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AMERICAN ARCHITECT

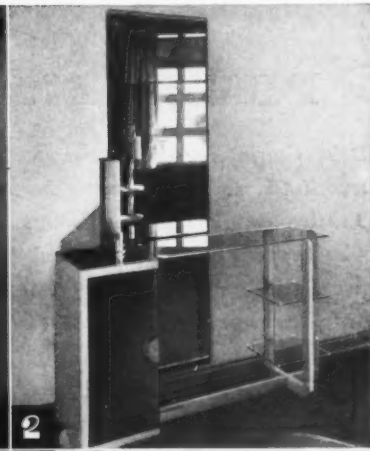
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11-12-20

Glass IN THE MODERN HOME



1



2



3



4

Large windows make a home cheerful and attractive. This is a view of the living room in the Lumber Industries house.

This unusual glass dressing table, with mirror, appears in the house constructed by the Common Brick Manufacturers Association.

1 2
3 4

Doors and windows, like these, are always effective. They are in the game room of the Stran-Steel Good House-keeping house.

Glass almost covers the wall in the bedroom of the Florida Tropical House—a distinctive and decorative use of mirrors.

Glass, not only in windows, but in mirrors, panels, mirrored doors, table tops, decorative screens and Picture Windows, is fast becoming the keynote of contemporary architectural design. Nowhere is this illustrated more vividly than in the Home Planning Section at Chicago's World's Fair . . . and it is significant that, in these model houses, the flat glass is almost exclusively the product of Libbey-Owens-Ford. That proof of preference endorses our assertion that a closed specification for L·O·F Quality Glass will insure your clients' complete satisfaction.

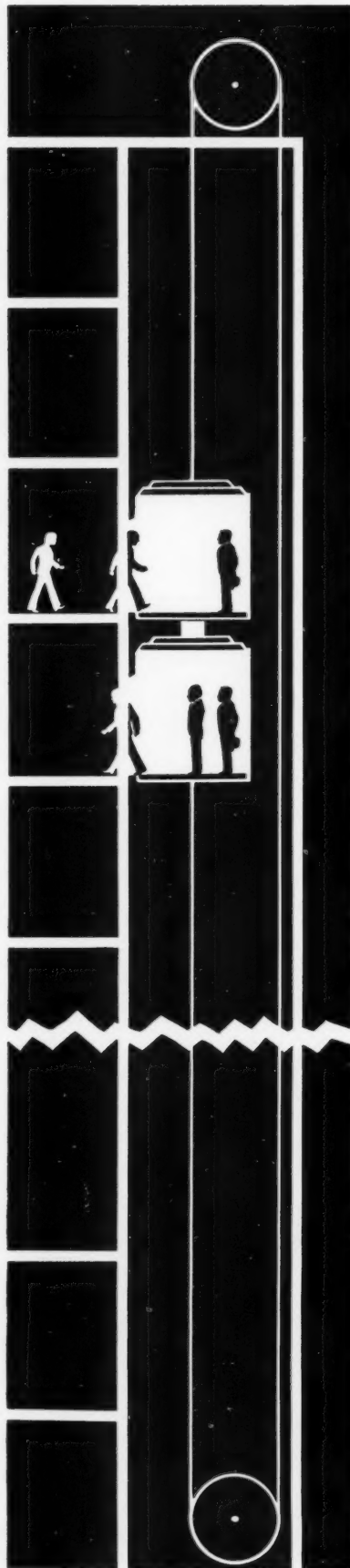


LIBBEY-OWENS-FORD GLASS COMPANY, TOLEDO, OHIO, manufacturers of Highest Quality Flat Drawn Window Glass, Polished Plate Glass and Safety Glass; also distributors of Figured and Wire Glass manufactured by the Blue Ridge Glass Corp. of Kingsport, Tenn.

LIBBEY · OWENS · FORD QUALITY GLASS

PROBLEM:

WHEN plans were under consideration for a new building for the Cities Service Company, New York City, known as Sixty Wall Tower, there was one very obvious drawback. The plot of ground was small. The zoning law limited the height of the main part of the building to thirty stories. A monumental tower was desirable. If this tower was built higher than forty-eight stories, the number of elevators required for efficient service would occupy an uneconomic proportion of floor space.



SOLUTION:

HERE was an ideal opportunity for the first practical application of a new step in elevator practice which Otis engineers had been developing through years of research—the double-deck elevator. With the installation of double-deck elevators, it was possible to make the tower sixty stories high. Eight of these elevators now serve this building, which reaches above all others in lower Manhattan and is the third tallest building in the world. These eight tower elevators provide transportation facilities equivalent to fourteen ordinary elevators. They conserve space, cut operating costs, and, together with eighteen single-deck elevators and ten escalators, provide this building with adequate and convenient vertical transportation facilities. . . . Otis Elevator Company, offices in the principal cities of the world.

Built-in conduit connects five telephone outlets in the residence of Mr. Walt Disney, 4053 Woking Way, Los Angeles, California. There is a sixth outlet beside the swimming pool. F. SCOTT CROWHURST, Los Angeles, was the architect.



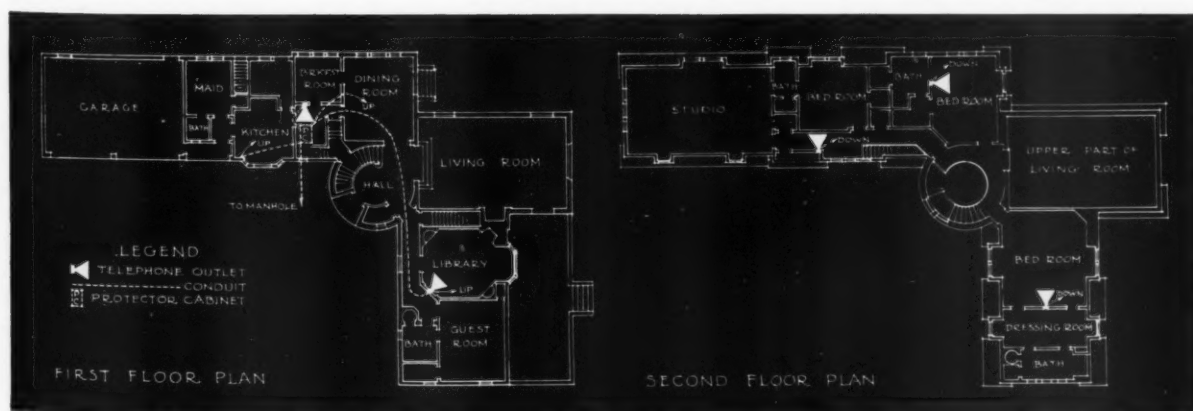
SIX TELEPHONE OUTLETS IN THE HOME OF MICKEY MOUSE!

HIGH above Los Angeles, is the handsome new home of Mr. Walt Disney, creator of Mickey and Minnie Mouse, those inimitable, international movie stars. Its telephone arrangements were pre-planned and built-in.

There are two telephone outlets on the first floor, three on the second, and another beside the swimming pool (not shown in picture or plans). Strategically placed, the six outlets save time and steps for all the household. No rushing upstairs or down. Telephones are always close at hand . . . with complete privacy for private conversations.

Telephone conduit, included in walls and floors during construction, conceals all wiring and assures freedom from most types of service interruptions. New outlets can easily be added, or old ones moved, if and when the need arises.

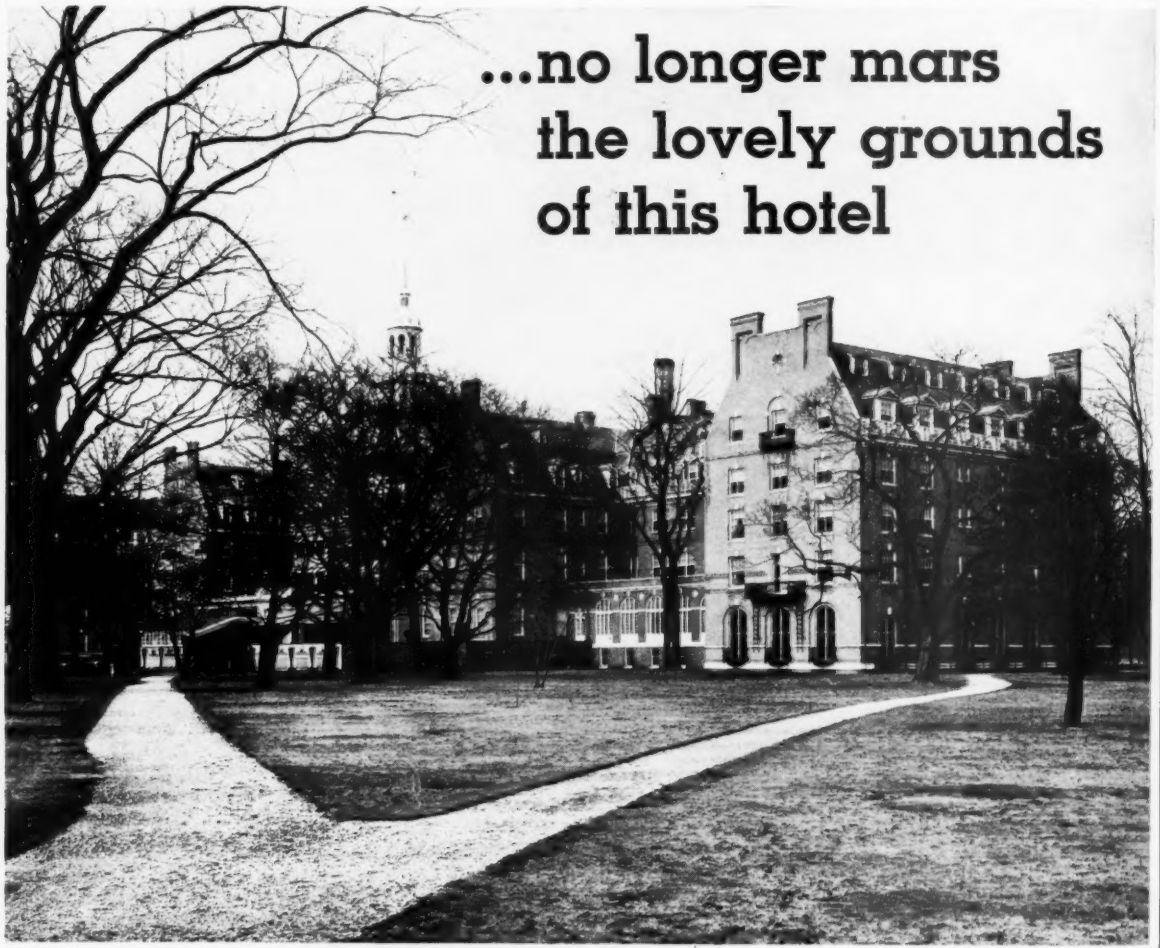
Telephone convenience is a natural, necessary feature of modern, livable homes. Telephone companies maintain trained staffs to assist architects in developing efficient telephone arrangements. There is no charge whatever. Just call the local Business Office and ask for "Architects' and Builders' Service."



A COAL DUMP



**...no longer mars
the lovely grounds
of this hotel**



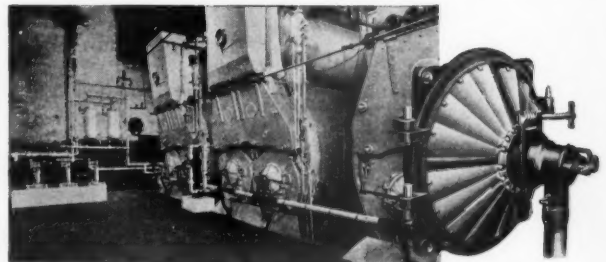
The Garden City Hotel, Garden City, La. L., as it looks now that Petro oil burners are installed. Built by Wm. L. Crow Construction Co.

**ACRES OF GREEN GRASS AND SHRUBS
NOW GROW WHERE UNSIGHTLY PILES
OF COAL ONCE RUINED THE VIEW
FROM THE WINDOWS**

LIGHT, heat, hot water and cooking for a 300 room hotel with 200 baths... that all takes a pile of coal. In fact there was a small but ugly mountain of it spoiling the lovely grounds of The Garden City Hotel. It offended the guests' ears as well as their eyes, for coal trucks have a habit of making noisy deliveries at the crack of dawn.

But that hideous black mountain is gone now.

The space that was once a coal dump is now beautifully landscaped with grass and shrubs. For Petro Oil Burners have been installed, and all the fuel the hotel



The Petro Model "H" industrial and commercial burner, of the type installed in The Garden City Hotel.

uses is stored underground and out of sight, in two 9,500 gallon tanks.

Quiet and beauty have been restored. But not, as you might suppose, at an *increase* in cost . . . in fact *at enormous savings*. These figures, recorded by the hotel's own accountant, are specific evidence.

Average yearly cost of coal	\$36,633.00
Average yearly cost of oil	17,644.00
	\$18,989.00

Cost of coal used for laundry (abandoned when oil heat was installed)	8,500.00
---	----------

Actual fuel saving	10,489.00
Ash removal saving	780.00

ACTUAL YEARLY SAVING \$11,269.00

These savings were made despite the fact that The Garden City Hotel bought coal at mine-head prices. Also, these figures do not include the lower costs of house maintenance that result from the cleanliness of Petro oil heating . . . wallpaper, paint and furnishings keep cleaner and last longer where the atmosphere is free from the inevitable dust, soot and grime that accompany coal heating.

ONLY PETRO-&-NOKOLS ARE MADE FOR EVERY TYPE OF BUILDING

*—from the institutional structure
to the smallest
home*

OBVIOUSLY no one type of burner will operate efficiently under all conditions. But there is no set of conditions unmet by at least one of the Petro-&-Nokol line.

Since Petro-&-Nokols, and *only* Petro-&-Nokols are made in 66 different sizes, 16 different models and 3 different types, it is *only* by installing a Petro-&-Nokol that you can be sure of getting exactly the *right* burner for the size, shape, load, draft and boiler of the particular installation involved.

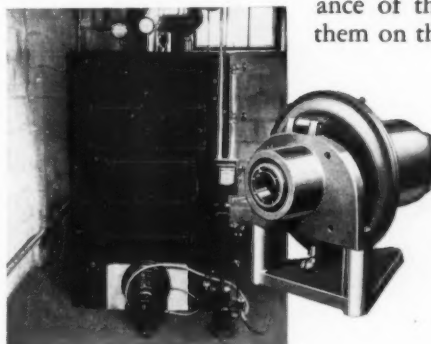
There is a Petro-&-Nokol of the right type and size to give each different type and size of building — hotel, institution, industrial plant or small home — the same comfort, the same cleanliness and the same economy of operation and labor.

Above, for example, is the prize-winning house selected from 1,200 plans as the "model of model homes", in the nationwide contest conducted by the Home Owners' Institute of America. As you would naturally expect, it is equipped with a Petro-&-Nokol oil burner. This is only consistent with the high standard of all the materials and equipment that went into the construction of the entire house. And consistent,



*The prize-winning Model Home, at Sleepy Hollow Manor, Tarrytown, N. Y.
Built by Sleepy Hollow Manor, Inc. Architect, H. Roy Kelly.*

too, with the experience of its builders, Sleepy Hollow Manor, Inc. For this is the 22nd house in which they have installed a Petro-&-Nokol burner . . . the performance of the other 21 burners decided them on their 22nd.



Complete information on all types and sizes of Petro-&-Nokols prepared for ready reference especially for the use of architects will be gladly sent on request. Just drop us a card.

The Petro-&-Nokol small model domestic oil burner of the type installed in the house above.

PETRO-&-NOKOL

OIL BURNERS

PETROLEUM HEAT AND POWER COMPANY . . . STAMFORD, CONNECTICUT

"World's Largest and Oldest Oil Heating Organization"



Coarse Aggregate at the Surface Means Wear Resistance...and Makes Floors Last Longer » »

People expect concrete floors to stand up under any service. They will if you top them properly.

Here is the method—tested and proved on hundreds of floors. (1) Specify a topping mix of two parts coarse aggregate ($\frac{1}{8}$ to $\frac{3}{8}$ inch grade) to one part of cement and one part coarse grained sand. (2) Go easy on water—not more than five gallons per sack of cement. (3) Float at once. Then give it a rest of 30 or 40 minutes—until all water

sheen disappears—before steel troweling to the desired smoothness. Cure the floor under a wet surface.

That's all there is to it! Of course, you want good workmanship and adequate supervision. But this method takes no longer—costs no more . . . Requires no hard-to-get materials. Yet it adds immeasurably to the life of a floor . . . We have complete specifications for you. A request will bring a copy. Address your inquiry to Room 2611.

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 33 WEST GRAND AVENUE, CHICAGO ★ CONCRETE FOR PERMANENCE



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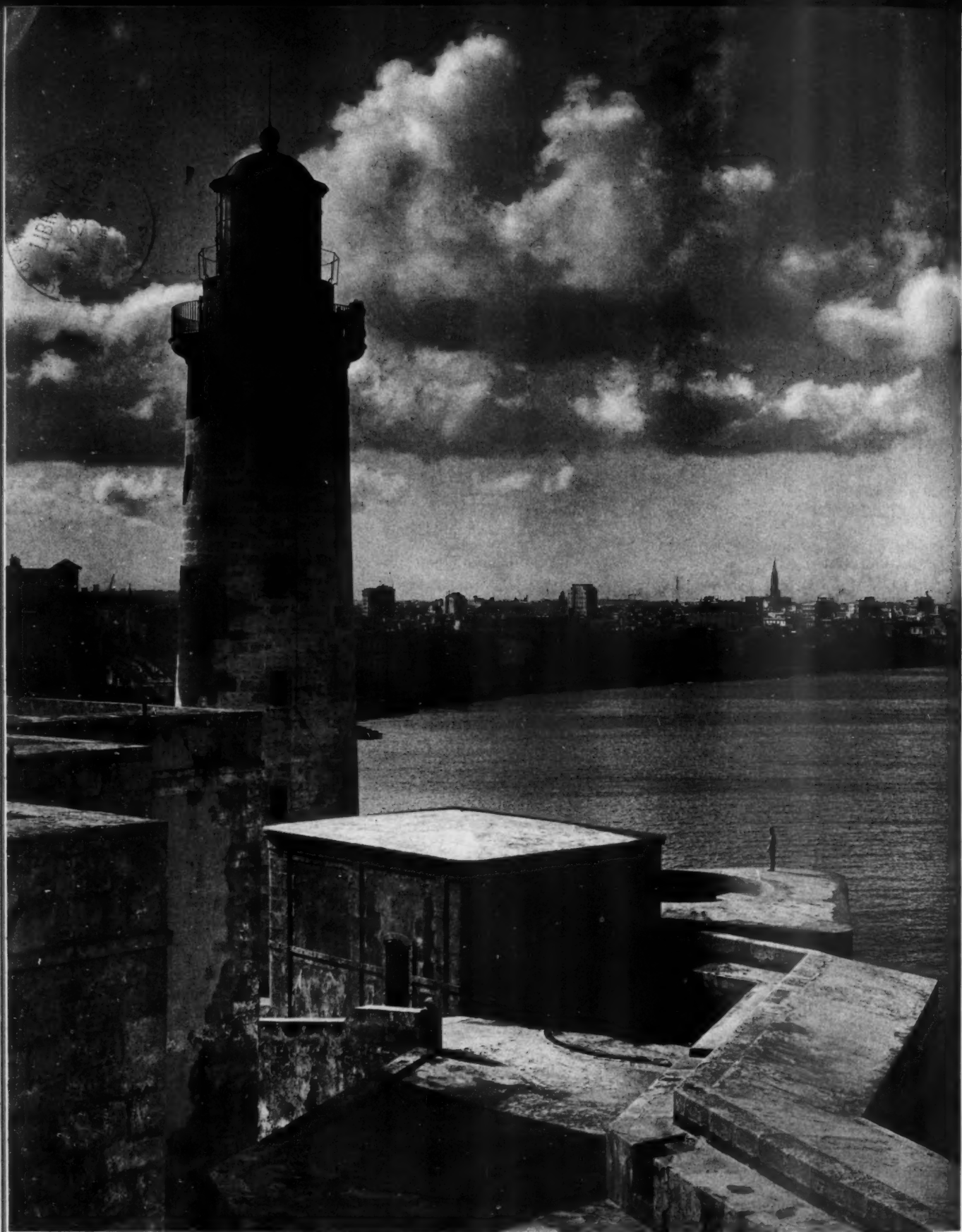
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Remove the Obstacles

By BENJAMIN F. BETTS, A.I.A.

TO stimulate reemployment the National Industrial Recovery Act authorizes the expenditure of \$3,300,000,000 for Public Works within a period of two years.

This Act is commendable. But it should be further recognized that a revival of *private* building construction is important in accomplishing the Administration's objective of putting men to work.

- To spend three billion three hundred million dollars in two years implies the distribution of one billion six hundred and fifty million dollars in one year. Government work moves slowly. The first year of the Public Works program is already more than half gone. But little of the appropriation has been put into circulation.

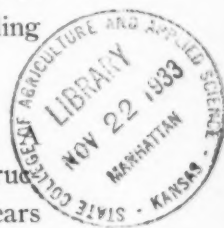
- The Public Works appropriation includes expenditures for the navy, highways, forest parks, homesteads, power developments and other engineering operations. For housing and public buildings there will be available about one billion dollars. Spread over two years this means the spending of five hundred million dollars a year. This in itself is a big contribution toward recovery. But if the stimulus of *private* building construction were coupled with it, ten times this sum would be spent.

- A large amount of planned construction is today lying idle in architects' offices. conservative estimate is that more than two billion dollars' worth of planned construction of all kinds is being delayed for lack of financing. During the past three years a large shortage in the housing field has developed. Many buildings are rapidly becoming obsolete and must be modernized or demolished and rebuilt. And it is estimated that some \$500,000,000 worth of property is destroyed by fire every year.

- An orgy of speculative building or the erection of unnecessary buildings is to be deplored. Real estate inventories can be obtained and are a good guide to what may be safely built. In every community there are needed buildings that would be built provided the necessary financial credit could be obtained.

- Resumption of building is essential to general business prosperity, because the building industry employs more workers and consumes a greater variety of materials produced throughout the United States, than any other single industry.

- The Federal Government should take such steps as may be necessary to remove the obstacles to a revival of building construction.





GALLOWAY

Housing Based on Social and Economic Needs Justifies Federal Aid

BY CAROL ARONOVICI

Community Planning and Housing Consultant

FOR a hundred years we have been investigating and sentimentalizing about our bad housing, about our slums and blighted city neighborhoods. Little of significance, however, has been accomplished because the sacredness of the home and the sanctity of private property have always been in conflict. And the latter has invariably been the winner.

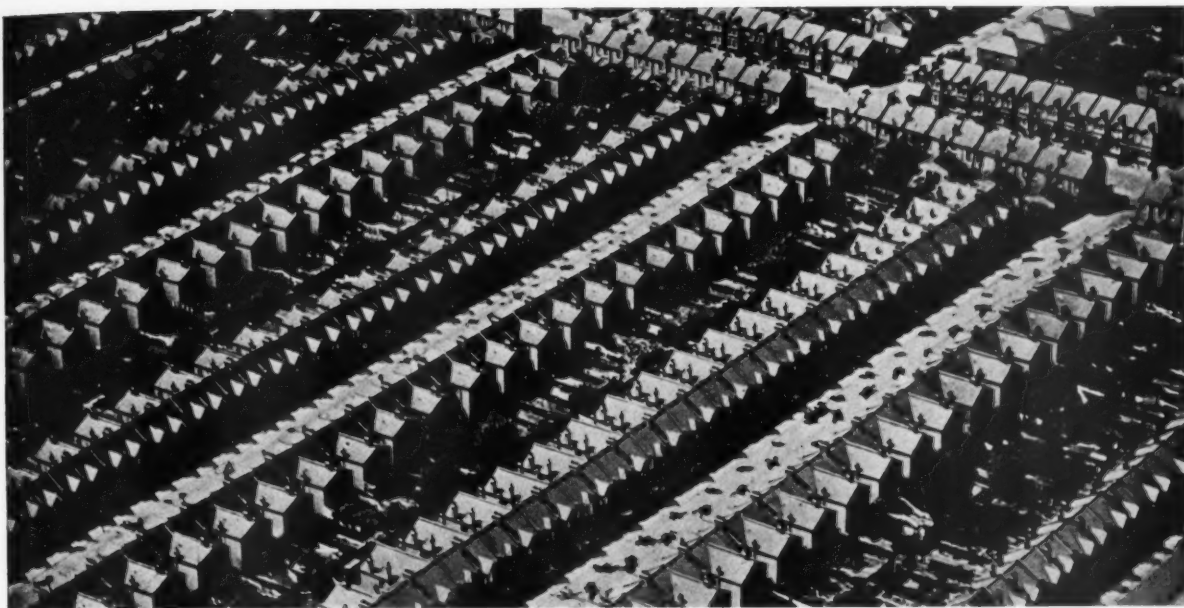
The difficulty in finding a solution of the housing problem has always been the difficulty of harmonizing what is economically profitable with essential standards that are socially necessary. We have never tried to face the problem as an issue of economic readjustment, but have bent every effort upon abortive legislative and charitable effort. The result is that a third of the people of the United States are living in sub-standard dwellings; and the middle class, while living under better conditions, are in many instances merely mistaking luxury trimmings for the more desirable comforts of sunshine, fresh air and open spaces.

While cheaper housing and the slums have been deteriorating and becoming more and more obsolete without being replaced by new and better buildings, land specu-

tors, builders, banks, insurance companies and large investors have indulged in a veritable orgy of housing and apartment building for classes which might be expected to pay the highest rents and whose needs were long ago over-supplied. Between 1925 and 1931 the character of dwellings constructed rose constantly higher in the scale of spaciousness and luxuriance without reference to needs or resources of the population to pay rentals consistent with such investments. For instance, about 98 per cent of the investment in housing in New York was intended for the income groups which constitute about ten per cent of the population, while two per cent of the investment in housing was designed to meet needs of the other 90 per cent of the people. Practically the same situation exists in Chicago, Boston, Detroit, Cleveland and other cities of this country.

We find ourselves, therefore, in the anomalous position of having too much housing where it is least needed and a calamitously small amount where it is most needed.

With modern methods of investment disregarding the simplest elements of public necessity it can hardly be hoped that a solution of the housing problem can be



GALLOWAY

SUB-STANDARD DWELLINGS house a third of the population in the United States. Speculative building orgies have produced too much housing of the type least needed today. New projects must fulfill requirements of social and economic research if Federal Housing Subsidies are to offer more than new opportunities for raids upon the public treasury

found through private enterprise and private investment.

With collapse of our economic structure the need for reconstruction of our industries and particularly the building industry—which is presumed to hold the key to economic recovery—has created a new hope. Federal Aid and Federal Subsidies for housing are now available through the Housing Authority of the Public Works Administration. In addition there is the Home Loan Bank and the Home Owners' Corporation which have almost unlimited funds for new construction and for stabilization of home ownership.

These public resources which the Federal Government has made available may mark a new era in housing finance and technique in this country. It may lay the foundation not only for public, but also for private investment policies which will bring about some degree of harmony between what is to be had and what can reasonably be paid in rent by the masses. On the other hand, without a clearly defined policy on the part of Housing Authorities aided by enlightened public support, it may become merely another large opportunity for raids on the public treasury.

So far the Housing Authority, because of the pressure for creating work at any cost and also because of our inexperience in housing construction with public money, has not succeeded in formulating even the beginnings of a consistent and acceptable policy. This great opportunity has come too suddenly and has caught us unprepared. We have neither facts as to the needs that exist, nor the technical organization which, within a short time, could give the answer to the many questions involved in the development of a policy which would budget investment in the light of monetary and social return.

In view of the fact that the time element involved in getting construction under way for the present precludes any possibility of reversing the function between the Government and promoters of housing projects, it is conceivable that individual promoters or—what is preferable—whole communities will set to work to develop sound projects. It is further possible that in terms of social need, economic fitness and sound investment, these will be so convincing and so clearly defined in terms of both economic and building structure as to leave no question in the mind of the Housing Authority that loans are not only justified but imperative.

To achieve this end, it is not enough to design attractive buildings upon lands which are available. Projects must have their foundation in sound facts, reaching from simple elements of the composition of the population as social and economic units, to the most complex economic factors having to do with industrial development, unemployment, wages, ranges of rents, movements of community population, city planning, regional organization and other factors which in the end will spell success or failure.

