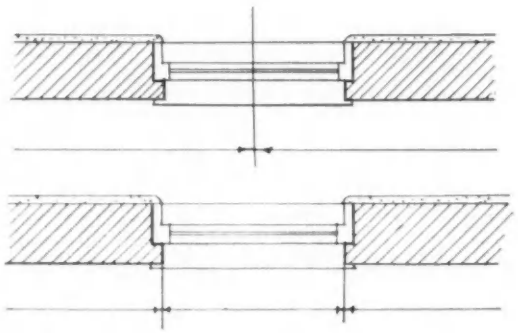
The lines to be proposed in the new standard are already in general use in machine drawing and, as far as they are applicable, have been used by perhaps the majority of architectural draftsmen. Other needed line symbols could be added for drawing, such as the ditto or repeat line, and lines for the "utilities", sewers, water, gas and electricity. The proposed rules for dimensioning also follow good current practice. The architect, of course, uses a lighter outline than does the machine draftsman and his drawings have an artistic effect entirely different from a set of machine drawings. In proposing uniformity of practice in line symbols and dimensioning, there would be no infringement of the architect's individuality in indication or presentation.

Another essential difference between architectural drawing and machine drawing is that in architectural drawing the necessary smallness of scale requires that the general drawings be made up largely of conventional symbols, as for walls and openings, while in machine drawing, where it is rare to use a scale smaller than quarter size, the machine is completely described by the lines in the drawing. Thus a standard to cover architectural drawing would have a vocabulary of symbols for different features occurring on the drawings.

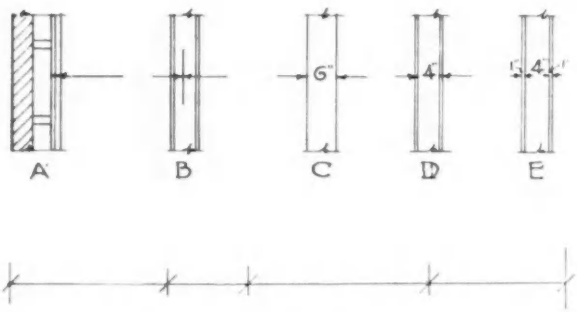
It is believed that the majority of men in the architectural profession will welcome the proposed standards for drafting room practice "exclusive of architectural drawings" and use the parts that apply to their work. It should be possible later to ask the American Standards Association, which, with the cooperation of its two hundred National societies, is the one body qualified to make a National Standard, to extend the scope of the present work so as to include architectural practice.



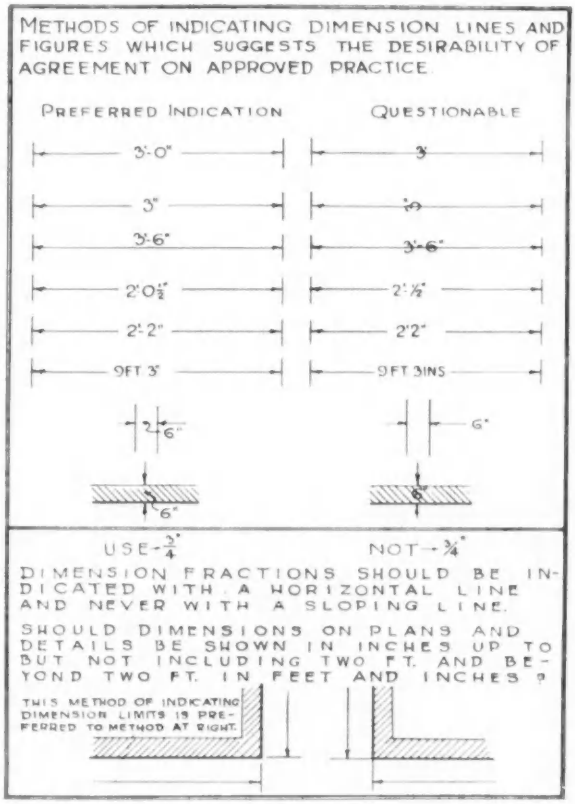
The cumulative method of indicating dimensions as shown above is misleading



Should windows be dimensioned from center to center or from edges of openings?

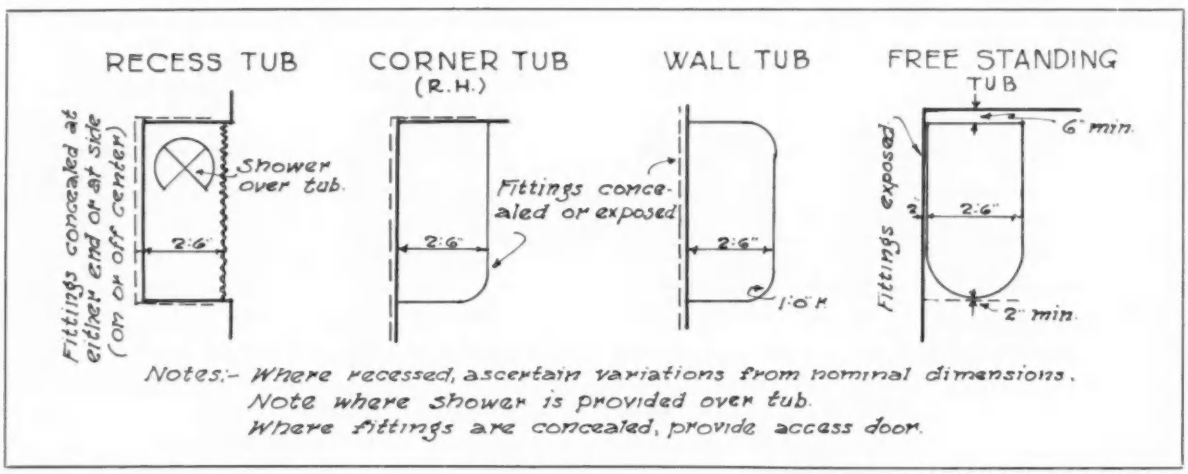


A single sloping line is sometimes used as a substitute for arrow heads



At Left: Should dimensions for inside partitions be indicated from inner face of outside studs and to center of inside partitions as in A and B? Some offices follow the practice of terminating dimensions at finished face of wall as in Example C. Other offices dimension to face of stud, brick or tile as in Example D

Below: The practice of one office (Hood, Godley and Fouilhoux) in indicating various types of tubs. Should there be a standard?



NORTH ITALIAN BRICK CHIMNEYS

BY MYRON BEMENT SMITH

PART IV

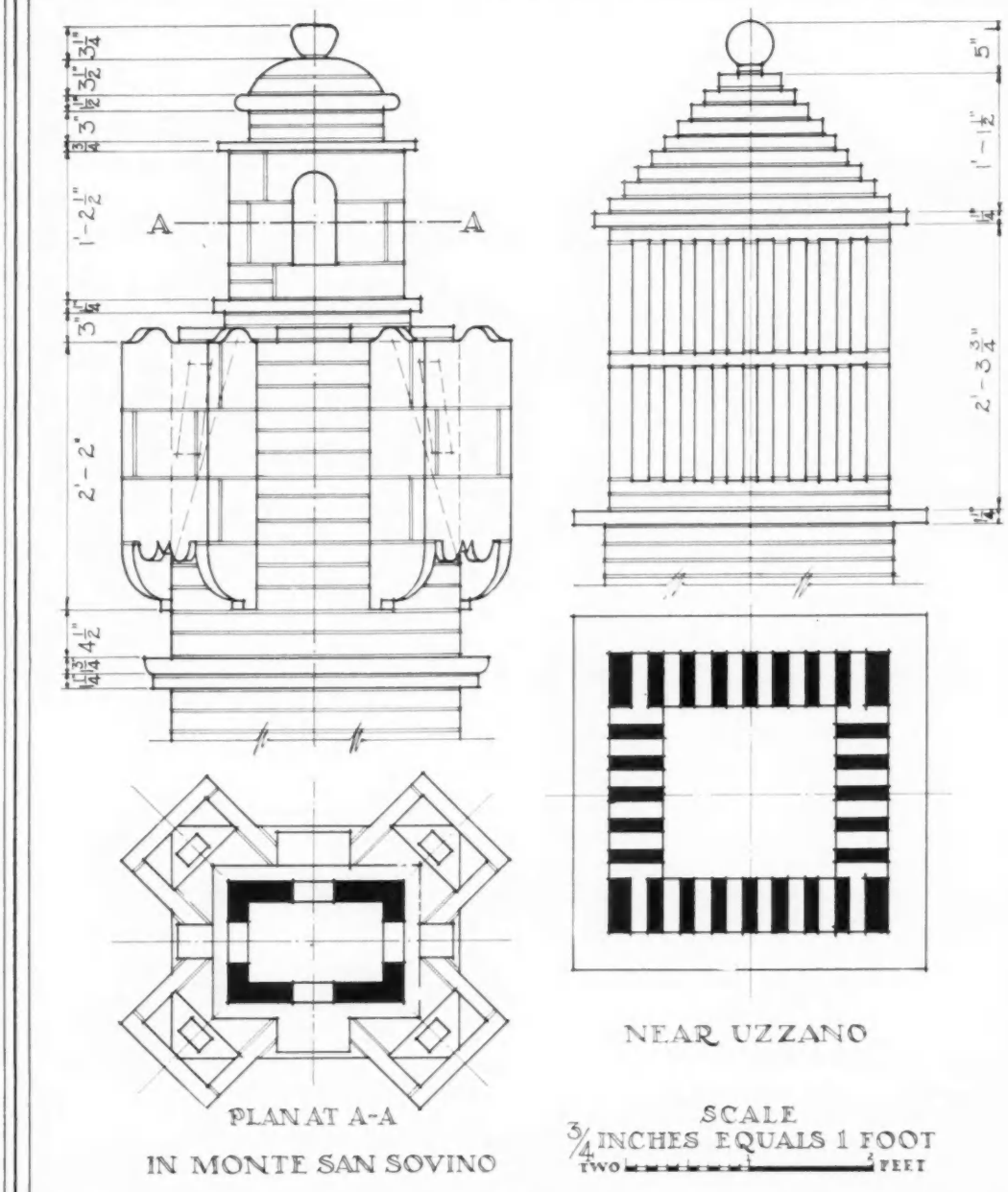
MONTE SAN SOVINO, the birthplace of the architect who made the village better known than did the saint for whom it was originally named, lies on the road from Arezzo to Siena. In this Tuscan hill town, within sight of the Chianti mountains, are hidden buildings and details by several better known Renaissance architects, including a palace by the great San Sovino the elder. It would be pleasant to assume that some of the unusual brick chimneys of Monte San Sovino were built from designs originated by these hands, but it is more likely that these chimneys were the work of native masons in the sixteenth or early seventeenth centuries.

Figures 50 and 51, drawn as plates VIII and IX, are from the same roof and were originally dressed in thin gesso save for the projecting courses which were left bare. Figure 52 is a later work obviously influenced by the preceding two. The one shown as figure 53 probably antedates the others by two centuries. Here the small scale corbeling is worked out in cut bricks.

Near Florence are found the two curious concoctions numbered figures 54 and 55. They are straight brick construction with no cut work or special mouldings. Pieces of curved roof tile and plenty of mortar form the cone-shaped finials. On the roof of a brick kiln nearby is the well-blackened example, figure 56 and part of plate VIII. Save for the terra cotta ball this is made up of stock brick with two courses of thinner flooring brick for the projecting courses. Figure 57 is a heavy Baroque chimney from the Pitti Palace in Florence. The *intonaco* which covered the exterior and which supplied much of the curve for the upper part is now flaking off. The Pitti originally was furnished with perhaps a hundred chimneys of slightly varying designs which must have presented a striking effect when viewed from the Boboli gardens. Unfortunately the officials in charge of this monument have seen fit to amputate most of these chimneys, substituting a few rectangular cement ventilators. Across the Piazza del Pitti, on the roof of a small palace, is the long multiple-flue chimney, figure 58, a clever construction of flat and curved roofing tiles and flat gutter tiles in the valleys. Figure 59 is a new chimney in thin brick from a farmhouse, well whitewashed, while figure 60 is an example from Florence, using cement mortar.

The little round chimney, figure 61, with its coat of fresh paint, is modest in comparison with the Roman pair, figure 62 and plate X. In these sixteenth century Baroque examples the brick is used only to form a base for the stucco which in turn is covered with bright yellow water paint. Also from Rome is the heavy construction of figure 63, here done in stucco over brick but equally effective if reproduced in form-cast concrete. The last chimney shown, figure 64, is a three-flue affair from Sesto, a village near Florence. The flat tile, bent slightly and used for the upper vents, is the ridge tile common in the province.

The one practical observation to be made after studying these unusual and interesting specimens of masonry is a word of warning to designers who would attempt a cold reproduction of some of these chimneys. Do not try to build with so-called face brick, or try to get along with one thickness of brick. Use common brick, the commoner the better. For the projecting mouldings use a thinner brick, preferably as thin as an inch and a half, keeping the mouldings as light and simple as possible.



NORTH ITALIAN BRICK CHIMNIES

PLATE VIII · TUSCANY

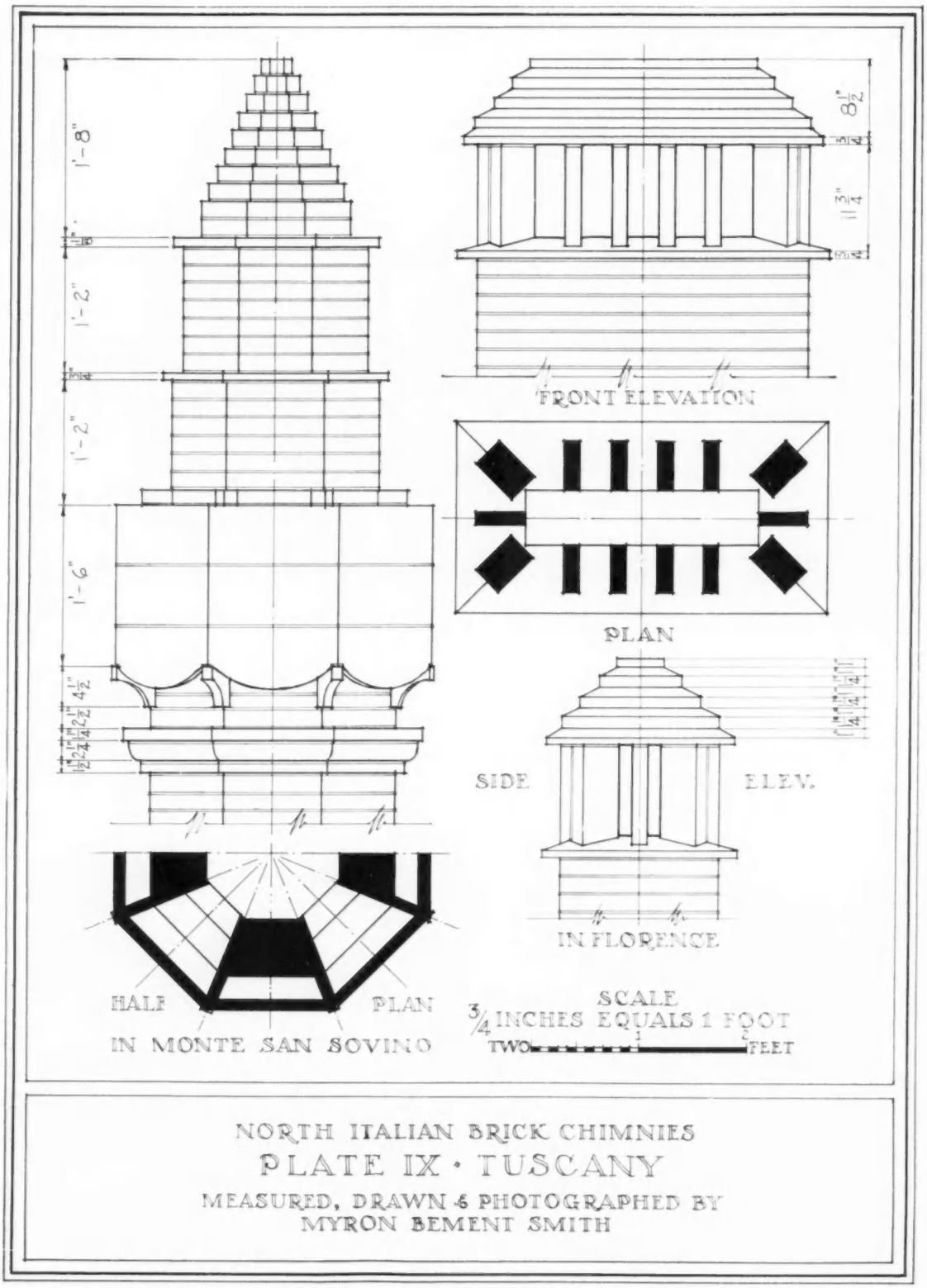
MEASURED, DRAWN & PHOTOGRAPHED BY
MYRON BEMENT SMITH

FIG. 50. MONTE SAN SOVINO

FIG. 51. MONTE SAN SOVINO

FIG. 52. MONTE SAN SOVINO

FIG. 53. MONTE SAN SOVINO



NORTH ITALIAN BRICK CHIMNIES

PLATE IX · TUSCANY

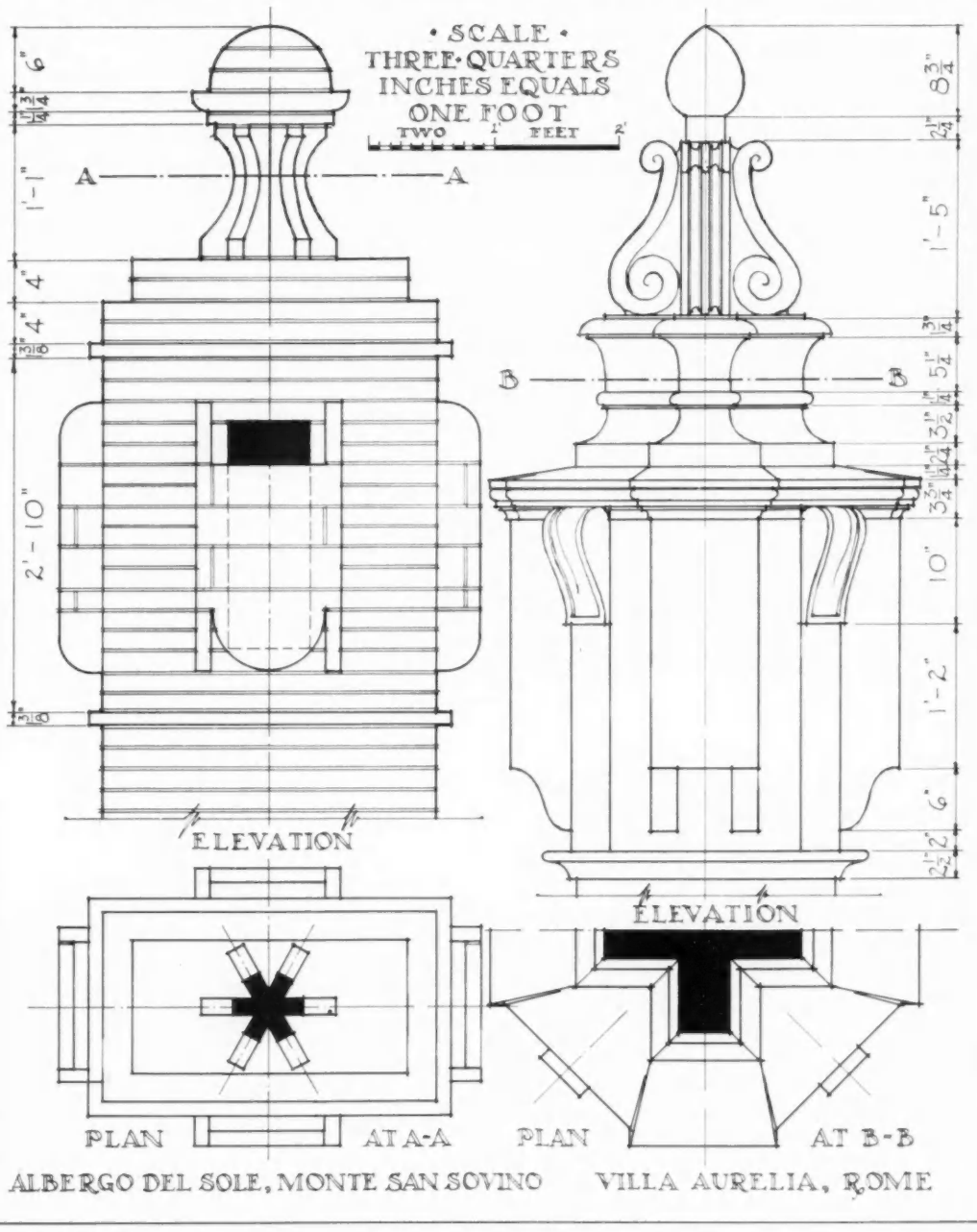
MEASURED, DRAWN & PHOTOGRAPHED BY
MYRON BEMENT SMITH