The architect is the *sine qua non* of any housing scheme. But his traditional training and the individualistic professional practices—which have been imposed

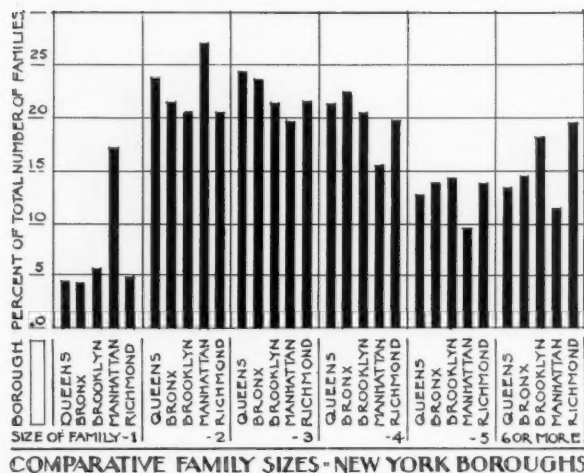


CHART 1. Existing facilities can determine type of housing needed. Normal-size families have been driven from Manhattan to other boroughs due to maximum rent for minimum space accommodations

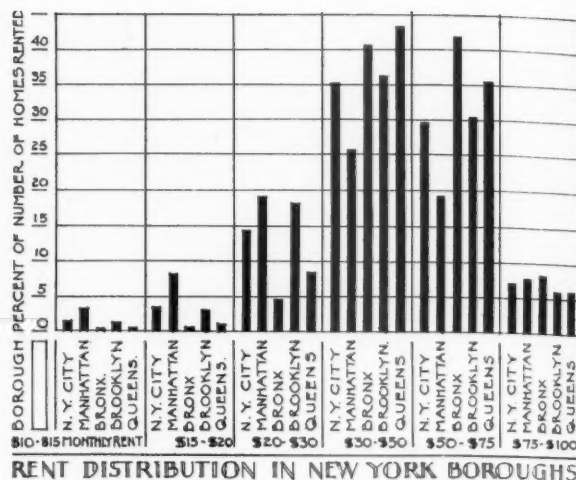


CHART 2. Clues to housing demand. High-priced land in Manhattan containing cheap housing indicates blighted areas. Small percentage of low rents elsewhere is evidence of low-cost housing need

upon him through piecemeal building—make it necessary that he call into his council, economists, planners, sociologists and other technicians who understand fundamentals of community building and who can be trusted to reveal facts as they are and in correct perspective to low-cost housing.

It would be possible for a few communities proceeding along sound scientific lines and presenting their schemes as community projects quickly to lay the foundation for a housing policy which, if adopted by the Federal Housing Authority, would eventuate in a permanent national housing program. This program would be comparable to the vast and constructive programs of England, Germany, Austria and Switzerland where over ten billions of dollars of public money have been invested in the rehousing of more than twenty millions of people.

Within the scope of a single article it is impossible to outline in detail the facts which must be used in the development of housing schemes which would command attention of the Government and justify investment of public money. It is possible only to suggest in outline the ramifications of the question upon which a structure and background may be erected which should result in unhesitating action on the part of the Government.

Let us take a few of the outstanding elements that enter into the development of a housing project. Site is one of the most important.

By site is meant the sum total of the area to be used for the project in its relation to such contiguous factors and conditions as would affect the social character, the stability of the investment and the permanency of the service the project is intended to render.

Such matters as grades and character of the soil, affecting both plan and cost of construction, seem obvious. Fertility of the soil as an aid in growing vegeta-

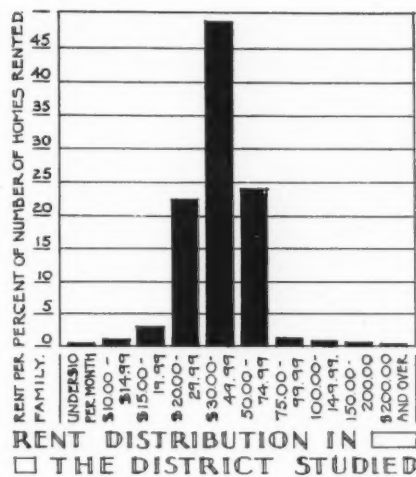
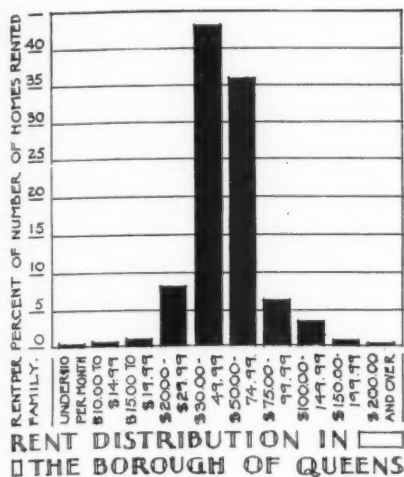
tion needed to adorn and give character to the building may seem to be a matter that needs no emphasis, yet in presenting a plan for consideration it is an important and valuable feature.

No large-scale housing scheme may be assumed to be a finished entity. There is always the possibility of further expansion; and unless such expansion is possible when needed, the project may be found to constitute an isolated housing island in a sea of blighted areas which will depreciate its value. It is, therefore, imperative to consider possibilities for expansion both in terms of need and in terms of suitable available areas in the immediate vicinity of the site.

There is no way of isolating a building site from its immediate environment. The social amenities such as parks, recreation centers, schools, churches, open spaces, plazas and other factors which add human values to the locale must be considered. As a counterpart to amenities, the negative elements often counteract the most valuable advantages. Fumes and smoke from factories, traffic hazards, noises due to factories, transit lines, location of undesirable institutions such as prisons, hospitals for contagious diseases, centers of social blight and similar objectionable features may prove detrimental and must be faced as important site factors.

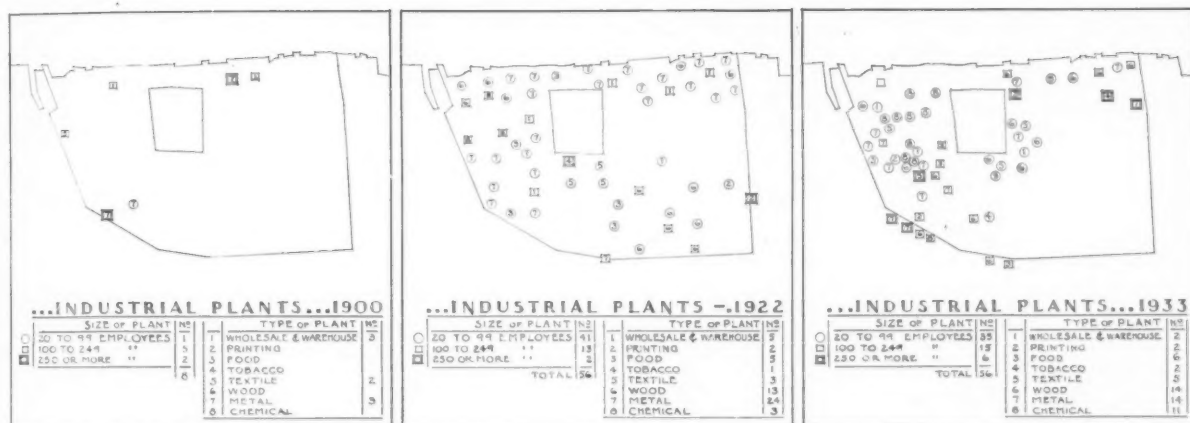
The legal protection which the site and its surroundings enjoy, or which can be secured, plays a part in making the site and the future building a safe investment and a permanent housing center. This implies zoning not only of the specific site, but of a reasonable area around the site as well.

Within recent years much consideration has been given to community equipment. The existence of roads, their condition and adequacy, the need and cost of new roads, the relation between these roads and the general plan of the site, the willingness of the municipality to meet



"... in terms of social need, economic fitness and sound investment." Information presented in these charts was collected for the study of an actual project in New York, but it represents results of procedure necessary to determine soundness of any housing scheme

CHARTS 3 and 4 show how studies of rent ranges may suggest the type of housing most likely to meet local needs in terms of rent. Chart 3 (left) also shows a lack of accommodations renting from \$20 to \$30 per month, indicating that perhaps this is a type that should be built



the new need are all essential facts without knowledge of which a suitable site plan cannot be evolved.

There are also to be considered the availability or the possibility of securing such services as water, gas, electricity, sewers, central heating and other services. These must be considered in the light not alone of independent cost, but in relation to ultimate cost to the consumer as expressed in rents and rates.

Land coverage is an old problem which the housing plan must face. Land coverage in large-scale housing is not merely the relation between an isolated lot and the street abutting on it. It includes the question of communal services such as open spaces, play spaces, ornamental plots and vistas; the relation between hours of sunshine per room per day or year and the height of buildings; the comparative advantage of high and low buildings with and without elevator service; the relation between what the land costs, not per square foot or front

POPULATION TRENDS IN NEW YORK CITY					
	Census 1920	Census 1930	Change in Decade		Average Annual Change
District	Unavailable	28,917	Total	Per Cent. Unavailable	
Astoria-Long Island City	94,279	209,264	+ 114,985	+122.0	+ 11,213
Queens	469,042	1,079,129	+ 610,087	+130.0	+ 59,493
Brooklyn	2,018,356	2,560,401	+ 542,045	+ 26.8	+ 52,858
Bronx	732,016	1,265,258	+ 533,242	+ 72.7	+ 51,999
Manhattan	2,284,103	1,867,312	- 416,791	- 18.3	- 40,633
Richmond	116,531	158,346	+ 41,815	+ 35.8	+ 4,078
New York City	5,620,048	6,930,446	+1,310,398	+ 23.2	+127,784

Population shifts due to housing facilities. Manhattan, with high rents, no slum clearance, has decreased 18.3 per cent. Queens, with reasonably inexpensive housing, has increased 130 per cent

foot, but rather what portion of a dollar paid in rent goes to pay for the cost of land and taxes.

Intimately bound up with land coverage is, of course, the land cost problem. Experience both in this country and in Europe has shown that, short of Government subsidy which would make up the difference between cheap and costly land, there is little hope of reconciling good low-rental housing with high-priced land. This would apply more reasonably to slum clearance, where there is real advance to be gained, than to new developments upon undeveloped, high-priced land areas. In preparation of a housing project it is therefore essential not only to show that land burden would be reduced to a minimum, but also that all of the present services and those already or later to be projected would not, in any serious way, place a burden of taxation upon the property which, when added to land taxes, would too greatly increase the rent.

It goes without saying that in all these considerations of site there must be a comprehensive consideration of the neighborhood background which would indicate how the projected housing scheme would be integrated into the immediate neighborhood and become a part of its social structure.

LOOKED upon from the architect's point of view, the designing of a large-scale housing project is not essentially a problem of construction. Rather is it an economic and human problem in that, instead of use determining rental values, rental values are fixed first. And all essential uses must be provided within these values. In fact, large-scale housing is a problem of commodity budgeting where emphasis must be placed on use essentials within rather fixed economic quantities. A difference of 35c per month per room, may mean the difference between serving a group that most needs housing and a slightly more prosperous group for whom reasonably sufficient housing already exists.

These calculations cannot be the crude guesses of the average housing market. Rents per room have no meaning unless they have some relation to the space to be rented and to the number of people who could be accommodated at minimum rent with maximum comfort, convenience and privacy.

Spaces which are not actually part of the private apartment and which are chargeable to rent must be calculated in terms of their relation to each dollar collected. Where the burden seems too large, devices must be developed to reduce outside building costs to a minimum consistent with safety and convenience and to throw the weight of advantage on to the inner apartments which under the best conditions must still be cramped.

Services such as water, light, heat, gas and washing facilities which in the end become part of the rent must

be given their proper place in the calculations so as to throw into perspective the problems involved in providing these facilities and services at lowest possible cost.

The apartment plan is, of course, the most important and perhaps the most taxing task of the architect. Here not only economy in space use, but some relation between the habits of the people and their methods of living must be taken into account. It cannot be expected that the incompetence of an architect to understand modes of living of the people would result in a reform of the people to meet rigid inflexibilities of an apartment plant. Rationalization must go hand in hand with the folkways of people and when such rationalization of plan goes beyond reasonable bounds, the law of diminishing returns will unavoidably operate.

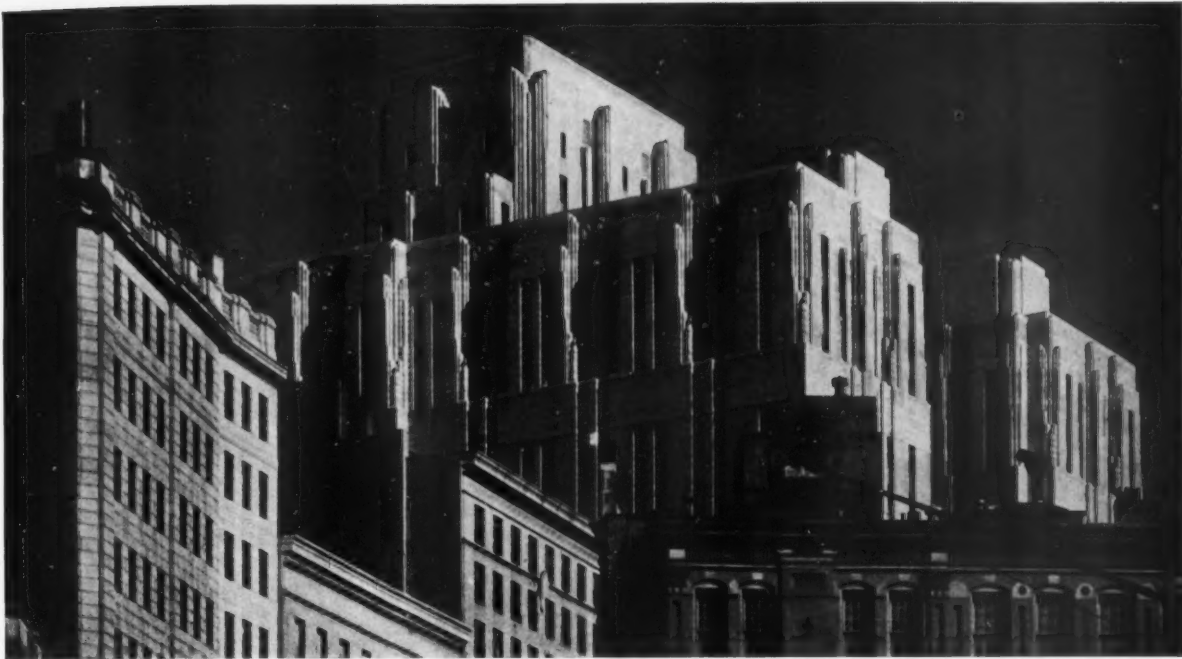
Plans which have recently been submitted to the Federal Housing Authority deal in dead levels. The matter of rent expectancy, for example, is calculated without regard to scales of desirability of apartments because of location in the building, a larger or smaller number of hours of sunshine, per day or year, desirability of view and similar advantages and disadvantages. Nor is the range of apartment sizes made clear in relation to family size and make-up for which provision must be made.

On the whole, large-scale planning must go beyond the drafting board and explore hitherto unexplored fields of social conditions, family relationships, folkways and economic resources so as to strike the right balance between maximum of service and minimum cost.

Enough has been said about the relation between large-scale housing and the neighborhood background to which it must be related. Every element—from the adequacy of schools for children to the most ephemeral services in the way of shopping, amusement and cultural facilities—must be taken into account. The certainty that community services needed will be provided on terms consistent with the economic, social and cultural resources of the prospective population must be established as part of the plan.

We have tried to indicate in outline that the task of large-scale housing presents a complexity of problems and lines of investigation and research which removes it from the standardized field of every day architectural service. It implies research of a high order which combines broad scientific knowledge and social penetration with technical skill in synthesizing facts into plans of desirable habitation for housing our proletariat. It is not an impossible achievement, provided we divorce Federal-aid housing from land speculation, empty community boosting and parochial political influence. This is the first great opportunity the architectural profession has had in this country to render a lasting, national service. Let it not yield to temptations of immediate expediency and cheap politics.

Editor's Note: The charts incorporated in this article are a part of an intensive study of housing technique made by the Housing Study Guild under direction of Dr. Aronovici. Actual work of gathering material and preparing it for tabulation in chart form was done by Joseph J. Zimmerman and Charles Herrick, members of the Guild Staff



The Boston Federal Building is a dazzling cliff, glimpsed unexpectedly across narrow streets. With "the arrogant bleakness of a mesa" it overtops the fussy little buildings below

The Boston Federal Building

It was designed by Cram and Ferguson, but does not conform to Mr. Cram's philosophy of architecture

BY CHARLES G. LORING

Photographs by Paul J. Weber

TWO shafts of muddled criticism were launched at Cram and Ferguson's part in the design of the Federal Building in Boston. A negro communist on the Common shook his fist at the crags of the new Post Office, because hated emblems of the Fascisti—giant bundles of staves—were set against the topmost stories. A smart Legionnaire asked why caducei of the Medical Corps had been carved on the spandrels in the main belt course.

The comments of both Red and Vet show an engaging ignorance of myth and fable. The communist had evidently never heard of Aesop's bundle of faggots which meant, "united we stand; divided we fall." And the army man, dating his knowledge from the World War, had forgotten that before 1918 the serpent-entwined staff was the wand of Mercury, primarily the postman of Olympia and only incidentally the patron god of physicians.

The public and newspapers appraise a new building as is; they judge by appearances. The architects' fellow practitioners are interested not only in the final re-

sults, but also in what first went on behind the scenes—the motivating forces of authorship.

The public concedes nothing to the architect. It makes no allowances for the hidden impact of the crotchety client or temperamental building committee, although the public supplies both clients and committeemen. And newspaper reporters seldom realize the exigencies of a restricted site or specialized requirements.

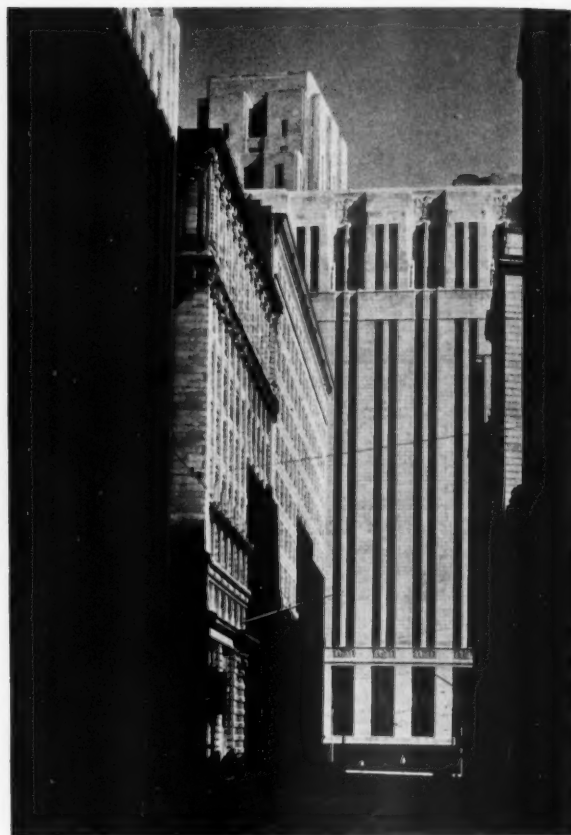
The public has frequently made comments on the juxtaposition of limestone and granite on the exterior, but the public does not know of the early battles between budgets and lobbies when the plans were taking form.

Cram and Ferguson were commissioned to design the façades after plans had been determined by the office of the Supervising Architect. They were appointed as Exterior Decorators for floor areas prescribed by requisitions of the Departments of Agriculture, Commerce, Interior, Judiciary, Labor, Navy, Post Office, State, Treasury and War—and that after the budget had been allotted.

The original project was limited to a limestone ex-



A free hand was given the architects to select the mode of the exterior; and the resulting Euclidian simplicity is enlivened because it can be seen only in abrupt and oblique views. Granite cases the seventeen stories of the main bulk of the building. But little ornament has been used on the lower stories, for the structure is flanked on three sides by narrow, dark streets. Even the main entrance, above, has an unobstructed view of only 150 yards across Post Office Square. Right: A thin vista of granite piers and hidden fenestration from an adjacent street. On facing page: A side entrance



terior. Then home interests clamored for granite; new estimates were obtained and revised; press and politicians gave tongue—but funds could not be increased. The newspapers reported that a Senator who stiffened the Appropriation Committees against an extra for New England stone later had asked for a few more hundred thousands to sheathe with granite a monumental building in his own state. By slashing some marble from the interior and by making some of the ornament of terra cotta it was possible to include granite on most of the exterior of the Boston structure. As it stands, the main bulk of the building—some seventeen stories high—is cased with granite from Eastern quarries: polished “Quincy Dark” on the basement, “Concord” on the next two stories and above them “Chelmsford,” while the facing of the court and of the central tower, six stories higher, is of “Ingalls” variegated limestone. Already materials of unlike surface densities are weathering each according to its own proclivities, but the color pattern had not been interwoven when the drawings were in the hands of contractors for final selection of the stones.

In the critical appraisal of fellow architects, individual judgment on merit is swayed by cautious theories and previous conditions of schooling. So the credo of the firm which developed the design is interesting. In this case it is even puzzling, because the qualities of the building seem to contradict the theories of its creators.

Although free selection of the fabric of the façades—

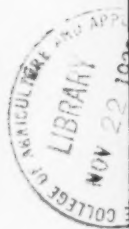
as also the essentials of the planning—was denied, Cram and Ferguson have expressed cordial appreciation of the floor schemes assigned them and of the friendly co-operation extended by the Office of the Supervising Architect. Although steel framing could be modified only in minor details they were allowed a free hand to select the mode of the exterior. To a “synthetic Goth,” as *Harper's Monthly* styled Mr. Cram, Gothic trappings on a twentieth century metal skeleton would have been false and repugnant. A New England Colonial was out of the question on an office building 338 feet high. So Mr. Cram elected what he terms “Modern.”

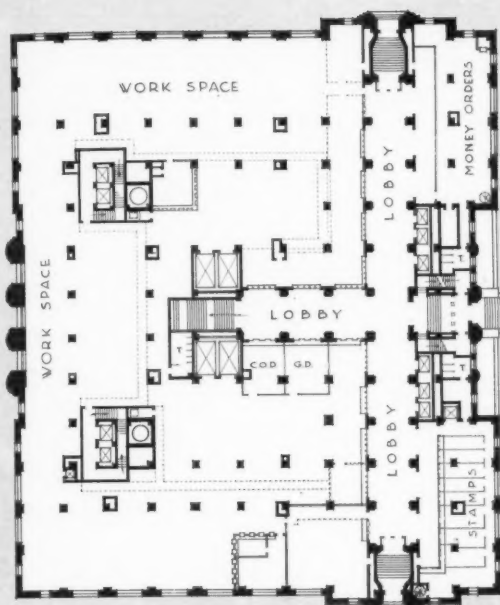
The “Modernistic” and the “International” styles have, for the moment, definite connotations, but “Modern” is more elastic. The new Federal Building may be “Modern” in that there are no projecting cornices, no visible roofs, few horizontal floor indications, and metal sash are linked vertically by aluminum spandrels. These date it as a post-war product, but there are few signs of sympathy with whatever sincere thought there is among the moderns. There is little “structural significance,” little of the “machine age,” little of the “rebel arts” and all that sort of thing in the grim masses of masonry which shield—but do not reveal—the steel supporting them. Stone may protect the engineer's fabric from earth, air, fire and water, but it is laid to imply sturdy self-support; it may pain the purist, but it satisfies the solid citizen.

Details have a classic caste, suggestive of the Roman



FEDERAL BUILDING, BOSTON, MASSACHUSETTS, CRAM AND FERGUSON, ARCHITECTS





FIRST FLOOR PLAN



TWELFTH FLOOR PLAN

First and twelfth floor plans. Boston Federal Building, Cram and Ferguson, architects

heredity of our laws, a sort of S. P. Q. R. in the U. S. A. and, praise be, there is no Epstein and no Inca. There is little applied ornament above the lower stories, for on three sides the Post Office is flanked by insignificant streets. Back door entrance ways on them are in scale with the "close ups" alone possible. The main portal faces on the paved triangle of Post Office Square and has real dignity and an unobstructed vista of—hardly a hundred and fifty yards!

But it is neither period nor detailing which is the essential feature. It is the upbuilding of masses into the arrogant bleakness of a mesa overtopping fussy office buildings below. And the Euclidian simplicity is enlivened because it can be seen only in abrupt and oblique views.

To pedestrian and motorist, the house of government is known through unexpected glimpses of a dazzling cliff with hidden fenestration rising athwart a cross street or a squared group of weather-eroded crags seen across half the city dead ahead, down the last straight mile of Commonwealth Avenue.

Except for an effective main corridor lined with a "sport" Tennessee marble and linking upper and lower street levels, and for seven court rooms on the twelfth and fifteenth floors, the interior is just a loft building of one story after another. The court rooms vary one from the other in design. Some are in the main Classic or Renaissance, some are sheathed in stained walnut with early Pullman leanings, while some, in "Pink Levanto,"

tend towards Modernistic in a manner hard to reconcile with Mr. Cram's published invectives against the Chicago Exposition.

Mr. Cram recently published an enunciation of his *Philosophy of Design*; in it he raises the question of defining the "Modernist style" otherwise than as "something different" and as uncompromisingly ugly. In evolving the eclectic Rice Institute in Texas, he writes that he would not have used the Modernistic, even had it then existed, because the old and eternal things of which education was as much one as was the Church "had to preserve the sense of continuity and show their high place above whim and changing fashion."

In the same sparkling little credo he prophesies "the United States is not an enduring and self-sufficient entity, but, at present at least, an amorphous episode." It is fortunate that Mr. Cram confined this comment on his country to writing and did not express it in granite.

To many, a Federal Building represents the cooperative effort of mankind towards an ideal of self-government and embodies traditions reaching back through the reforms in England, back through the overthrow of tyrannies of Church and Feudalism in the Middle Ages, back to the austere, coordinating laws of Rome and to the republics of Greece.

The spirit of the Federal Building in Boston transcends the handiwork of politicians, the crude detailing, yes, and even the lack of sympathy the architects profess for the style they selected.

Jobs for Millions

WORK for millions of people would be made possible through a revival of building construction.

It has been estimated that some six million workers are affected by prosperity or lack of prosperity in the building industry. Eighty-five cents out of every building dollar is eventually paid to labor.

Building construction employs thousands of skilled mechanics and laborers. Hundreds of mills and factories employing more thousands of workers must be operated to meet the demand for clay products, woods, metals, cement, paints, textiles, glass, stone and equipment essential to the modern building.

Transportation by rail, air, ship and automobile must be employed to move raw and fabricated materials. Every new building requires new furniture, carpets and rugs, hardware and lighting fixtures. To convert raw material into use for buildings requires tools, machinery and power.

Every building erected means work for architects, engineers, draftsmen and workers in the fields of finance and real estate.

When the amount of direct and indirect work affected by building is fully realized, the importance of building industry as an agency for providing jobs is apparent.

PUTTING men to work is a national and fundamental problem. To quickly accomplish this desirable goal, it is essential that we concentrate on stimulating the industry which affects the greatest number of workers.

The textile industry excepted, building is responsible for the employment of more persons than any other industry. Building construction consumes a great amount of materials produced throughout the United States. Other single industry. Building construction has a profound influence on the trend of general business in the building industry. The building industry is a barometer showing the upward and downward movement of the economy. Private building construction is the major private industry, and therefore is of vast importance in economic welfare.

In addition to its Public Works Program, the Government should stimulate PRIVATE building construction. The Government should take such steps as are necessary to remove the obstacles to building, and stimulate construction.

To do so will permit employers of labor throughout the United States to put millions of workers back to work.

As a result of recovery, the revival by Federal aid of the building industry, upon which it is estimated that 6,000,000 are dependent for their livelihood.

This can and should be done both by a vast public works and by stimulating construction enterprises for useful purposes.

Of every dollar spent for new construction, the owner ultimately gets eighty-five cents.

Next to the textile industry building is the employer of labor.

A revival of public and private building employment for millions of jobless men in the building industry is the only way to secure the employment of millions of men.

PUBLIC WORKS IS NOT ENOUGH

TO stimulate re-employment the National Industrial Recovery Act authorizes the expenditure of \$3,300,000,000 for Public Works within a period of two years.

This act is commendable. It should be further recognized that a revival of PRIVATE building construction will go far to accomplish the Administration's objective of putting men to work.

To spend three billion three hundred million dollars in two years implies the distribution of one billion six hundred and fifty million dollars in one year. Government work moves slowly. The first year of the Public Works Program is already half gone. But little of the appropriation has been put into circulation.

The Public Works appropriation includes expenditures for the Navy, highways, forest parks, homesteads, power developments and other engineering operations, and housing. For housing and public buildings there will be available about one billion dollars. Spread over two years this means the spending of five hundred million dollars a year. This in itself is a big contribution toward recovery. But if the stimulus of PRIVATE building construction were coupled with it, ten times this sum would be spent.

A large amount of planned construction is today lying

Provide the Money

IF THE bankers will not supply the money for building construction, the Government will have to.

The Federal Government, if possible in co-operation with our bankers, should find a way to again direct money into building construction. Through some means money must be made available to the building public. This will remove the biggest single obstacle to revival of building on a large scale. The removal of this obstacle will put six million men back to work.

Business generally will not pick up until the building industry is on its feet. The building industry will not prosper until money is made available to those who want to build. Lack of money is the greatest single obstacle to a revival of private building construction.

America has as much money as it ever had. Most of this money is stagnant and is not finding its way into normal channels—particularly into building construction. The obstacles which prevent a free flow of money into this important industry must be removed.

Reasonable mortgage laws are necessary and in line with the public interest to both borrower and lender are necessary, and should be found to make them so.

It should be possible to permit the liquidation of mortgages with little harm to our economic structure. The financing of building construction should be made as reasonable in cost.

Such matters for experts. A solution is not impossible.

Bankers will not make possible the business of one of our most important industries, then the Government must do it.

Put Them All to Work!



America vitally needs a program of private building construction.

Three years have seen, in the country at large, a serious shortage develop in housing. Many buildings in use are now obsolete and must be modernized or replaced.

In architects' offices, a survey indicates, at least TWO BILLION DOLLARS of planned construction awaits financing—while the building supply industries languish, contractors are idle and hundreds of thousands of skilled artisans lack jobs.

Meanwhile, also, there is money in the country to finance building.

The Federal Government, in co-operation with bankers and in connection with its own Public Works Program, can put these idle factors to useful work, and speed the return of prosperity.

Needs for Housing

THE building industry in localities where it still has the laudable purpose of the Roosevelt Administration, under the laws of Delaware, the Public Agency Housing Corporation.

Corporations are the Secretary of the Interior, the Labor and the Chief of the Housing Division of the Works Administration.

It is to assist the States, municipalities and public authorities in the development of worthy projects which have been held back, either by lack of private capital or by legal restrictions of one sort or another. The Federal agency will lend money for the building of housing and slum-clearance projects in some

localities it will finance such projects with Federal demonstration—North, East, South and West can be done by local authorities and by private enterprise to provide better homes and a higher standard of living for people who need and deserve both.

BEST NEWSPAPERS have been won as an aid

Five Million People Read these Editorials

THE campaign to secure a revival of building, sponsored by American Architect, has been generously supported by the newspapers throughout the country. The above editorials and cartoon are among others that appeared in the Hearst newspapers during the month of October. In addition to editorials and articles bearing on revival of building published in American Architect, Home and Field and the Hearst newspapers, Good Housekeeping Magazine, which is read by 1,900,000 families, each month publishes articles on building and modernization of houses. To stimulate building activity Good Housekeeping is also conducting a remodeling competition for work completed during 1933-1934. Revival of building construction is recognized by the publishers of these magazines and newspapers as a vital factor in the economic recovery of the United States. To this end they are cooperating to make this fact clear to the public; secure the cooperation of Government officials to make more building possible; stimulate private building construction; and encourage the employment of architects' services.

More potent in promoting prosperity or depression than any other industry, building construction activity closely parallels that of general business. Though similar in trend,

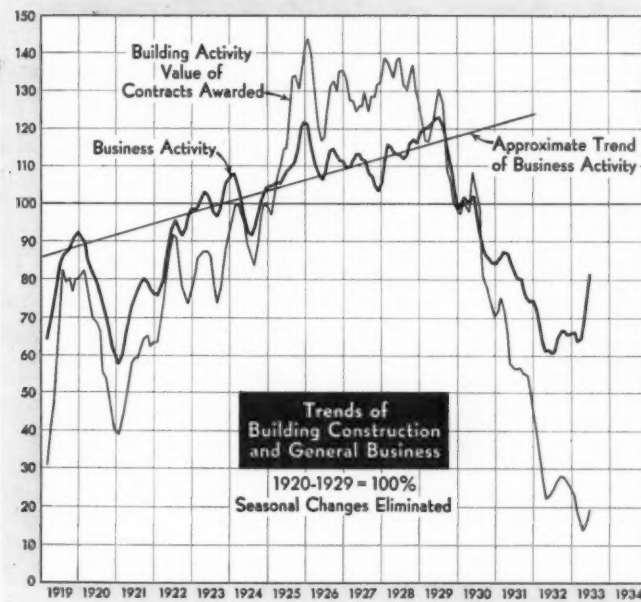


Figure 1

the peaks and valleys of building are sharper than those of business. This is due largely to the possibility of easily deferring new construction over long periods of time

Ups and Downs in Building Mean Peaks and Valleys in Business

BY THOMAS M. McNIECE

FUNDAMENTAL features of the present economic disturbance do not differ from serious crises of the past. Contemporary descriptions of the former depressions are remarkably similar to those of the present. At least one major depression with essentially the same effects has been encountered by each generation in our history. Nevertheless each successive crisis finds us no better prepared to anticipate the onslaught or to lessen the shock. It will seldom fall to the lot of any man to retain his responsibility through two of these major movements. Thus experience is lost and each new and optimistic generation must pay dearly for its own tuition.

But today, collectively and individually, the country is endeavoring to collate experiences of the past and to lay plans that will insure commerce and industry against the vicious recurrence of historical mistakes. No one questions the fact that we will recover from the present low economic ebb. But revised notions of economic stability will change the scope of many fields of activity.

Representative of a group of industries that influence every home and business in the land, building construction is of vast economic importance. The depression has

violently disrupted its activity and organization. Reorganization under new conditions of industrial economy may mean a change in status for many of the building industry's components.

In seeking an answer to the problems of the construction industry, we are confronted at once with a surprising lack of basic information. There is no measure of demand for the output of the industry. There is no available record of various classes of buildings in existence or available for occupancy. There is no information on demolition. Even the record of building undertaken is subject to the limitations of voluntary and widely scattered sources of information. While it undoubtedly portrays faithfully the trend of construction work, the complete volume and value involved cannot be made available.

Equally lacking and unsatisfactory is adequate information on financial problems of the industry. What outstanding credit is tied up in the industry and how is it divided between short term construction loans and long term mortgages? What amounts are outstanding in loans of various maturities? By whom and in what amounts are these obligations held? All of these and

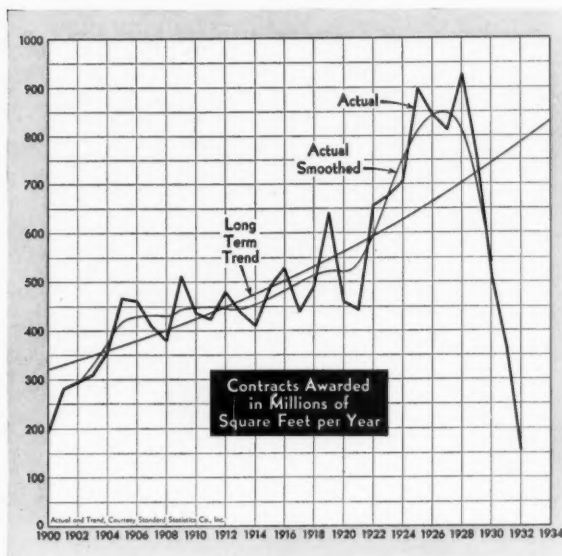


Figure 2

other questions are strictly comparable with the record of sales, production, inventories and investment without which the smallest factory could not long operate successfully. Notwithstanding the lack of data, the information available on construction trends provides much material for careful analysis.

The trends of building construction and general business for the period from 1919 to date are shown in Fig. 1. The index of general business is the composite of four industries only—foods, textiles, building construction and automobiles. It may be accepted as a faithful picture of all industry.

In Fig. 1 it will be noted that there is considerable similarity in the timing of the fluctuations but a wide discrepancy in the degree of fluctuation in both short and long term movements. The changes from peak to valley in building construction are much greater than those in general business. This is a most important point in considering future trends, and is one that is not generally understood.

THE importance of any industry in contributing to abnormally high or low business levels is not measured by its economic value or bulk alone. A second factor contributing heavily to this influence is the degree of fluctuation characteristic of the industry. The building industry, producing one of life's necessities is subject to fluctuations whose extent is matched only by those of extreme luxuries. Why should this be true?

The fundamental reason is the ability to defer purchase. Food is necessary at all times and is consumed at once. Biological limits enforce reasonably uniform consumption. The demand is therefore relatively constant. The acquisition of new clothing replacing garments to be discarded can be postponed for a reasonable length of time. When this limit is reached, buying will begin and some improvement in textile activity will occur. Replacement of buildings can be deferred for

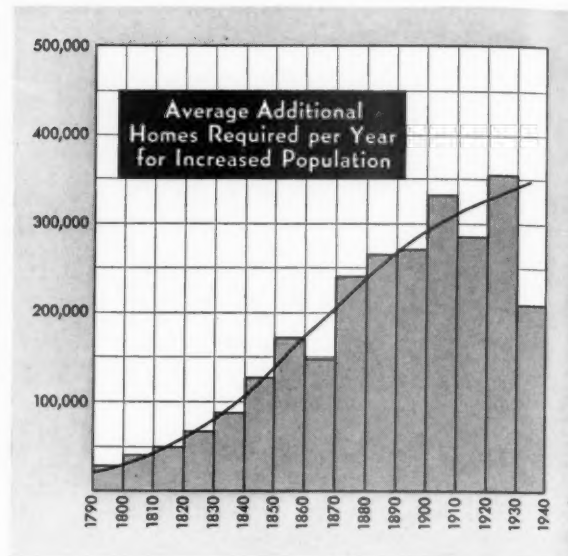


Figure 3

an indefinite period, for by nature and use they will permit additional occupancy. Thus the need for new and additional space is postponed. This greater opportunity for deferment retards the necessity for expansion in building capacity and thereby promotes deeper and longer depressions in building construction. For this reason, *this industry is far more potent in promoting prosperity and depression than any other industry*, even including agriculture. If a suit of clothes lasted as long as a dwelling and if two men could simultaneously use the same suit, depression in the clothing industry could in general be as long and as deep as that in building.

There are two points of difference between food and clothing on the one hand and building on the other that promote longer and greater fluctuations in the latter. First, foods and textiles lend themselves to inventory control which implies a reasonable balance between production and demand. The highly individualized and widely scattered building industry has never had this advantage. Increase under speculative stimulus and contraction under financial stringency both operate to accentuate variations between peaks and valleys of activity in building.

The second factor encouraging longer and deeper declines in building is financial. The amount of credit required and the typically long period of the loan both tend to decrease stability of the industry during economic crises and to retard its recovery. Adjustments of this nature would be much more quickly made if the life of structures were shorter and if abnormal "doubling-up" were not feasible. The recurring over-supply of various classes of building space may ultimately yield in some measure to better control. The other features promoting more serious fluctuations are inherent in the industry. It should therefore be realized by architects and others *that these sweeping oscillations will occur in the future unless the real causes are determined and effective stabilizing measures taken.*

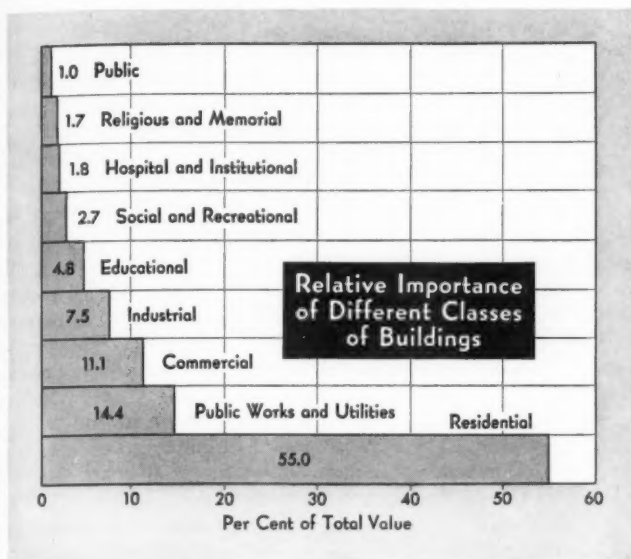


Figure 4

Examination of Fig. 1 will show that building construction was relatively low during the early period and very high during the latter period when compared with the levels of general business. This condition will be made clear by reference to Fig. 2.

The smoothed average of Fig. 2 shows the period of abnormally high building levels from 1922 to 1929. It also shows a similar but less prominent peak between 1904 and 1911. The centers of these peaks are about 21 years apart. A study of the short-term fluctuations in actual floor space will show that the periods between low points are never less than three years, and quite commonly are of three years duration. The only periods of more than three years duration are those involved in the more serious depressions.

Mr. Lewis A. Maverick has analyzed real estate activity in two areas in California from 1853 to 1929. He finds four highly prominent peaks of activity in this long interval. The last two are identical in timing and general trends with those shown in Fig. 2. The intervals between these peaks approximate 18 years for the entire period. There is absolutely nothing in common between the two studies. Mr. Maverick furthermore finds by statistical analysis, a very pronounced three year period in the short-term fluctuations throughout the whole span from 1853 to 1929. These movements bear no relationship to changes in population.

From these long term studies of building activity it is thus apparent that the activity is marked by long waves of approximately 20 years duration, on the top of which is superimposed a three year ripple. Between 1871 and 1916, residential building activity in Greater London progressed in two great waves, the centers of which were just twenty years apart.

Does this consistent historical record indicate that similar variations may occur in the future? It does not unless some valid reason exists for such variations and unless this reason is inherent in the industry and will

FIGURE 2 . . . Abnormally high levels of building activity occur at intervals of 21 years, the approximate useful life of a building. Fluctuations in building activity are promoted by instability of building finance and lack of balance between building production and demand

FIGURE 3 . . . Shortage of homes, an effect of depression or a major war, is always followed by an abnormal surge of building activity. This chart shows the average yearly increase in homes required in each decade. Curve indicates relative increase in population, shaded columns, number of homes built. Shortage indicated for the present decade shows one probable result of the current depression

FIGURE 4 . . . No betterment in economic conditions can be gained without revival of residential construction. This field accounts for over half of all building activity as contrasted with the small amount of public work now being revitalized through governmental aid. The sooner general construction is begun, the sooner will revival of general business activity occur. This diagram is based upon adjusted figures of the F. W. Dodge Co. for 1925-1929

continue in the future. In this event it becomes of great importance in forecasting major changes in the future. It may be suggested that the intervals between peaks of high activity correspond closely with the commonly accepted age of buildings when they become obsolete and are supplanted by newer structures. This does not refer to structural life of buildings, but to that period at the end of which antiquated design and equipment make them unsatisfactory for first class rental.

The length of this first period in the life of any durable commodity tends to center about a predominant age. In automobiles it is about three years; in buildings it is generally considered to be about twenty years. The structural life of buildings would probably center around fifty years while the useful life of telephone poles, for instance, predominantly clusters around ten years and of automobiles around seven years.

THE advent of a major war always effects a serious distortion in industry. It causes a deferment of construction, then a shortage, followed later by a surge upward to abnormal levels. If replacement of such structures predominantly centers about a common age, a similar surge will occur later, provided no other compensating changes are introduced. This recurrence of the former surge will follow the original one by the number of years that measures the common age before replacement. The secondary surge will not be as violent as the first from the cause just outlined, but will tend to grow accumulatively. If other adverse factors exist at the time, such as unstable price levels and faulty credit conditions, the relatively minor changes may be accelerated and assume serious proportions. This action, by which a serious distortion in the levels of construction at one time may induce a similar fluctuation at some future time, may be termed "the replacement cycle."

The effect of war in causing distortion in building requirements is illustrated in Fig. 3 which shows the aver-

age yearly increase in homes required in each decade. The chart is not a measure of total construction but merely an annual addition for increased population. Note the relatively high peaks of 1900 and 1920. Each of the two following declines are about 14 per cent of the requirements in the prior decades for increase in population alone. This condition is serious but practically the results are far more disturbing. Such declines are not spread uniformly as assumed in this average, but are much more highly concentrated. If, for example, the declines were concentrated in five years in each decade, the resulting decline would be at the relative rate of 28 per cent of the former average. Non-uniform distribution of the former average might increase the fluctuation still further.

Naturally, any such reduction would increase accumulatively through the spread of unemployment. The economic result would be serious as each industry involved is "geared up" to the former high levels and must reduce its output correspondingly. Under the conception of building surges these variations may act as progenitors of others to follow. Serious depressions may also act to retard the growth of population. This is happening in the present depression and the possible effects are indicated in Fig. 3 for the present decade.

There is reason for believing that the 3-year ripple, as distinguished from the twenty-year wave in building construction, may be caused by the principle of the replacement cycle applied to the extension and release of credit in the building industry. This industry, probably more than any other, is vitally dependent on credit conditions. As a surge upward occurs, more and more credit is required and impounded. The movement will stop at the peak, because a visible surplus of space has been created or because mortgages can no longer be readily sold—which means that credit limits have been reached. Activity will then begin to decline. It is a fact, however, that the extraordinary amount of credit tied up at the peak of activity will not again become available until the maturity of the loans is reached.

It should be realized that a large proportion of new construction is financed not by the permanent investors, but by those whose capital turnover is normally rapid and whose construction loans are quickly reimbursed by the sale of mortgages to the permanent investor. The availability of this type of credit has an enormous influence on the degree of activity in construction. If the composite or average duration of loans is commonly about three years, it follows that a peak in building levels will tie up an abnormal amount of credit which will not be released for three years. This would mean that reinvestment of these funds could not take place in less than three years, but might be longer deferred if conditions were not favorable for reinvestment when the funds became available. This, in turn, would mean that

the short term fluctuations would not occur oftener than every three years, but under certain conditions might be longer. This is exactly what is true of the industry.

It may then be suggested that these periodic fluctuations—commonly of about three-year and twenty-year frequency—which have occurred in the past *will continue to occur in the future unless corrective control is effected*. Thus the fluctuations in the future should be interpreted in terms of these characteristics if the industry is to be prepared for the similar troubles of the future. It seems probably that the next extended period of high building activity such as that between 1922 and 1929 will not begin possibly for another eight years. It should be recognized as temporary when it comes.

THE absorbing and important question of the day is, when will real improvement in building activities begin. The current situation in the mortgage market is too well known to warrant discussion here. Imminent foreclosures act to discourage the resumption of new construction, while the commendable extension of maturities serves to delay the return of construction money for new enterprise. No great or sustained betterment in economic conditions of the country can be gained without a revival in the residential field. The futility of governmental concentration on public buildings comprising slightly over 1 per cent of the industry and on public works involving possibly 14 per cent in its period of greatest activity is obvious. The great construction industry cannot be revitalized by stimulating such small components *exclusively*. The net result of present policies is to increase public debt when it should be decreased and to divert funds from more important and productive private enterprise.

A further factor retarding improvement in building is the uncertainty over financial policies. Credit in the building industry is featured by long term loans. Those in possession of liquid funds will very logically refuse to tie them up for long periods when there is no assurance as to the value of the dollar that will be used to repay them. Such money will very properly be held for foreign deposit or for quick conversion to commodities or stocks if any adverse developments occur.

Natural increase in population together with usual wear and tear have created a current need for new housing based on normally decent living standards. This is the only class of construction for which there is an impelling need. Forced continuance of public works at high levels compels a contraction in private expenditures, for increased taxes must be paid out of reduced incomes. *It is almost axiomatic to say that those important industries whose decline has dragged us down are the ones whose expansion must lift us up.* The brakes are on the most important source of recovery. When these conditions will be rectified is a question beyond the range of careful forecasting.

Editor's note: The analysis by Lewis A. Maverick referred to on page 23 is entitled "Cycles in Real Estate Activity," published in the Journal of Land and Public Utility Economics, May, 1932. The reference to building activity in Greater London is from "Urban Housing Problems" by J. S. Spensley, published in the Journal of the Royal Statistical Society, March, 1918.

The Retail Shop—

An Opportunity for Architect and Merchant

BY LANCELOT SUKERT, A.I.A.

A "Buy Now" Campaign means more business for the retail merchant. Increased sales will create demands for shop improvements—new fronts, better interiors and more modern sales equipment. Outlined here are important points on the highly specialized problem of making architecture work for the merchant

FROM the merchant's point of view a store has but one function: to sell goods or services at a profit. Everything connected with the store must point to that objective. Customers *must* be induced to enter and they must be induced to buy—not once, but over and over again.

Toward the accomplishment of these ends the architect can be of material assistance. He can bring to the merchant the one important factor most difficult for the merchant to obtain—the customer's point of view. And in addition, his ability in technical analysis gives him a fresh eye for the merchant's problems of planning space and merchandising equipment.

The architect already understands the elements of circulation, the backbone of a store's sales efficiency. Usually, he has still to learn the merchant's desires and something of his particular merchandising problem. These can best be discovered by finding out what, in general, the merchant wishes to accomplish. Given the *end*, the architect can supply the *means* of attainment.

The architect's work in remodeling retail shops may often go beyond producing solutions to problems of planning and design. Often his "customer's eye" will lead him to a detailed, analytical study of the entire store. This may—and usually does—bring conclusions often regarded as being outside the province of architectural practice. They may take the form of recommending a new location for the store itself, a new interior layout, or, perhaps, even a complete reorganization of the store's departments and executive offices, with often a consequent change in selling methods.

Today such activities on the part of an architect are a necessary part of his professional work. Stores handle a diversity of merchandise; and since the architect will be concerned with developing a place in which to sell goods most efficiently, he must have some knowledge of the goods themselves and the various influences that increase or decrease sales volume. No architect should accept on faith a store problem as presented by his client. Independent analysis may show it to be wrong and may eventually lead to a more successful job. The architect must first put himself in his client's place. Then he must test his ideas by criticizing them from the customer's side of the counter.

Service departments are extremely important to a good store plan. All must function unobtrusively and efficiently from president's office to stock room. Well considered accommodations for the comfort of employees can stimulate good service to customers—one of the most important steps toward a satisfactory volume of sales. Large department stores have developed these facilities to a high degree of excellence; and the architect concerned with a small establishment will do well to study them and learn their affect upon sales costs and volume. Thoughtfully planned interior arrangements are important from the standpoint of the organization and functioning of the store's sales force. Without an equally effective exterior, however, much careful planning of the interior may be done to little or no practical purpose.

The shop-front is the merchant's invitation for the customer to enter. Its function is most important. The shop-front should:

1. Be sufficiently distinctive to be easily recognized from a distance.
2. Display name signs that are easily read from afar, from nearby and by those looking into windows.
3. Reflect, in character of design, the type and quality of merchandise sold inside the store.
4. Provide windows for most advantageous display of merchandise.
5. Provide an easy, direct and attractive entrance.

Distinctive design is a matter that must be developed from the architect's study of the merchant's selling problem. This involves the type of merchandise that is offered for sale; the size of the establishment; the design of the building of which it is a part; and, of course, the amount of money that is available for expenditure. There are no hard and fast rules for successful store design so far as the aesthetics of the problem are concerned. Limitations of window heights, glass areas, size, etc., need be no excuse for stereotyped fronts. Opportunity for individual design is seldom completely stifled; and often limitations of the site and building can serve as a stimulant to an unusual and attractive solution to the architect's composite problem.

Signs are doubly important. First, they are essential to the business of the merchant. Second, their size and placement influence the composition of the entire shop-front. They should be discussed with the merchant and their general character decided before the designer puts pencil to paper.

The largest sign—usually displayed above the shop front—should be legible from passing vehicles and from across the street. Simplification of lettering improves legibility, and color often serves as an additional accent for this quality. Illuminated signs, now the rule, are often of the transparent type. In the usual type of electric sign, the box must be recessed. Box-type signs require a minimum current of 60 watts per square foot of sign. Current for neon signs varies with the color. Red requires 6 watts per running foot of letter; blue and green each 7 watts; and white or golden yellow 20 watts. Whenever electric signs are to be used, experts of local power and light companies should be consulted.

Ordinarily it is difficult to see a large sign from nearby. Usually another smaller one is needed. It should be located within easy vision of passers-by; over the entrance, on the window transom bar, on pier facings, or on the glass of show windows or doors. Some sort of sign should also be displayed within the window.

Show window arrangement depends somewhat upon the type of merchandise displayed and directly upon the limitations of the site. Usually it is desirable to provide as much show window area as is possible. Standard plans and entrances are common to the experience of most architects, but a few special ones bear mention. With a shop wider than average it is possible to form a lobby between windows so that they face one another instead of the street. This plan permits greater display areas, though it does take some space from the shop interior. Another type of window came into being from the necessity of displaying a great deal of diversified merchandise within a small space. That is the "island window," surrounded by aisles.

The easiest windows to dress are those which can be seen from one side only. The next best arrangement is the L-shaped window. Island windows or deep rectangular windows with glass on three sides are difficult to dress. Most types of merchandise require some sort of background for their most effective display, and with the two types of window just mentioned, a background is usually required on the axes of the display areas. Often such windows are difficult to light effectively. The fixtures can be concealed with difficulty and must be recessed in the ceiling, unless the backgrounds are made full height so that the display can be seen from only one side of the window at a time.

Height and depth of show windows and also the distance from sidewalk to window floor must be determined from the type of merchandise to be displayed. Generally speaking, small objects require high window floors, low glass height and shallow depth. The reverse is true of large objects. For example, floors of jewelry display windows may be as high as 40 inches from the sidewalk

and need be but 20 inches deep. Automobile showroom windows are usually at or near the level of the showroom floor itself. When a variety of objects is to be shown in the same window, the floor level and window depth should be regulated by display requirements of the largest object to be shown. Fixtures can be used in displays to elevate smaller objects to their correct level.

Height of show window openings depends upon the distance from which objects are to be seen as much as upon the character of the objects themselves. Tall openings tend to reduce the scale of exhibits; and where displays must be seen from upper decks of passing buses, the second-story window is to be desired in place of abnormally tall windows. General purpose windows need not be higher than 8 feet.

Reflections on plate glass constitute a store front problem that is one of the most difficult to overcome. Various arrangements have been tried to eliminate glass reflections with but little success. One chain store shoe merchant has used glass sloping outward from the bottom as a distinctive feature of his standardized design. This is satisfactory except on sunny days when reflections of pedestrians' feet are obvious and annoying. And, of course, sunny days are usually the best shopping days.

The scientist offers a solution by recommending that illumination within the window be brighter than the light intensity without, pointing to the lack of reflection on illuminated windows at night. But few, if any, merchants have had the courage or money to compete with the sun. Often reflections caused by light reflected from facades on the opposite side of the street may be masked out by the use of awnings.

Awnings are almost a necessity in present day practice and should be incorporated in the original design of the shop front. Many methods, not all successful, have been used to conceal furled awnings. Facia boards to cover the opening of the awning races are successful only when supports are sufficiently close together to prevent sagging of the board when the awning is down. A plain skirting or valance on the front edge or a bronze rod usually conceals the roller and other devices. In cases that require out of the ordinary treatment, an awning specialist should be consulted and details of various operating devices obtained. This should be done while the drawings are in the sketch stage.

Show window backgrounds often constitute an important part of the merchant's invitation for the customer to enter his store. Generally they should be light in tone, for though dark backgrounds intensify displays that are light in color, they also intensify glass reflections.

Glossy finishes in backgrounds are to be avoided, because they reflect the illumination units. In windows that are viewed only from the street, mirrors may be safely used at the sides to accomplish an effect of greater interior width. Reflections in mirrors should be predetermined by drawing the extreme sight-lines on plans and sections so that nothing of a "back-stage" nature will be evident to the observer.