FIG. 54. GREVE, NEAR FLORENCE

FIG. 55. GREVE, NEAR FLORENCE

FIG. 56. NEAR FLORENCE

FIG. 57. PITTI PALACE, FLORENCE



NORTH ITALIAN BRICK CHIMNIES

PLATE X · TUSCANY AND ROME

MEASURED, DRAWN & PHOTOGRAPHED BY
MYRON BEMENT SMITH

FIG. 58. PIAZZA DEL PITTI, FLORENCE

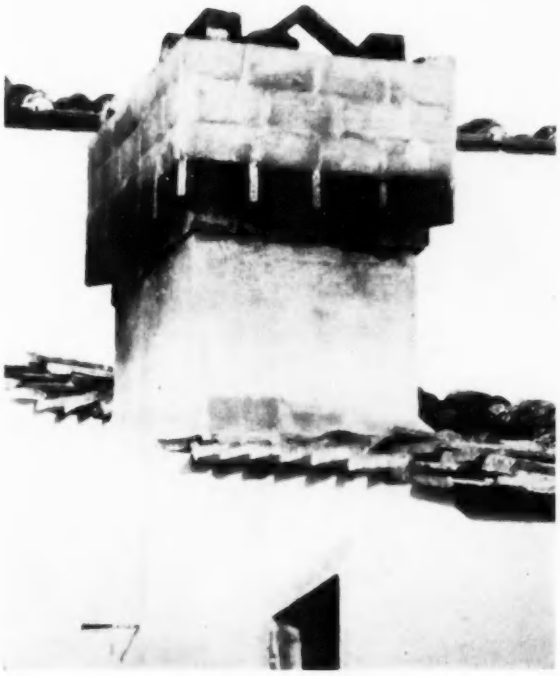


FIG. 59. NEAR FLORENCE

FIG. 60. PIAZZA SS. TRINITA, FLORENCE

FIG. 61. FLORENCE

FIG. 62. VILLA AURELIA, ROME

FIG. 63. DOMINE QUO VADIS, ROME

FIG. 64. SESTO, NEAR FLORENCE

THE BEACH AT VEVEY-CORSEAUX, SWITZERLAND

OTTO ZOLLINGER, ARCHITECT

What makes this one of the most interesting European constructions of the year is its extraordinary management of purely functional elements. One would call this a very "clean" piece of engineering, were it not more than that, a piece of vivid architecture.

•

STRUCTURE AND MATERIALS

As the illustrations show, with very little need of further explanation, the architect and his engineer exploited the possibilities of reinforced concrete. It is used in thin sections, ingeniously cantilevered.*

The pebbled texture of all concrete surfaces was obtained by painting the forms with *Contex*, a thick fluid which prevents the cement from binding, to a depth of 3 mm. (about ⅛″). After the concrete had set, it was brushed. This kind of surface it is claimed cuts the cost of maintenance and cleaning.

The walls of the house (a remodelled *chalet*) were covered with hydraulic lime mortar and painted a brilliant white.

•

PLAN

The three focal points of the plan were the approach, the house with tea-room and dance hall, and the strand. Due to the gentle slope of the land, separate ascending levels are occupied by the beach, the playgrounds, and the tennis court, while the tea room and dance hall building with its terrace dominates the site.

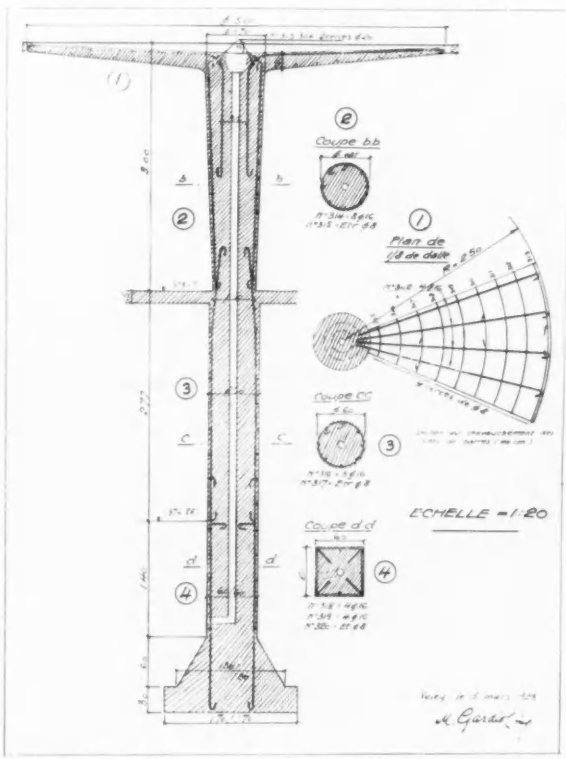
•

COLOR

All colors are designed to play into the natural gray of the concrete and the pure white of the dominating building walls. The porch of the tea room is painted black; the facades of the cashier's building and the laundry are a fiery red. The doors of the dressing rooms directly opposite the lake are blue with a horizontal stripe at the threshold of luminous red. The shields carrying the numbers are a sharp yellow, on the blue ground. On the grass to the right of the house, under the deep green of the park trees, are two other groups of cabins: one with yellow doors and blue stripes, the other with red doors and yellow stripes.

The interior walls and the ceiling of the tea room are plastered and painted with yellow lacquer (*emaillack*). The circles of light (see page 167) are of neon tubes, the colors changeable at the wish of the dancing master.

The floors are in several colors of extra-strong linoleum.



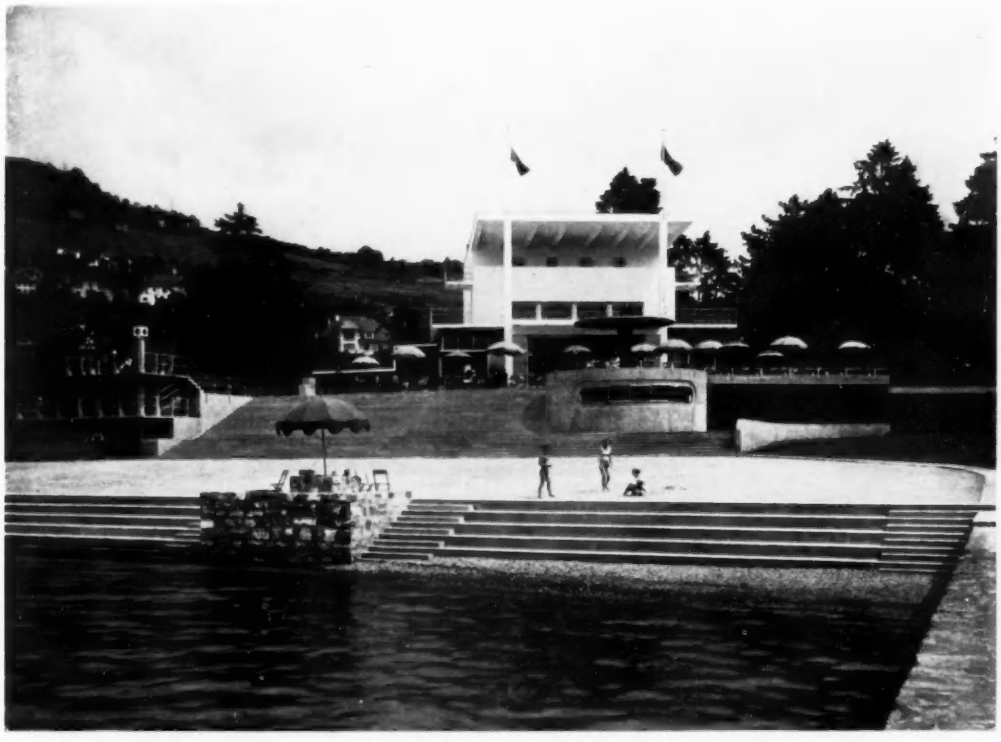
SECTION OF CONCRETE SHADE AT VEVEY
OTTO ZOLLINGER, ARCHITECT
(See photograph on page 164)

* The calculations for the diving tower are on file at the office of THE RECORD, and copies will be forwarded to those requesting them.

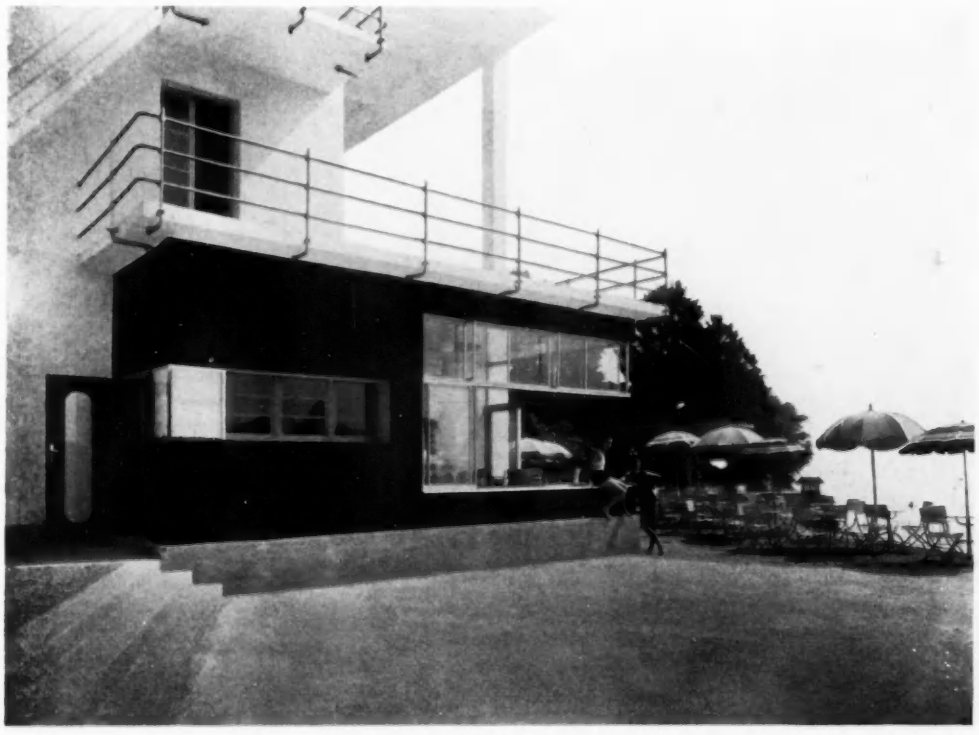
DIVING TOWER

BEACH AT VEVEY-CORSEAUX, SWITZERLAND

OTTO ZOLLINGER, ARCHITECT



NOTE THE CONCRETE SHADE; UNDER THE TERRACE ARE DRESSING ROOMS

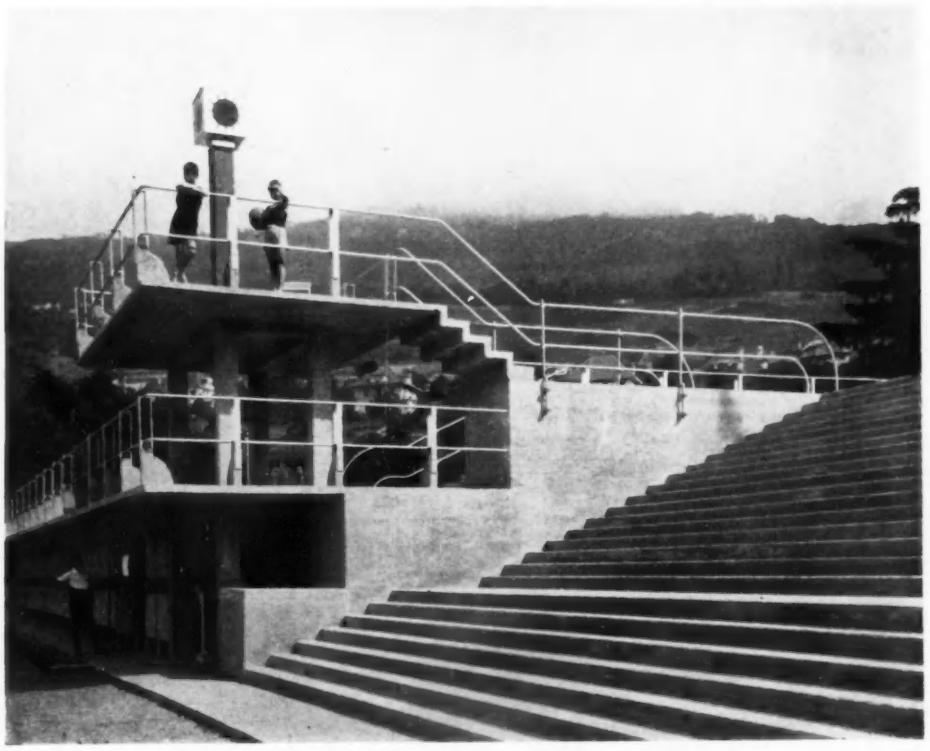


PORCH OF THE TEA ROOM

BEACH AT VEVEY-CORSEAUX, SWITZERLAND

OTTO ZOLLINGER, ARCHITECT

CONCRETE SHADE ON TERRACE



CLOCK AND DRESSING ROOMS

BEACH AT VEVEY-CORSEAUX, SWITZERLAND

OTTO ZOLLINGER, ARCHITECT

A LETTER TO THE RECORD

PATRONS OR CLIENTS?

The following is a reply to the editorial in the December RECORD, *called "Patrons of Architecture."*

Today I am riding between Chicago, Illinois, and Spring Green, Wisconsin. Chicago, like New York City, is well known to all architects because of its rapidly changing sky line due to the development of the skyscraper, believed by many to be America's contribution to architecture. Well, the height is, but the facade in most instances is merely an adaptation. And Spring Green is known to only a few as the village wherein lies Frank Lloyd Wright's Taliesin, the home—"that does not suggest that the architect is his own best patron." How little Mr. Hitchcock understands!

Between these two geographical points I pass through many villages and towns, and I see and grow tired of seeing houses and buildings that, to Mr. Hitchcock, must have been created by and express "the general public taste, knowledge and appreciation." For he claims that architecture, "to an extraordinary extent," is dependent upon that.

But not until tonight when I arrive at Spring Green and journey four miles into the country will I see a true example of good architecture since I left Unity Temple this morning. Taliesin grows from the ground in such perfect harmony with its surroundings that one feels as though a greater hand than man's had placed it there. Not so with these houses I see along the right-of-way.

Architecture is like medicine as a profession. Is it necessary for a physician to have a patron of medicine for a client? A man who will select an architect for the purpose of designing a building for him knowing all the while that he considers himself, or is considered by others as a patron of architecture, is nothing more than a liability to the architectural profession.

Working drawings are a mere gesture when compared with the actual designs of a building. After having conceived the designs for a building it is only a secondary step to make working drawings. So that if one of these so-called patrons of architecture knew what he wanted he could act as his own architect having an efficient draftsman produce working drawings from sketches provided. They do not, however; they prefer to employ an architect.

Laymen take a certain pride in saying that, "My house was designed by ———." But I think it would be more proper to say, "——— made the drawings for my house—I told him what to draw."

That is nearer the truth; and the architect, in order to hold the commission, submitted to the fancies of his client. That is, I think, what Mr. Hitchcock considers a patron of architecture—one who takes an active but destructive part in the designing of his building.

A man who can honestly be called an architect should be permitted to give a client what he thinks is the best solution to his immediate problem, all of the while keeping within the client's limits. The client should have the faith in his architectural choice to accept the solution without trying to alter it aesthetically.

When that perfect harmony between architect and client is reached, architecture will be what I expect it to be. Until then we will have what I see from the train window as we travel on.

There is no need of debasing architecture to the point where the voice of the people is the final word in architectural design. And if that is the general feeling, why continue to teach architecture?

The world would come to be a most livable place if all architects could be classed as architects and all clients as clients.

GEORGE EDWARD CRONIN,
Taliesin

Photo McLaughlin

MONUMENT TO THE ARCHER

CARL MILLES, SCULPTOR

The man is bronze with bow gilded; the eagle is black granite; the column is veined and polished granite

THE CRAFTS IN MODERN SWEDISH ARCHITECTURE

BY ROBERT W. McLAUGHLIN, JR.

The many buildings in Stockholm which are built of the granite on which the City stands can hardly fail to belong to their environment. The Swedes know how to mellow the harshness of this material without destroying the character of its strength. The capitals and columns of the southern arcade of Mr. Ostberg's City Hall are granite from the west coast of Sweden, pinkish in tone, thus blending with the warm red brickwork. The effect of the stone here in relation to the brick is not one of trim; it is of another noble material used in a minor and sympathetic way. The soft quality of finish is obtained by a process of sand blowing, known as "osmund blasting", with some portions of the sculpture polished and brought to a honed finish.

The possibilities of black granite are masterfully worked out by Carl Milles. Professor Milles, who is a sculptor and ranked as Scandinavia's greatest, has a rare architectonic sense. His monument to the archer is a splendid medley of materials. The man is bronze with bow gilded; the eagle is black granite; and the column veined, polished granite. The eagle happened to be in Professor Milles' studio having been taken down for repairs while the writer was in Stockholm. The sheer tactile delight, as one's eyes or one's hands followed the consummately worked granite surface could be produced only by a supreme artistry in materials. This capacity for creating the utmost of artistic form out of the content of material is present to some degree in most of Swedish architecture.

The ceiling of the City Hall arcade is a splendid example of out of door decoration. It is oak of a soft warm-gray tone, with mythological figures in the panels. These figures by Axel Wallert are drawn and slightly modelled in black and a fine tone of indigo blue.

The Swedes use stucco a great deal, usually in warm tones as befits the northern climate. In this same southern arcade of the City Hall it is applied over the brickwork in a thin coat almost like an application of plastic paint. It is given a water finish with a brush, and a subtle texture is secured by the thinness of the coat which follows the uneven brick surface and occasionally shows the outlines of the bricks beneath. Mr. Ostberg in his crematory at Hälsingborg, which will be another fine

Photo. American-Swedish News Exchange

MODEL FOR "SAUL ATTARSUS"
CARL MILLES, SCULPTOR

"FOREST HUNTING"

"FIDDLES AND DANCING"

CAPITALS IN SOUTHERN PORTICO, TOWN HALL, STOCKHOLM, SWEDEN

RAGNAR OSTBERG, ARCHITECT; ARON SANDBERG, SCULPTOR

GRANITE PAVING STONE,

TOWN HALL, STOCKHOLM

RAGNAR OSTBERG, ARCHITECT

"The capacity for creating the utmost artistic form out of the content of the material is present to some degree in most of Swedish architecture"

example of monumental brick architecture, is using a thin coat of white stucco over a brick base. The effect is more beautifully modulated than a regular stucco finish, and more unified than the effect that we produce in this country with white paint or whitewash over brickwork.

For interiors stucco is carved in relief. The stucco used is the undercoat of fresco, and no attempt is made to bring it to a high finish. It is possible in this material to combine drawing and relief in an exceedingly fresh way.

The exposed ceiling of the gorgeous gold hall in the *Stadthais* consists of the structural concrete beams, with relief added in stucco and color applied. The gray tones of the natural concrete forms are excellent backgrounds, at the distance of the ceiling from the eye, for the soft, rather earthy tones of color that are applied.