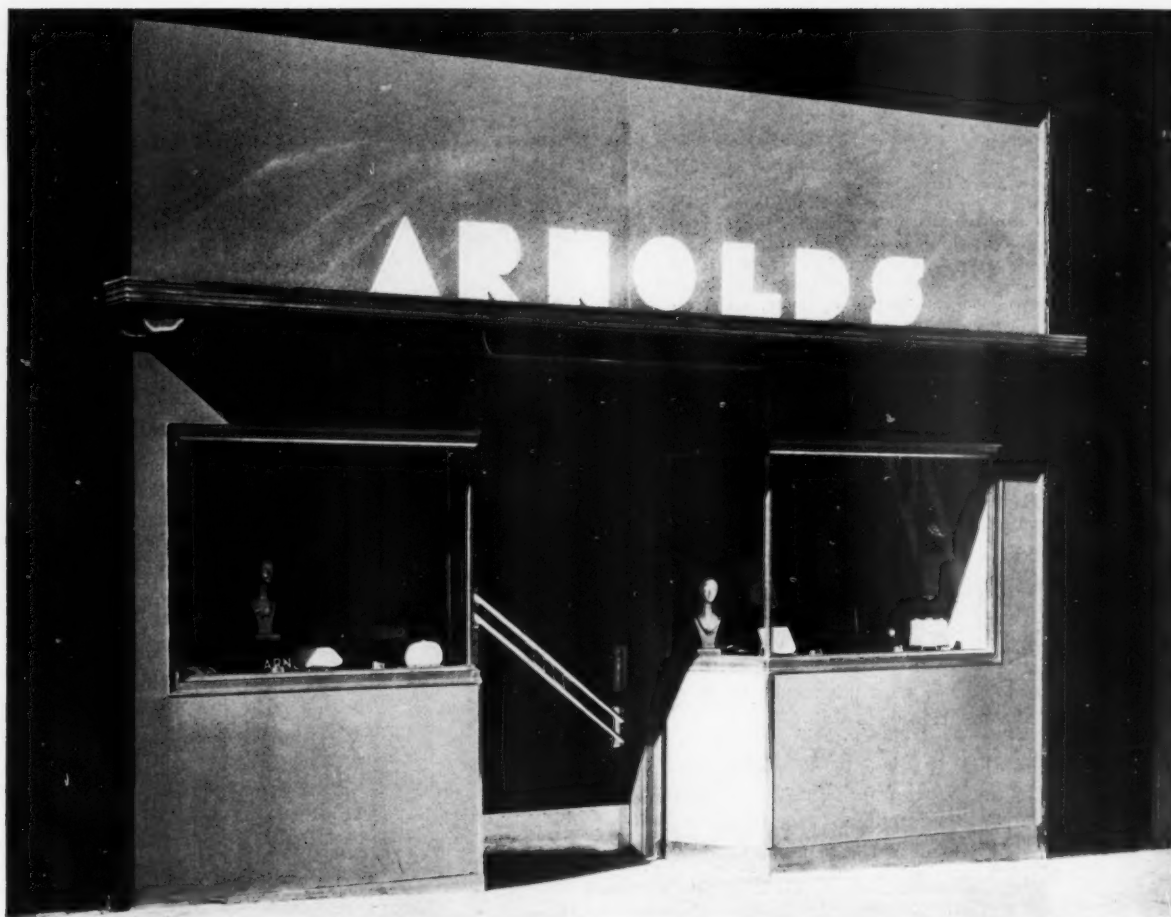
Bay windows are often effective as a means of displaying certain types of merchandise. Large glass areas tend to dwarf the scale of small items of merchandise. Noteworthy here are Venetian blinds used in place of awnings, also the varying heights of show window floors. Below: interior of Switzer's, Los Angeles. John and Donald Parkinson, architects

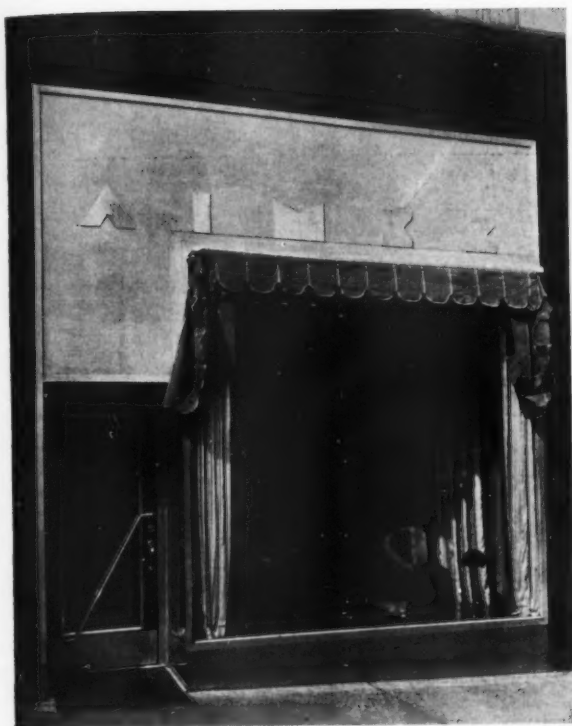
Some show windows are designed to open directly into the shop, permitting a view of interior displays. This device is used in some shops to whet the customer's interest in merchandise beyond the display window. In others it is chiefly useful as a convenient means of entering the window to dress the display. The window dresser's entrance is an important element of any background. It must be large enough to permit passage of the largest object in the display. If secret doors or panels are employed, ingenuity must be used in their concealment, for the heat of show window lighting often causes unusual shrinkage which becomes most obvious under brilliant illumination.

The floor of the show window is as much a part of the display as is the background. Many materials are adaptable, depending again upon the type of merchandise that is to be displayed. If wood is most desirable, the surface should be kept dull to prevent marring and to avoid reflections. Marble, also, should not be highly



Opportunity for individual shop design need not be stifled by limitations of site or structure. Desirable architectural unity can be preserved in almost any large building through a simple treatment of the building's base course. This was accomplished by Holabird and Root, architects, in the Michigan Square Building, right. Below and on facing page are shop fronts that indicate the great variety possible for individual shop front design. All in the Michigan Square Building





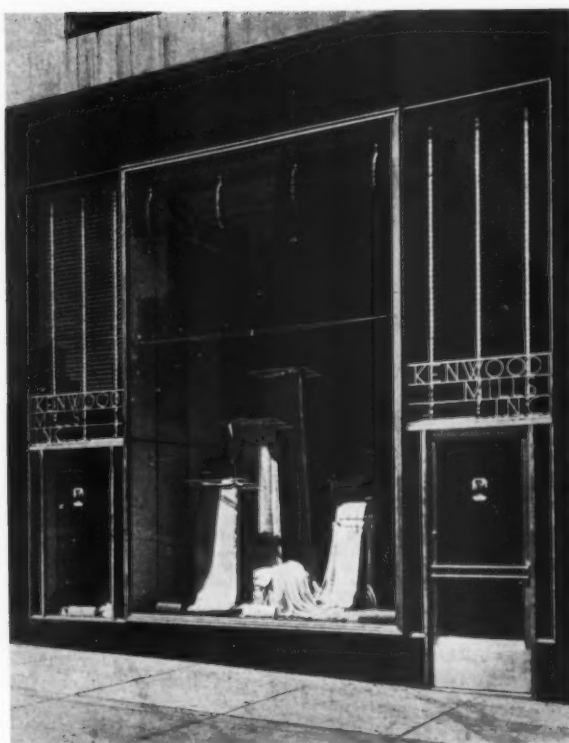
Women's Clothes



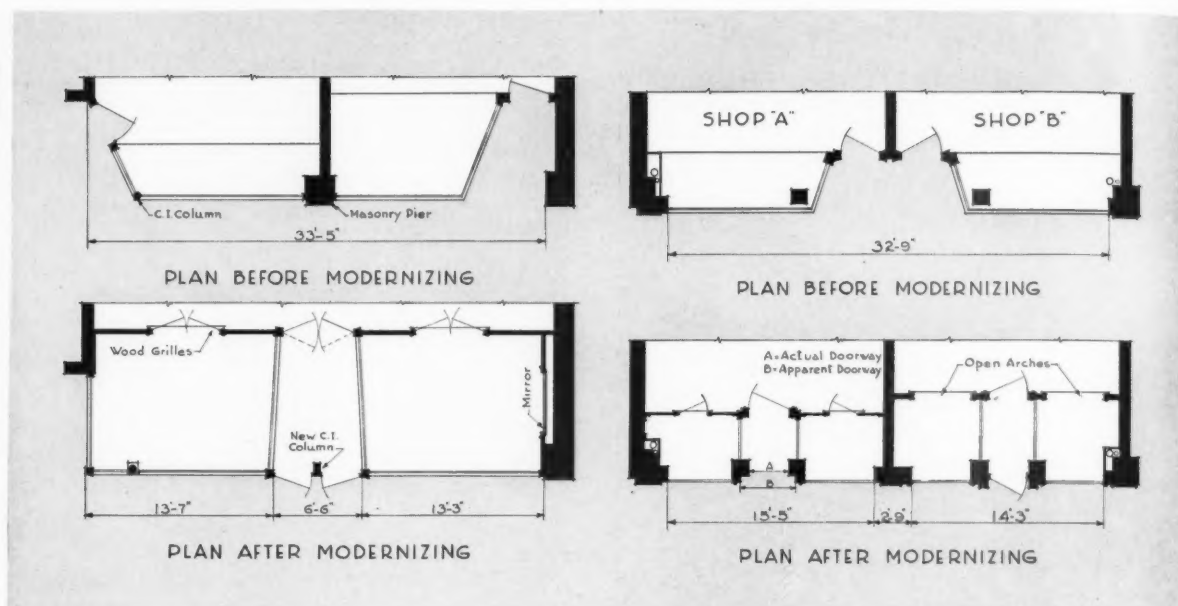
Baked Goods



Books and Stationery



Woolen Blankets



Typical plan changes in store remodeling. Left: two small shops combined to emphasize unity of one enlarged establishment. Note small size of new column at entrance, often structurally necessary but commercially undesirable. Right: individuality of small shops emphasized by new separate entrances and small show windows

polished. Travertine or Mankato stone make excellent surfaces against which to display a wide variety of merchandise.

Windows for display of kitchen or porch furniture might be floored with linoleum or rubber tile. This can be covered with carpeting or rugs to change the character for other displays. Because of their soft texture, women's clothes appear best against a carpet of neutral coloring or black. Wood is commonly used for both floor and background where men's clothing is shown.

Lighting is a particularly important part of the setting. Since display and background are seen from a limited range of vision, lighting must be concealed from direct and reflected views. Much can be learned from stage lighting that will help in planning window lighting.

In general purpose windows, like those in department stores, the utmost flexibility must be provided. Although methods vary with individual problems, the following recommendations will assure the flexibility of any lighting arrangement.

1. Provide for more current than it seems will ever be required.
2. Provide sufficient current outlets so placed as to care for footlights, whether or not these are included in original installation.
3. Equip all lamp outlets with jumbo sockets: 300 or more watts per outlet. If lower wattage is desired, reducers can be employed.
4. Wire overhead outlets so that every third lamp is on a separate circuit. This will make available three

different light intensities and will pay for itself by savings in current on bright days.

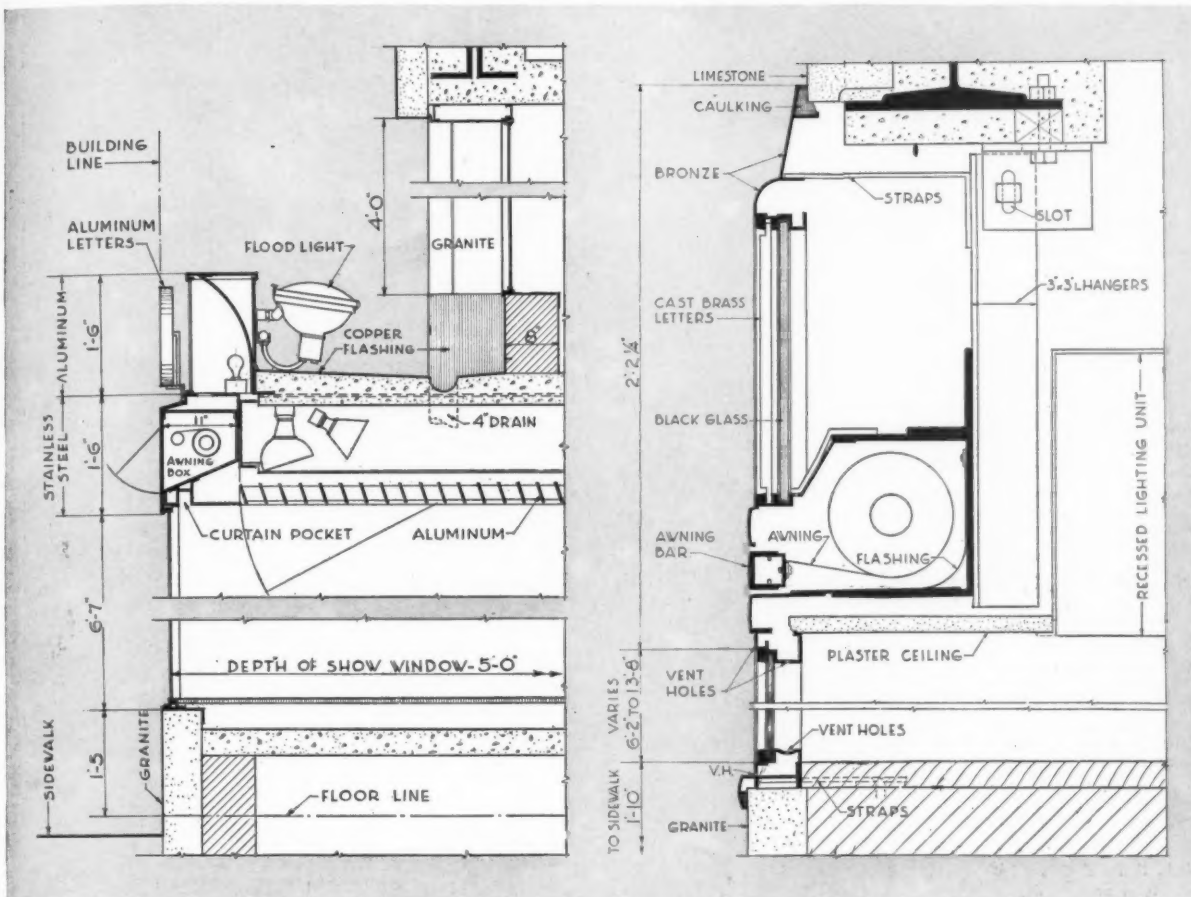
Like the over-elaborate background, over-brilliant lighting has become associated with cheap merchandise. With the proper equipment and reflectors merchandise can be rendered more attractive by thoughtfully controlled lighting.

Ventilation is usually required in show windows due to the high temperatures resulting from almost any intensity or method of lighting. This is a fact that is often forgotten until too late. The use of slotted glass moldings is seldom sufficient and often causes unsightly blow-streaks on the glass. Ceiling grilles are sometimes adequate, but when used, the space above the ceiling should also be ventilated.

Mechanical ventilation is the most satisfactory from several standpoints. If air is blown in or exhausted, fan speed should be adjusted to avoid an air velocity that will flutter loose materials on display. Extreme care should also be exercised to prevent entrance of dust into the show window.

Heat from lighting units may prove particularly ruinous to certain types of displays, such as flowers, candies or market produce; and windows may require artificial refrigeration to counteract the effect of concentrated heat. In such cases it is imperative that an expert on problems of refrigeration be consulted.

The entrance door is often given less attention than it deserves—perhaps because it is so strictly utilitarian.



Awnings, lighting and ventilation of show windows are most important features of shop design. Left: section through show window in Philadelphia Savings Fund Society Building. Howe and Lescaze, architects. An unusual, efficient way of solving all three problems. Right: movable bronze bars conceal furled awnings in British Empire Building, New York. Reinhard & Hofmeister, Corbett, Harrison & MacMurray, Hood & Foulhoux, architects

Always it should be visible from and approachable in a straight line from the sidewalk. It should never be masked by island windows nor reached through a maze of aisles. A gradual ramp from sidewalk to floor may be used if a change in grade makes it essential, but a single step is absolutely taboo. Even the ordinary raised threshold should be avoided if possible. Doors should be light and should open inward to take advantage of the customer's forward motion. In stores catering to large crowds, it is imperative that doors swing outward as well as in. Each door should be hung singly to swing in the same direction as the others. Leaves of double doors swinging in opposite directions may cause accidents. If these must be used, door checks are essential.

Revolving doors minimize the entrance of cold air and economize space, but some sort of speed check should be provided for them. Because some people fear to use them, they are often flanked by single, hinged doors, in which case the vestibule is almost a necessity. This presents several advantages. In cold weather the en-

closed space can be filled with super-heated air to warm cold air entering from outside; and during the hot months a cooling system can reverse the process. Most important of all, a vestibule with a double set of doors reduces drafts which always impair the health, hence the selling efficiency, of clerks near the entrances.

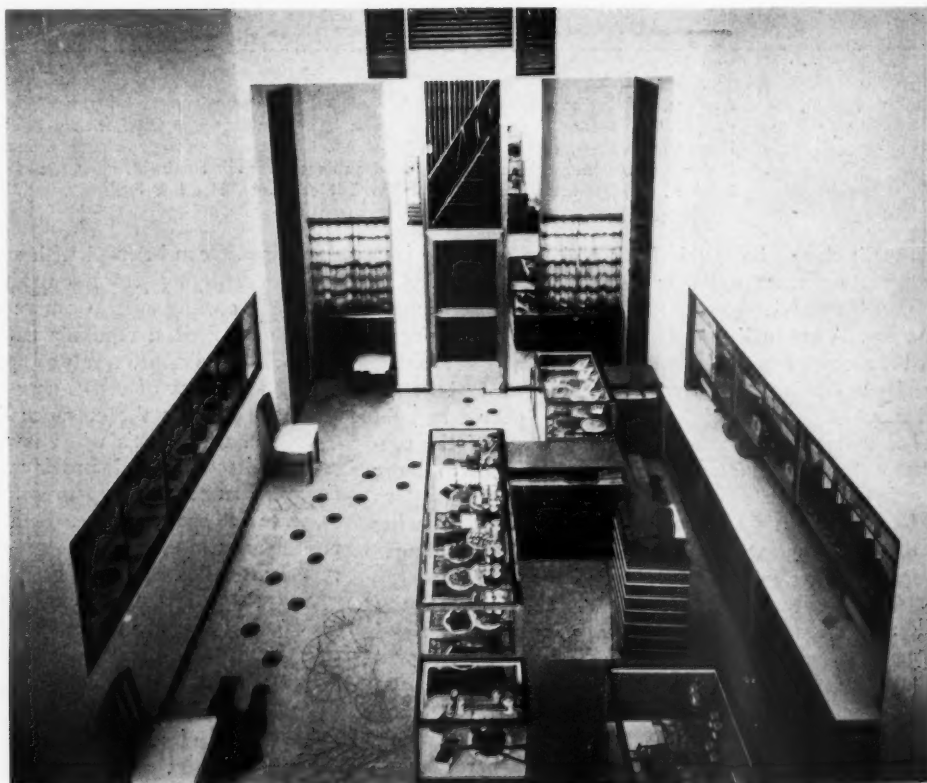
In small shops the entrance door should be at least three feet wide. This will allow persons to pass in opposite directions and provides adequate passage for freight, furniture and fixtures for small shops lacking a separate delivery entrance. In a few instances the glass portion of the entrance door has been effectively converted after hours into an evening show window by setting up a display on a removable platform just inside the door or by hanging an illuminated case on the inner face.

Provision for burglar and fire alarm systems may be one important part of the shop equipment. Often the wiring for such systems must be left exposed to facilitate inspection. Unless some sort of decorative mask is

Brilliant illumination gives a night effect similar to daylight. Black Formica letters on aluminum tubes. Illuminated opal glass background. Sacks, Inc., Chicago, Illinois. Herbert Sobel and J. Arthur Drielsma, architects



Distinctive design implies type and quality of merchandise sold. Note drapes on unusually small show windows, also ventilation grille over door. Interior of Socatch Shop. Chicago, Illinois. Holabird and Root, architects





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Simplicity is desirable as a background for effective merchandise display. Interior of Kenwood Mills store, Holabird and Root architects. This is one of the shops in the Michigan Square Building shown on page 28. Walls and ceiling, light gray; carpet, dark blue; metalwork, stainless steel



Unobstructed window space in small shops emphasizes unusual character of shop, merchandise and method of display. Note low window bulkhead with fresh air grille to basement; precast terrazzo front, aluminum strips. Mrs. Stevens Candy Shop, Chicago, Illinois. Koenigsberg and Weisfeld, Inc., architects

arranged, the wiring usually presents an unsightly appearance inside the show window and on the glass and inner face of entrance doors. As soon as preliminary sketches are approved, the architect should consult the alarm agencies so that proper provision can be made for concealing equipment.

Let no reader think that the work of designing a shop front or interior is easy in any department of architectural activity. Whether large or small, shop design is a highly specialized activity that calls for an extraordinary amount of detail and a multiplicity of drawings that is often out of all proportion to the actual cost of the building or the size of the work itself. Because of this it is advisable for an architect to charge a fixed fee instead of a percentage of cost to assure a return commensurate with the amount of effort involved.

The architect's work must always be done at top speed, as must the actual installation of the construction details, for rent lost during the time of building is usually charged to the cost of the work. For this reason everything possible on the job must be prefabricated. This means that the architect's drawings must be carefully made and correctly dimensioned with proper tolerances at all points where the type of material makes necessary an allowance for expansion or contraction after setting.

Equally important is job supervision. To avoid delays caused by incorrect installation, fabrication of the various materials must be checked from time to time and the smallest detail cannot be overlooked or slighted on the job itself. After the shop is open, correction of errors and the finishing of uncompleted details is a costly nuisance. It means work after shop hours, usually requires the presence of either architect or owner and is not a recommendation to be desired for maintenance of future business contacts.

Because of the specialized nature of retail shop design, the amount of the architect's work cannot be compared with the average job. Often the actual cost of construction will be relatively small. But even a small project requires careful detailing and supervision. An architect's fee should be commensurate with the amount of work he does; and he should charge for services on a reasonable cost-plus basis instead of the more usually advantageous percentage basis.

Distinctive design in the retail shop is a present-day commercial necessity. To those architects who will forearm themselves with an understanding of the merchant's selling problem and who will gather the essential technical information to help solve it, there is an attractive, broad field of stimulating opportunity and a promise of reasonably full financial returns.



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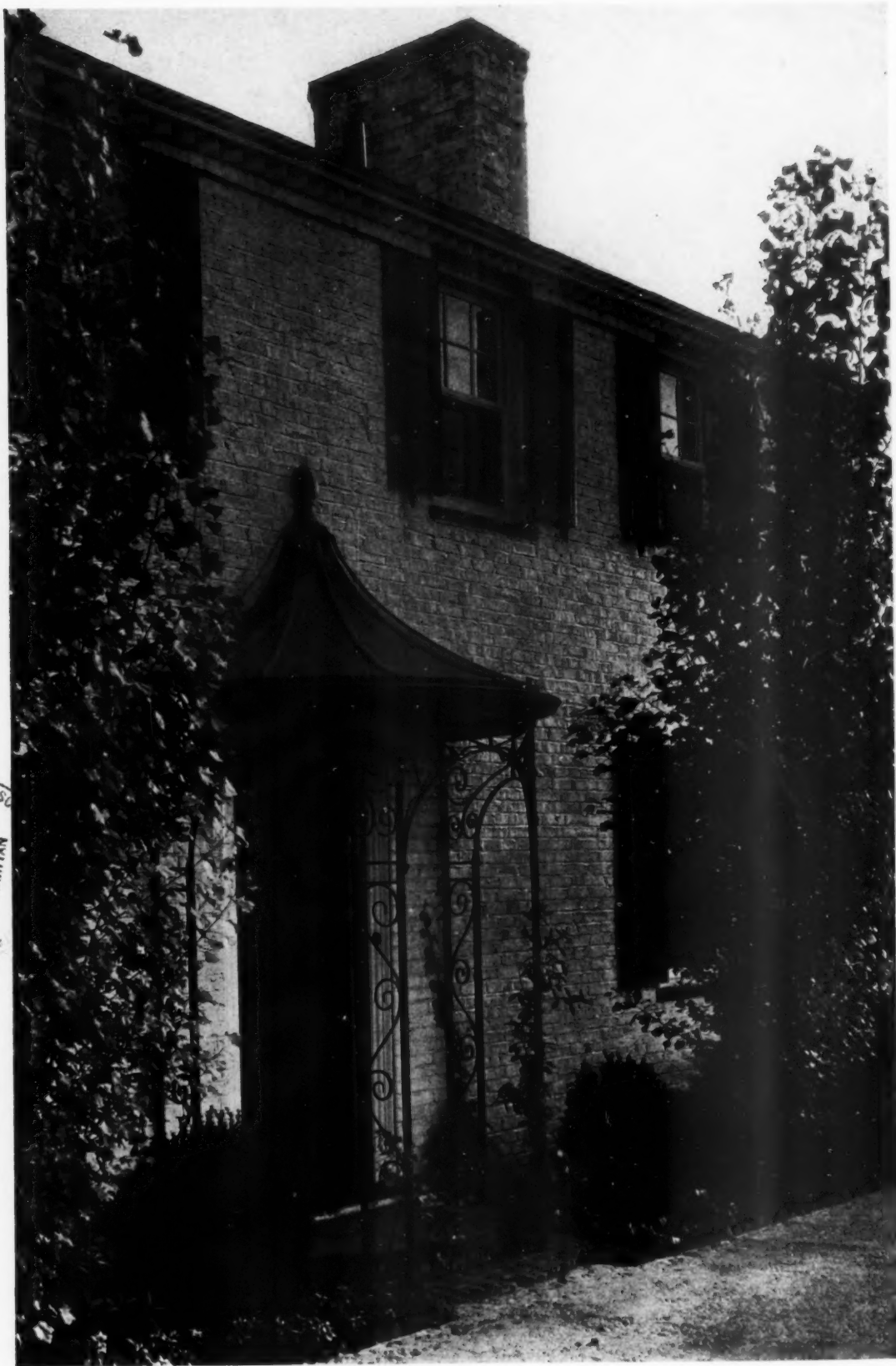


Entrance and Garden Elevations

HOUSE OF GEORGE R. THOMPSON, HEMPSTEAD, LONG ISLAND
GODWIN, THOMPSON & PATTERSON, ARCHITECTS

Photographs by George Van Ande

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Street Elevation



Garden Front



Rear Elevation



Entrance Side and Section Through Garage



First Floor Plan



Second Floor Plan

CONSTRUCTION, frame, brick veneer. Brick painted white; blinds and ornamental iron painted dark green. Roof, black slate. Window sills, door sills and entrance porch floor, black slate. Lintels, cast concrete. Driveway, concrete, pebble dash finish. Interior, plaster on metal lath; oak floors; bathrooms, cork tile floors, painted plaster walls. Heating, vapor steam. Cubic contents, 41,000 cu. ft. including garage. Built, 1928. Cost, \$24,000

HOUSE OF GEORGE R. THOMPSON, HEMPSTEAD, L. I. N. Y., GODWIN, THOMPSON & PATTERSON, ARCHITECTS



LIVING ROOM FIREPLACE, facing, Belgian Black marble; frame, cast iron. Walls and trim, painted apple green; ceiling, white. Carpet, tan, dull red and blue

HOUSE OF GEORGE R. THOMPSON, HEMPSTEAD, L. I., N. Y., GODWIN, THOMPSON & PATTERSON, ARCHITECTS



BLANK & STOLLER

Standardized Ethics

BY WILLIAM ORR LUDLOW, F.A.I.A.

ETHICS come in many varieties. There are some who think that there are just two kinds, "good" and "bad." If it were so simple as that we would get along very nicely, but, unfortunately, there are as many different kinds of ethics as there are different kinds of people. I am going to build a house; and I can't see for the life of me why I shouldn't ethically ask several architects to make sketches for me and let me judge which I like best. Or, I am just starting practice as an architect. I must make a living; and I do not see why I should not make free sketches in competition with someone else, for, perhaps, it is only thus that I shall stand the chance of getting any work. And it is my first duty to see that my wife and I do not starve.

Perhaps I am a builder. My competitors, without objection from architects, customarily take the lowest sub-bid and ask some other sub-bidder to beat it. I must stay in business, and it surely isn't unethical for me to do what everyone else does!

Then many of us haven't gotten away from the idea that as business is competition it has to be "every man for himself." And we can't see why it isn't perfectly ethical to use any honest means to keep from being the "hindmost" fellow that the devil is supposed to get.

But others say that all these things are highly unethical. Why such a variety of opinion?

Well, ten rugged individualists, living on ten square miles, can follow their own inclinations pretty much—and that's the *old* game. But the same ten men living on ten square yards have got to consent to give up a lot of their ideas about what is right to do, and what is wrong to do. They have just got to standardize their ethics—and that's the *new* deal. And that's what NRA is putting over.

I am not sure that NRA codes can be enforced in the building industry or whether there will not be so many ways of beating the game that evasion will be easy. But I do know that the proposed codes set up a uniform standard of practice that I believe will gradually come to be recognized as the proper way to do business.

To illustrate what I mean: I well remember that, when I started the practice of architecture, it was the common thing for every school board and for every

church and hospital building committee to let any architect who wanted to "figure on the work." From a few general facts as to the size of the lot, the money to be spent, and about how many people the building was to accommodate, the dozen or so architects who had "applied" for the job would make plans and pictures ranging from lead pencil sketches to huge water color drawings, glazed and framed. The biggest drawing usually won.

To prevent such waste of effort and money, and an entirely fortuitous outcome, the American Institute of Architects drew up a code of fair competition. It was first considered just an ideal, but after some years of persistent reiteration, the public came to know that a competition is the worst way of selecting an architect.

And this way of setting up standards and persistently keeping them up is the way most ethical standards finally become effective; and this is the way—and not that of the big club—that NRA will, I believe, win out in the long run.

FOR years we have been talking about better practice in architecture, and in the building industry generally. Something has been accomplished. Organizations and societies setting up standards advanced timidly and followed still more timidly, for authority was lacking. Now we have the authority of the United States Government. Now the codes are standardizing ethics. Now fair practice has been popularized. Never before has there been such an opportunity to put the building industry on its feet ethically. If anyone should ask me what I thought had been the matter with the building industry these many years, I would say "lack of decent ethics."

And the builders are looking to the architects to show the way. Do we accept the challenge?

I know one young architect who sent out with the call for bids on his first house a statement that there was to be "no bid-peddling on this job; every contractor's first figure is his only one." I have an idea that it is going to be the younger generation that is going to show us older fellows how to do what we have been just talking about for years.

CRAFTSMANSHIP

Doomed or Dawning?

BY LEOPOLD ARNAUD

THE craftsman is a highly developed human being, sensitive in mind and body, giving form to his own ideas through the skill of his own hands. In every society he has held not only a high, but also an intimate place, for it is the craftsman who makes or decorates the things and the places that men most cherish. It is with concern, therefore, that we look upon the machine—that new voracious power in our midst, whose capacities we do not yet fully understand—and wonder if the craftsman will fall victim to it. What are his chances of survival?

Like all problems in these complicated times, the considerations are many; and the future, impossible to foresee, can only be conjectured.

In its application to Architecture, craftsmanship is displayed principally in ornament. When attempting to predict the place that the craftsman will hold, it is necessary, therefore, to consider the past and the present, and to guess at the future developments of decoration.

All styles have evolved in quite the same way. Starting usually with a change in structural methods, the early manifestations of a new style are chaste in ornamentation; as facility in the new method develops, decoration increases until finally it is so profuse that it stifles the architecture that it is supposed to adorn. Then in reaction, a new style, stripped of ornament, is born. A repetition of the cycle recurs, but never in exactly the same way. Using Bergson's simile of the spiral, the same points are passed, but always on a different plane.

Simplicity in decoration (or nudity, in its extreme form) is the contemporary phase, partly because the architectural style is young and experimental; partly because we are undergoing a reaction against the pompousness of Victorian decoration and the flaccidity of the macaroni style of 1900, partly because, fascinated with the novelty of the machine, we are enamored of its sleek forms. But this current simple manner will inevitably develop into a more florid expression, and the mechanical derivatives loved by the self-conscious modernists will be superseded by more natural motifs. Though the airplane and the microscope have stretched our conception and our vision immeasurably, it is nature, not apparatus, that constitutes the standard of scale and value. Man remains the constant of the equation. Ornament is sure to return; if today

the craftsman's field is bare, it is not permanently sterile.

Brickwork, woodwork, metalwork, ceramics, glass, textiles, devices for lighting, carving, mosaic and mural decoration have always been practical and inspiring mediums of embellishment. Their importance will continue undiminished, and they will be produced both by hand and by machine. Even today, while some are conceding the unconditional victory of the machine, unsurpassable examples of handicraft are being applied to strictly modern structures.

The machine is here to stay, and the craftsman, like all other members of society, must find an adjustment to it. The spasm caused by the Technocrats is already forgotten; perhaps few ever accepted their doctrine in its incomplete completeness. But discounting fads and nomenclatures, it seems, at present, inevitable that the great mass of work in supplying the material needs of our civilization will be done by organized mechanical operation of ever-increasing efficiency. The codes of today are but timid predecessors of the laws of tomorrow. The machine operator will, of necessity, work fewer hours, and for these few hours he must receive an adequate wage. How will the craftsman, whose apprenticeship takes years and whose work takes time indefinite, fit into this economy?

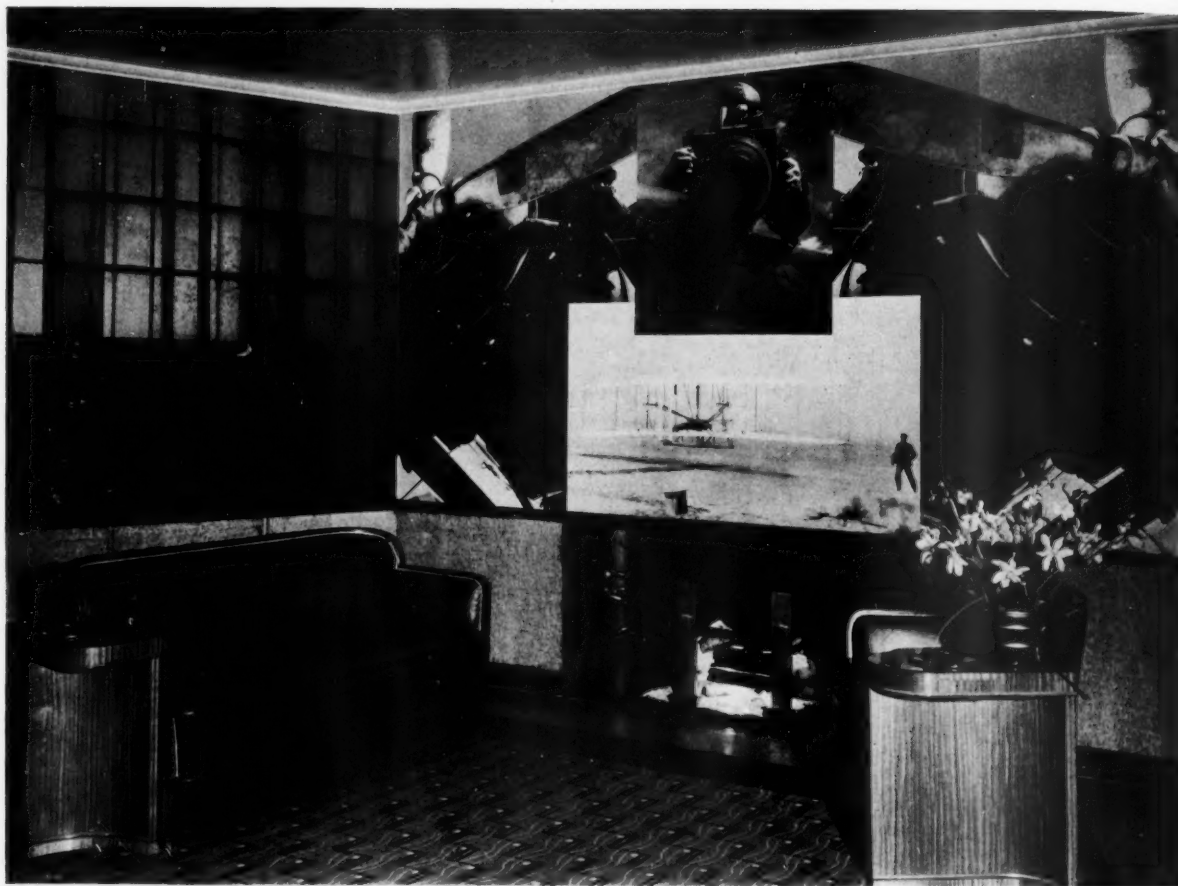
The handicrafts will become increasingly expensive, unless the craftsman will work many more hours than the factory worker for the same pay. The craftsman, in his work, has a way of life as well as a trade, so that he can, to some extent, combine his labor and recreation as other wage-earners cannot do. In its application to Architecture, craftsmanship will probably be restricted to costly ecclesiastical work, to the more lavish public buildings, and to wealthy homes. Building beautifully is the expression of the art of living, and so long as living is an art, it will probably make use of the crafts.

In the great periods of history, when the populace shared in the appreciation and production of art, and

Familiar with the physical possibilities of the material he habitually uses, the craftsman's own work (if he is a good designer) will have more intrinsic character than reproductions from drawings made by one less intimate with the medium. This is often seen in ancient and medieval work, where the design expresses all the possibilities of the material used, and is an outgrowth of these possibilities. Wood-carving, one of the oldest crafts, is today one of the least practiced because of its difficulties; yet the richness of effect that can be obtained through fine handwork on suitable material is shown in this example taken from the Cranbrook School, Cranbrook, Michigan



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Mural photography, the application of photographs to large surfaces for decoration, might almost be considered as a new craft. Though still in its infancy, examples exist which suggest that in the future this medium will provide an important variant to mural painting. Though limited at present to representations in monochrome, the production of photomurals in polychrome will evolve, and the mural-photographer will then have broader scope for his craft. The above example is from the Men's Smoking Room in The Center Theater, Rockefeller Center, New York.

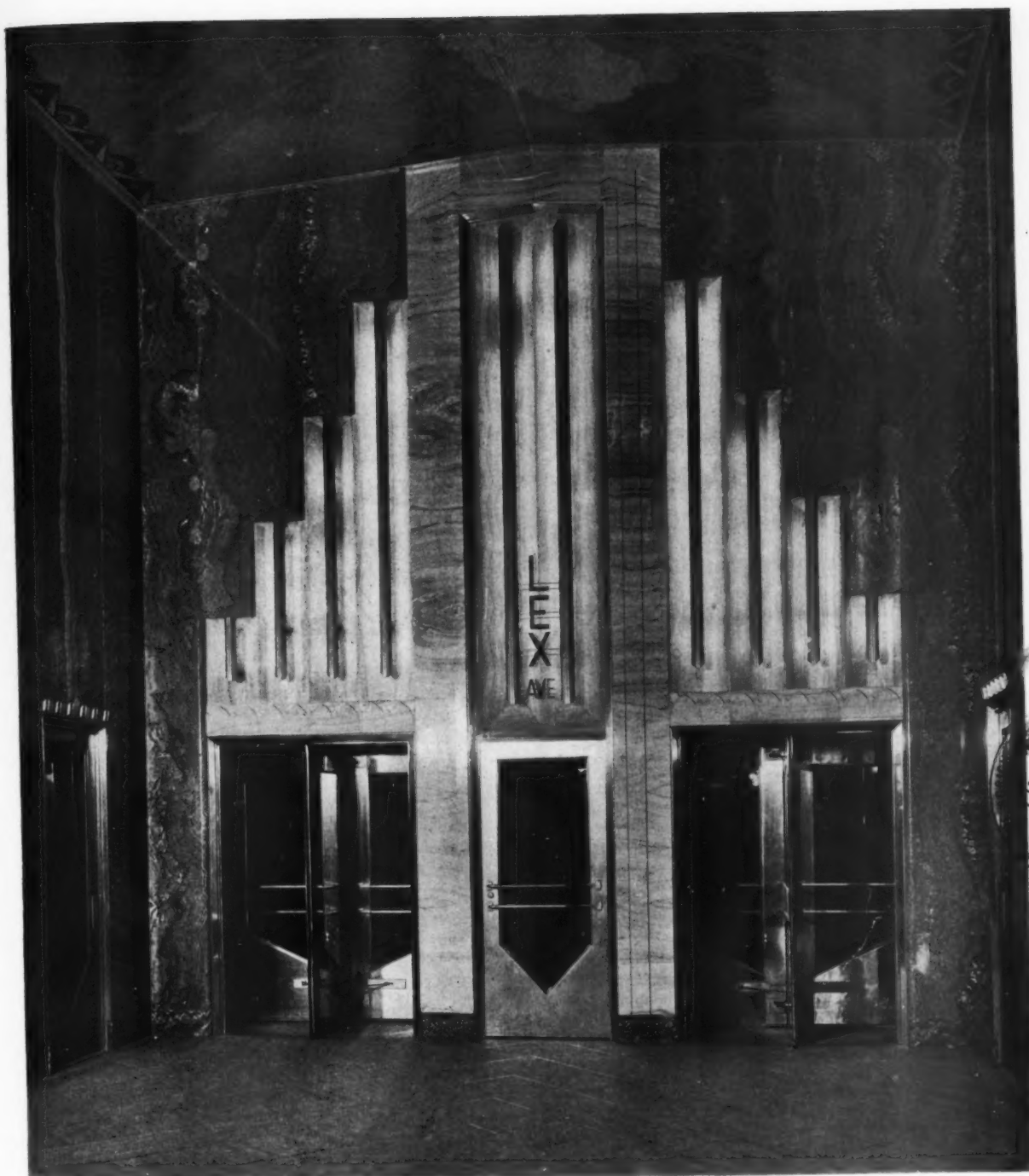
gave it vitality, the craftsman worked with common as well as precious materials. The Greek potter furnishes excellent proof of this fact. Using ordinary clay, whether for an humble cooking pot or a fine vase, he produced vessels of exquisite form and proportion. Today, the craftsman too often confines himself to precious materials—the mark of a mediocre period of art, if we judge by the evidence of the past. Yet today, besides the materials previously known, we have a wealth of new materials, cheap but good, which, because they are produced by the machine, are thought of only in connection with machine manufacture, and their adaptability to hand work is as yet untested. The craftsman, so inclined, can experiment with profit.

Reverting to the simile of the spiral, the craftsman of the future will find himself upon a different plane, working under different circumstances that will produce different developments. There will be, as now, the professional, specialized craftsman, working consistently with

his chosen material. But it is to be hoped that there will come an increase in the number and importance of the designer-craftsman, who will collaborate with the manufacturer, and instill into the machine-made product his sensitive understanding of form and medium.

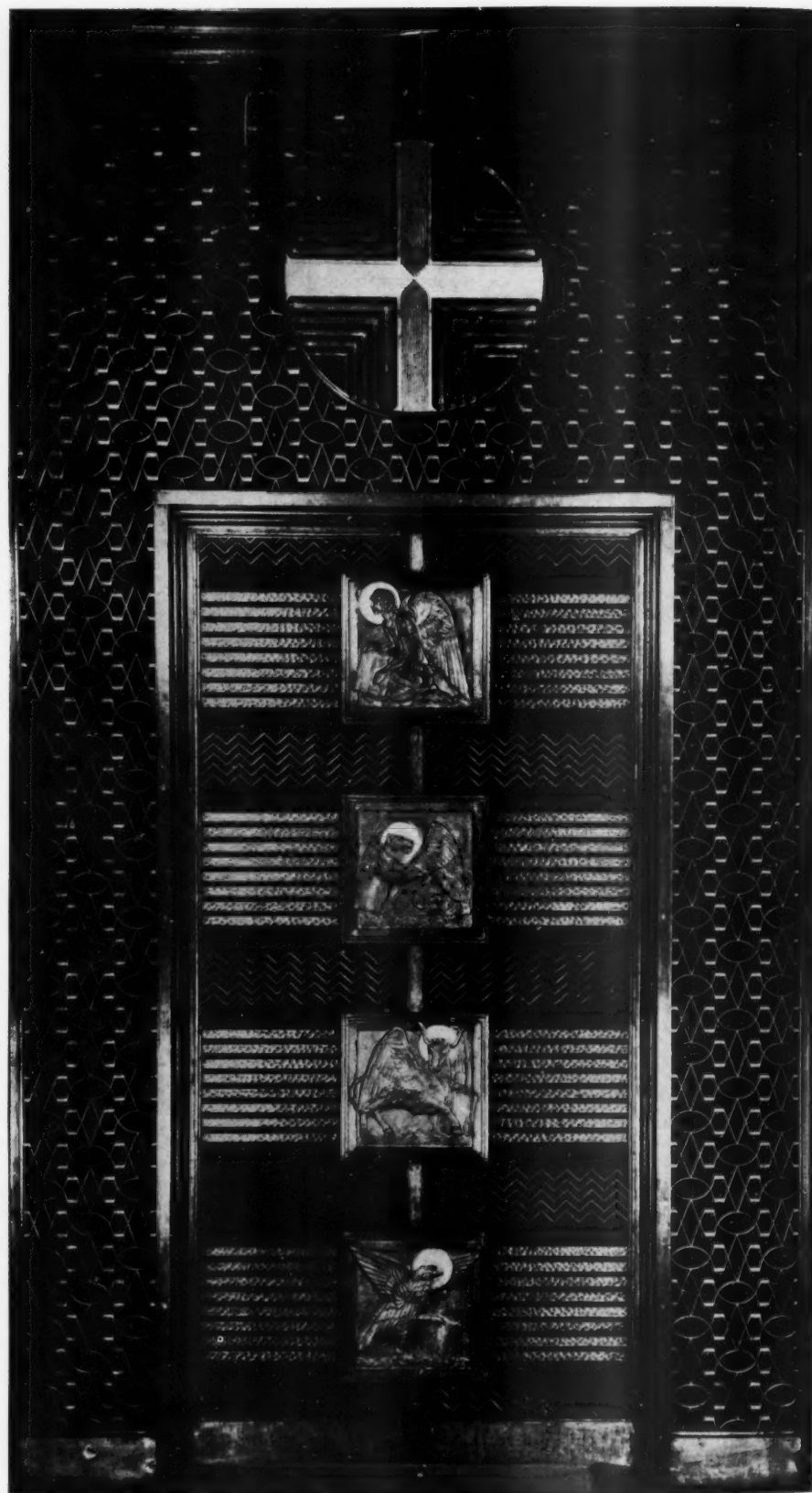
It is an agreeable diversion to imagine the possibilities of a regeneration of amateur craftsmen. If the white-collar man and the blue-collar man all perform their gainful occupations in a few hours a day, they will, obviously, have an unprecedented amount of leisure. Where will they go from work? To recreation, each according to his own taste: to the municipal golf course; or to rehearsal with the plant band; or perhaps some will make hobbies of handicrafts which they can follow at home with simple equipment, much as the peasant has done.

The imminent probability of increased leisure has imposed an incalculable responsibility upon the educator, for leisure will produce disaster if the people are not



Marble veneer is as old as fine building. Matched veining, popular today, has always been a favorite means for obtaining decorative effects; but now new effects are obtained through contrasting finishes combined in a new manner. The above example, from the entrance lobby of the Chrysler Building, New York, shows an ingenious application of honed and polished surfaces. The dull surfaces are used as backgrounds for the long strip electric fixtures. Marble with a polished surface forms a contrasting frame. This is an interesting attempt to minimize the importance of the fixture and supplement it by lighted walls. The well-designed but unobtrusive fixtures do not count as important features, but tie in the door treatment with the wall, unifying the composition.

The uses of metals are limitless and ever new. The true craftsman knows the possibilities, limitations and peculiarities of the different kinds of metal and uses these qualifications as the basis of his design. This church door by Raymond Subes shows the variety of expression that can be obtained with wrought iron. The emblems of the four Evangelists surmounted by a cross are treated in a broad, solid manner, and accentuate the central axis of the composition; they are framed and further emphasized by the delicate all-over pattern of the fixed screen. The variety of texture produced by the combination of mat, polished, tooled and hammered surfaces, is the result of fine craftsmanship, greatly enhancing the beauty of the design.

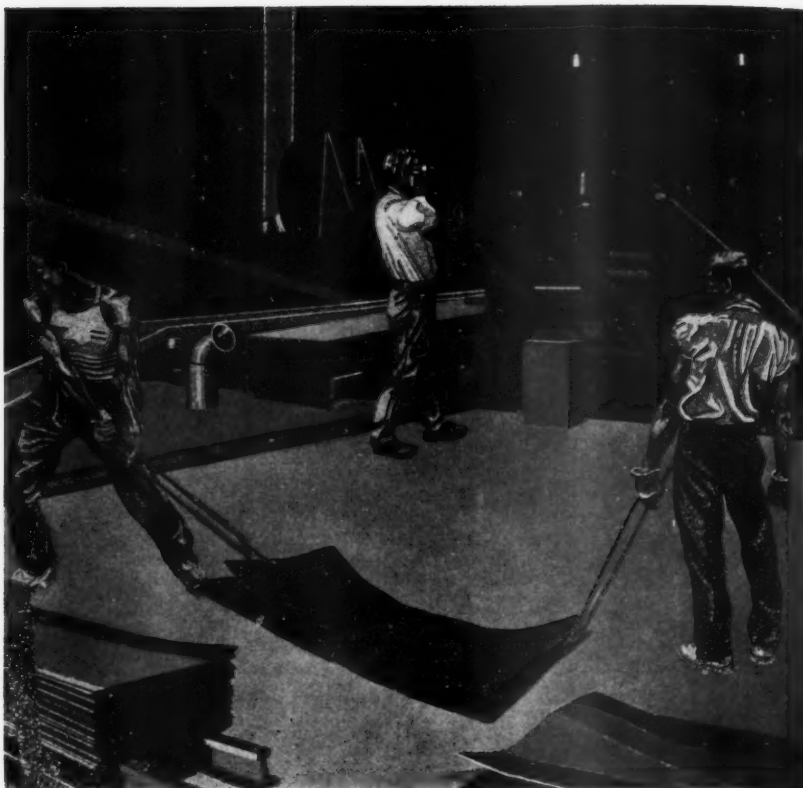




Mural decoration, by means of painted designs or of panels of wood-inlay, is of historical usage. But new materials available today (wood veneers on canvas, etc.), make possible a new technique which combines the conception of the painter with the skill of the inlayer. This "intarsia" mural, of lace-wood on maple, in the new Cincinnati Union Terminal, is indicative of a vast new field in unusual architectural decoration

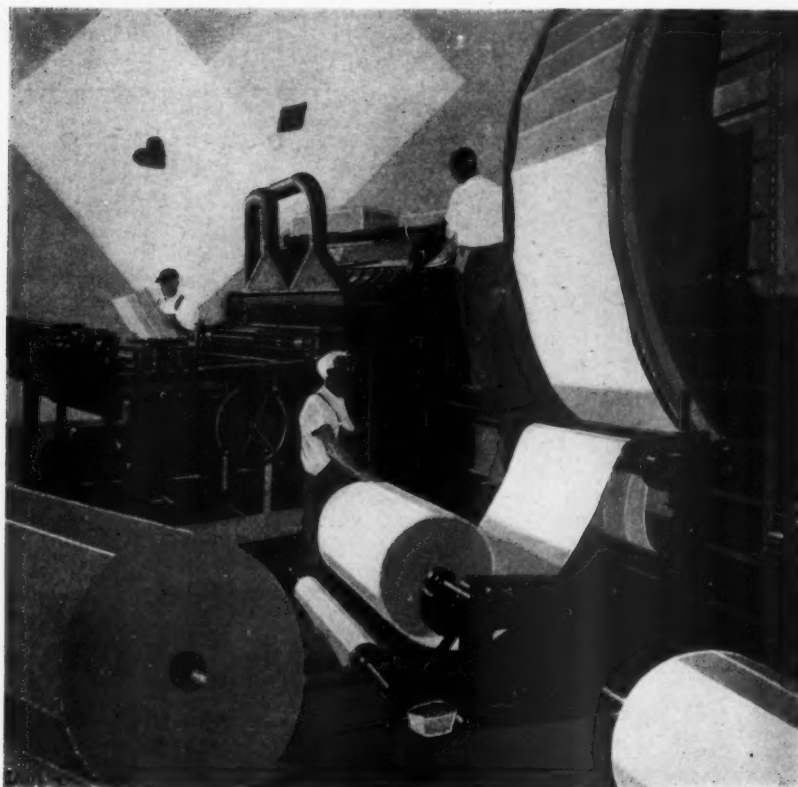


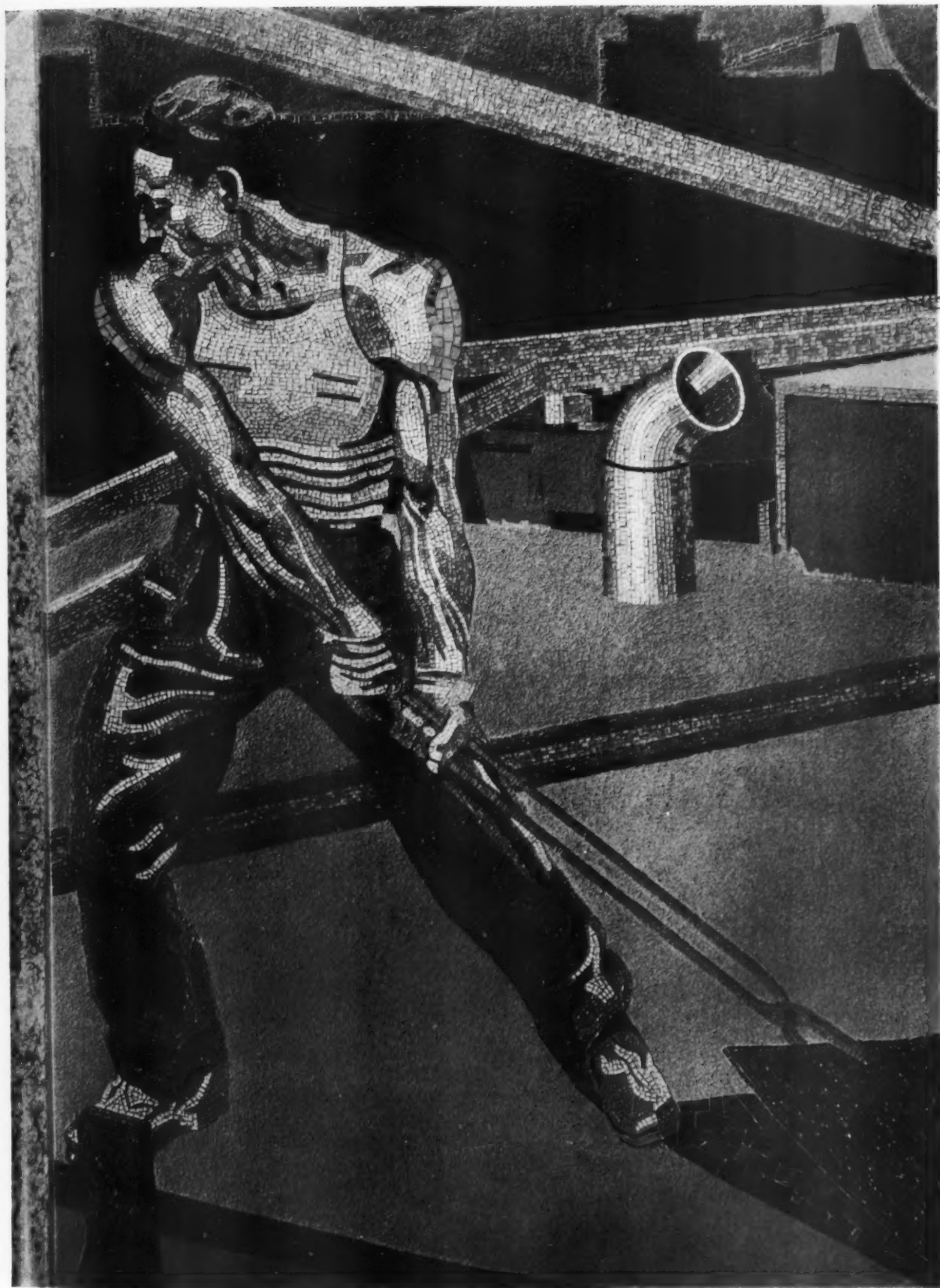
The floor covering in this room in the Music Hall, Rockefeller Center, New York, shows that machine-made carpet has potential beauty, if woven in designs suitable to the machine, instead of in imitation of oriental patterns that depend for their interest upon the evasive inequalities of handwork. Here is a vast field to which the designer-craftsman has but rarely been admitted. Textiles other than carpets have in general received more inventive treatment. New textile materials permit new surfaces, new color harmonies and inexhaustible possibilities to this craft. The mural decoration shows a new use for linoleum. It is applied to the wall in wide strips, providing an effective new base for oil painting



COURTESY, RAVENNA MOSAICS

Mosaic is again in favor. Besides the traditional method of covering the entire surface with tesserae, a new method — "silhouette mosaic" — has lately been developed. Though less monumental in effect, it is just as permanent as the old treatment, and often more appropriate. The broad areas of the composition are executed in colored cements, and only the important spots are picked out in mosaic. This new technique should greatly extend the uses of mosaic. That the resulting effect can be imposing is proved by these examples from the new Cincinnati Union Terminal





Novelty in wall treatment has been a constant quest in decoration. This industrial age has produced an unprecedented variety of materials, obtainable at relatively low cost. The above arrangement, by Donald Deskey, in Music Hall, Rockefeller Center, is typical. The wall is covered with aluminum leaf stenciled with an all-over pattern. Copper and other metals can be similarly applied and variously treated. They can be cut out and placed on a background of contrasting color; or they may be decorated with "niello" work, having a line design first etched on the surface of the metal, then filled with a metal of contrasting color. The accompanying picture also illustrates the use of light placed in the corner to emphasize the shape of the room rather than to provide illumination



schooled to find their pleasures in the enjoyment of the finer things of life. And certainly, the training of mind and hand and eye that produces the craftsman's skill, is a training in refinement. That meticulous work is not now in favor can be considered as a phase rather than as a chronic condition.