Ironwork is an unbroken tradition in Sweden; nowhere is it surpassed. And almost nowhere in Sweden is it found necessary to make twentieth century lighting fixtures by putting electric bulbs in china candles; modern problems are solved more imaginatively than that.

PICTURESQUE ARCHITECTURE

BY HENRY WRIGHT

THERE is a peculiar hankering for the picturesque that seems to haunt nearly all of us. In the architect it crops out in most unexpected places. Wherever one glances from the upper story of a city building, there is the damaging evidence: a pent house masquerading as a gothic lantern, or an otherwise practical and efficient loft structure topped out with spires or minarets. A great masonic building surmounts its mass with a replica of a small Greek temple, and a recent city court-house, of office-building type, breaks into a classical superstructure to make sure that the passer-by shall recognize its public character.

In house design it is a common experience to run upon affectations of rough sagging brickwork that the mason has been prevailed upon to introduce with painstaking care, or to find even a door lintel purposely set out of plumb. The designer of some of the most chaste and reserved of our country houses recently returned from abroad with a pair of hoary studded castle doors, to be built in as a portal to an American group of estate buildings—where they are seldom if ever to be closed, least of all for their erstwhile purpose of defense.

Are such mental aberrations the result merely of good-natured efforts to meet the whims of romantic clients, or do they mark some irrepressible nostalgia of the architect for the scenes of his early student days, when he wandered among the villages of Normandy or Surrey, or among the hill towns of Lombardy?

This quality of the truly picturesque: is it something to be recaptured through the form or detail of a single tower or gateway, or even through a complete building, however cleverly translated in stone and slate and delicate wrought iron work? Certain it is that many an architect whose early work has been marked by clever tricks of detail seems later to grow more reserved and seemingly matter-of-fact. Has he fulfilled, or only suppressed, his earlier desire for picturesque expression?

The layman who brings home the hasty impressions of his tour abroad in the form of postcards may be satisfied with the effort to counterfeit the picturesque quality of another land and time. Not so the true architectural student. His sketches of some fragment or tower are, though perhaps unconsciously, shorthand notes of a complete environment; they mean something more than can be recorded by the best photographer or the cleverest artist. Revisiting the scenes of his early travels the architect finds most of the particular buildings or remembered details rather disappointing, but he is more than ever impressed with the effect of the *environment as a whole*. The picturesque quality which he has cherished, and which is in such violent contrast to his daily environment at home, is a matter of inimitable, simple mass unity, of a pervasion of color tones, of a composition which has limits and has become a pleasant fixture in its familiar landscape. He realizes that reproduction or imitation is futile unless in some magical way the environment may also be reproduced.

Among the many interesting villages which were hastily built for ammunition workers in England during the war was that of "Well Hall" near London, which, judged from illustrations, seemed to the writer to reproduce in a simple way some of the accidental charm of the old English market town. But when later in London he mentioned his desire to visit "Well Hall" to an English architect friend, he was answered by a shrug of the shoulders and the reply, "But why? We who know old England find little satisfaction in modern imitations."

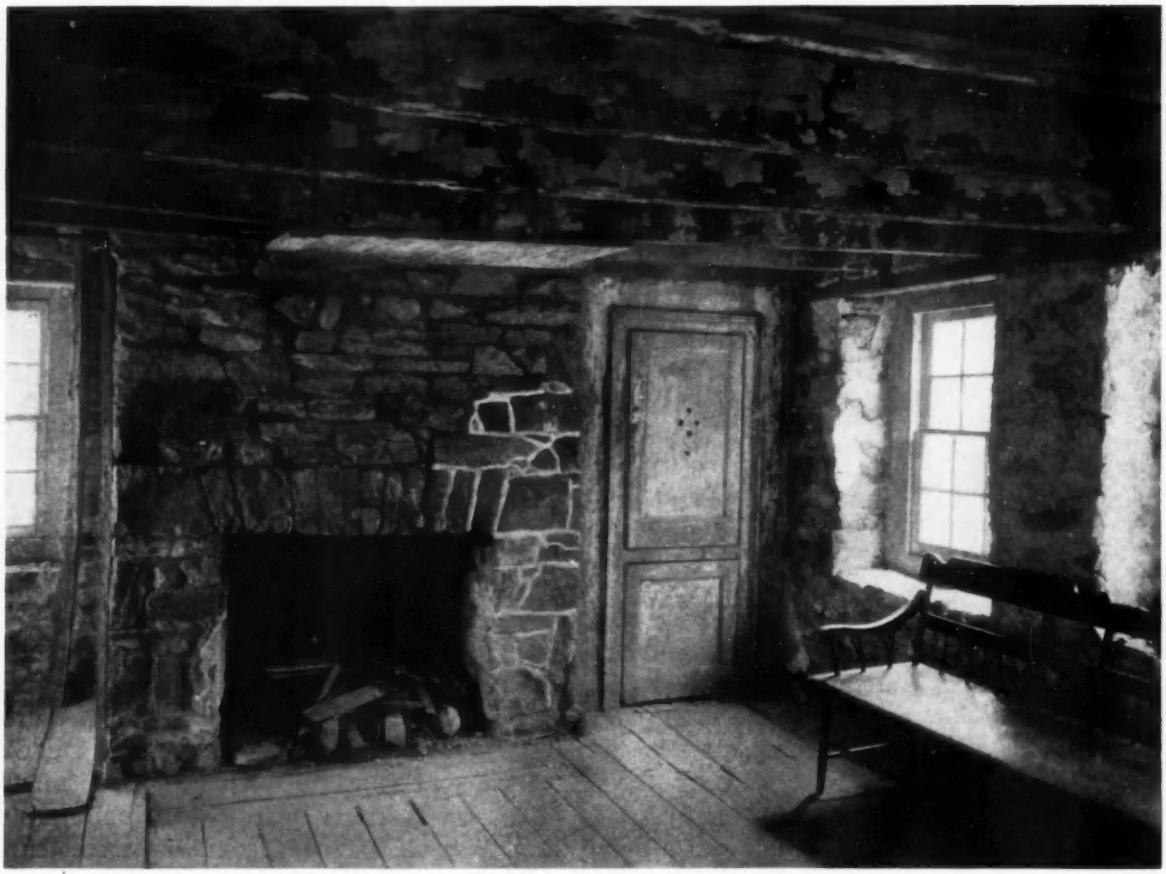
A new charm, of a quality such as will be found here and there in the recently built garden cities of Letchworth, Welwyn and Hampstead, arises directly from a frank

CLACK LANE, RUISLIP
S. SOUTAR, ARCHITECT
The picturesqueness derives from rational planning for the whole environment

and simple grouping of the simple elements of a complete community. This is the case also in some of the many recent English housing schemes, though their interest is limited by the fact that they are composed only of dwellings, largely of one class, and made monotonous by too meticulous an observance of cost efficiency in roof design.

The student who goes abroad to study should not fail to follow the progress of community planning and building that has resulted in the extensive housing schemes of many countries from coordinated efforts under government control. Particularly in Holland and in the suburban developments of certain cities of Germany and of Vienna (called *Siedlugen*) the problem has frequently embraced the complete planning and grouping of communities including houses, apartments (usually three or four stories), and community structures, such as schools, churches, libraries. Projects of this sort require the close coordination of the engineer and architect, on problems ranging from those of the adaptation of the original ground contour, to those of the use of walls, fences and trees in bringing about a completely coordinated whole. Not infrequently do we find much of the satisfying picturesqueness of the old village, and why not? since the same elements of harmony and scale are again present. In the remarkable town of Hilversum, Holland, to take one of the best examples, Architect Dudok has carried through such work for many years, and has developed a remarkable technique in handling the simple elements of scale and harmony in groupings of schools, library and City Hall with surrounding dwellings, to form group masses which bring into play all the elements of complete community unity and a mass interest. Unfortunately such results cannot be successfully recorded by the photographer any more than can the subtle quality of the old-time picturesque.

And here the writer intends no glorification of the work of foreign men, nor does he doubt the capability of our own designers to accomplish even better things once given the opportunity to work again with problems that embrace the elements of mass unity and charm. What he hopes to make plain in this and succeeding articles is the need for community organization to extend the architect's field of usefulness and practice. For the satisfaction of good community work transcends that of doing well the best of individual work, now subject to the unfortunate exigencies of a changing surrounding environment.



RESTORATION OF OLD SPRING HOUSE ON ESTATE OF H. H. COLLINS; R. B. OKIE, ARCHITECT

THE RESTORATION OF OLD BUILDINGS

SINCE architects are frequently asked to make over old and worthy "Early American" dwellings and other buildings, a caution should be expressed as a guide for restoration.

There are, indeed, extreme opponents of restoration who maintain that we have no right to touch an old building except to keep it in reasonable repair and that we *cannot rebuild* what has been injured by the destructive forces of time. Much well-intended restoration has meant the stripping of buildings "of some of their most interesting material features, while the best has its exact analogy in the restoration of an old painting where the partly perished work of the ancient craftsmaster has been made neat and smooth by the tricky hand of some unoriginal and thoughtless hack of today."

The same attitude was expressed a few years ago in a resolution offered at a meeting of The Architectural League of New York with reference to the repair of Rheims Cathedral:

> "To restore this structure further than to roof it and merely preserve what is now left, even if done in good faith, would be a further calamity—for as we cannot longer work in the spirit of its times, we cannot give back to the world this great monument in its original glory."

"Those who make the changes wrought in our day under the name of restoration, while professing to bring back a building to the best time of its history, have no guide but each his own individual whim to point out to them what is admirable and what

The making over of an old spring house on the estate of H. H. Collins (shown herewith) was done by R. B. Okie, architect, of Philadelphia, and serves to illustrate a faithful preservation of old walls with addition of porch (restored). The interior was left with repairs clearly visible and with surfacing of beams and walls untouched

undesirable; while the very nature of their task compels them to destroy something and to supply the gap by imagining what the earlier builders should or might have done. In the course of this double process of removal and addition the whole surface of the building is necessarily tampered with; so that the appearance of age is taken away from such old parts of the fabrics as are left, and in short, a lifeless forgery is the final result."*

While ill-considered repair will have the inevitable dullness of imitation, yet to say that no reconditioning should be made, or that old buildings of lesser importance may not be "made over", would be a humiliating admission of professional helplessness. Restoration of the houses of Annapolis that are of historic interest or of the Missions of the Southwest should imply repair of the existing fabric and not the replacement of parts removed unless documentary evidence exists as to the exact character of such original parts.

If a building is to continue to serve work-a-day uses, then a certain modernization is inevitable such as the addition of heating equipment and electric lighting. The procedure of restoration can only be safe when there is conclusive evidence within the building repaired for every part removed and every replacement that is made. The *supposed* cornice of the *presumable* doorway wrought in the fashion of the time is never to be accepted as satisfactory. Any restoration that involves the addition of a detail that is merely assumed to be correct is sure to be a dangerous and misleading one. A colonial building, forged in part or as an entirety, is as little like a genuine unmodified colonial building as an imitation of Phidian sculpture is like an untouched original.

We have been speaking of buildings of the first importance—the sort that should be preserved without change. There are also many structures of lesser historic or artistic interest such as farmhouses that may be entirely remodeled and with needed additions made to serve present-day convenience.

The aid of research and archaeology in the restoration of Williamsburg will be considered in a later issue.

A. LAWRENCE KOCHER.

* Condensed from the Principles of the Society for Protection of Ancient Buildings, London.

WHEN DOES IT PAY TO REMODEL?

BY GERHARD HIRSCHFELD

THE question of remodeling or replacing an old building arises as soon as its earning capacity is less than the potential *rental value of the ground*. This earning capacity is, however, not easily determined and can never be fixed exactly since it involves not only the actual land value—estimated easily enough from rents obtained in neighborhood buildings—but also, what is of far greater importance, the future value of the property. It is the latter that actually fixes the trade value of a piece of land, according to the speculation of the rising value. The nearer the property to the heart of the city, the more true this is.

The gross rental obtainable depends upon several factors, namely density of population, transportation facilities, trade and shopping conveniences, ease of access and intercommunication, proximity to banks, exchanges, railroad stations, terminals. It is on the basis of the *gross rental obtainable* more than anything else that remodeling or rebuilding can be decided. The final question of the owner is "How much can I get out of my property?"

The tendency at the present time is, no doubt, toward the loft building. This is because of the rising value of the land. A typical example in New York City is that of the former Pictorial Review building which was erected less than seven years ago for printing purposes. The trade has shifted in the meantime and the necessity arose to choose between remodeling or reconstructing the building so as to adapt it to the new character of this district. The old structure consisted of 12 stories. It was excellently built. But the greatly increased land value soon made it apparent that the rentable area, and therefore the possible income, could be considerably increased; and so, a 30 story building was built on the same plot. The height of the stories was reduced, the building being designed for the textile industry (showrooms and light manufacturing). As soon as it was clear that the greatest possible income could be derived from a 30 story structure, it was apparent that the existing foundation and the steel frame were both inadequate, not to speak of the elevator plant.

Generally speaking, the shift of trade is a less important factor in the question of remodeling or rebuilding than the rising value of the property. Experience shows that remodeling is a dangerous undertaking in crowded centers or in the heart of the city. This is because remodeling, in general, serves and can serve only for a limited period of time. Wherever the land value is steadily increasing, as is nearly always the case in central sections of larger cities, a remodeled building will soon fall behind the property value.

There is, for instance, the former department store section in New York City along Fifth and Sixth Avenues from 14th Street to 23rd Street which has been almost completely remodeled. Yet today a large part of the store area is vacant, because the trade on which the department stores depend has shifted to the upper Fifth Avenue section. The subdividing of large ground floor space into small stores has not helped greatly in solving the renting problem. It seems that the fact of a sectional change in the business district, and the question whether this change has actually been completed, have not been given adequate attention. There is, however, a way of reserving the right for future adaptation to suit the eventual character of the district. This is proved by the five or six new buildings now going up around Varick Street and the Holland Tunnel. These buildings are so constructed that future alterations can take place without any considerable outlay or expense.

The decision to remodel or to replace an old with a new structure has to be made according to the individual circumstances.

OLD PICTORIAL REVIEW BUILDING
ASPINWALL AND HOOKER, ARCHITECTS

NEW GARMENT TRADES BUILDING
BUCHMAN AND KAHN, ARCHITECTS

The building at the left was only 7 years old when it was razed to make way for the building shown at the right. Trade had shifted and the demand for space increased. The old building was for printers; the new is for garment trades. It was not advisable to remodel

At Madison Avenue an old building consisted of two brownstone dwellings. Since this district had become an important business center, it was decided to remodel the two dwellings by breaking through the dividing wall, thus creating one building. The gross rental obtained from the old building amounted to $40,000.00 a year. The alteration cost which transformed the five-story structure into an up-to-date office building was $155,000.00. The gross rental derived from the remodeled houses amounted to $107,000.00 a year which is equivalent to an increase of almost 170 per cent. In this particular case it was not found advisable to erect a tall building, for on the adjoining plot stands a loft building with which the new office building would have had to compete, had this in turn been replaced by a 15 or 20 story structure. The example of this 5 story building which has been remodeled with such surprising results, cannot be generalized upon; on the contrary, it should serve only as an extraor-

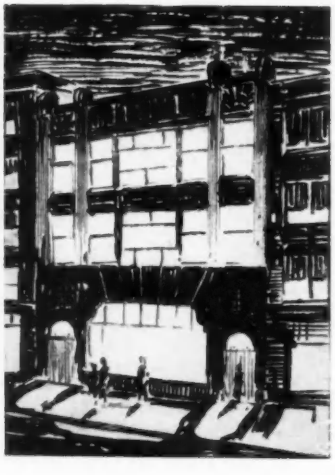
dinary instance of what remodeling can do to increase the earning capacity of an old "taxpayer".

It is clear from the foregoing discussion that no fixed rules can be laid down to decide when a building should be remodeled and when it should be replaced. However, there are certain economic principles which it is well to remember whenever the choice between remodeling and rebuilding presents itself:

REASONS WHICH SUPPORT REMODELING

a. Land value not greatly changed;
b. Rising value of property not much in prospect;
c. Remodeling changes for short period only;
d. Slight changes can bring about desired results;
e. Alterations would not change character, height and size of building;
f. Shift of trade improbable;
g. Class of people remains the same;
h. Situation and neighborhood practically unchanged.

IN THE SAME BLOCK AS THE HUGE CHRYSLER BUILDING



A few doors up it has been found profitable to plan the 3-story structure shown in the sketch for a Childs Restaurant

MORRIS WHINSTON ARCHITECT

WHEN NEW STRUCTURES ARE PREFERABLE

a. Land value changed;
b. Rising value of property offers great prospect;
c. Building to stand for longer period of time;
d. Considerable changes necessary in height as well as in size;
e. Character of building quite different from old structure;
f. Other class of people and customers;
g. Trade has shifted;
h. Situation, neighborhood and character of district entirely different from those which created old building.

The speculative moment in relation to the estimated land value is of decisive importance. Its significance depends on the economic development of industry and architecture, on trade, traffic and other factors. The growth of the city also enters into the picture.

A structural factor to be considered is that of the position of columns. Their close spacing often precludes the possibility of remodeling for undivided offices or subdivisions, though they may lend themselves very well to subdividing the available space into small offices. But in the majority of these cases of column-structures the erection of a new building will probably be a foregone conclusion.

With respect to tall buildings, mention should be made of the fact that aside from the land value, shift of trade and other factors, advertising plays an important part. Buildings such as the Woolworth in New York City are said to have only a small earning capacity, and many of the skyscrapers earn hardly more than 3% whereas they issue 6% bonds, the owning company apparently charging the balance off to advertising.

TECHNICAL NEWS AND RESEARCH

Previous Studies:

Swimming Pools, Storage Garages, Apartment Houses, The Small House, Airports, Store Buildings, Kitchen Planning, Sound Proofing the Hospital, Planning High School Buildings, New Construction Methods, The Country House, Planning the Art Museum, Prison Architecture.

Future Studies:

The Motion Picture Theatre, The Apartment House, The Office Building, and others to be announced.

Apartment of Mrs. Alfred Rose

ELY KAHN, ARCHITECT

Room enlarged by removal of two closets beyond face of beam

REMODELING: AN OPPORTUNITY FOR THE ARCHITECT

REMODELING: AN OPPORTUNITY FOR THE ARCHITECT

BY ROBERT L. DAVISON AND WILLIAM E. MALM*

The architect by his training and imagination should be able to visualize opportunities for improvement through remodeling that might entirely escape the eyes of the owner, focused on his property as it stands. Remodeling, though it issues in greater profits, is generally a matter in the first place of an increase in pure attractiveness.

There is always some remodeling under way, but it is particularly important in periods of general building depression, when the foresighted architect will seek out remodeling opportunities as a means of "making business." This article is intended to give a survey of the ground.

Remodeling can be a profitable field. The idea of renovating an old building that is "slipping" in rentals as it moves inevitably into antiquation is not, at first sight, calculated to stir the architect's enthusiasm. An excess of time and energy is required and the results can hardly be "new." Nevertheless there are architects who have discovered that this troublesome and routine work has paid the running expenses of their offices: one Chicago firm specializing in office building design has gone so far as to create a division concerned entirely with remodeling and improving stores. No commission, however small, is rejected, and although some jobs bring in less than $100 as a percentage payment, there remains a net profit on the sum of all the work sufficient to more than cover office rental and the required drafting. Meanwhile, as we shall see, there is no field more challenging than remodeling to an architect's powers of pure design.

It is generally conceded that the commission for remodeling should exceed the customary—or should we say the *desirable*—6 per cent charge for new work. The services rendered by the architect are greater. He must give attention to unusual details, such as demolition, the measuring up of old walls, revamping foundations, and combining old materials with new. Charges for remodeling should fall within a range of between 8 per cent and 15 per cent, depending on the size and nature of the undertaking.