When seeking to recognize the stable and enduring in the muddle of contemporary situations, it is all important to give sufficient value to permanent psychological realities. Despite all the variations in philosophical interpretations, man himself, from generation to generation, has given evidence of certain permanent qualities and yearnings.

If the machine will endure, so too will the human being; the taste for the beautiful and the craving for the rare are permanent human characteristics. Though the artist will learn to use the machine as a tool to produce objects of beauty, he will still love the work wrought by his own hand; and the desire for the rare, which in the past was urgent enough to send explorers and navigators to the perilous ends of the earth, will continue acute and vital. The unique and the final touch of the human hand will, as usual, be sought by those who have discriminating taste, so that the craftsman will be paid his price for work that will have the precious mark

of individuality. True, mechanized man might produce only mechanical objects; but, for better or for worse, could man ever become thoroughly mechanized? Every great, victorious movement is accompanied by a counter-movement of intense vitality, and thus a certain balance is preserved.

So, in this very era of mass production in things and ideas, we hear more than ever about the dignity of the individual and the importance of personal development. In the Age of Leisure that is apparently before us, the human being will no longer serve as a cog in a machine, for the machine will not need him. He will be either a loafer or a true human entity, developed in sense and spirit, spontaneous in artistic appreciation, an improvement over the average man of today.

For all its import, the machine must not be taken too seriously. As it becomes a more manageable and familiar factor in the social system, it will have relegated to it a normal place in the scale of values. Materialism and industrialism have already lost some of their glamor, as their inadequacies have been revealed by the depression. A reaction will probably follow—so we may be on the verge of a spiritual revival, and a regeneration of taste for human refinements, and the best work of the mind and hand.

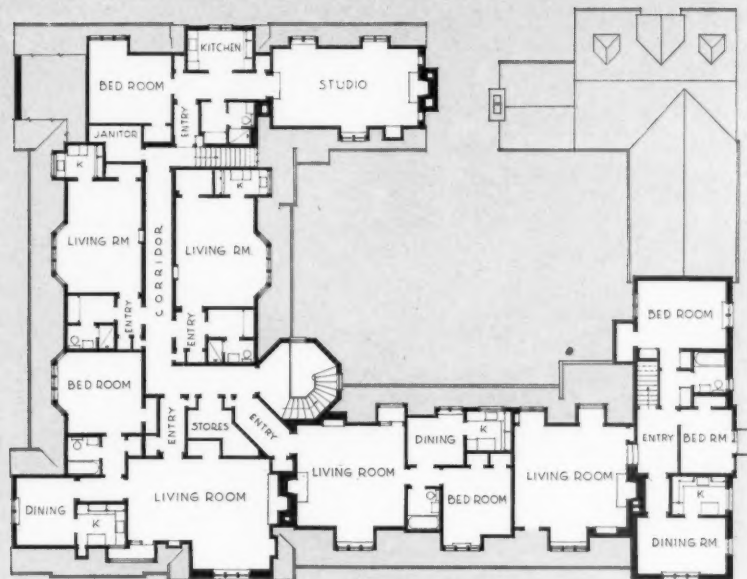


STUDIO BUILDING, SEATTLE, WASHINGTON

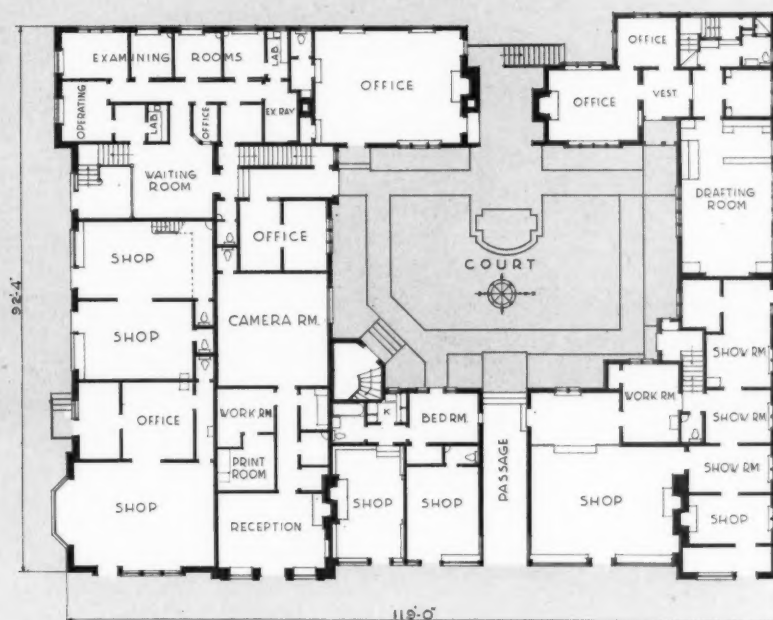
ARTHUR L. LOVELESS, ARCHITECT. LESTER P. FEY, ASSOCIATE

O. E. HOLMDAHL, LANDSCAPE ARCHITECT

Photographs by Depue, Morgan & Co.



SECOND FLOOR PLAN



FIRST FLOOR PLAN

Scale 0 5 10 15 20 feet

STUDIO BUILDING
SEATTLE, WASHINGTON
ARTHUR L. LOVELESS
ARCHITECT
LESTER P. FEY, ASSOCIATE



SOUTH ELEVATION OF COURT



SOUTH ELEVATION



EAST ELEVATION

CONSTRUCTION. Wood frame. Finish on court, stucco to match studio wing built in 1925. Street fronts veneered with random ashlar cinder concrete blocks. Blocks were painted and while still wet, sprayed with marble dust and sand. Trim, Wilkinson sandstone. Exterior wood finish, cedar. Roof, hand-split cedar shakes. Shops have painted plaster walls, asphalt tile floors on cement base, painted fir trim. Apartments have painted plaster walls, hardwood floors, tile baths, painted fir trim. Heating system, forced circulation hot water with oil burner. Cubic content approximately 200,000 cubic feet. Cost, in 1931, 35 cents per cu. ft.

STUDIO BUILDING, SEATTLE, WASHINGTON, ARTHUR L. LOVELESS, ARCHITECT, LESTER P. FEY, ASSOCIATE



Above: Large shop at corner. On facing page, above: Court entrance to studio wing. Court walks and steps, sawed blocks of Wilkinson sandstone. Studio was built on center of inside lot in 1925. Moved to its present location at the rear, it motivated the plan arrangement of court and shops

STUDIO BUILDING, SEATTLE, WASHINGTON, ARTHUR L. LOVELESS, ARCHITECT. LESTER P. FEY, ASSOCIATE





Stair tower and court entrance to apartments. Weather vane and shop signs are lead, designed by Frank Hall-Edmands

STUDIO BUILDING, SEATTLE, WASHINGTON, ARTHUR L. LOVELESS, ARCHITECT. LESTER P. FEY, ASSOCIATE



CLAUDE BRAGDON illustrates his own method of lettering. Being left handed, Mr. Bragdon's triangle, used for verticals only, is always ahead of wet ink. With practice a right handed person can accomplish the same results left handed. Mr. Bragdon letters as fast as the average person writes. The form of the alphabet shown is based upon Jensen type used in *Como Vitruvius*, printed in Venice in 1520. Exaggeration of the serifs is the distinguishing characteristic of this alphabet

A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z

TIME RIPENS AND DISSOLVES ALL
BEINGS IN THE GREAT SELF.

*"Time ripens and dissolves all beings
in the Great Self"*
— Upanishads

Lettering Inspired by Type Faces

By C. A. McGREW

MORE is to be gained from the study and use of type faces than mere legibility in routine architectural lettering. There are many styles of type that are beautiful in themselves and will serve as an inspiration to the draftsman who strives to improve his pen-and-ink technique.

Presented on the two following pages is the alphabet set in six type faces that are particularly adapted to architectural use. Some of them may be used as the basis for detailing inscriptions or for other formal work which a draftsman may be called upon to do. But for much of the routine lettering required in the office these alphabets may be valuable as authentic sources for individual adaptations. Capitals and numerals of all the styles are shown. With the two faces best adapted to the most general requirements of the average architec-

tural office are included alphabets of lower case letters.

Let no one think that these six faces are the only ones that may serve as guides to better architectural lettering. Those shown, however, are representative of the best typography and are especially suitable to a wide variety of architectural uses.

The study of type faces constitutes a study of the varied niceties of form and design. "Letters and Lettering" by Frank Chouteau Brown, published in 1902 by Bates & Guild, Boston, still remains one of the best condensed volumes on this subject. Frederic W. Goudy's "Alphabets" published by William Edwin Rudge, New York, can also be recommended. "The Colophon," a quarterly publication issued by the Pynson Press, New York, gives several examples of modern typography of impeccable taste arranged with skill and imagination.

FORUM

30 Point, Capitals and Numerals

Rubbings from inscriptions in the Roman Forum served as the model from which Frederic W. Goudy designed this beautiful type face in 1912. From its association with Classic art and architecture, FORUM has come to be regarded as a monumental type face. It is well adapted to work of formal, balanced character and is much used in typography for titles, headings and special announcements. In the majority of cases minuscule, or lower case letters, are not usually employed. The draftsman will have little use for them, although examples may be obtained from specimen books of the Continental Type Founders Association. Both in proportion and in refinement of detail, FORUM is worth most careful study

GARAMOND

30 Point, Capitals, Lower Case and Numerals

An extremely popular face because of its clarity and strength. It was first cut in France by Claud Garamond in 1540, and adapted to the requirements of modern machine type setting by Morris Benton in 1920. GARAMOND, though a less formal face than FORUM, has great beauty of form and proportion. It is one of the most legible of all type faces with a Classic derivation and is widely used. It is cut in this country by American Type Founders Company

STELLAR

24 Point, Capitals and Numerals

Of the several sans-serif faces that have recently become popular this type, designed by R. Hunter Middleton in 1929, is one of the most pleasing. There will be little use for lower case letters in the architectural office. The capitals present unusual opportunity for individual adaptation. Their character depends largely upon well balanced variations in line thickness. The type is cut by the Ludlow Typograph Company

A B C D E F G H

I J K L M N O P

Q R S T U V W

X Y Z &

1 2 3 4 5 6 7 8 9 0

A B C D E F G H I J K

L M N O P Q R S T

U V W X Y Z

a b c d e f g h i j k l m n

o p q r s t u v w x y z

1 2 3 4 5 6 7 8 9 0

A B C D E F G H I J K L

M N O P Q R S T U V

W X Y Z

1 2 3 4 5 6 7 8 9 0

A B C D E F G H

I J K L M N O

P Q R S T U V

W X Y Z

a b c d e f g h i j k l m n o p q

r s t u v w x y z

1 2 3 4 5 6 7 8 9 0

A B C D E F G H I J K

L M N O P Q R S T U

V W X Y Z

1 2 3 4 5 6 7 8 9 0

A B C D E F G H I J K L

M N O P Q R S T U V W

X Y Z

1 2 3 4 5 6 7 8 9 0

CLOISTER CURSIVE

30 Point, Capitals, Lower Case and Numerals

An italic face well suited to the draftsman's general use. Designed by Morris Benton in 1923, both capitals and lower case letters have a decorative quality that is often a desirable characteristic of architectural lettering. CLOISTER CURSIVE is a dignified though informal type face, and is one of the most effective of all decorative type styles when sparingly used in combination with a crisper face such as GARAMOND. The draftsman will have more use for the lower case letters than the capitals of this type, although both are easily and quickly formed and are suitable to individual adaptation. The face is worthy of study for proportion and detail. It is cut by American Type Founders Company

NICHOLAS COCHIN

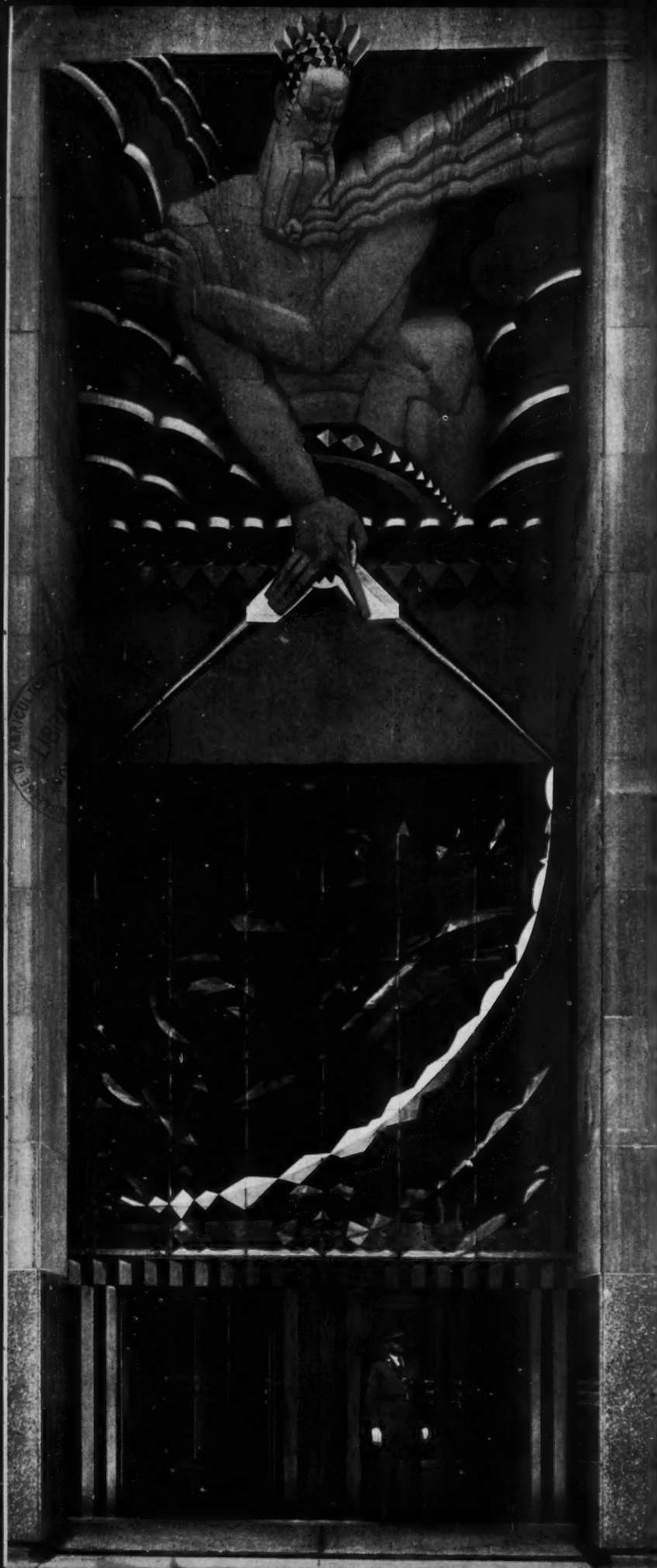
30 Point, Capitals and Numerals

Adapted from the work of French engravers of the 17th and 18th centuries and named in honor of one of them. Letters depart considerably from classic forms, but have a crispness and informal character that make them well adapted to rapid work. The face has an unusual proportion and swing that accentuate the brilliance produced by long, thin serifs. Serifs can be made with a T-square as a guide, a practice not usually justified in lettering

KABEL

24 Point, Capitals and Numerals

Extreme simplicity and carefully studied proportion have been combined in a face designed by Professor Rudolf Koch and recently imported from Germany. KABEL, now extremely popular as an ultra-modern face in printed work, is of limited value to the draftsman. It depends upon excellence of execution for its simple beauty and is not easily hand-lettered. Continental Type Founders Association cuts it in America



Backed by a mass of dull color are three limestone figures that guard the main entrance to New York's greatest new building. Figures were modeled by Lee Lawrie to represent, in the center, "Wisdom," flanked on either side by "Light" and "Sound." Color has been used sparingly by Leon V. Solon, polychromist, to accent flat modeling of the sculpture. Background is soft red—almost a salmon pink. Dull gold and brown are applied in bands on crowns and draperies of figures, and on edges of conventionalized clouds from which they emerge. Below the figures and behind limestone-faced piers is a great wall of modeled cast glass 3 inches thick, reinforced at the back with steel rods. The glass is clear except for a single curve of jagged gold in the center panel. Left: detail of "Wisdom." On facing page: general view of the main entrance

RCA BUILDING
ROCKEFELLER CENTER
NEW YORK CITY

REINHARD & HOFMEISTER
CORBETT, HARRISON & MACMURRAY
HOOD & FOUILHOUX, ARCHITECTS

Photographs by Samuel H. Gottscho



Trends and Topics



One new use for an old Gothic building has been found in London's Mayfair. A Nonconformist church was completely gutted, renamed "The Belfry" and refitted as a town house. Above: the library

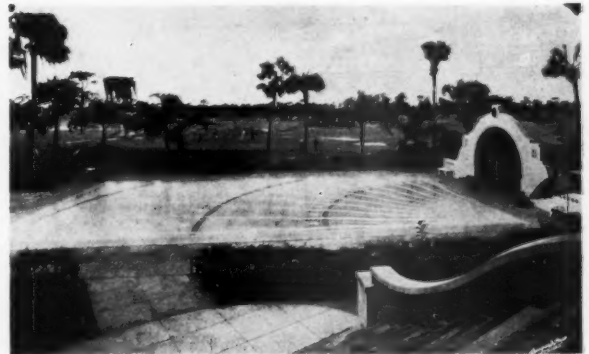
FORD H. DOW, in the August issue of *Dun and Bradstreet Review*, said: "Strangely enough, private construction on the surface disconnected with a public works program, is simultaneously improving and this is particularly pertinent considering that a seasonal recession usually occurs during July and August. It is encouraging, too, because, mainly, private construction must take up the burden of building volume where and when Federal public works support ends." Two months after Mr. Dow's statement was made it is interesting to note that the NRA reports a decided upward trend in building activities. The September total of building plans filed is placed at nearly double the total of plans filed in July or August. According to this authority, plans filed for the first nine months of 1933 total nearly \$3,000,000,000 as compared with \$1,800,000,000 for the entire year of 1932.

• Arthur Lewis Harmon, member of the firm of Shreve, Lamb & Harmon, architects of the Empire State Building, predicts the advent of standardized homes. "Such houses, to be laid out economically, will be on standard units of length based on sheet size," Mr. Harmon said. "Material would probably be put up or on in slabs. The walls, therefore, and, no doubt, ceilings will be thin and, if construction is permitted to show, lined."

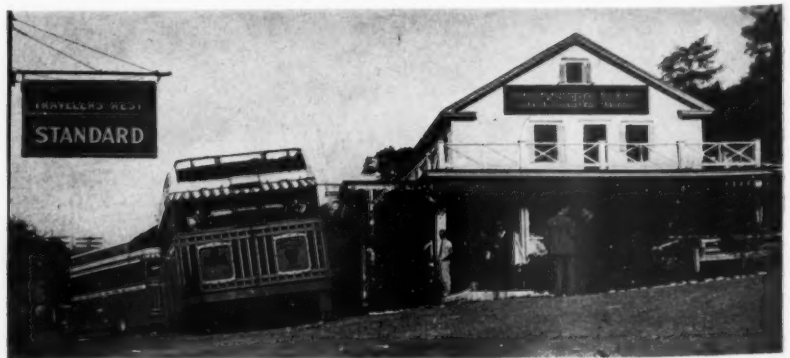


ARCHITECT AND BLDG. NEWS

Left: Welded steel tubing supports a restaurant 350 feet in the air. Part of the Exhibition at Milan, it was designed by Engineer Chiodi. Right: Terrazzo forms the floor of Tampa's Palmcieta Dance Club. M. Leo Elliot, architect. Below: Stage line taverns are coming back. Popularity of motorbus travel forecasts new architectural opportunity in roadhouses for autos



BURGET BROS.



CHARLES PHELPS CUSHING

of the Times

• The two most impressive exhibits at a Century of Progress were characterized by a group of English editors as, The Bessemer Furnace Exhibit of the United States Steel Corporation and The House of Magic in the General Electric Exhibit.

• A pioneer housing plan in which principles governing the operation of industry will be applied in home making is being undertaken by families of twenty junior officers of Columbia University. Information on possibilities of cooperative housekeeping is being assembled. Such experiments are useful in developing practical data which may uncover planning possibilities based on new methods of using household space and equipment.

• Home repair and remodeling can lead the way out of the depression, according to the convictions of Fred Bohen, President of the Meredith Publishing Co. in Des Moines, Iowa. Mr. Bohen bases his statement on the fact that there is a four-year accumulation of needed repair to American homes that will entail the expenditure of 5 billion dollars. He estimates that 85% of our houses need some repair or remodeling and that 90% of the expenditures would be for labor. Citing the fact that credit has contracted and that there are few sources

for financing home remodeling and repair, Mr. Bohen advocates formation of a government fund to lend individuals an average amount of \$500.00 for expenditure on home improvement. As outlined in Mr. Bohen's plan a governmental remodeling and repair fund would range from \$500,000,000 to \$2,000,000,000. Loans would be made to employed individuals and heads of families owning their own homes and would be secured by income and character only. They would be returned by monthly re-payment on principal and interest, the latter being at 6% a year calculated on monthly balances. The plan suggests that administration would probably come through the R. F. C. Funds might be made easily available through small local agencies.

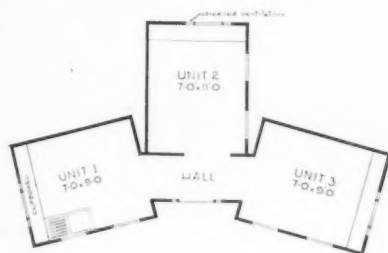
Results of the plan are seen as elimination of fear on the part of the buying public and increase in the market value of repaired and remodeled homes with a consequently greater solidity of mortgage security. In addition would come a discouragement of hoarding, an increase in circulation of money and therefore widespread increase in general buying power. There is merit in many points of the plan. It would be difficult to contradict Mr. Bohen's assertion that a scheme of this kind would mean better homes, higher standards of living and

(Continued on page 118)

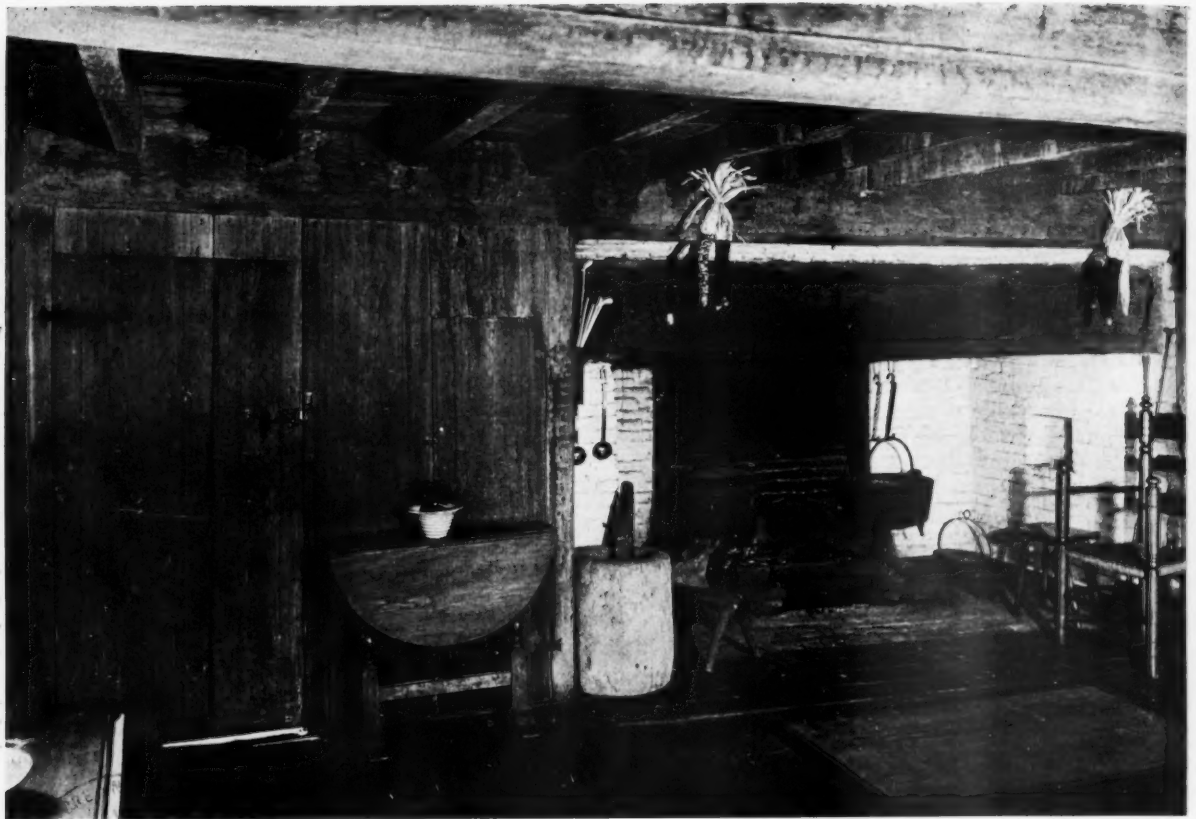


BURLEIGH PHOTOS

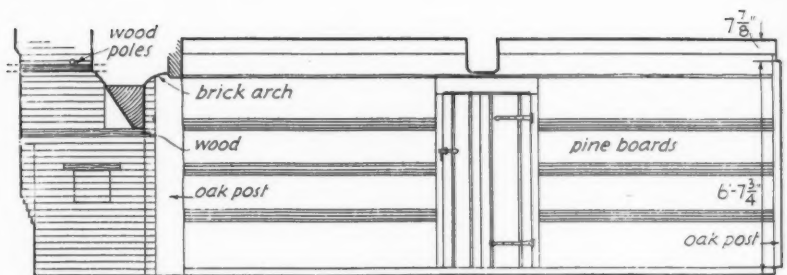
Doped cotton cloth is newest material for standardized, unit-room houses. Stanley W. Nicholson, Milwaukee aviator, is designer. Rooms weigh 350 lbs. each, are insulated, have walls 1 3/8 in. thick