Remodeling is a neglected field. While the chief concern of architectural design is with the creation of new buildings, there is hardly a structure that does not at some time undergo alteration, renovation, or modernization, for the sake of the very usefulness that was originally intended by its architect. It is estimated that 10 to 15% of the volume of building in the United States is actually taken up in the making over or enlarging of existing structures. This, curiously, is an aspect of the professional practice that has received little or no attention from writers, nor has the architect often considered what methods can be deemed economic and scientific. The question itself: when to enlarge, when alter, or when tear down and rebuild, has remained outside the architect's purview. The profession has hardly recognized that there might be such a thing as a technique of remodeling. Building managers, however, have made an extensive study of this subject, and many of the observations presented in this paper are the result of their experience.

The immediate need for attention to possibilities of remodeling can be inferred from the following analysis of the present building situation:

> *"On October 1, 1929, vacant space in office buildings amounted to 11.55% of the total rentable area. This was ascertained in a survey covering thirty-eight cities and including 1,676 buildings with a total rentable area of 140,141,074 square feet . . . New buildings now under construction will add nearly 10% to the present supply of space.* ASSUMING THE MAXIMUM RATE OF ABSORPTION *that has prevailed in recent years, we may anticipate a vacancy in May, 1930, of 16%."* *Paul Robertson, of the National Association of Building Owners and Managers, at conference of Business Leaders with President Hoover.*

Since this surplus of vacancies will restrict the opportunities for new building, we may well now scan the opportunities for remodeling.

I. WHEN TO REMODEL

A. THE MEANING OF "OBSOLESCENCE"

At the root of the question whether to remodel or whether to build anew is the word *obsolescence.* If the present building is "too" obsolete, it must be replaced; if less obsolete, it may profitably be remodeled, particularly when business conditions prevent the erection of a new building. It is necessary, therefore, to know what "obsolescence" is, and what it is not.

1. *Obsolescence is not physical depreciation.* In the United States at the present time *the profitable life of the average building is only one-third its possible physical existence.* Obsolescence depends not on the physical

* We wish to express our appreciation of the kindness of *Building and Building Management* of Chicago in permitting the use of material by Mr. Malm which has appeared in its pages.

Photos. Wurts Bros.

PREMISES BEFORE ALTERATION

AFTER ALTERATION

BANK FOR PLAZA TRUST COMPANY, NEW YORK

CORBETT, HARRISON AND MACMURRAY, ARCHITECTS

Interiors and plans of this alteration
will be found on succeeding pages

soundness of your own building but on the relative efficiency of other buildings, just as "a piece of machinery in a factory is obsolete and useless as soon as a new kind of machine is made which can perform the same work more cheaply or more efficiently, even though the first machine is still in good physical condition. A woman's dress is obsolete as soon as a new style is put on the market. The sailing vessel was rendered obsolete by the steamboat. Hydraulic elevators in buildings are becoming obsolete through the greater economy, comfort and speed of the electric elevators. In other words, obsolescence is that which causes the useful and profitable life of anything to be shorter than its possible physical existence."*

2. *Obsolescence is the PROCESS of becoming obsolete, and so projects into the future.* It is therefore often wise to take purely preventive measures on buildings at present adequate. Thus, It is not always possible to appraise the value of an improvement in terms of increased income, as *increase does not always follow.* In projecting an improvement in order to stabilize rental conditions in a district it is well to consider what the *probable decrease in revenue* would be *if we failed to modernize* our properties. This is one element which *many owners fail to comprehend*, and probably why rehabilitation of districts is postponed until after business starts an exodus from the locality, but we cannot be overcritical as every operator desires to obtain a return on his improvement investment.

3. *Obsolescence arises less from inherent faults of the building itself than from changes in the other buildings of the neighborhood or city.* It is frequently caused, as has already been hinted, by competing buildings of later date that (1) provide a greater efficiency in layout and operation, that (2) give more modern and complete service, or that may even have an immediate disastrous effect by (3) cutting off the light and air of the older building, or by (4) making it appear incongruous.

* The effect of obsolescence on the useful and profitable life of buildings. Earle Schultz, 1922. Page 203.

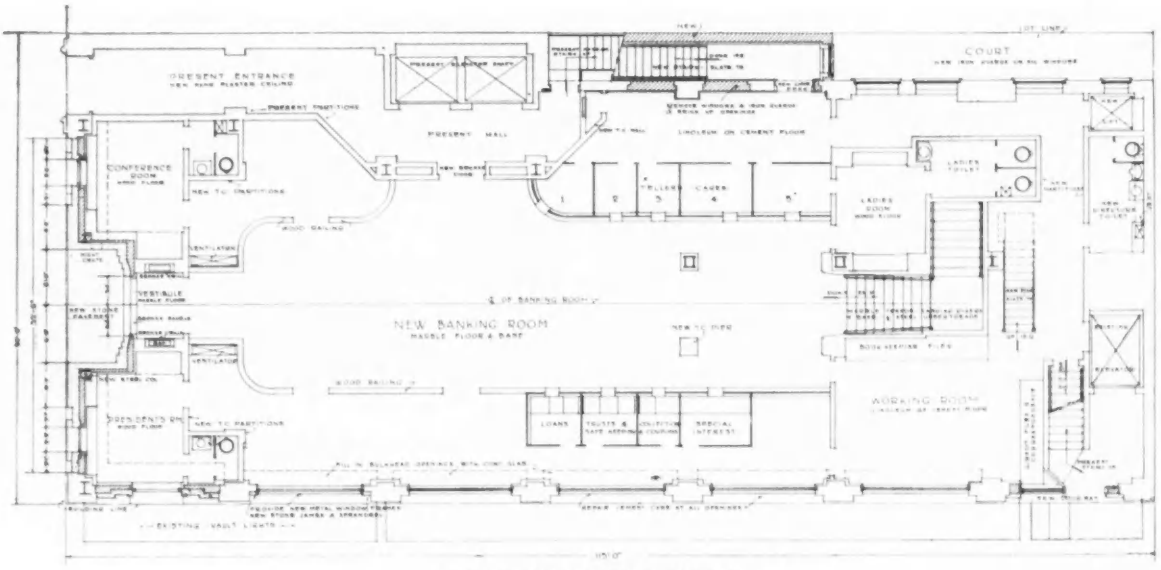
B. CALCULATING OBSOLESCENCE

A discussion of the economic factors which are the province of the business man or real estate operator may seem out of place in an architectural magazine, but it is well to know the basic principles upon which the possible client must proceed. Indeed the architects who seem to be getting the commissions are those who can speak intelligently upon the business problems of their clients as well as upon planning and aesthetics: *and only this sort of architect is likely to discover opportunities not yet exploited.* The main steps in the calculation, then, might be as follows:

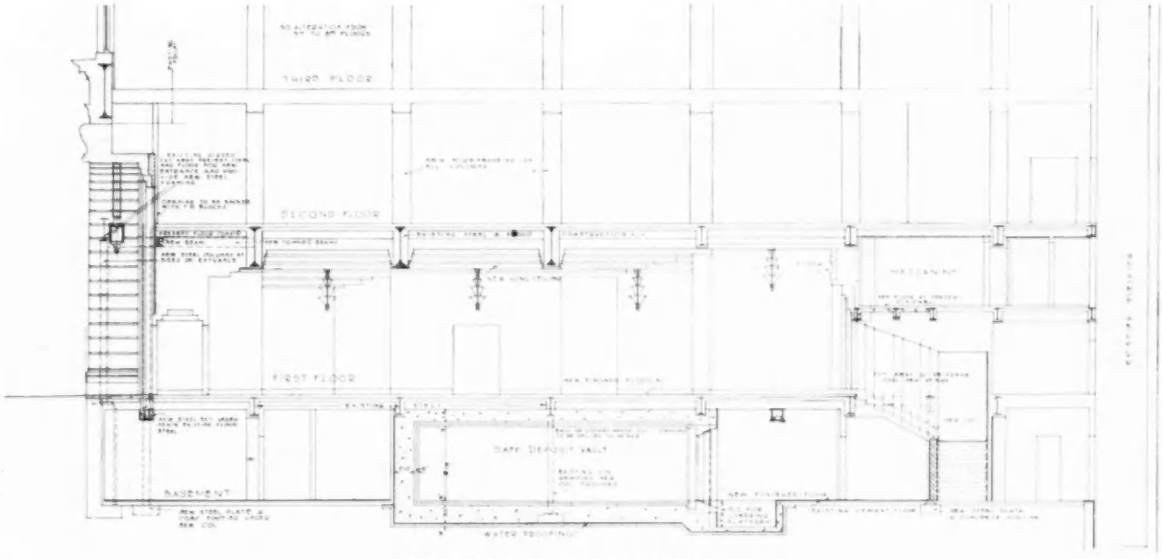
1. *Vacancy percentage.* Should a building be remodeled or replaced? This depends largely on vacancies, and so the vacancies and building rates over a period of years for the city in question should be plotted and projected into the future, especial attention being given to buildings under construction or contemplated. Should an oversupply of space seem likely, it is advisable to remodel and await a more favorable market before building.

2. *Land Value vs. Building Value.* It is generally desirable to tear down and build rather than remodel when the cost of the land exceeds the cost of the present building. This is a very simple rule of thumb.

3. *Shift of Population and Trade.* Business centers are always shifting. The retail section tends to follow the high class residential district and the office



FIRST FLOOR PLAN



LONGITUDINAL SECTION

BANK FOR PLAZA TRUST COMPANY, NEW YORK

CORBETT, HARRISON AND MACMURRAY, ARCHITECTS

The one structural change was the removal of a column at the rear of the building to obtain access to the safe deposit vault in the basement. It was decided at the outset to remove all former architectural forms and plaster the existing structural frame in such a way as to gain all possible space. The ceiling was dropped to make a portion of the ceiling coffers shallower in relation to their width. The original plan for a decorated ceiling in the banking room was abandoned for lack of time.

Photo, Van Anda

BANK FOR PLAZA TRUST COMPANY, NEW YORK

CORBETT, HARRISON AND MACMURRAY, ARCHITECTS

section to follow the retail. If a property lies in the line of a new development, new construction is generally preferable, but if business is likely to move on it is better to remodel.

4. *The Neighborhood.* Obsolescence is so much a matter of the *relations between buildings* that sometimes the best way of rescuing a single building is to redeem an entire neighborhood. All cities have examples of such rejuvenation as has occurred in Greenwich Village in New York City, in the northern section of Beacon Hill in Boston, and in Santa Barbara. Work upon a neighborhood, or indeed any remodeling work, requires skill, imagination, knowledge of periods and designing ability perhaps in excess of what is required for a new apartment house. The new apartment may be said to be rented by elaborate foyers, tile baths and efficient kitchens; the remodeled building by its large rooms, fireplaces and a picturesque approach.

II. STORE BUILDINGS

A. BUILDINGS WITH A STORE ON LOWER FLOORS

Exterior remodeling of buildings containing stores is generally confined to the first two floors. The income from the stores is expected to carry the ground rent. As the land value increases the stores must bring in more rent, so that it is necessary to increase their attractiveness. Since people walking along the street seldom lift their eyes above this height the remainder of the building does not count.

Remodeling an entire facade is justified, however, in a first class retail district that advertises itself through full fronts in the most fashionable mode. Complete remodeling of the facade may otherwise be necessitated by a crumbling wall such as that of a sandstone front which is spalling off. It is the opinion of consultants that "only the exceptional building can show any justification for costly improvements embracing the entire facade, since shops command their high rentals primarily on account of good locations, while office rates are determined by the excellence of both interior and exterior treatment of the building, the efficiency of the office plan, and regularity and quality in the building services, given the good location."

B. MODERNIZING THE SHOP FRONT

Shop front remodeling may (1) bring an old style "up to date" or (2) it may alter an existing type for

TABLE A
IMPROVEMENT COST—STREET STORES (255 Lineal Feet of Frontage on Street)

	Amount	Cost Per Running Foot	Per Cent of Total Cost	Remarks
Surveying	$ 140.50	.56	.13	
Granite, material	14,775.00	59.10	14.5	Polished—6 inches in thickness
Masonry	571.93	2.00	.56	Support for granite facing and store entrances
Steel Framing	3,892.63	15.50	3.88	
Granite, setting	2,800.00	11.00	2.76	
Concrete	509.14	2.00	.50	
Waterproofing, slab	393.33	1.47	.38	
Stonecutters	1,238.70	4.85	1.23	Cutting down column faces and fitting granite
Terrazzo	4,140.01	16.50	4.07	Entrances to stores and building
Bronze	36,945.66	147.50	36.29	
Metal work	1,022.13	4.00	1.00	Air ducts to store basements copper flashings, etc.
Plumbing	1,253.95	5.03	1.23	Interior down spouts to sewers
Plastering	2,589.39	10.30	2.54	Ornamental soffits in store entrances, etc.
Glazing	3,589.39	14.30	3.57	New plate glass
Carpentry: Labor	7,860.92	31.44	7.71	
Doors and Panels $740.14				
Lumber 1,946.47				
	2,686.61	10.70	2.64	
Hardware	645.71	2.50	.63	
Painting and Decorating	493.79	1.75	.48	
Electrical work	2,000.37	8.00	1.96	Including entrance, fixtures and window lighting
Awnings	325.00	1.30	.32	
General Labor	4,471.71	17.78	4.39	Unskilled
Superintendence	2,277.50	9.10	2.24	
Architect's Fees	7,200.00	28.80	7.06	
	$101,382.13	405.48	100.00	

the sake of advertising values attendant on "smart style" or it may (3) rest on a careful reconsideration of the relative functions of window, display, and sign. The extent to which such a reconsideration can go and the freshness of its results are suggested in the article on page 138 of this issue dealing with new store fronts by Mr. Hagopian.

C. ARCADES

The architect should not overlook the possibilities for remodeling rear areas of business properties for the sake of creating *arcades*. Wherever there is a need of traffic short-cuts this form of development offers the owner (and therefore the architect) a real opportunity.

By the use of an arcade the rear of the building may sometimes be coaxed into yielding returns equal to those of the front. *Basement* arcades as traffic arteries are very profitable.

Some arcades carry a greater volume of traffic than passes in front of the building. The store fronts cost less there because they are not so exposed to the weather and permit simpler construction (see cost table below); and taxes per running foot are much less for arcade frontage than for street frontage.

IMPROVEMENT COST—ARCADE STORES

400 Lineal Feet of Frontage on Arcade

		Amount	Cost per Front Foot	Per Cent of Total Cost
Surveying		$ 60.00	.15	0.13
Marble		3,652.50	9.14	8.35
Concrete		121.84	.31	0.26
Terrazzo Entrances		3,108.04	7.78	7.09
Bronze		19,107.15	47.76	43.65
Sheet Metal Work		136.38	.35	0.31
Steel		400.00	1.00	0.91
Plastering		1,182.82	2.95	2.70
Glazing		1,340.84	3.35	3.07
Carpentry: Labor		5,334.52	13.34	12.18
Doors	$ 382.00			
Soffits	441.00			
Lumber	1,354.59	2,177.79	5.45	4.95
Electrical Work		199.18	.49	0.45
General Labor		1,571.05	3.92	3.59
Hardware		411.04	1.02	.94
Superintendence		870.00	2.17	1.99
Architect's Fees		4,100.00	10.25	9.36
		$43,773.15	109.43	100.00

Buildings and Building Management

D. DEPARTMENT STORES

It is estimated that 90% of all construction for department stores is remodeling. The prevailing practice is to provide for more business in a given space rather than to add floor area. It is assumed that 40% of the department stores occupy too much space inasmuch as a large store that does not seem very busy encourages looking rather than buying. People flock like sheep: they "follow the crowd" and buy where they must struggle for the chance.

1. *Density Ratios.* The first step in considering the advisability of remodeling a department store is to determine the existing density ratio. This is the ratio between the carrying capacity of the elevators and escalators in persons per hour to the total floor area in square feet above the first floor.

An example of the enormous increase in traffic provision in the modern department store is given by Macy's in New York City: The traffic density ratio at Macy's in 1863 was 1 to 80; in 1902 the ratio was 1 to 32; but this has gradually been decreased until today it is 1 to 19.

A density of 1 to 20 is now considered satisfactory for the upper floors of the average store but when the basement is used as an underpriced department a ratio should be maintained of 1 to 7.

2. *More Traffic Facilities or More Floor Space?* This decision, of course, rests with the store management but the architect will be aided in his rough analysis of the problem by the following rule of thumb: (1) If the transportation is being used to *normal capacity* and the ratio of floor space to elevator capacity is over 1 to 20 the chances are that additional transportation is needed; (2) If the density ratio is 1 to 20 and the elevators are being used to an average desirable capacity throughout the year the chances are that the store needs additional floor space; (3) If the transportation *is not* being used to *normal capacity* the sales policy of the store is probably at fault.

III. OFFICE BUILDINGS

A. MODERNIZING THE ELEVATOR EQUIPMENT

The most conspicuous equipment in our office and apartment buildings is, no doubt, our elevators. If they are dilapidated in appearance, slow in operation, and poorly lighted, they cast a shadow over the whole building and give the public a bad impression. By the features of our elevator equipment and service, we either prompt the prospective tenant to remain or cause him to seek other locations.

In the average improvement program, the cost of elevator equipment is usually the major item or expense, but it is also the factor of greatest importance. Whether or not an old building is warranted in installing the latest type of equipment or some modification of it depends upon the following elements:

Character of Tenancy
Rental Rates
Rental Area
Building Code Requirements
Traffic Requirements and Volume
Height of Building

There is no standard by which we can judge the adequacy of elevator equipment in buildings unless we have all the facts; therefore it is difficult to outline any procedure which can be followed in the rehabilitation of old buildings. The table of new and reconditioned elevator installations gives some idea of the scope of the work and the expense involved in modernization.

TABLE B

ACTUAL CHANGES MADE IN MODERNIZING ELEVATOR INSTALLATIONS, WITH TOTAL COST OF IMPROVEMENTS

(From *Building and Building Management*, August 12, 1929)

ORIGINAL EQUIPMENT			MODERNIZED EQUIPMENT		
Location	Date of Original Installation about	Type of Original Installation	Date of Change	Type of New Equipment	Approximate Total Expenditure	Number of Passenger Elevators
Cincinnati, Ohio. 240,000 sq. ft. net rentable office area.	1900	Vertical cylinder hydraulic elevators with steam pumping plant. Average car speed 500 f.p.m.; open grille cabs; open grille hatchway enclosures and doors.	1924	Gearless traction electric, multi-voltage control, car switch operation. 3 express, 700 f.p.m.; 3 locals, 600 f.p.m.; 1 service, 600 f.p.m.; new fireproof enclosures of steel and wire glass construction; manual door closers and interlock system; new high paneled enclosed cabs; new signal system.	$250,000, including building of penthouse, running power, feeders, engineering expenses, etc.	7
Cleveland, Ohio. 127,757 sq. ft. net rentable office area.	1900	Vertical cylinder hydraulic elevators with electric pumping plant. Average car speed, 500 f.p.m.; open grille cabs; open grille hatchway enclosures and doors.	1924	Gearless traction electric, multi-voltage control, car switch operation. No leveling feature. 4 locals, 600 f.p.m.; 3 express, 600 f.p.m.; 1 service, 400 f.p.m.; new fireproof enclosures of steel and wire glass construction; manual door closers and interlock system; new high paneled enclosed cabs; new signal system.	$186,000, including elevator enclosures, penthouse, etc.	8
Cleveland, Ohio. 87,000 sq. ft. net rentable office area.	1908	Worm geared electric, drum drive. Car speed about 350 f.p.m.; open grille hatchway enclosures; open grille cabs; plain car switch control.	1928	Gearless traction electric, signal control, multi-voltage micro-leveling. Car speed, 500 f.p.m.; new fireproof enclosures with steel and bronze entrances; electric automatic door operation; new Metylwood and bronze cabs; new signal system.	$123,000	4
Cleveland, Ohio. 178,000 sq. ft. net rentable office area.	1900	Worm geared electric, drum drive. Machines in basement. Car speed 325 f.p.m.; open grille hatchway enclosures; open grille cabs; plain car switch control.	1928	Gearless traction electric. Machines overhead. Car switch control. Multi-voltage automatic leveling. Car speed, 600 f.p.m.; new fireproof enclosers with steel and bronze entrances; manual door closers; new ornamental cabs with bronze fixtures; new signal system.	$165,000	6
Dayton, Ohio. 48,000 sq. ft. net rentable office area.	1918	Worm geared electric, traction drive. Car speed 400 f.p.m.; high paneled steel cabs; fireproof steel hatchway doors.	1926	Gearless traction electric. Car speed, 500 f.p.m.; multi-voltage control; micro drive; car switch operation (one hand); pneumatic door operators; new door hangers; new signal system.	$45,000 including new penthouse, architect's fees, etc.	3
Toledo, Ohio. 74,000 sq. ft. net rentable office area.	1913	Gearless traction electric. Car speed, 550 f.p.m.; resistance control, no leveling; car switch operation; open grille hatchway fronts and doors; no electric interlocks; wood cabs; signal system.	1929	Adding to the original equipment the following: Multi-voltage; micro-leveling; signal control; automatic electric door operation; new fireproof hatchway fronts and doors; 50 f.p.m. additional speed; new modern Metylwood cabs; new signals and automatic dispatcher.	$125,000	4
Cincinnati, Ohio. Main Building: 225,000 sq. ft. net rentable office area. Annex: 350,000 sq. ft. net rentable office area.	1912	Gearless traction electric. 8 locals, 600 f.p.m.; 4 express, 700 f.p.m.; resistance control, without leveling; car switch operation; fireproof entrance of steel and wire glass; manual door closers with interlock system; bronze high paneled cabs; complete signal system.	1926-27	Adding to the original equipment the following: Multi-voltage control; micro-leveling; automatic pneumatic operation of hatchway doors; increasing speed about 50 f.p.m.; new door hangers.	$100,000	12

B. DATA ON ELEVATORS AND ESCALATORS

The ideal department store elevator for large stores should satisfy the following specification:

The elevators should be designed for a duty of 4,500 lbs. at 450 f.p.m using "department store control" elevators, designed to stop automatically at every floor as is the practice in department stores. This frees the operator to answer customers' questions and call out the merchandise sold on the different floors.