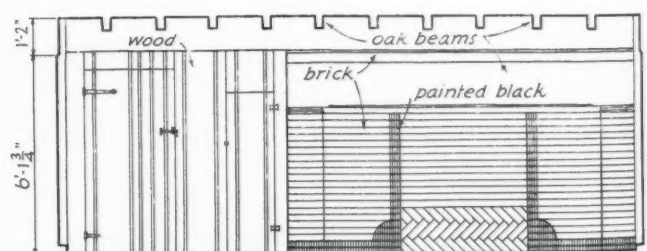
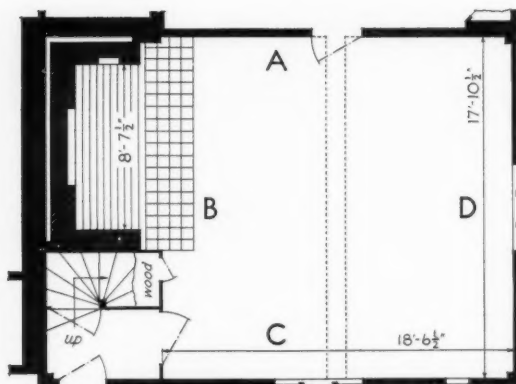
Steel, for both structure and interior and exterior, will be mainly used for McDonald Observatory, to be built by the Warner & Swasey Co., for the University of Texas. Containing the second largest telescope in the world, the observatory will be 71 ft. high, surmounted by dome 62 ft. in diameter. The two lower floors will contain offices, chemical kitchen, library and living quarters. E. P. Burrell of Warner & Swasey, designing engineer, William Gehron, consulting architect. The observatory will cost about \$325,000 and will take two years to build



Built in 1633, this living room has recently been restored to its original aspects. It demonstrates the attractiveness of simple materials which are still in excellent condition after 300 years of use. Floor: wide, white pine boards, natural finish. Walls: milled white pine boards, 15 to 18 inches in width, oiled and waxed. Ceiling: rough-hewn oak beams, natural, silver-gray color. Second floor boards exposed between small beams. Hardware: black hand-wrought iron

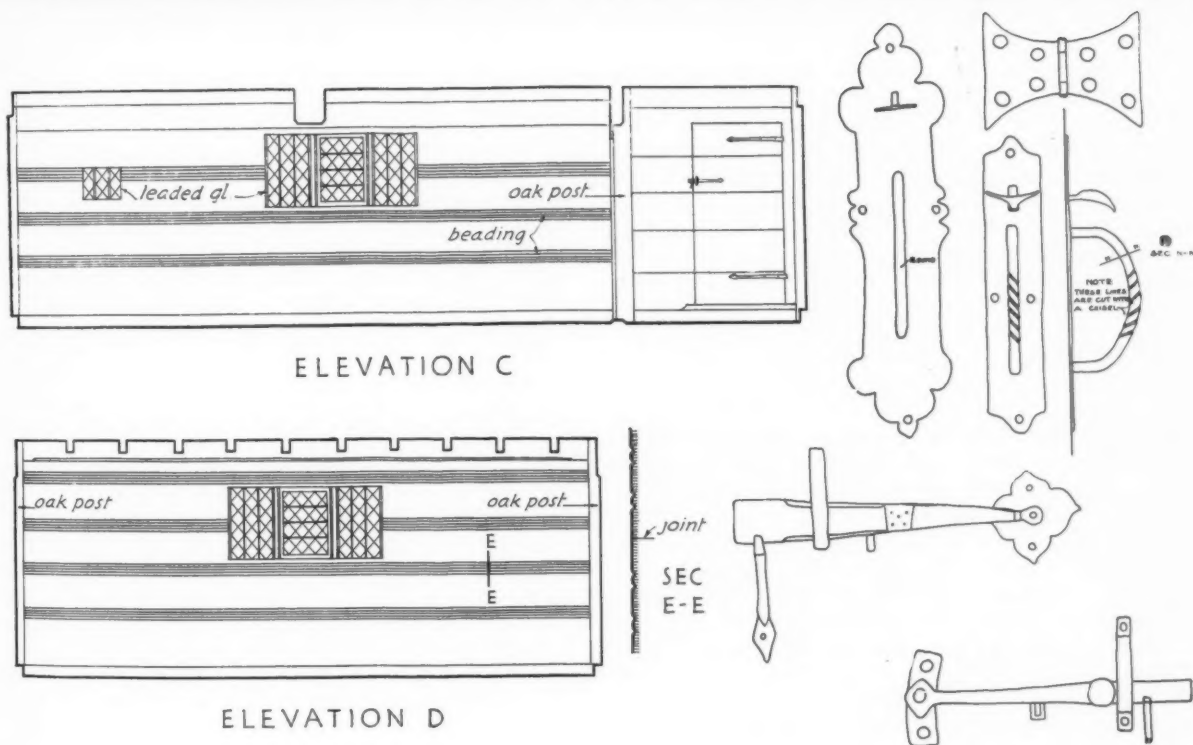
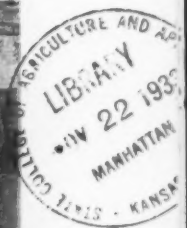


ELEVATION A



ELEVATION B

BROWNE HOUSE, WATERTOWN, MASS.



LIVING ROOM MEASURED AND DRAWN BY GUSTAV A. HAGEN AND JOHN PARKER, ARCHITECTS

. . . As It Looks

Encouraging Words

ACCORDING to Robert H. Hemphill, writing in the *New York American*, we are on the verge of an era of construction and reconstruction that will transcend any previous era. To support this opinion he says, "Our buildings are almost all obsolete because they are awkward, uncomfortable, exclude sunlight and are without provision for air conditioning which is coming into universal insistent demand. We must begin demolishing and rebuilding them immediately. . . . We need two or three million new homes to take our families with children out of our impossible cities where we have outgrown every proper facility to care for and develop them. In every direction we meet outgrown and obsolete facilities. . . . Just as soon as we discard all haywire philosophies which are now diverting us and get down to redesigning our absurd and outgrown banking system so that we may have a sufficient flow of credit to handle each well-defined demand, we will go into action on these enormous jobs."

Real Estate and Taxes

LET anyone who doubts the importance of real estate in the economic structure and the unjust burden of taxes that real property must bear study the comment of Thomas E. Huser, published in the *New York Times*. Mr. Huser wrote, "New York City's long overdue financial crisis presents a \$19,000,000,000 realty problem. Practically the entire income of the city is derived from real estate taxes. When values increase, tax collections mount. As values recede, income shrinks." What is true of New York City is largely true of all communities. Real estate provides an easy basis for levying taxes, a thing that has been overdone. A new order demands a new deal for real estate in which relief from exorbitant taxes is important.

The Building Industry

THE building industry has been thought of too largely from the point of view of individuals composing the industry as a group. Building is as much of a manufacturing business as any single commercial enterprise. It manufactures a commodity—buildings. It has a production department composed of architects, engineers, contractors and building material producers. Bankers represent the accounting and cashier's departments of this gigantic manufacturing company. And real estate companies correspond to—and are, in fact—the sales department. This should be thoroughly understood and steps taken to coordinate all departments of the building industry. When the various departments of the building industry cooperate, an important step will have been taken toward organizing the most disorganized industry in America.

Punch Says

WHETHER or not an architect has been in London, he is bound to be familiar with that Victorian monument the Albert Memorial. *Punch* recently had something to say about it as follows: "They say that a single map showing the travelling facilities of London would completely cover the Albert Memorial—and a number of people are in favor of the proposition."

A Coming Field

WALK down the street and notice the many vacant store buildings. They spell new work for those architects who will visualize the opportunity. In some cases neighborhoods have changed since the former tenant moved out. Even if this is not the case the next tenant will in all likelihood not have the same kind of business. The old store in many respects will not meet the needs of its next inhabitant. Perhaps the store is so obsolete that the owner will have difficulty in renting it. Store buildings now and in coming years spell modernization opportunities. The article by Lancelot Sukert in this issue is therefore timely. It does not tell you in detail how to modernize a store, but it does point out to the person who has never designed one a practical approach to his new problem and outlines many important things to be considered.

Housing Studies

SLUM clearance, next to NRA codes, seems to be the order of the day. Organizations bent upon solving the problem spring up almost overnight. Among others there have been formed the Housing Study Guild, the Phelps-Stokes Fund Survey and the National Association for Better Housing. The first has been formed as a center for studies in technical and social aspects of housing and community planning and to serve as a clearing house for information on housing. The second, directed by Professor James Ford of Harvard, plans to make an exhaustive study of the tenement housing situation in New York City. The third hopes to formulate a comprehensive plan to make housing a reality and attack the financing problem.

It seems paradoxical that housing, among the oldest industries in the world, should be one about which we seem to know the least. Is housing really as complicated and mysterious as many individuals and associations would lead us to suspect? Thinking of housing in its broadest sense the question arises, when business picks up will architects obtain their share of the building business of which housing is the major portion? If they are to do so, some action should be taken immediately toward this end. How can the architect recover ground lost to the speculative builder?

to the Editors . .

Building Finance

A MAN living in a mid-western city, intending to build a house, went to his banker and requested a loan of \$5,000 for two and one-half years. He offered as collateral securities having a market value of \$9,000. The banker said, "We are instructed by the State Bank Examiner not to make loans for more than sixty to ninety days. We are sorry but we cannot help you."

In an eastern city the owner of an apartment building desired to improve his investment by modernizing the structure. The building is assessed at \$42,000 and bears a mortgage of \$12,000. He was unable to secure the credit necessary to enable him to proceed with his plans. Failure to secure a loan was due to uncertainty in the mind of the banker as to the future value of the money invested in the project.

Among other things needed to provide money for a revival of building is a coordination of Federal and State policies and stabilization of the American dollar.

It Can Be Prevented

FROM time to time newspapers report accidental falls from windows that are serious or fatal. Not long ago a baby fell from the window of a New York apartment house. A woman playing with a dog on the roof of another apartment house, tripped and fell over the coping. A prominent society woman was seriously injured when she fell from a third story window of her Park Avenue apartment. How many more accidents of this nature must occur before steps are taken to see that window sills and roof copings are made high enough to afford adequate protection to life and limb? Existing window openings and roofs should be suitably protected. New work should be designed properly to safeguard the lives of inhabitants.

Washington Notes

WASHINGTON today reminds one of chaotic war-time days. It has much the same atmosphere minus the uniforms. Frank Ward O'Malley, well-known journalist who died about a year ago, wrote a book called "The War Whirl in Washington." If alive today, he could easily change a few parts of the book and issue a new edition called "The Code Whirl in Washington."

New architecture in Washington leads one to suspect that along with other over-production there has been an over-production of columns or that the supply of columns must be practically exhausted.

One of the good buildings in the Capital is the Central Heating Plant. It is simple, well-proportioned and does not pretend that it is something which it is not. It is under construction, but far enough along to permit a basis of judgment.

Modern Architect

A WRITER in *The Architects' Journal* of London, signs himself "Astragal." In a recent issue he says, "... the modern architect has to be not only an able designer, but a man of the world in its widest social sense, for he has to know all sorts and conditions of life. Moreover, he must be something of an economist, a diplomatist, and a first class man of business. No, there's not much danger of the modern architect laying his ideas in the narrow coffin of the specialist."

Air Conditioned Trains

IF you have not travelled on an air conditioned train you have a treat in store. This is especially true on a hot day. The cars are cool and clean and comfortable. If a person can still be found who is skeptical of the benefits of air conditioning, he should be made to ride on an air conditioned and a non-air conditioned train on the same day. He would easily be convinced.

The day will come when all buildings will be air conditioned. This will help the business of building, for buildings today without air conditioning will become obsolete and will have to be replaced or modernized to be profitable.

Even now air conditioning is an essential part of equipment in many manufacturing and industrial plants. Beside rendering certain types of materials easier to work with, it improves the health and efficiency of the worker himself.

Selection on Merit

L. W. ROBERT, JR., Assistant Secretary of the Treasury in charge of the Office of Supervising Architect, has made it clear that it is unnecessary for architects and engineers to retain legal counsel as an aid in securing professional contracts in the treasury department. A recent announcement states that his department will look with disfavor on this practice with a disposition to eliminate such architects and engineers entirely from consideration. Mr. Robert's announcement is an important one and shows that his department desires to make its selection on the merits of each case alone. This is as it should be.

It is encouraging to note that an important public official has taken official cognizance of a condition which should not be permitted to exist. Incidentally, this reflects the same sense of fairness that was apparent in an earlier announcement from Mr. Robert's office. This was to the effect that architects would be selected for Government work on the basis of merit alone. It was made clear then that lack of architectural society affiliations would be no bar to Federal appointment.



AFRICA. DETAIL OF A FOUNTAIN IN GOTHENBURG, SWEDEN. JORC STRINDBERG, SCULPTOR

Photograph by Sigurd Fischer

Two Legal Cases of Importance

BY CLINTON H. BLAKE

Blake and Voorhees, Counsellors at Law

IN a recent article I discussed some cases dealing with the danger and effect of cost representations by an architect. My discussion at that time was directed to the fact that representations of this kind imperiled the right of the architect to his fee. There is another side to this picture, however, evidenced by a recent decision which is of even greater importance to the architect. If he makes a cost representation and the building exceeds that amount, he may well subject himself, not only to the loss of his fee, but to a countersuit by his client for the damages sustained by it because of his erroneous estimate.

Inadequate Cost Estimates Are Dangerous

IN the case to which I refer the architect sued for his fees as architect of an hotel. The client brought a cross-action against the architect. It alleged that the architect had claimed skill, experience and ability to estimate with reasonable accuracy the cost of the proposed building in advance. It stated that the architect understood the hotel could not be erected profitably unless its cost were accurately estimated, and unless it could be built within the estimated amount; that the architect had given a cost estimate accordingly, but that the actual cost far exceeded the amount of the estimate. The client felt he was entitled to recover as damages from the architect the amount by which cost exceeded estimate.

When the case came to trial, the architect was given judgment. The client appealed.

On the question of damages, the Appellate Court held that the excess cost of the building above the estimate was not the proper amount of damages recoverable against the architect; that the proper measure of damages was that sum which would fairly compensate the client for the actual loss sustained, taking into consideration all that was contemplated when the contract was made: that the client should have an opportunity to present this proof and have it passed upon by the jury; that, as a matter of law, if an architect, through want of skill, misleads his client by submitting an erroneous estimate and causes the client to expend more than the amount contemplated, the architect is liable for the client's damage; that so far as damages for delay in completion were concerned, the architect, if negligent in delaying completion of the work, would be liable for the damages resulting from the delay, but could not be charged with interest on the amount of money borrowed by the client; and that the measure of damages was only such actual damages as naturally resulted from the delay.

The architect—the Court said—might introduce testimony of masons to show that the client, having the right to make changes, ordered the masons to tear down a wall, that the client supervised the letting of sub-contracts, and that the building was constructed at a reasonable cost. The client, on the other hand, it said, was entitled to present its claim that the architect was negligent in preparing plans, estimating cost and delaying construction, notwithstanding the architect's claim that the owner was responsible for the increased cost.

The decision of the trial court shut out the client's right to prove the damages sustained as the result of the allegedly inaccurate estimate. The Appellate Court held this to be erroneous. It decided that the client was entitled to present figures although he could only recover the actual damage sustained and not the excess cost of the building over the estimate. Accordingly, the Court held the verdict favoring the architect in the lower court should be reversed and the case retried.

The court cited with approval the following rule as applicable to the case:

"The undertaking of an architect implies that he possesses skill and ability, including taste, sufficient to enable him to perform the required services at least ordinarily and reasonably well; accordingly he must exercise in any given case his skill and ability, his judgment and his taste, reasonably and without neglect. An architect is responsible not only for actual fraud committed by him, but also for a negligent disregard of his duty. . . .

"In the preparation of plans and specifications the architect must possess and exercise the care and skill of those ordinarily skilled in the business; if he does so, he is not liable for faults in construction resulting from defects in the plans, as his undertaking does not imply or guarantee a perfect plan or a satisfactory result, it being considered enough that the architect himself is not the cause of any failure; and there is no implied promise that miscalculations may not occur. Where, however, the architect does not possess and exercise such care and skill, he will not only be liable in damages for defects in his plans, but he cannot recover compensation for them."

The foregoing case may well cause the practicing architect to pause and exercise special care when any question of estimated cost arises. The only safe rule to follow is never to give an estimate of cost, unless it be made clear in connection with it that it is given purely as the architect's best guess. It should be understood that an architect cannot accurately forecast the cost of the building; that he does not hold himself out as able or competent to do so; and that no estimate given by him shall be construed as a guaranty or rep-

resentation, direct or implied, that the building can be erected for the amount of the estimate. If these precautions be taken, the architect will not be faced with the loss of his fee and with a counter-suit for damages when—as is so often the case for reasons that are beyond the architect's control or that he could not properly have foreseen—the cost of the building substantially exceeds the amount given in his estimate.

The Architect's Power As Arbitrator

I AM a firm advocate of the desirability and advantage of giving the architect broad arbitration powers under the building contract. Given a competent and conscientious architect, it is in the interest of client and contractor alike to do this. It avoids legal proceedings and generally operates to effect a prompt disposition of disputes and avoidance of delay in the completion of work. There have been a number of court decisions recently which are interesting in this connection. They have dealt with the powers and actions of engineers rather than of architects, but apply with equal force to the architect.

While the parties may, by agreement, give very broad powers to architect or engineer as arbitrator of disputed points and the one who is to certify payments and the like, there are certain well-defined limits which the courts have imposed upon powers so delegated. They will not, especially, allow the parties to provide for the determination of legal questions by the architect on the ground that this will tend to oust the courts of jurisdiction. Where arbitration laws are in effect, however, an agreement brought within provisions of the arbitration law in the jurisdiction where the case arises will be given proper effect and be enforceable.

The general rule is well stated in the cases to which I have referred. In one of them a contract for excavating a reservoir provided that the work should be performed in accordance with specifications and under direction of an engineer subject to his interpretations of the intent and meaning of the specifications. It further provided that the decision of the engineer should be final and binding with respect to all questions relating to additional, omitted or changed work.

The contractors sued for alleged extras. The engineer decided that the work in question should have been done

without extra compensation. The Court stated the rule as follows:

"Many building and construction contracts endeavor to give the engineer in charge of the work certain powers over it, and such contracts have frequently been before the courts for construction. The weight of authority is to the effect that such contracts are valid and binding on the parties according to their terms. . . .

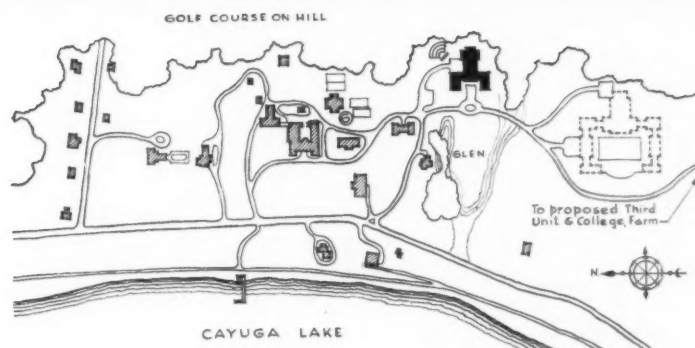
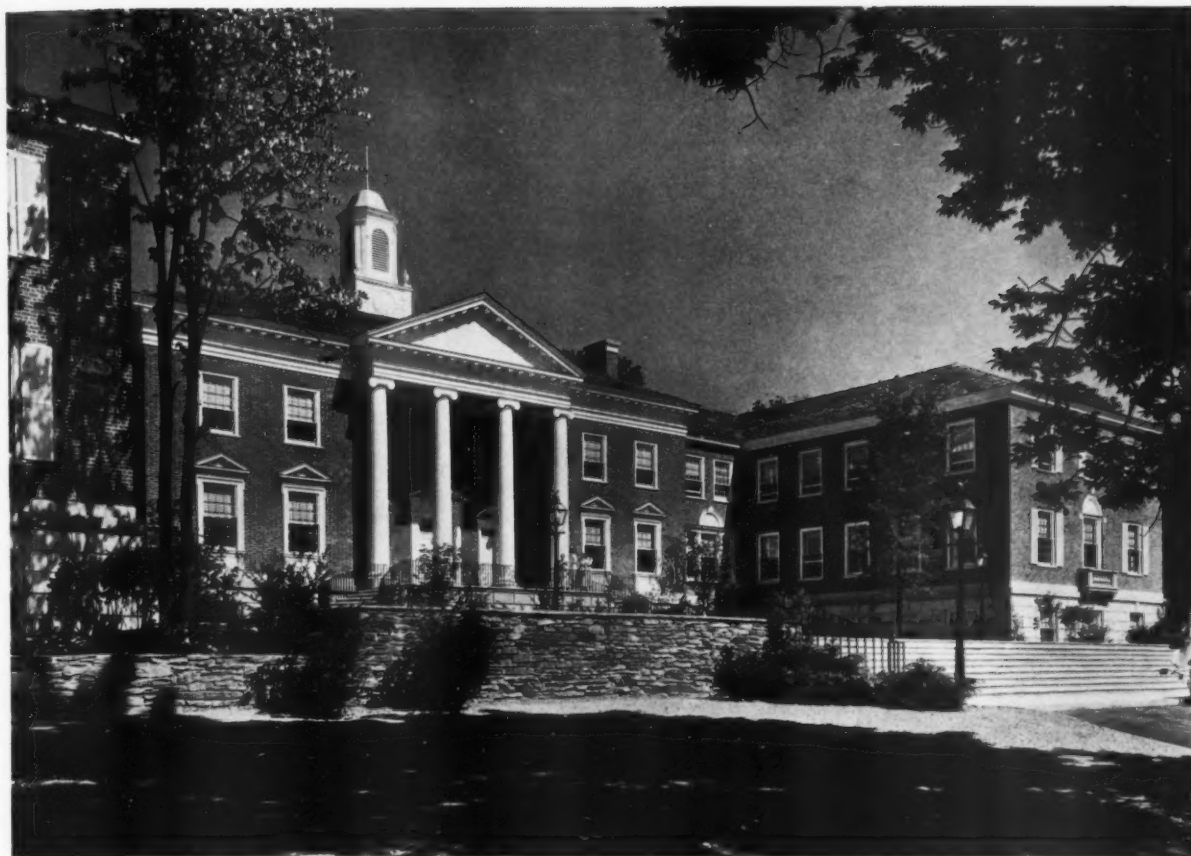
"To this, however, there are certain exceptions: (a) The engineer may not change the terms of the contract itself. (b) Its legal interpretation is always for the courts. Mitchell v. Dougherty (C. C. A.) 90 F. 639. (c) The decision of the engineer may be challenged and set aside on allegation and proof of fraud, or mistake amounting to bad faith, or failure to exercise an honest judgment."

Somewhat the same question was involved in another case in which the contract provided that all disputes should be arbitrated and decided by the engineer. Work was to be done to his satisfaction; and his certificate, showing the amount and quality of work done was to become a condition precedent to payment. The Court held that so far as the contract provision attempted to oust the courts of jurisdiction, it was void. However, where the parties actually did, pursuant to this clause, refer the matters to the engineer, that individual's award and decision would be given full effect. Furthermore it was decided that—unless fraud or such special facts as a waiver of contract provisions could be shown—the engineer's estimates and certificate showing performance of work had to be produced before payment could be demanded; but that, if the engineer's estimates were made the basis for payment and were not forthcoming due to a fault of the engineer or his employee, the other party to the contract could recover for the work performed without producing the estimates. The court held also that where a valid agreement to arbitrate is made and then the parties refuse to submit matters to arbitration or refuse or neglect to secure an estimate upon which payment for work done must be based, they cannot sue to recover for matters within the scope of the agreement to arbitrate or within the scope of the engineer's certificate.

These decisions emphasize anew the facts that, where the architect is granted arbitral powers, the contract must be phrased adequately to cover them, and the architect must exercise them fairly and in good faith.

BUILDING MONEY SUPPORTS BUSINESS

Figures cited by The Austin Co., engineers and builders of Cleveland, Ohio, on a recently completed new industrial plant show a significant relation between cost of labor at the building site, cost of material-fabricating labor and cost of materials themselves. Of a total construction cost of a \$250,000 job, labor consumed only \$84,410. Labor away from the site amounted to \$130,370; and the cost of actual basic materials was only \$20,300. Job labor—a direct construction cost—was small compared with that necessary to fabricate building materials. These materials are capital goods. They represent industries that are important influences on the trend of business and that employ, in normal times 8,000,000 persons. They are essential parts of every building. Building operations have always constituted a major support of capital goods industries; and for that reason revival of building now offers the quickest and one of the most efficient means of renewing general business activity



Wells College is one of the first women's institutions to adopt the system of intramural living and instruction recently accepted by Harvard and Yale. Macmillan Hall is the first unit of an extensive building program that the new policy has made necessary. At present it supplements facilities of existing buildings, shown on the plot plan as hatched areas. It will become the center of a new campus and will be used as an administration and intramural activities building. The plot plan shows Macmillan Hall in solid black.