The cars should be approximately 7′ 10″ in width by 5′ 10″ in depth inside size, and should have a wide door opening, varying between 5′ 6″ and 6′, depending upon hatchway conditions. Both the elevator car and the hatchway should be provided with center-opening power-operated doors, with the operation of the doors interconnected with the elevator control. For a car of this size, the inside size of the hatchway is approximately 10′ wide by 7′ 8″ deep, and for a bank of six elevators, the elevator frontage is approximately 62′, which is about the maximum permissible for good service.

An elevator of this type, operating as local in both directions between the first and tenth floors, making all stops, will have a carrying capacity of approximately 330 persons per hour, or a total capacity of 1,980 persons per hour for a bank of six cars.

In calculating elevators for department stores, the car platform must be figured on the basis of 100 lbs. per square foot loading, and not 75 lbs. per square foot, as is the practice in office buildings, due to the crowding of cars, which occurs in all stores. For smaller department stores and specialty stores the elevators should be of the same type, but arranged for a duty of 3,000 lbs. at 500 f.p.m., with a car size of 6′ 6″ wide by 5′ 0″ deep inside, with a 5′ wide door-opening. A car of this type, operating as local in both directions between the first and tenth floor, will have an approximate carrying capacity of 250 persons per hour.

Escalators for department stores are built in three different sizes, as follows:

2′ wide escalator, which means that the width inside between the moving hand-rails is 2′. Maximum carrying capacity, 4,000 persons per hour.

3′ wide type, 3′ between hand-rails. Maximum carrying capacity, 6,000 persons per hour.

4′ wide type, 4′ between hand-rails. Maximum carrying capacity, 8,000 persons per hour.

All escalators are built at an angle of 30 degrees and travel at a speed of 90 f.p.m. Due to the shape and construction of the escalators they always occupy a fixed area on the two floors which they serve as follows:

The area occupied by the lower landing is approximately 20′ in length. The width depends upon the size of the escalator as follows:

2′ wide escalator, overall width 4′
3′ wide escalator, overall width 5′
4′ wide escalator, overall width 6′

For the upper landing, the length is approximately 22′ and the width is the same as that given for the lower landing. Due to the shape and construction of the escalator, all other space underneath the escalator beyond the 6′ headroom line can be used for selling purposes.

With the new cleat step type of escalator, which is being used universally in department stores, attendants are not required, which reduces the carrying and operating cost considerably.

A bank of six elevators of the large size described above and a group of two foot wide escalators will have a combined carrying capacity, for a ten-story building, as follows:

6 elevators . . . . . 1,980 persons per hour
1 group of 2′ wide up and down escalators . . . . . 4,000 persons per hour
5,980 persons per hour

If we assume that the department store in question should be designed so as to have a traffic density ratio of 1:20 on the upper floors, that is, the vertical transportation equipment should have sufficient carrying capacity to take away from the first floor one person per hour to every 20 square feet of transportation area above the first floor, we obtain the following:

5,980 persons per hour x 20 = 119,600 square feet which can be efficiently served.

1. *Elevators*

There are certain fundamental principles in regard to elevators which have been well-established.

1. There should not be over six elevators in a bank wherever possible, and seven elevators are to be used only in extreme cases, if they are of small size, in order that the walking distance between the end cars in a group should not be excessive.
2. Isolated elevators should never be installed.
3. Where more than one bank of elevators is used, careful study should be given to their location, in order to insure that each will get a proportionate share of traffic or as near to its proportionate share as possible.

2. *Escalators*

Escalators should be located in the store on the first floor to be in the main artery of traffic, and should be the first choice of the customer entering the building. Their location on the upper floors should be such that they are practically in the center of the building, where only one bank of escalators is used, and if more than one bank is installed they should be so arranged that each serves the proper portion of the building. They should also be arranged so that the up and down service is in the same vicinity and the descending escalator, where it discharges its customers on the first floor, diverts them from the heavy entrance traffic.

(Data on elevators by courtesy of Otis Elevator Company).

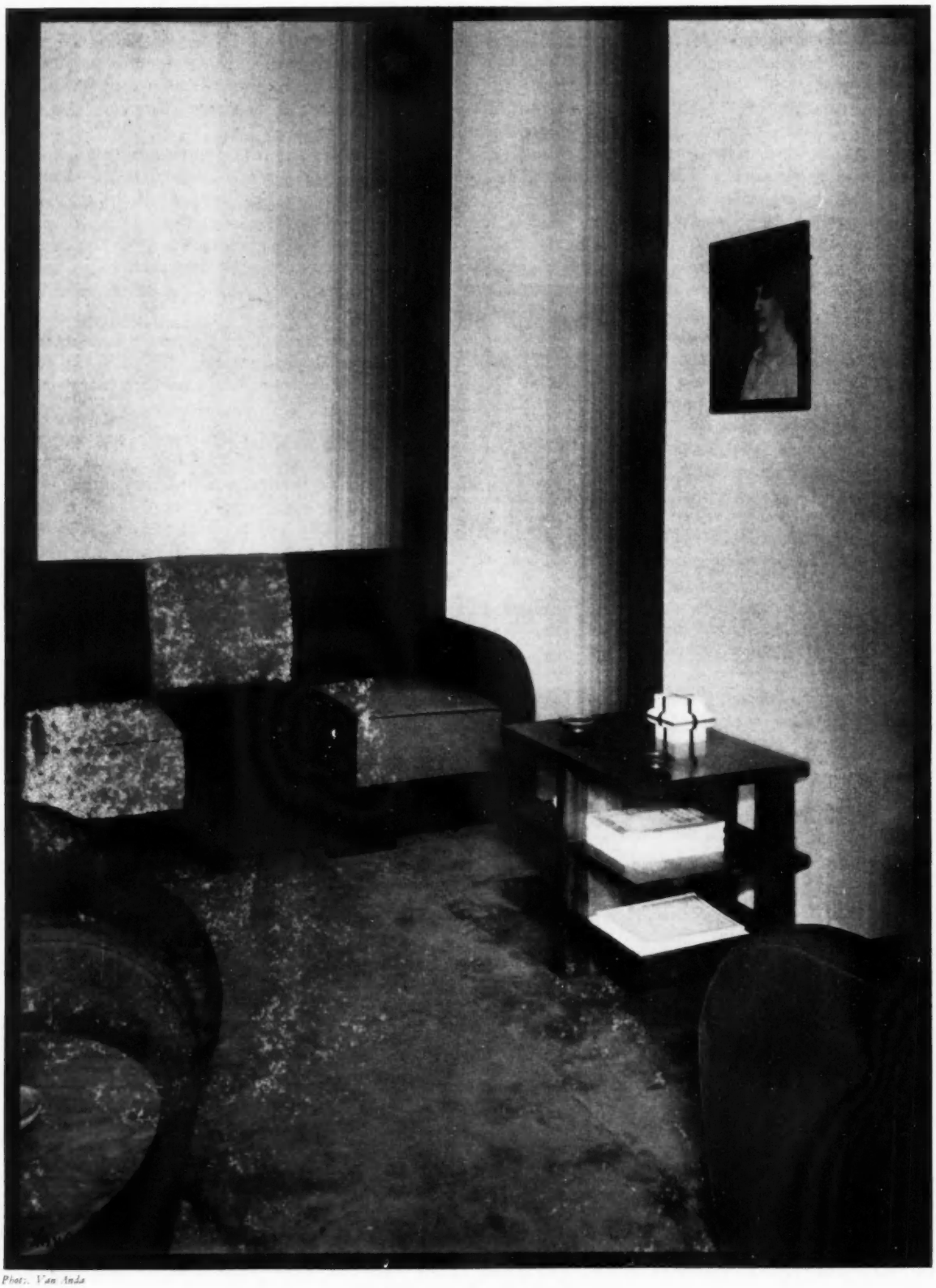
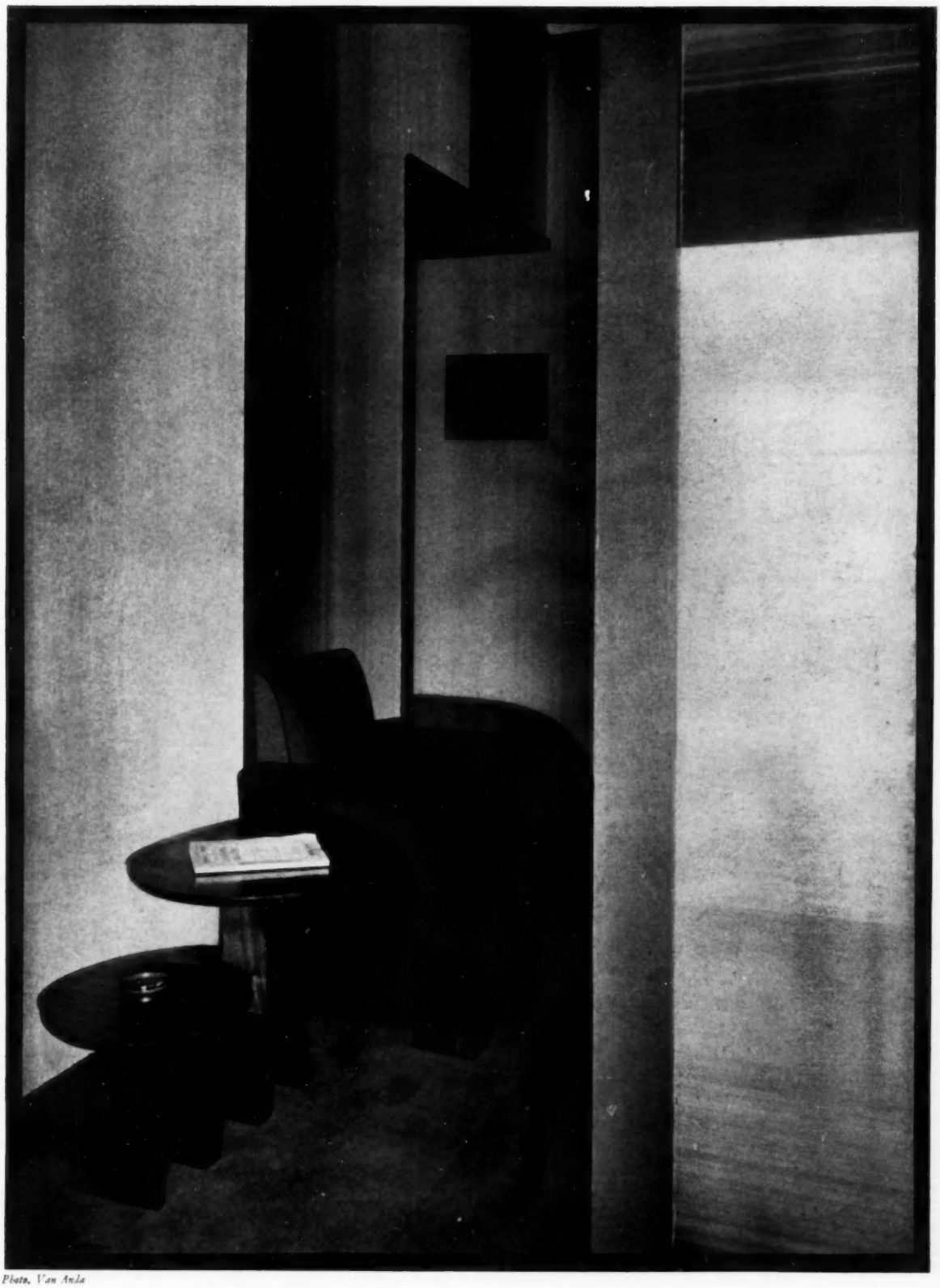


Photo: Van Anda

A REMODELED INTERIOR

OFFICE FOR DR. E. KRAUS, NEW YORK CITY

WOLFGANG AND POLA HOFFMAN, ARCHITECTS



Photo, Van Anda

A REMODELED INTERIOR

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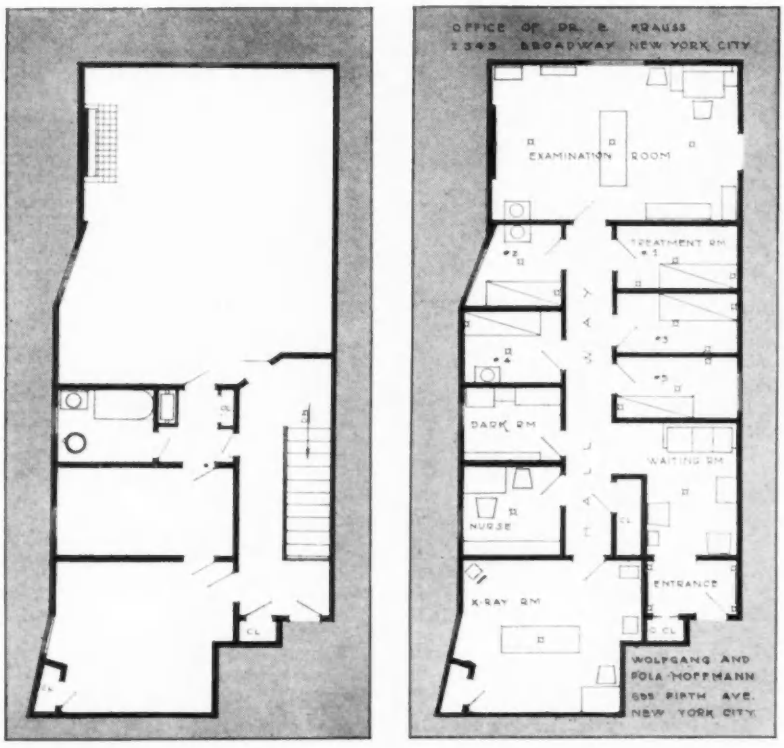


BEFORE ALTERATION AFTER ALTERATION

A REMODELED INTERIOR

OFFICE FOR DR. E. KRAUS, NEW YORK CITY

WOLFGANG AND POLA HOFFMAN, ARCHITECTS

The pictures of this interior on the preceding pages show what can be done with an unpromising "lay-out"

If conditions do not seem to warrant the installation of an entire new elevator system certain other alterations may nevertheless be considered which will greatly improve the appearance of the building. One of the first steps would probably be the installation of new elevator fronts in the lobby. The cars themselves may be relined with metal or wood veneer. The enclosing of the open cage type of car will help the general appearance of the building interior very considerably, especially since, in addition to giving an impression of modernity in itself, the enclosed car hides from sight the antiquated condition of the elevator shaft.

•

Placing carpets on the floors of elevators helps to tone up their appearance, and eliminates much of the dirt otherwise tracked into halls and offices, with a consequent reduction in sweeping; the carpets can easily be removed for cleaning.

•

In some old office buildings the existing elevator equipment can handle a greater volume of traffic than any new type that might be installed. This is because the earlier elevators have no interlocking safety doors, which add greatly to the safety of the newer types but slow them up at the stops because the operator cannot open or close the door while the car is in motion. This is not a big factor in some of the higher buildings, however, where long runs make the greater speed of the newer cars more profitable. These points are too technical to be decided without expert advice.

C. GROUND FLOOR ENTRANCE

Next in importance for its effect on possible tenants is the ground floor entrance lobby. Barren, shabby, or outmodishly pompous, it may instantly destroy whatever opportunities the building might otherwise have had to create an expectant and favorable mood. Too little attention is given to modernizing lobbies. A judicious use of new lighting fixtures, some redecoration with paint or possibly with metal and etched glass panels, a stroke on the elevator fronts—and the difference may have been achieved between an unrentable burden and an eligible, rentable building. Just as apartment house owners have discovered that it is their *average* building which requires an elaborate and imposing foyer, while lobbies severely plain are adequate to the most exclusive and high-priced apartment hotel, so the office building owner will do well to put his best efforts into decorative entrances for his older properties.

D. SUBDIVISION OF OFFICE SPACE

The most desirable size for the average office is obtained with 17′-6″ spacing of columns center to center with a depth of 22′ or 24′ from face of outer wall to corridor partition. This permits an anteroom and two private offices 8′-4½″ wide by 12′ to 14′ deep. In remodeling in office building or in subdividing loft space, these dimensions should be kept in mind as an ideal toward which to work.

BEFORE ALTERATION AFTER ALTERATION

APARTMENT HOUSE WITH STORES, BERLIN-CHARLOTTENBURG

J. KOERFER, ARCHITECT

BEFORE ALTERATION AFTER ALTERATION

OFFICE BUILDING, BERLIN

O. R. SALVISBERG, ARCHITECT

These are two stunning examples of what can be accomplished by thorough-going remodeling. In this fashion the City of Berlin is being enthusiastically modernized, without much new building

E. OFFICE PARTITIONS

The National Association of Building Owners and Managers has made a study of the cost of subdividing office space. Table on page 194 shows the method. It was found impossible to estimate the cost of alteration exactly on a unit cost per lineal foot of partition: yet in an average building with mahogany trim, alterations similar to those outlined in the table should be possible at a unit cost per lineal foot of $13.30 (not including overhead).

IV. APARTMENT HOUSES

Remodeling in office buildings is mainly redecorating; in apartments it is replanning, and more specifically subdividing into smaller units. Many apartments of 5 and 7 rooms are being occupied only in part, the rest being sublet by the lessees; a redivision in the floor plan would bring the profit represented by this subletting back to the owner.

Apartments over stores are particularly adapted to subdivision, because people who like to live in

central locations want small, compact living quarters. They are not at all attracted by the additional space in large apartments; on the contrary, they will not feel themselves reimbursed even by considerable reduction in the rent for the bother of caring for unnecessary rooms.

An example of remodeling over a store is shown in the accompanying illustration. Here 5-room apartments were subdivided into sets of 2 and 3, with modern kitchenettes, wall beds, linoleum, new lighting fixtures, and so on.

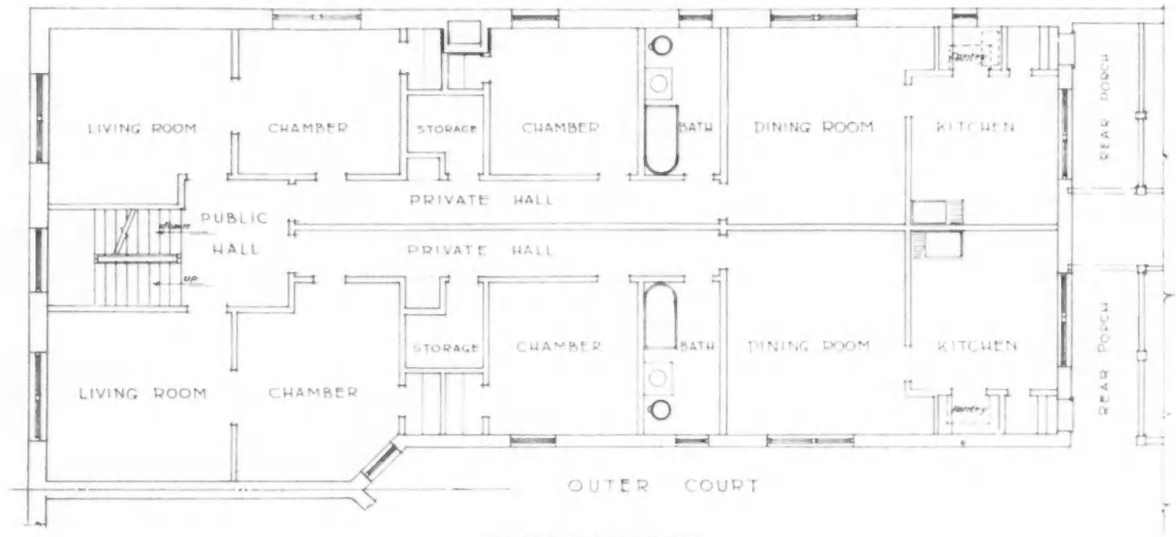
The original income of $7,200 was thus increased to $14,400, and the profit from 6% to 8½% net.

Conversion of single-family to multi-family or commercial use. This offers a very remunerative field for the real estate developer who has old single family residences or row houses which can be remodeled for use by two or more families or converted into office or store use.

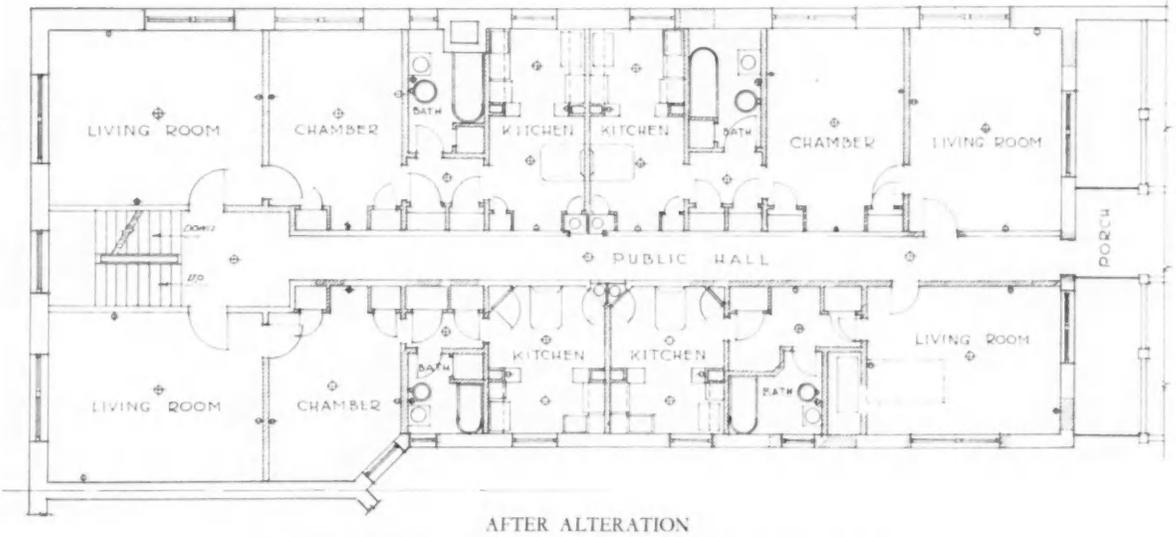
V. PRACTICAL DATA ON REMODELING

A. LIGHT WEIGHT CONSTRUCTION

Light weight floors and the increase of window sizes so as to reduce solid masonry piers will permit the addition of more floors than would the customary methods of construction. See page 195.



BEFORE ALTERATION



AFTER ALTERATION

REMODELING OVER A STORE, DAVENPORT, IOWA

CLAUSEN & CLAUSEN, ARCHITECTS

Before alteration the income was $7,200; after alteration, $14,400. See text above

B. PARTITIONS

1. *Masonry Partitions.* Clay tile and gypsum block are the most extensively used materials, the study by the Buildings Managers indicating that gypsum block is the more extensively used of the two for subdivision. Reasons for the use of the gypsum are that it weighs less than tile, it may be cut with an ordinary hand saw, and is easily chased for conduits; the cost of wrecking is a little less than for clay tile, grounds are easily nailed to gypsum blocks, and if gypsum blocks are dropped on marble, terrazzo or wood floors, they cause less damage than clay tile.

2. *Precaution in Use of Gypsum Block.* Gypsum should not be used in damp basements, since blocks have been known to crumble away. Moisture will rise in gypsum block partitions in damp basements and leave a distinct line of demarkation. If marble wainscot is used in the corridor walls, clay tile walls may be advisable to carry the weight of the marble veneer. Also if basins are to be hung on the wall at some distance from the columns their weight may make it advisable to use the clay tile partition.

The majority of buildings report the unit cost of gypsum block and clay tile as being the same. The average figure for 3″ construction, taken from cost reported by buildings having the work done under one contract, is 47.7 cents per square foot. Where old masonry partitions are to be wrecked an allowance should be made of $2.50 to $3.00 per lineal foot.

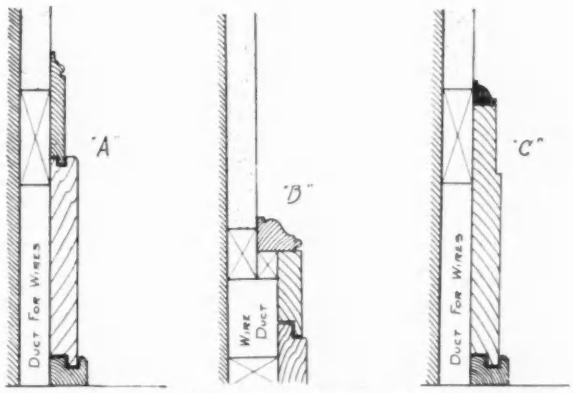
3. *Metal Lath and Plaster Partitions.* 2″ thick solid metal lath and plaster partitions are frequently used in the remodeling and subdivision of office space because they occupy little space. Recent changes in union rules have eliminated some of the difficulties under which this form of construction has labored in the past.

4. *Metal Studding* covered with plastered board is often used in alteration work in old buildings. The cost is estimated at $10 per running foot for the 7′ height and $14 to $16 when carried to the ceiling.

5. *Birch and Glass* is estimated at $13 per lineal foot including doors. This is for ceiling height. Borrowed-light partitions usually vary in cost for the mahogany from $14 to $18 a lineal foot depending on the type of glass and the height of the opening.

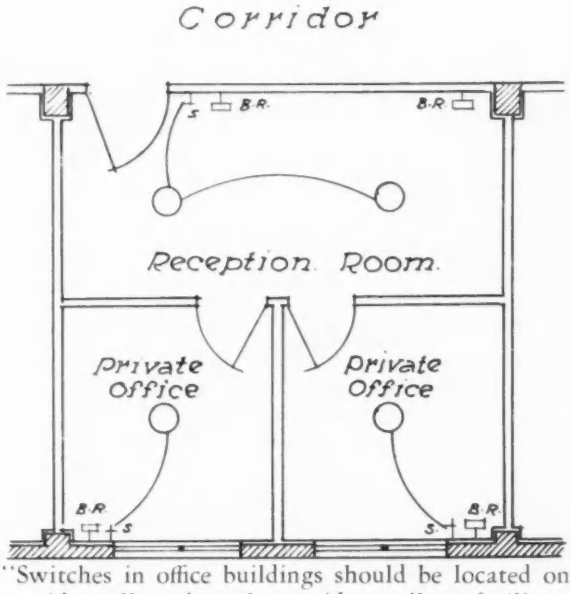
6. *Baseboard.* Metal office partitions and metal baseboards have space for an electric wire duct. Provision for wiring may be made back of a wooden baseboard as indicated in the accompanying sketch. The cost per lineal foot per finished base was found to vary from 21 cents for 2-membered gum to $1.70 for 3-membered imported mahogany.

7. *Chair Rail.* Chair rails are losing favor throughout the country, because they cannot be so placed that protection is afforded to the wall for all the various chair heights. In remodeling it is well to eliminate the chair rail when possible, to get an up-to-date effect.



Where to put wiring ducts in remodeled buildings

8. *Wiring in Office Partitions.* For the sake of alterations the switches in office buildings should be located on outside walls and on interior columns or on the corridor wall. They should not be located on division or subdividing partitions, since any change in these partitions would involve a relocation of all the electrical work. One Chicago building has the switches located on the outside wall as shown below. With this arrangement there are occasional complaints from tenants about having to cross the room in the dark to reach the switch, but since this occurs only when offices are visited at night, the complaints are not many. Base receptacles should always be located just above the base. When located below, the base has to be cut and much of its salvage value is immediately destroyed. Base sockets should be located so as to be under the switch boxes in reception rooms.



"Switches in office buildings should be located on outside walls and on the corridor walls to facilitate alterations"

DATA SHEET ~ ALTERATION COSTS

RESEARCH DEPT. ~ NATIONAL ASS'N BLDG. OWNERS & MGR'S

STUDY [redacted] CLASS BLDG. [redacted] BUILT [redacted]
CONSTRUCTION [redacted]
TENANTRY [redacted]
ANNUAL AMT ALTERATION WORK - $ [redacted]
RATIO - ALTERATION COSTS TO GROSS RENTAL - [redacted]
NET RENTABLE AREA [redacted] CUBE [redacted]

METHOD OF HANDLING ALTERATION WORK: [redacted]

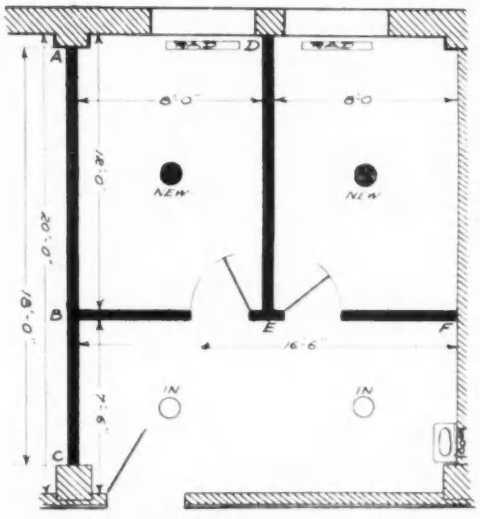
ROUTINE & PERSONNEL ~ SEE ATTACHED NOTES.

% WORK DONE BY BLDG ORGANIZATION: [redacted]
EQUIPMENT OF SHOPS ~ EXTENSIVE [redacted] ORDNY [redacted]
LOCATION OF BLDG SHOPS ~ [redacted]
NUMBER, CLASS & WAGE OF TRADESMEN EMPD:

TRADE	NO. EMP'D	CLASS	WAGE	IF CONTRACT
MASON	[redacted]	[redacted]	[redacted]	[redacted]
PLASTERER	[redacted]	[redacted]	[redacted]	[redacted]
LABORER	[redacted]	[redacted]	[redacted]	[redacted]
CARPENTER	[redacted]	[redacted]	[redacted]	[redacted]
PAINTER	[redacted]	[redacted]	[redacted]	[redacted]
ELECTRICIAN	[redacted]	[redacted]	[redacted]	[redacted]
STEAM FITTER	[redacted]	[redacted]	[redacted]	[redacted]
PLUMBER	[redacted]	[redacted]	[redacted]	[redacted]
MARBLE SET'R	[redacted]	[redacted]	[redacted]	[redacted]
TINNER	[redacted]	[redacted]	[redacted]	[redacted]

CONSTRUCTION PRACTICE: [redacted]
FOR WHAT PARTITIONS ARE FLOORS CUT? [redacted]
ARE DOOR BUCKS NAILED TO MASONRY? [redacted]
ARE GROUNDS MORTISED TO DOOR BUCKS? [redacted]
WHAT MORTAR - LIME [redacted] CEMENT [redacted] SPECIAL [redacted]
PLASTER: [redacted] ROUGH COATS: [redacted] FINISH: [redacted]

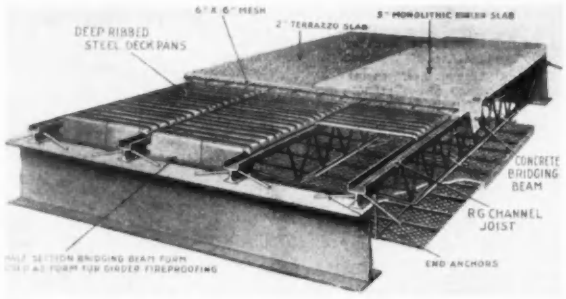
ESTIMATE OF TYPICAL ALTERATION COST:
Consider the work shown on right to be necessary on one of your typical floors; ie. to divide a two-bay office and subdivide one of the resulting units. Estimate for the type of partition you usually install under such conditions, nothing special considered. The two outlets marked 'new' are to be provided, consider feeding from present outlets. Indicate where you would place a base receptacle in each of the small offices, also the switches for ceiling lights. For decorating estimate what you usually find has to be done & list same in space provided at right, area figured as given. The cost of setting the lavatory is to include labor only; consider the fittings and lavatory on hand and the roughing in in place.



CORRIDOR

TYPE OF FLOOR: [redacted]
TYPE OF SLAB: [redacted]
CEILING HEIGHT: 10' - [redacted] ANY OTHER: [redacted]
TYPE OF PARTITION 'D-E': [redacted]
IF GLASS - SIZE: [redacted] KIND: [redacted]
COST OF ABOVE AMT OF PTN [redacted] 1
THIS COST INCLUDES: [redacted]
TYPE OF PARTITION 'B-F': [redacted]
IF GLASS SIZE: [redacted] KIND: [redacted]
COST OF ABOVE AMT OF PTN [redacted] 2
THIS COST INCLUDES: [redacted]
COST OF TWO DOORS NEW: [redacted] 3
THIS INCLUDES: [redacted]
TYPE OF PARTITION 'A-C': [redacted]
COST OF ABOVE AMT OF IT - [redacted] 4
THIS COST INCLUDES: [redacted]
TYPE OF LAVATORY USED - [redacted]
COST OF SETTING SAME - [redacted] 5
COST OF ELECTRIC WORK WITH 2 SWITCHES AND TWO BASE RECEPTACLES: [redacted] 6
TYPES OF DUCT USED: [redacted]
ITEMS OF TRIM & MATERIAL [redacted]
COST OF TRIM ABOVE: [redacted]
THIS COST FOR: [redacted]
COST OF PLASTER: [redacted] THICKNESS: [redacted]
COST OF DECORATING PARTITIONS ONLY: [redacted] 7
THIS COST FOR: [redacted]
TYPE OF HARDWARE: [redacted]
COST OF TREATING NEW FLOOR - [redacted]
THIS INCLUDES - [redacted]
NORMAL TIME NEEDED FOR JOB: [redacted]
COST OF JOB COMPLETE - NO DECORATING BUT FOR NEW PARTITIONS & PATCHING, NOTHING DONE TO FLOOR, NEW DOORS INCLUDED & HUNG, FINAL CLEANING, NO OVERHEAD: [redacted]
WHAT WOULD YOU ESTIMATE THE COST TO BE FOR WRECKING THE PARTITIONS, REMOVING RUBBISH TO BASEMENT FROM 10th FLOOR AND PUTTING THE OFFICE IN SHAPE FOR TENANT - [redacted]
NORMAL TIME NEEDED FOR THIS - [redacted]
SALVAGE: [redacted]

Showing an approach to any specific problem of remodeling.



LIGHT-WEIGHT FLOOR CONSTRUCTION
Rivet-Grip Steel Company, Cleveland. Especially applicable to added stories on old frame

C. HEATING

The losses incurred in the operation of antiquated or poorly maintained heating systems are usually accepted as a necessary evil and little thought is given to improving the efficiency and decreasing the cost of heating. Savings of from 25 to 50 per cent in the cost of heating are not exceptional in buildings where the principles of modern practice have been applied and in many of these properties the cost of the improvement has been amortized, through the savings made in heating costs, in two heating seasons. The following tables describe the various types of systems and suggest means for improvement.

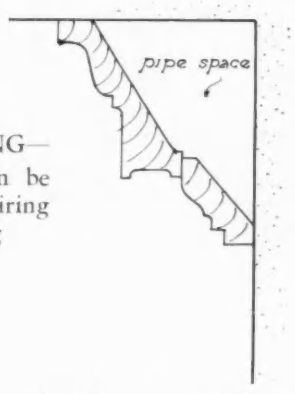
Type	Suggested Improvement
(1) *One Pipe System* This system is most inefficient since steam, air and condensate flow in opposite directions. Pressure required to produce complete circulation of steam. Conditions result in underheating or overheating.	Add return line and supply radiator traps and drips; packless radiator valves; vacuum pumps.
(2) *Air Line System* Improvement over one pipe system in that air is removed through thermostatic air valve by use of vacuum pump. Reduces pressure required for complete circulation.	Add return line and supply radiator traps and drips; remove air line valves and piping; packless valves and vacuum pump.
(3) *Two Pipe Gravity* Similar to one pipe system but with a return line for each radiator to carry away condensed steam. Due to absence of trap; steam short circuits radiator and increased pressure is required to maintain complete circulation.	Add radiator traps and drips; packless radiator valves; vacuum pumps.
(4) *Two Pipe Atmospheric* System usually installed with 25 per cent excess radiation and steam enters radiator through slotted or ported valve. Condensation from radiators is restricted mechanically to prevent steam flow in the return line. System is a marked improvement over previous ones but danger of overheating exists.	Improvement depends upon heating requirements of building, and no general recommendations are applicable. Can be accepted as a modern and efficient system.

From *Building and Building Management*, August 12, 1929.

Where risers are located at columns and the radiators occur under windows some distance away, it is recommended that the horizontal run from the riser to the radiator be made above the floor, as shown at foot of page rather than beneath the ceiling of the floor below. This is to prevent disturbing one tenant when making alterations for another. Regardless of columns or other projections, piping should be held to the wall line as closely as possible. The drawing shows the wrong and right methods of making horizontal runs. If the pipes are away from the wall they will always be stepped on and leaks result. They also present a hindrance to efficient cleaning and obstruct the placement of furniture.

The recommendation that steam risers be run exposed and not furred-in is counter to accepted current practice in architecture but the Building Managers state that the expense and muss of locating leaks in concealed lines counterbalances the objection of tenants to the exposed risers.

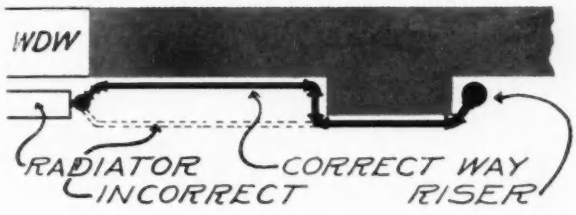
The logical position for radiators is beneath the windows. This gives the wall space for placement of furniture and overcomes the cold area otherwise



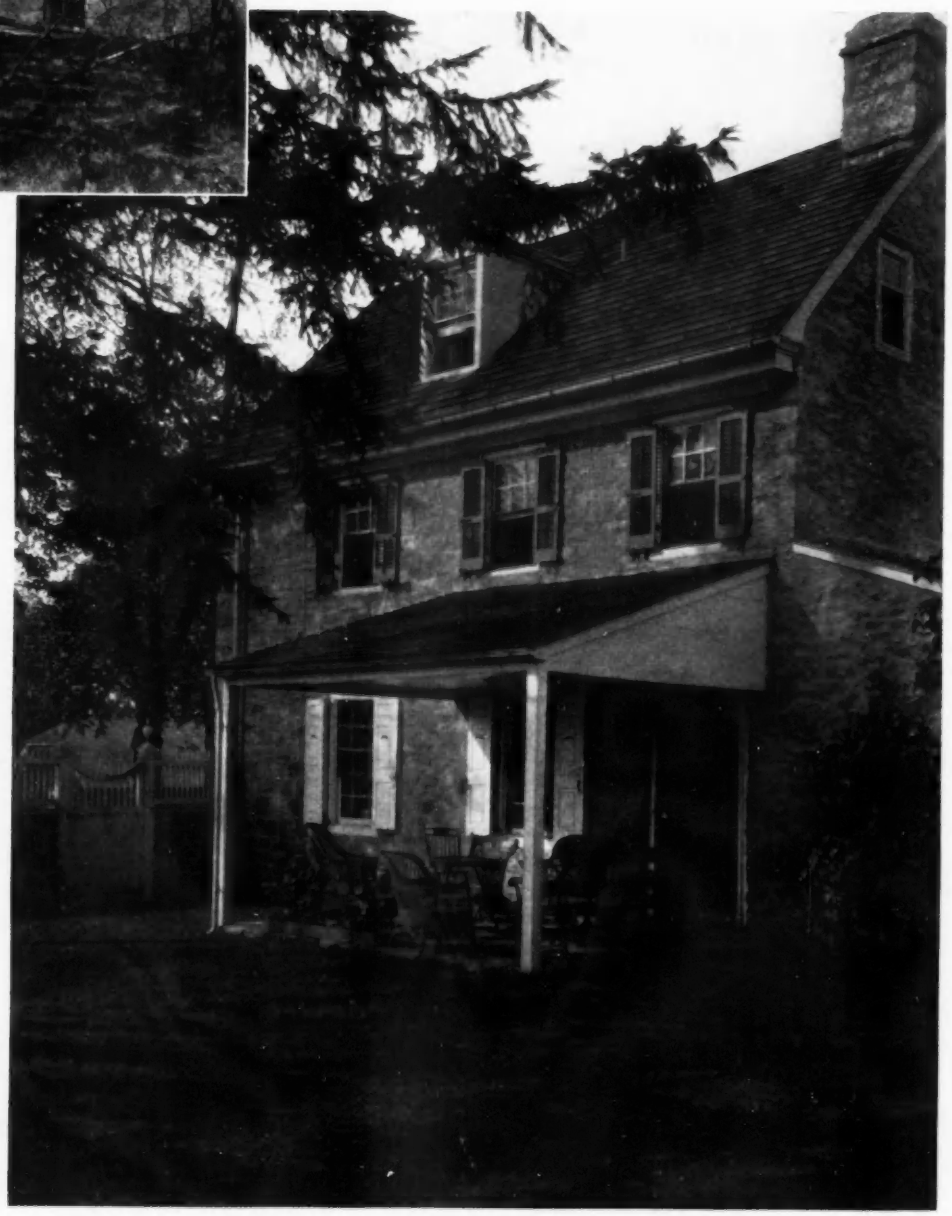
IN REMODELING—
Cornice space can be utilized for wiring and plumbing

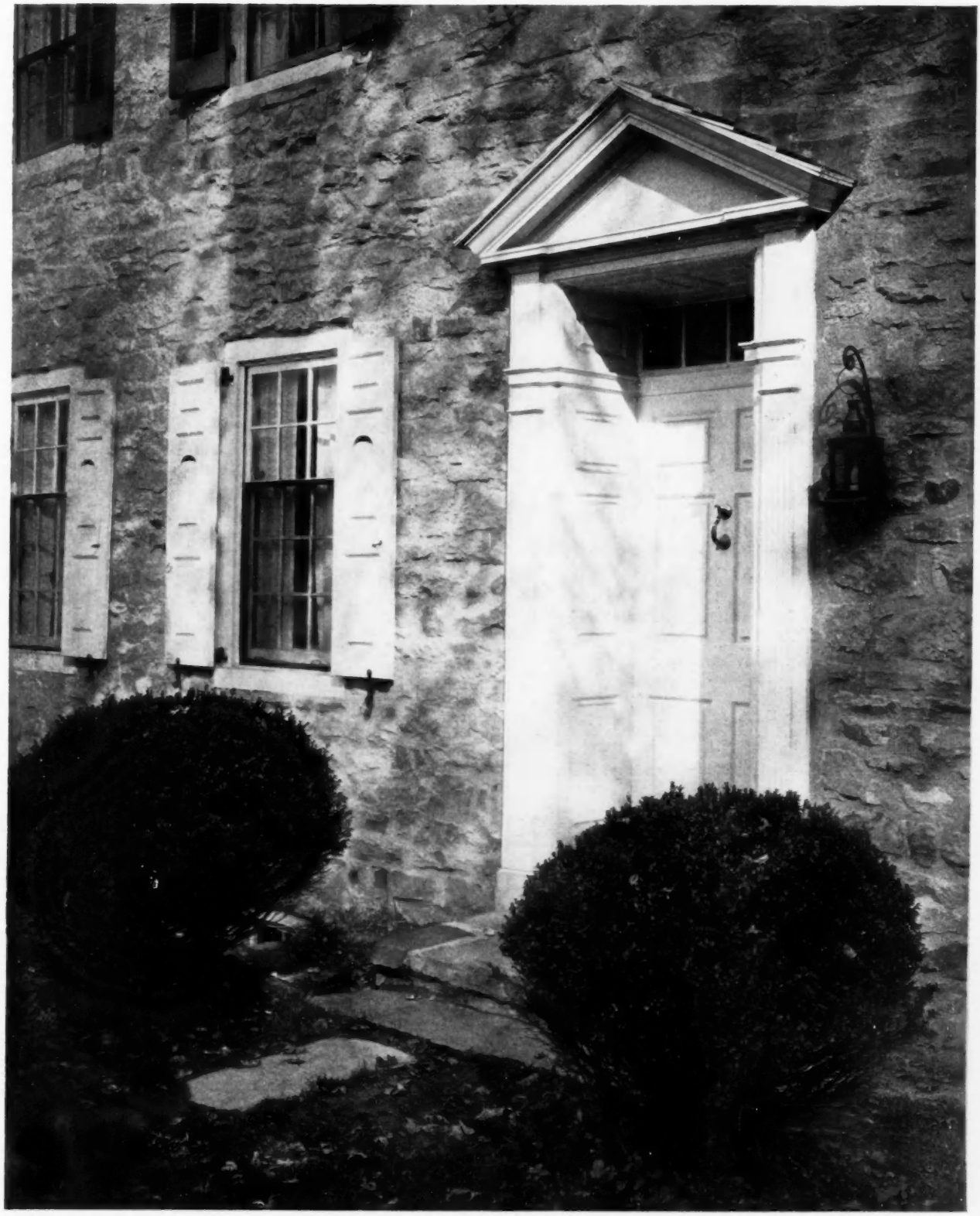
found in front of windows. In this connection, several buildings have used an insulation of some type, such as a prepared sheet of Insulite or Celotex behind the radiators to prevent the rapid transmission of heat through outside walls. This practice should warrant consideration since the coldest portion of the building is immediately next to the source of heat if the radiators are placed beneath the windows. Ultimately under these conditions the insulation will be incorporated within the wall construction.

1. *Radiators.* Hangers have now been perfected to the point where little trouble is experienced from them. With the wall-hung installation, it is easier to clean the space beneath the radiator. The trouble occasioned by laying carpets under the pedestal type



HOUSE FOR MRS. HENRY B. BARTOW
Fort Washington, Pennsylvania
REMODELED BY G. EDWIN BRUMBAUGH, ARCHITECT





HOUSE FOR MRS. HENRY B. BARTOW, FORT WASHINGTON, PENNSYLVANIA

REMODELED BY G. EDWIN BRUMBAUGH, ARCHITECT

PRESENT STANDARDS OF FOOT-CANDLES OF ILLUMINATION FOR COMMERCIAL INTERIORS

	Foot-Candles Recommended	
	Good Practice	Minimum
Auditoriums	5	3
Automobile Show Rooms	15	10
Bank, Lobby	10	6
Cages and Offices	15	10
Barber Shop	15	10
Club Rooms, Lounge	5	3
Reading Room	12	8
Dental Offices, Waiting Room	6	4
Operating Room	12	8
Dental Chair	50	25
Drafting Room	25	15
Elevators	6	4
Garage, Storage—Dead	3	2
Storage—Live	8	5
Repair and Washing	15	10
Halls, passageways in interiors	3	2
Hotels, Lobby	8	5
Dining Room	6	4
Bedrooms	8	5
Corridors	3	2
Writing Room	12	8
Library, Reading Room	12	8
Stack Room	6	4
Lunch Room	12	8
Market	12	8
Office Building—Private and General Offices		
Close work	15	10
No close work	10	8
File Room	6	4
Vault	6	4
Reception Room	6	4
Show Cases	Two to four times that of store proper	
Show Windows—*Large Cities:*		
Brightly Lighted District	150	100
Secondary Business Locations	75	50
Neighborhood Stores	50	30
Medium Cities:		
Brightly Lighted District	75	50
Neighborhood Stores	50	30
Small Cities and Towns:		
Lighting to reduce daylight window reflections	200–1000	
Stores—Department and Large Specialty:		
Main Floors	15	10
Other Floors	12	8
Basement Stores	15	10
Stores—Medium Size:		
Automobile Supply	12	8
Bake Shop	12	8
Book	12	8
China	12	8
Cigar	15	10
Clothing	15	10
Confectionery	12	8
Dairy Products	12	8
Drug	15	10
Dry Goods	15	10
Electrical Supply	15	10
Florist	12	8
Furrier	15	10
Grocery	12	8
Haberdashery	15	10
Hardware	12	8
Jewelry	15	10
Leather, Handbags and Trunks	12	8
Meat	12	8
Millinery	15	10
Music	12	8
Notions	12	8
Piano	12	8
Shoe	15	10
Sporting Goods	12	8
Tobacco	15	10
Toilet and Washrooms	6	4

radiators, where pipe connections have to be changed is also obviated.

The height of a radiator from the floor should be approximately five inches. This allows brushes and vacuum cleaner tools to pass beneath and gives sufficient height for all gravity drainage required. With greater clearance than this above the floor there is the probability of forcing the top of the radiator above the height of the window stool.

2. *Plumbing.* Lavatories should be as small as possible. Square fixtures 18 x 24 are considered practicable. When large lavatories in old buildings are located in cabinets they may be supported on grounds nailed to the side cabinet panels, but for ordinary locations the combined pedestal and wall-hung fixture is recommended as tenants occasionally sit on the bowl and may break the old type loose from the wall.

Self-closing faucets are recommended. Many operators advocate china handles on faucets both as a protection against their becoming hot and to minimize all polishing and metal maintenance.

The pop-up waste is generally found the most satisfactory. It is more up-to-date and is not subject to being lost as are rubber stoppers even when chained to the fixture.

White metal has been found very satisfactory for plumbing fixtures, since it requires no polishing. New finishes are also available such as chromium plate. These innovations have been found to be entirely practical.*

Flexible Copper Water Tubing† will be found a great help in remodeling work since this pipe, which comes in 60′ coils, can be run around corners and down through partitions like electric cable. It can be bent to a radius of 4″ and larger without kinking. This tubing is joined together with a special form of compression joint which has been used in Europe for some time and is employed in this country on oil and gasoline lines in automobiles.

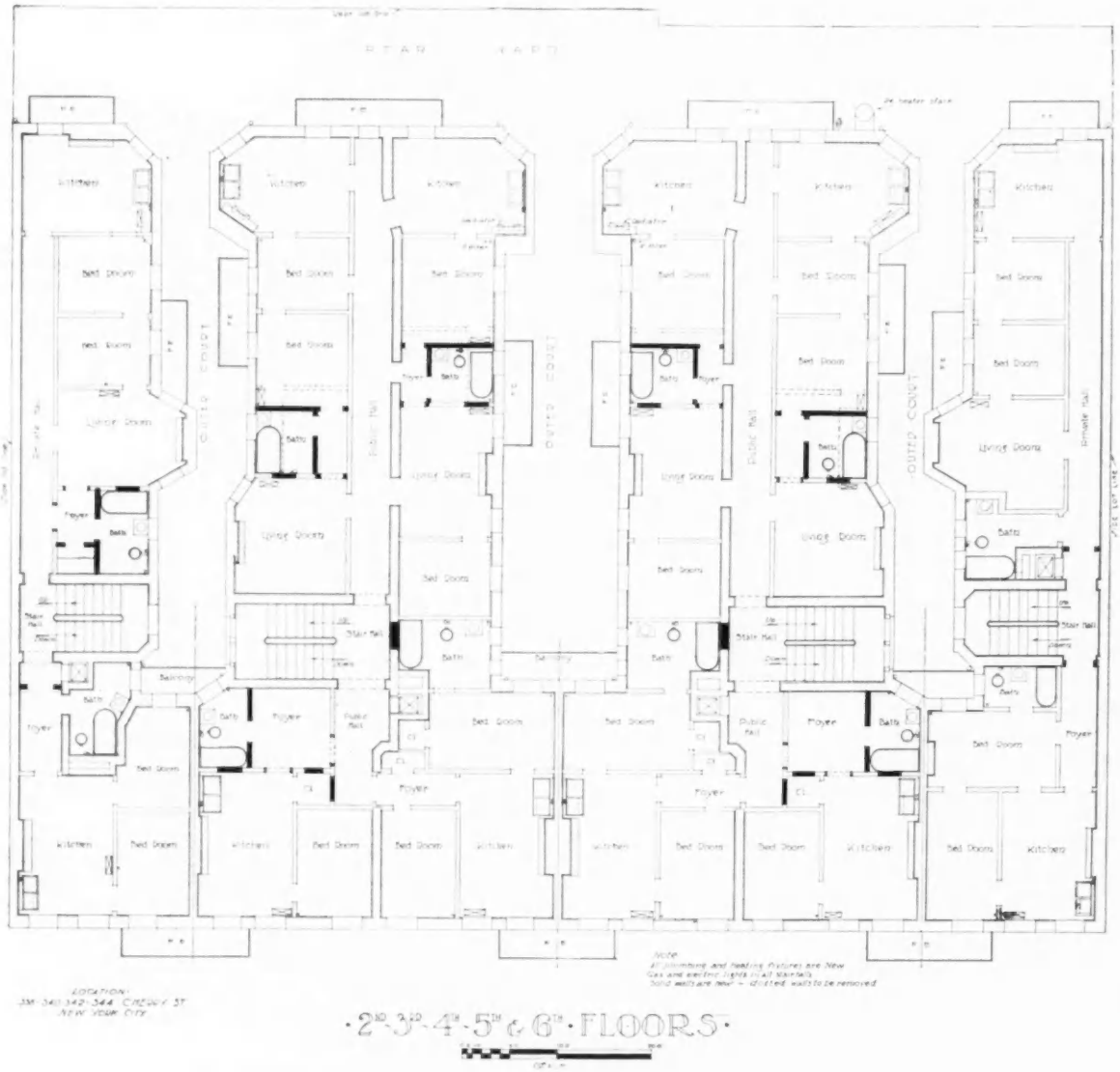
D. IMPROVING THE ELECTRIC LIGHTING EQUIPMENT

The advance in the art of lighting is so constant that *it is seldom good practice to maintain any type of lighting fixture for a period longer than five or six years.* We have progressed in the accepted standards of proper lighting conditions and a fastidious tenancy demands increased quantities of light of improved quality. Lighting units designed on the principle of semi-indirect illumination appear to be the most satisfactory for office use. Within the past ten years, we have increased our requirements for office lighting from 5 foot-candles to a present-day demand of 10 foot-candles for general work and higher intensities for drafting rooms and doctors' offices.

1. *Modern Illuminating Standards.* Without attempting to recommend any specific make of lighting

* Office Building Alterations, National Association of Building Owners and Managers.

† Sweet's Architectural Catalogues, page 4106.



REMODELED SLUM, NEW YORK CITY

MAXWELL HYDE, ARCHITECT

The original building was poor in plan with air-shafts 60′ deep and 10′ to 12′ wide. Remodeling entailed the removal of unnecessary fire escapes in the air-shafts which interfered with light and ventilation. Light court walls were whitewashed and front repainted. There were practically no structural changes except moving of partitions to form new bathrooms as indicated by solid blacks.

Originally, the buildings contained 275 rooms; as altered they now have 236 rooms and 72 baths; 24 rooms have been increased in size. When taken over by the present owner, the average rent was $4 per room per month. The new schedule calls for a minimum of $7 and a maximum of $12. The total amount of rent that was being received was $2,100; the new rent roll is $26,000. The land and buildings cost $55,000. The alterations, including fees to the architects and builder's profit, cost $85,000—about $320 per room. The running expense, it is estimated, will be about $10,000 a year. The operation after an amortization of 4% has been deducted will show a profit of 6% or possibly 7%.

unit, we may say that the most satisfactory one for offices is of the semi-indirect type which sends the greater part of the light to the ceiling whence it is reflected back to the surfaces of the desks. An ideal unit would have a light output equal to 75% of the output of the bare lamp; and of this amount, 15% would be distributed downward from the fixture and the balance reflected downward from the ceiling in well-distributed illumination.

2. *Switch Plates.* Heretofore, one of the greatest problems in the maintenance of offices has been the brass switch plate. As soon as it has shown signs of tarnish, the cleaning force attempts to polish it in place with the result that the walls are badly marred and stained. By using Bakelite or other composition or enameled switch plate the maintenance is very materially reduced and requires nothing more than an occasional dusting off to maintain an attractive surface. These plates can be obtained in any color to match the office trim or furnishings.

E. SOUND ABSORPTION AND ACOUSTICAL TREATMENT

In remodeling and modernizing buildings it is well to bear in mind the possibilities of sound-deadening or acoustical treatment. Where a ceiling has to be refinished or where in old buildings high ceilings have to be lowered to obtain pleasing proportions one of the various sound absorption materials may often be used to advantage.

Some apartments, difficult to rent due to noise from neighbors, may be made rentable by the addition of a sound-proofing system to walls and floors.

Sound Filters on Windows. Some offices and apartments are difficult to rent due to railroad or street noises. Unit ventilators with sound filters will largely overcome this difficulty.

F. WOOD FLOORS

In present day operation, floors do not present the problem they did ten years ago as the general tendency is to cover all floors with linoleum, cork tile or carpet. Where floors require refinishing, and floor covering is not used, it is necessary to remove the finish with a sanding machine, and prepare the surface for subsequent treatment. New or thoroughly sanded floors of oak, maple and yellow pine can be refinished in any of the modern finishes at moderate costs. *Plain varnished floors are not serviceable and the trend is toward oiled and waxed finishes.* A treatment which has been evolved for new or recut floors of maple and oak is obtained by deep-staining the wood with water-soluble vegetable stains, instead of the usual oil stains. When this stain has thoroughly dried, the surface is given a coat of orange shellac. After drying, the floor is given a light sanding by hand and the final finish obtained by waxing with a preparation of Carnuba wax and linseed oil, using a polishing machine having a felt pad for rubbing in the wax preparation. This method is not only less expensive than varnishing, but produces a surface which is attractive, is easily cleaned, and can be refinished by applying a wax coat.

G. DECORATION AND PAINTING

In no aspect of building operation is there a better opportunity to satisfy the tastes of discriminating tenants than in the artistic treatment of office units. New and pleasing effects unquestionably render the space more inviting to the prospective tenant than customary standard colors and treatments. In a recent study the psychology of color has been most thoroughly analyzed and what may be termed the "therapeutic value" of color established. The fact that various colors have been classified as having pronounced stimulative, recuperative or sedative effects, have caused hospitals to vary their color schemes from the long established and distressing white. The depressing effect which some of our decorative effects must have on our tenants cannot be wondered at after one has observed some of the treatments of office space that have been applied with no thought of artistic blending or contrasting of harmonious colors.

In any interior rehabilitation program, it is the decorative effort that usually produces the greatest volume of comment from the public since it is the most striking visual evidence of improvement. We sometimes fail to capitalize this fact to the fullest. The modernistic trend of decorations suitable for office buildings should not be confused with the ultra-modernistic creations which one encounters in tea rooms; those extremes are solely for the purpose of attracting attention, whereas in office areas we should tend toward a duplication of the subdued effects of home environment.

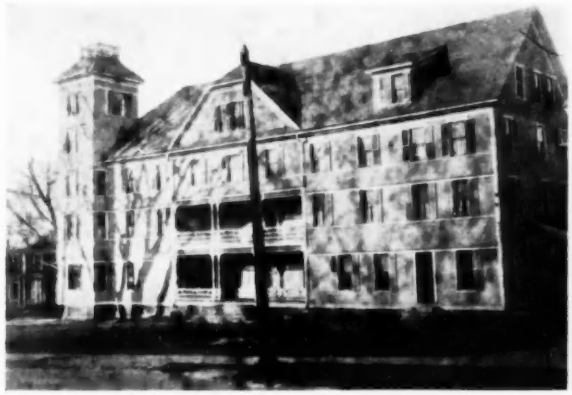
Our efforts in office decoration should not be judged alone from their psychological effect as they have a very definite economic value in the reflection of light from wall and ceiling surfaces.

The coloring effects used in offices determine what efficiency can be obtained in the quantity and quality of light reflected from the painted surfaces. The following chart illustrates the reflection value of various colors and indicates the shading which should be utilized to maintain efficient lighting conditions in offices:

REFLECTION VALUE OF VARIOUS PAINT COLORS

Color	Reflection Factor, Per Cent	Color	Reflection Factor, Per Cent
Paper white	80	Shell pink	49
Ivory white	78	Bright sage green	48
Pearl gray	74	Buff stone	42
Caen stone	73	Dark gray	39
Ivory	71	French gray	38
Lichen gray	69	Pale azure	38
Light gray	67	Tan, dark	35
Ivory tan	64	Sky blue	35
Satin green	61	Olive green	20
Silver gray	57	Cardinal red	18
Buff	54	Forest green	18
Pale azure and white	53	Dark blue-gray	17

From *Buildings and Building Management.*



BEFORE REMODELING

AFTER REMODELING

TRUE TEMPER INN, WALLINGFORD, VT.

C. B. ROWLEY, ARCHITECT

Aluminum paint can often be used to advantage in remodeling work. This paint is made from ground aluminum foil suspended in a medium. After application, a thin coating of aluminum similar to "silver leaf" is formed which has a high degree of light reflection, for light wells, courts or interior work.

1. *Plastic Finishes.* The possibilities which plastic paint has opened up for those who desire unique and interesting decorative effects have brought about an increasing use of this material in office buildings. It is an outgrowth of the days of rough or sanded plaster, but has the advantage of being more easily applied and produces a more pleasing texture. The basic materials are of two types: One, a powder for admixture with water and the other, one in which white lead paste predominates. The latter material is mixed with whiting and oil to produce the plastic compound and is principally used where the desired texture is one in which the relief is not extreme. In work which demands high relief, like Spanish plaster, the water preparation is best.

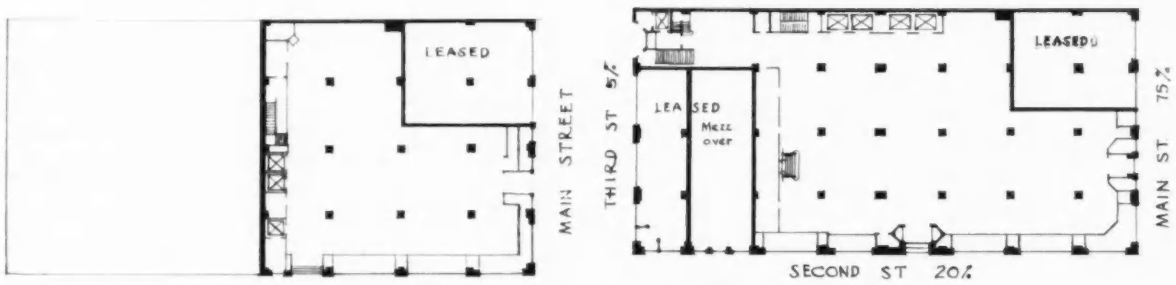
Plastic finishes are particularly adaptable in old buildings where, as a result of the accumulation of numerous coats of paint or faulty finish coats, the material flakes off, leaving a surface which cannot be satisfactorily covered by paint. Defective walls of this type can be coated with plastic paint.

VI. BUILDING PLANNING SERVICE

Most architects on large building projects now call in the aid of structural, heating, ventilating and electrical engineers. Increasingly, it has been found advantageous to the architect to also avail himself of the advisory services of building managers. The National Association of Building Owners and Managers with its experience in operation and management of buildings can aid in the practical solution of plan arrangement, equipment and in the selection of suitable materials. The association experts can render service in the remodeling or operation "set-up" that is compiled under the immediate direction of the architect. Room sizes suitable for advantageous rental, and the possibilities for alteration from the viewpoint of future sale or lease can be arrived at with reasonable exactness with their cooperation. The services of this Association are available at a nominal fee that varies with the cubic contents of the building on which advice is sought.

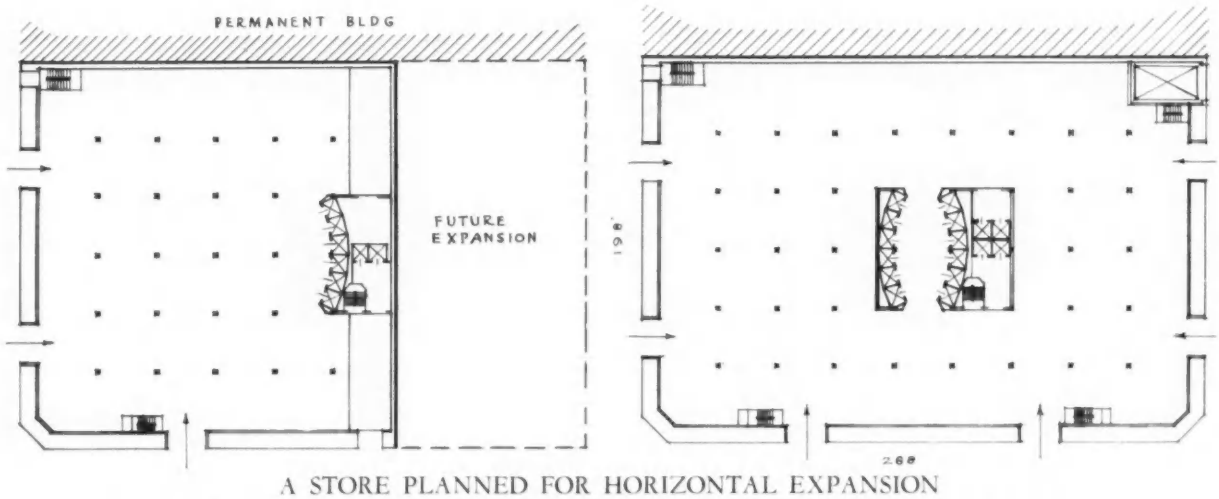
A survey made by the architect to indicate the advisability of remodeling or of rebuilding should accompany preliminary sketches and every available source of data should be used by the architect.

Real estate boards, the Department of Commerce and Chambers of Commerce can also be of assistance in determining site and character of building.



PART OF STORE SUB-LEASED UNTIL FUTURE EXPANSION

(See Article on next page)



A STORE PLANNED FOR HORIZONTAL EXPANSION

The left shows the present condition, the right the future. A centralized grouping gives excellent distribution, and is suited to set-back design. This plan is for a store expanding from a volume of four million to ten

PLANNING FUTURE EXPANSION FOR THE DEPARTMENT STORE

BY KENNETH WELCH

Vice-President in Charge of Design, Grand Rapids Store Equipment Corporation

The successful department store has never existed that did not, at some time, become congested and need additional area to permit an increase in volume. It is well known that as the volume of a store increases the percentage of profit and the productivity increases per square foot. Accordingly, it is important that the department store should have at all times the maximum amount of space that it can economically use.

On the other hand, it is very desirable to consider carefully the immediate space requirements and not to provide at any one time for too great a future expansion. Besides demanding an additional initial investment which remains dormant, such practice always results in additional operating expenses. Sometimes a combination of these two costs proves disastrous.

The question we are discussing is, what means can be provided for additional expansion in the future when designing an *entirely new building*.

The exact amount of expansion to provide for is sometimes difficult to determine but the following conditions should be carefully studied. The increase in business that a retail store can expect depends primarily on: (1) the growth and prosperity of the vicinity, (2) the success of the future management, (3) what percentage of the business in its line the store is doing, (4) the competition that is still to be established, and (5) the location of the store.

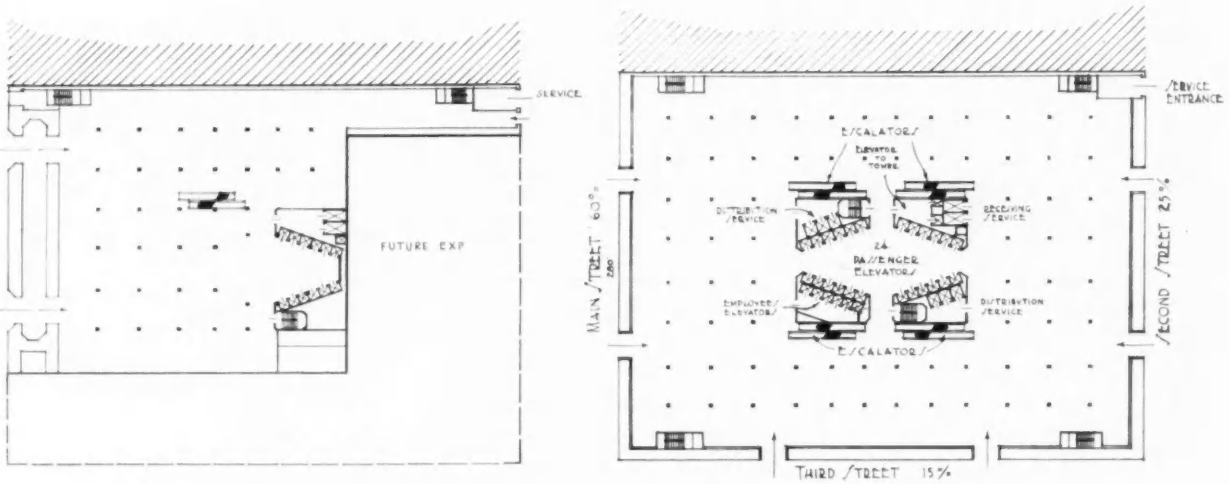
Valuable figures can be obtained from the local Chamber of Commerce and the Federal Reserve reports, and information can also be had from the U. S. Department of Commerce, to help determine the future market possibilities and growth of the vicinity.

If the management is successful and is not now getting its share of business, the assumption is that with the stimulus of a new building the growth of the store will be proportionately greater than that of the community.

The extent of future competition is difficult to foresee but it is almost certain that if the vicinity is having a decided growth, competition will be established and will absorb a part of the additional business.

In regard to the location of the property, if there is a decided tendency for the retail district to keep shifting as it does in many cities, the wisdom of making too great an initial investment in provision for future expansion is dubious. If the vicinity has permanent transportation terminals, or other permanently established stores with fairly modern buildings tending to stabilize the location for shopping purposes, it is well to look as far into the future as possible, and provide every means within reason for logical future addition of space. It would be a mistake, however, to make any considerable additional investment in footings and extra structural work without a practical merchandising scheme for eventually using these facilities to their maximum.

In the plan the proper spacing of columns, location and schemes of display windows, entrances, etc., do not present a difficult problem. The greatest difficulty is to provide for the additional interfloor trans-



A STORE PLANNED FOR HORIZONTAL EXPANSION

Elevators should be planned centrally to the upper floors, the volume of business above the main floor exceeding the relative volume of traffic. The left shows the present condition, the right an expansion to one hundred million volume

portation. The importance of this can best be emphasized by the following facts: In the average department store from 35% to as high as 65% of all the people who enter the store go to an upper floor. The percentage of *volume* done above the main floor always *exceeds* this percentage of traffic. For example, if 65% of the persons that enter go above the first floor, it is possible that 75% of the volume will be done above the first floor.

Considering these facts, as well as the operating expense, and the inconvenience to the customers that can be occasioned by poor transportation, it is very important to obtain a maximum efficiency with the equipment provided.

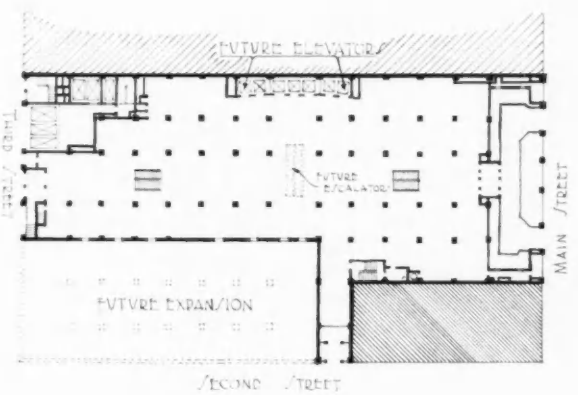
(See also discussion of elevators in general remodeling on page 187.)

A common mistake in locating elevators in a store is to emphasize their location on the main floor only. The importance of the upper floors should be equally considered and the more levels the elevators are intended to serve, either at present or in the future, the more important becomes their location on these upper floors.

The value of selling space on the upper floors varies almost inversely to the square of the distance from the elevators. Accordingly elevators centralized as regards the upper floor areas, present or future, are very desirable. As a general rule any upper floor selling space more than one hundred and fifty feet from the elevators is very difficult to merchandise.

The number and size of elevators required can be figured in several ways. One method is to test the hourly and daily peaks encountered. Compute the volume of business per person entering, and the actual capacity of the proposed transportation. You can then determine the day's volume that the transportation will accommodate during the peak hour. It has been proved that the traffic inside the store varies approximately with the volume of business with a slight tendency of the traffic to increase as the volume increases. Accordingly, we can assume for practical purposes that a chart based on volume represents the daily traffic fluctuation.

The capacity of the transportation, being constant, can be represented on the chart by a straight line. By this means it is easy to visualize just what the overload on the transportation will be. It can readily be seen that it would be impossible to provide elevators to handle the maximum peaks. This is one reason why it is good practice to have stairways convenient and visible from the front of the elevator bank. The elevator capacity is usually only a little more than the *average daily* traffic condition or



NIEMAN MARCUS CO. STORE, DALLAS, TEXAS

HERBERT M. GREENE, LA ROCHE & DAHL, ARCHITECTS

Planned for both vertical and horizontal expansion

volume. (The latter can also be represented by a straight line.) In some cases it is advisable to have a *capacity* of nearly twice the daily average volume but this depends on the study of the *hourly* as well as *daily* fluctuations.

Another point to consider in addition to capacity is the interval of departure of the elevators. With good service a car should be leaving the first floor, on the average, every thirty-five or forty seconds. In the highly competitive retail stores of today, convenience to the customer is an important qualification.

In designing new store buildings there are two different methods of planning for additional future space. One we will call vertical expansion wherein the maximum ground area is built up at once but with the minimum number of floors, provisions being made in the footings and columns to add additional stories later on. This is the simplest type to plan because it is only necessary to plan the ultimate building. The framing is all prepared to take additional elevators or escalators as needed and occasionally even the shafts are installed.

Another method of providing for future expansion is to build on only a portion of the ground now available or possibly available at a later date. This we will call horizontal expansion. Of course, it is possible to plan for a combination of vertical and horizontal expansion (such as shown on page 201), but the moment any considerable amount of horizontal expansion is to be considered the difficult problem presents itself, of properly locating present and future transportation.

As a general rule horizontal expansion is preferable from a merchandising standpoint to vertical expansion, because it is possible simply to enlarge the existing selling sections without all the relocation necessary with vertical growth. There is also a greater possibility of flexibility and interchange of space, so necessary to the modern store, when a greater number of sections are located on any one floor. An isolated section never produces as well as one on the same floor with many others.

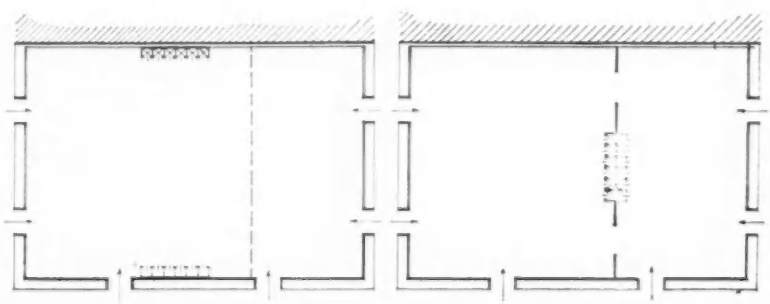
Occasionally it is desirable to build a complete building and lease certain first floor areas to other shops with leases of such length that if the space is necessary at their expiration it is available. Figure V is an illustration of such a scheme. This store was originally built as shown at (a) and later was expanded to size shown at (b). In this case the elevators had to be moved entirely to provide the ideal location in the finished store. This is a departmentized specialty shop, and the need was greater for upper floor space than for main floor space.

One item necessary to consider, however, is the value of the display windows which are lost when possible first floor space is given up. In good locations this is very important. In order to maintain an average representation of display windows the average department store should have one lineal foot of window display to every thousand square feet of gross area. An increase in display over this is desirable, if possible, especially as traffic per population increases above the average condition.

In planning the location of the interfloor transportation for a proposed future horizontal expansion, a scheme such as suggested in figures at top of pages 202 and 203, is a possible solution to provide an ideal condition at all time. (a) Shows the initial unit, (b) the future. If the circulation is properly planned, this scheme results in the maximum efficiency, a centralized grouping giving excellent distribution as well as directional control on the upper floors. It also lends itself to the set-back design, the pent house forming a logical central tower. The first figure is for a store expanding from a volume of approximately four million to ten, and the second a larger store with expansion possibilities to over a hundred million.

This type of expansion many times in the past has resulted in a scheme as shown on page 204, resulting in inefficient transportation or even loss of valuable daylight with subsequent loss of control and always favoring the areas adjacent to the "best bank".

In conclusion, horizontal expansion is usually preferable to vertical. But when vertical expansion is to be expected, elevators should be planned centrally at the start for the greatest possible extension with the least new structure. Any additional transportation beyond the capacity of one centralized elevator group should be handled by escalators. Present investments for possible future growth must rest on careful market studies.



The scheme at the left results in loss of daylight and in very unequal loading of the two elevator banks. This is remedied in the scheme at the right

CONSTRUCTION STATISTICS

From the records of F. W. Dodge Corporation, Statistical Division. The figures cover the 37 states east of the Rocky Mountains and represent about 91 per cent of the country's construction volume.

First Eleven Months, 1929

	TOTAL CONTRACTS		WORK PLANNED BY ARCHITECTS		
	Number of Projects	Valuation	Number of Projects	Valuation	Per Cent of Total
Commercial Buildings	22,828	$ 899,296,300	9,613	$ 693,169,200	77
Industrial Buildings	6,263	689,120,000	2,181	180,439,400	26
Educational Buildings	4,338	362,066,200	3,491	345,736,200	95
Hospitals and Institutions	1,121	146,056,300	835	131,528,400	90
Public Buildings	1,240	114,070,200	717	105,034,500	92
Religious and Memorial	2,157	100,493,700	1,526	89,018,600	89
Social and Recreational	2,356	128,621,300	1,430	104,364,000	81
Residential Buildings	106,318	1,801,677,700	27,050	1,088,521,100	62
Total Building	146,621	4,241,401,700	46,843	2,737,811,400	65
Public Works and Utilities	18,270	1,196,520,700	335	33,494,100	3
Total Construction	164,891	5,437,922,400	47,178	2,771,305,500	51
Total Construction, first eleven months, 1928	200,255	6,628,286,100	59,956	3,639,018,800	55