MACMILLAN HALL, WELLS COLLEGE

AURORA, NEW YORK

DWIGHT JAMES BAUM, ARCHITECT

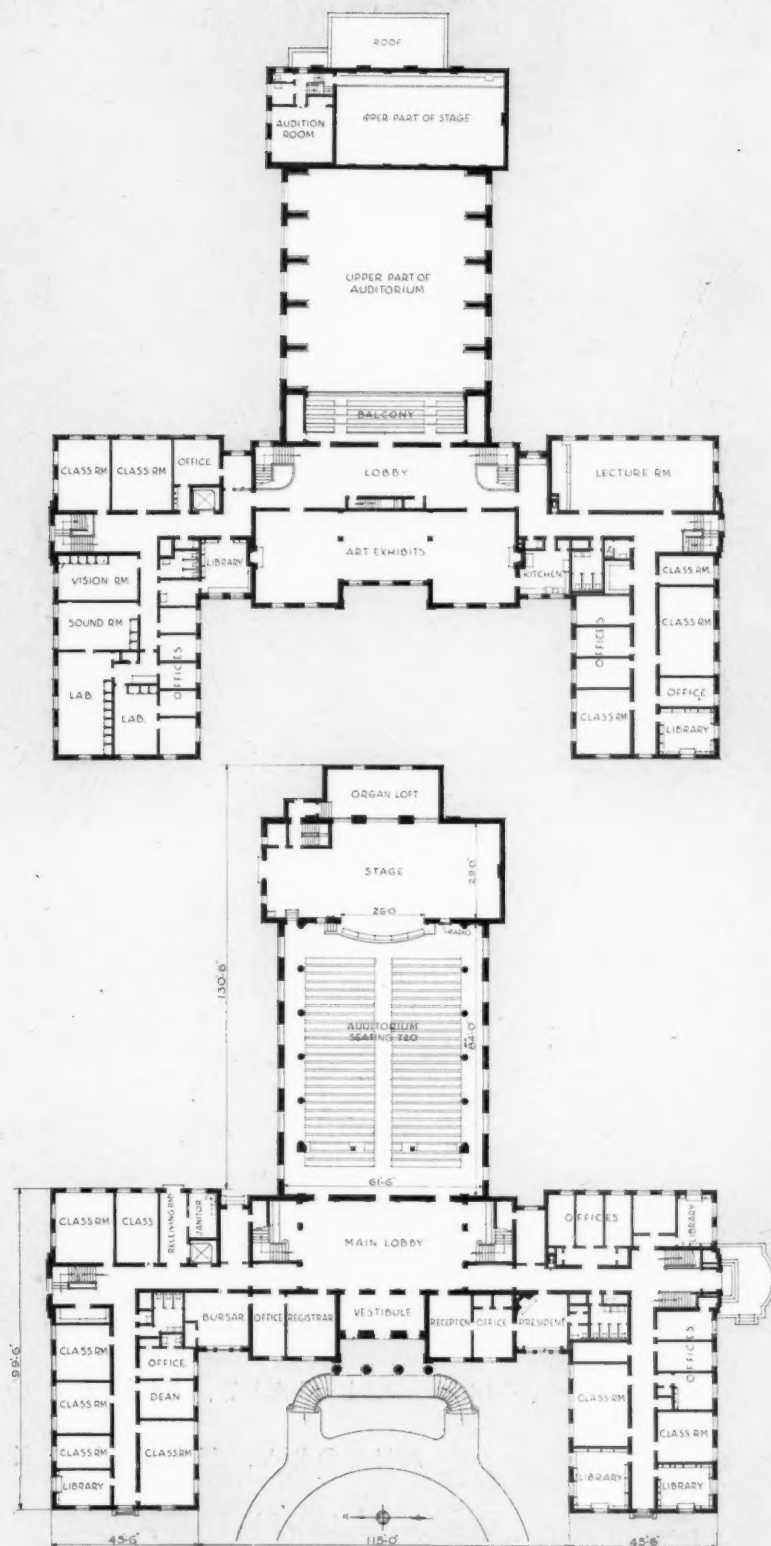
Photographs by Samuel H. Gottscho

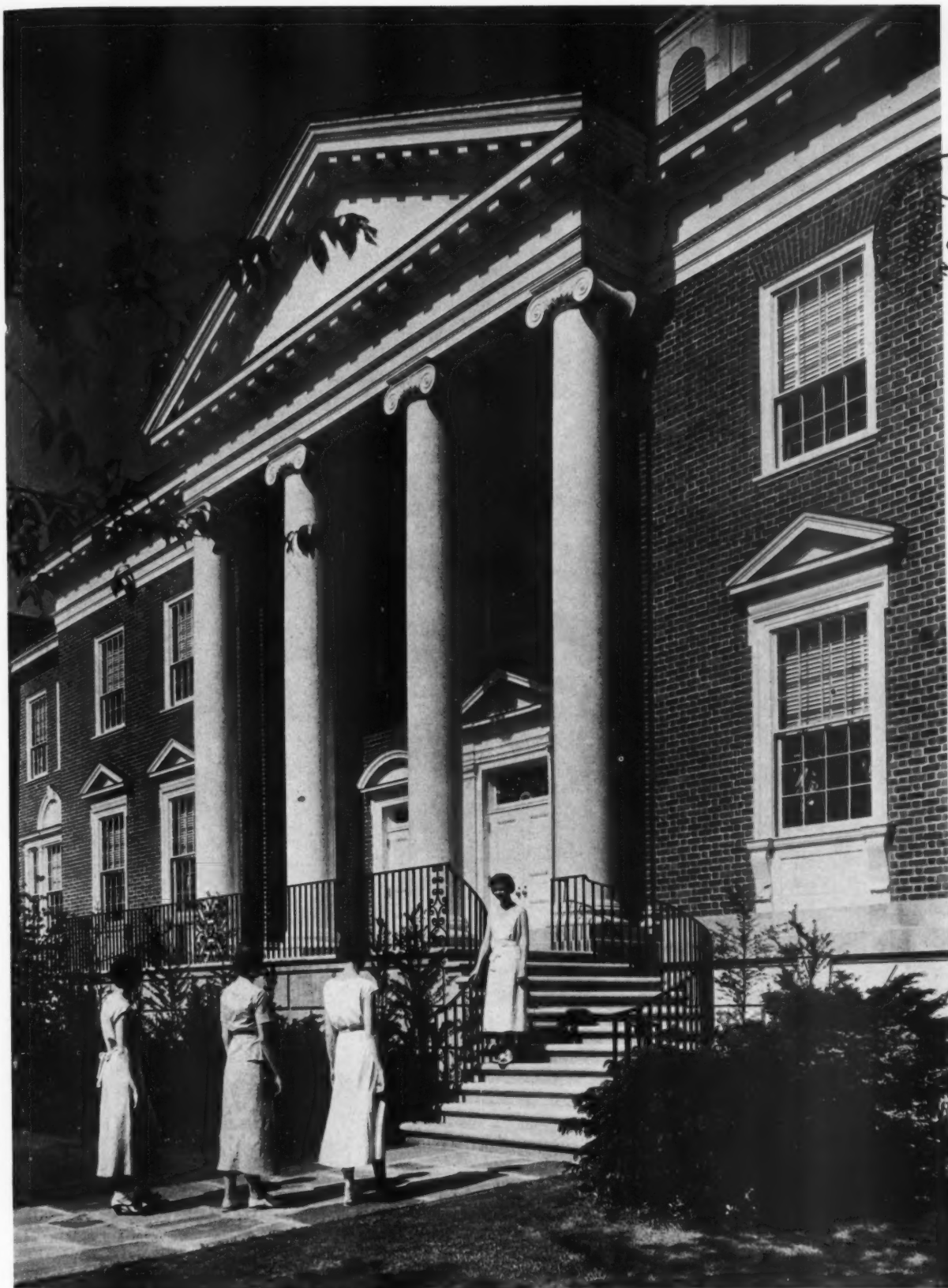
Second Floor

The new hall includes facilities for collegiate social activities, science laboratories and class room suites designed for a seminar system of instruction. With each suite is a library or reference room for research and individual offices for group instructors. Upon completion of the proposed houses, many offices will be removed and spaces adapted to instructional use. Construction was economical but substantial. Walls: load-bearing masonry, furred and plastered inside. Floors: reinforced concrete; finished floors: marble, oak and linoleum. Cost: 40 cents per cubic foot including service tunnels and lines, refrigeration, sound motion picture and stage equipment

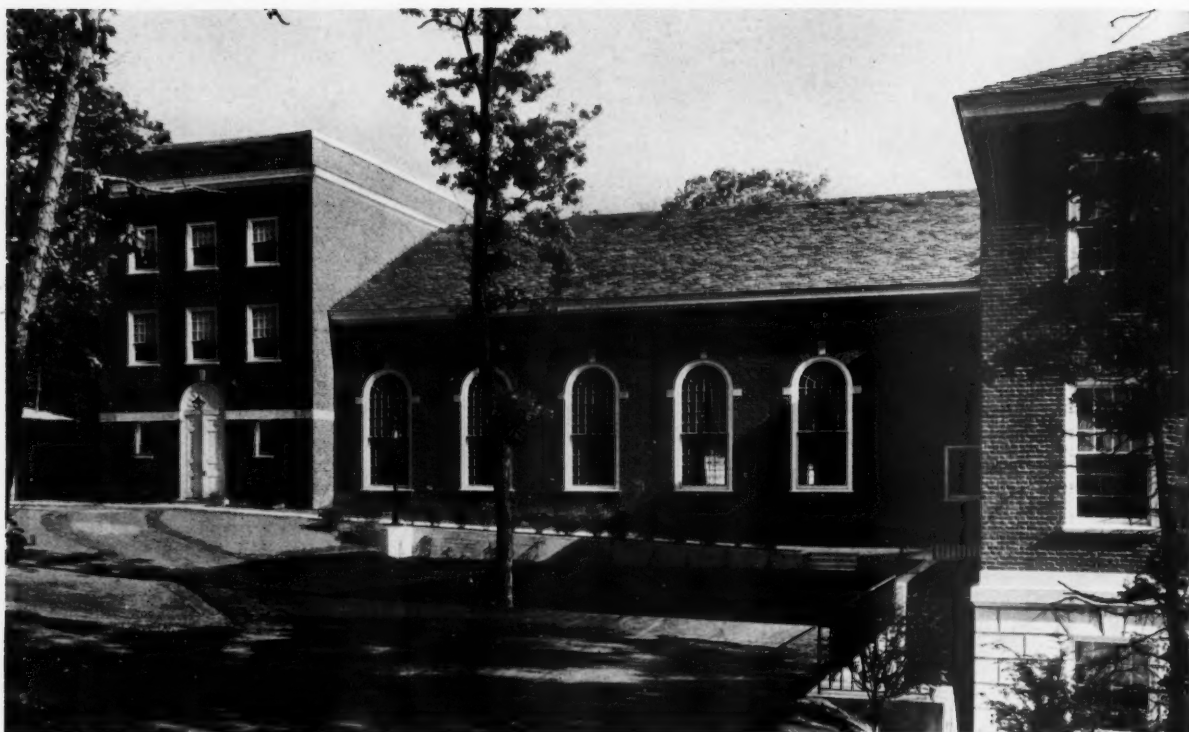
First Floor

MACMILLAN HALL, WELLS COLLEGE
AURORA, NEW YORK
DWIGHT JAMES BAUM, ARCHITECT





APPLIED SCIENCE
22 1933
MANHATTAN



Above: Auditorium and stage wing. Right: Entrance at the north side. Brick is hand-made, varying in color from rose-red to brown, laid with struck and bagged joint. Base: Indiana limestone. Roof: slate, colored blue, black and gray, varying in size and thickness. Trim and sash: white pine, painted.

On facing page: Auditorium. Floor: maple, stained and waxed. Walls and ceiling: oyster white. Ceiling covered with acoustic felt and perforated canvas. Hangings: oyster white with orange-red fringe. Stage curtain (not shown): orange-red velour. Stage has 20 lines of scenery, skylight and painter's bridge



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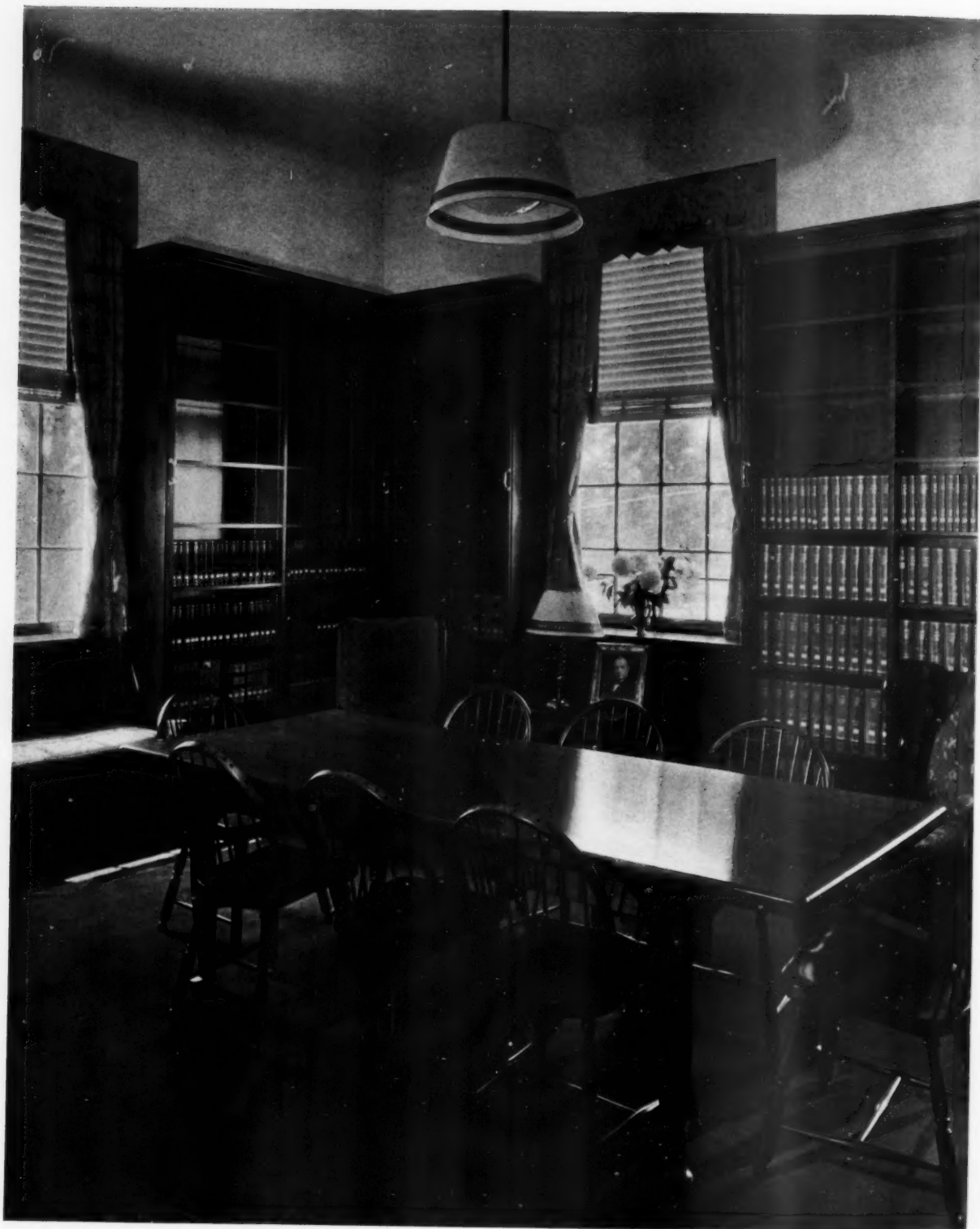


Above: Main Lobby. Floor: wide oak. Walls and ceiling: oyster white. Below: Art Exhibit Room. Ceiling, screens and woodwork: antique ivory. Walls: gray monks' cloth hung over planed pine sheathing. On facing page: President's Office. Floor: oak planks. Walls: knotty pine, waxed finish. Ceiling: cream white

MACMILLAN HALL, WELLS COLLEGE, AURORA, NEW YORK, DWIGHT JAMES BAUM, ARCHITECT

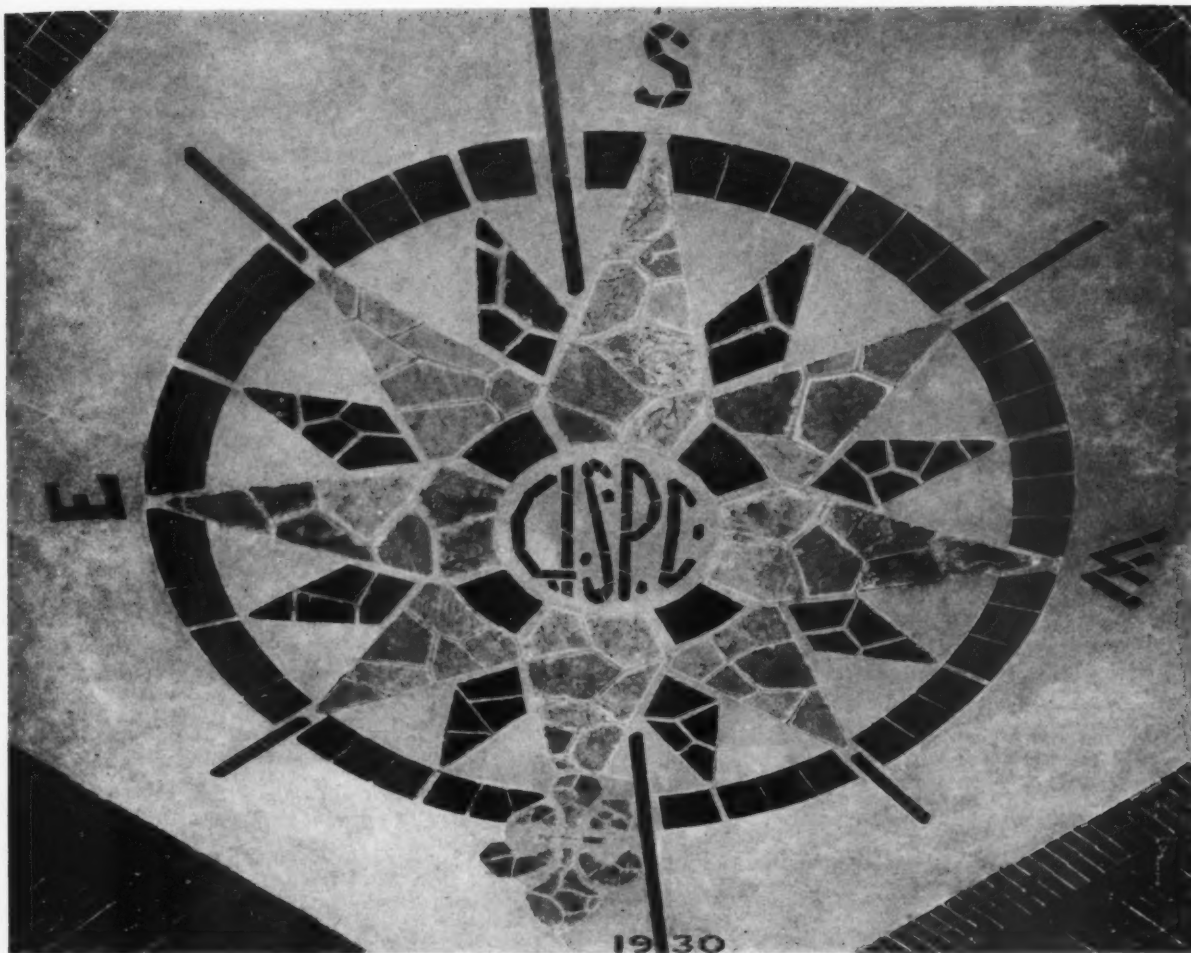


LIBRARY
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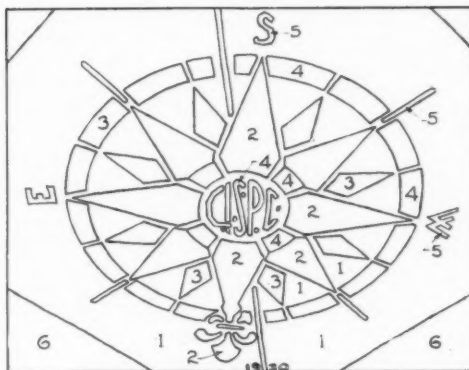


Library. A typical treatment of study spaces. Floor: green and brown composition tile. Woodwork: birch, stained walnut and waxed. Ceiling: cream white

MACMILLAN HALL, WELLS COLLEGE, AURORA, NEW YORK, DWIGHT JAMES BAUM, ARCHITECT



These designs, formed almost entirely by pieces of colored slate set with wide joints in a field of ordinary gray cement, are large in scale with a natural split-face surface. They are elements of the landscape treatment of Jones Beach Park, a public recreation center, owned and administered by the Long Island State Park Commission

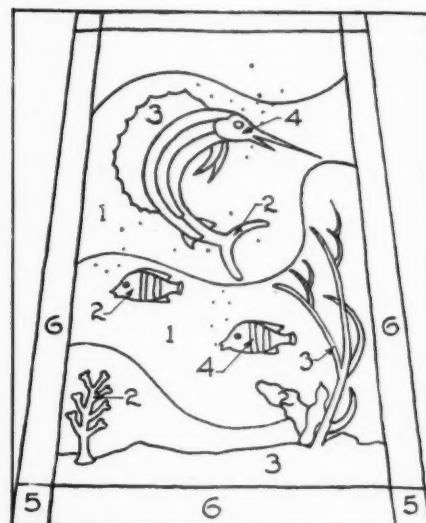
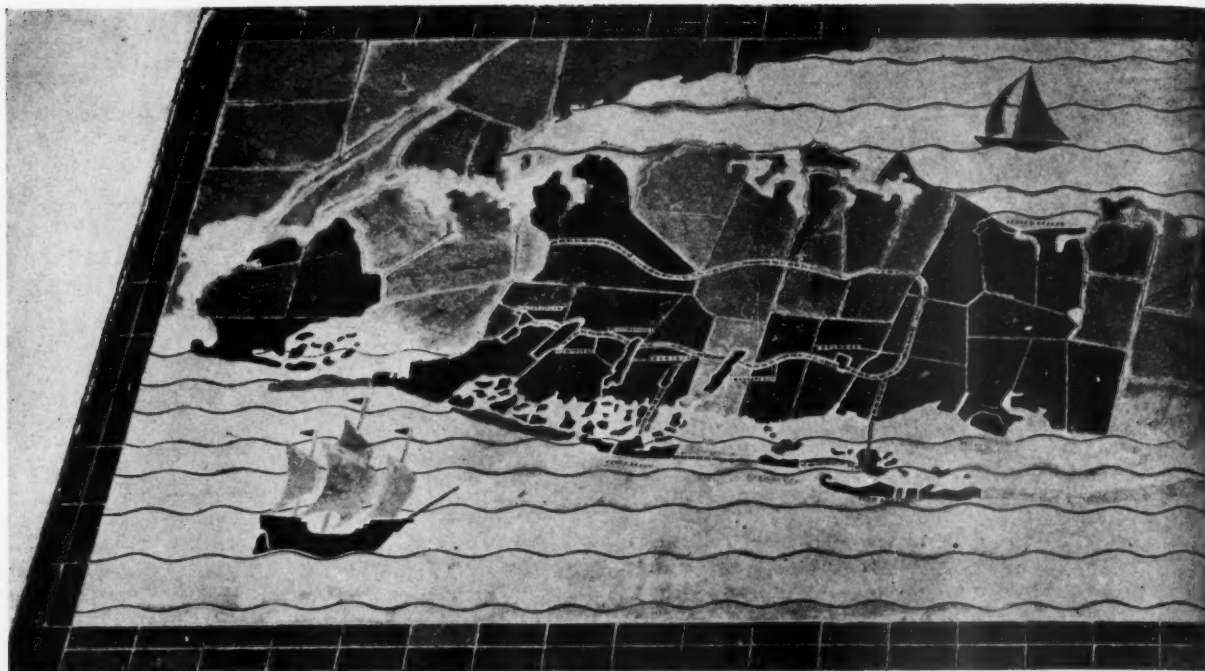


Compass. Diameter about 24 feet. Background and joints, light gray concrete (1). Primary direction indicators, light gray slate (2). Intermediary points, purple (3). Circle, terra cotta red (4). Numerals, letters and thin pointers, black (5). Outside border, brick (6). Natural variation in color is accented by grain of surface texture

SLATE MOSAIC PAVEMENTS

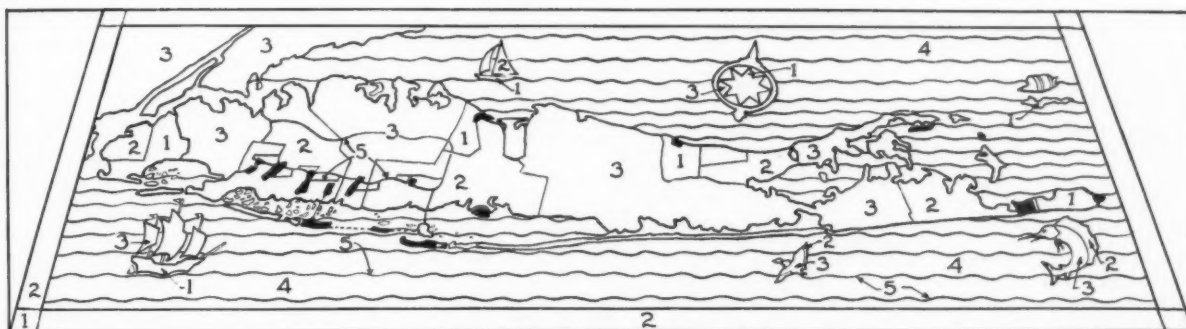
JONES BEACH STATE PARK, WANTAGH, LONG ISLAND, N. Y.

Photographs by Charles E. Knell



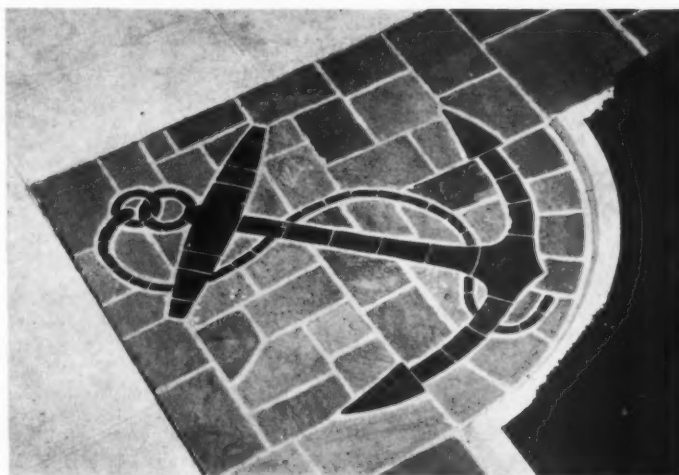
Left, and diagram above: Swordfish and coral. Panel measures about 12 by 20 feet. Background, pale green cement, smooth surface (1). Wave lines and bubbles, brass. Swordfish: head and fins, black (4); dorsal fin, purple (3); tail, light gray (2). Little fish; light gray (2) and black (4). Coral, light gray (2) and purple (3). Sand, purple (3). Border, terra cotta red (6) gray corners (5)

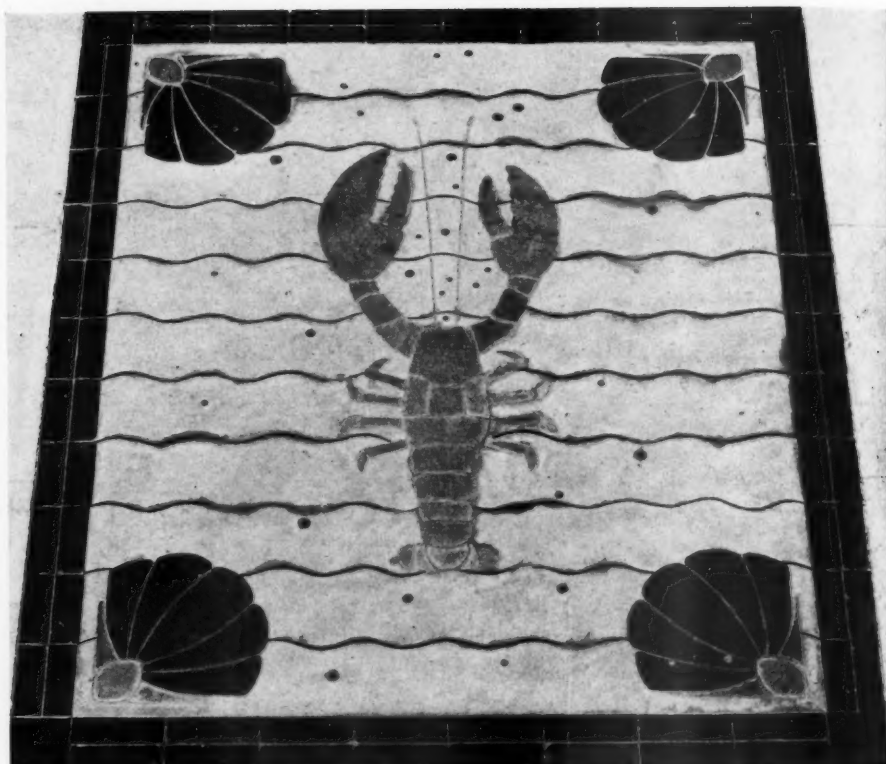
SLATE MOSAIC PAVEMENTS
JONES BEACH STATE PARK
WANTAGH, LONG ISLAND, N. Y.



Spread and diagram above: Map of Long Island showing public parks and highway systems controlled by the Long Island State Park Commission. It measures approximately 12 by 32 feet. Background is light green cement, smooth finish. Wave lines, brass (5). Border, terra cotta red slate (2) with black (1) corners. Map itself, black (1), light gray (3) and terra cotta red (2) slate. Park reservations (shown in solid black) and Parkway road systems, bronze. Right: typical corner of slate borders of cement pavements. Background, light gray slate with gray cement joints. Design black and terra cotta red. The anchor is about 9 ft. long

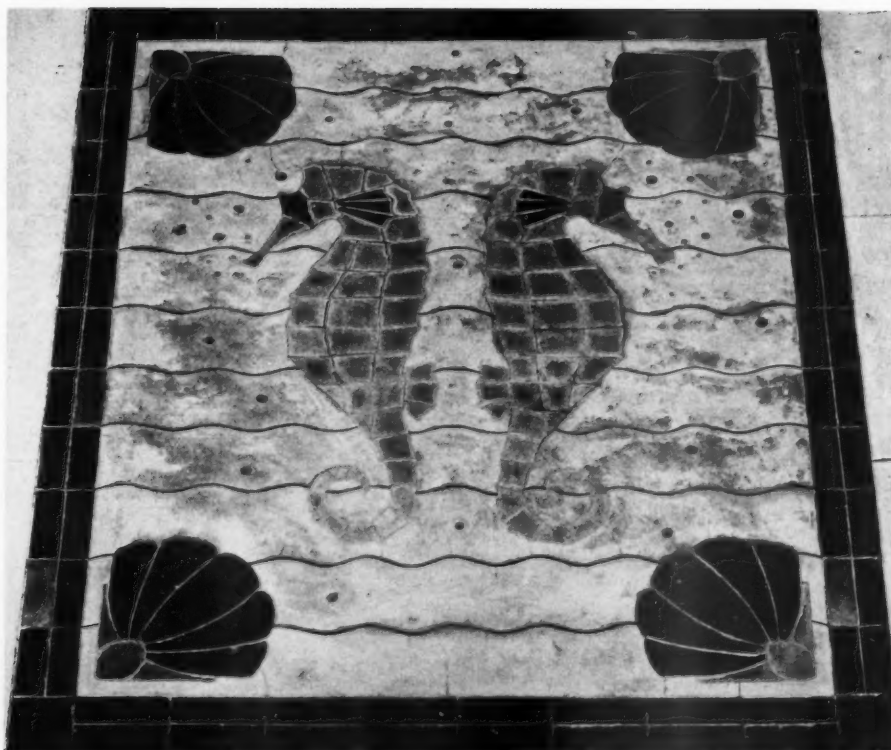
SLATE MOSAIC PAVEMENTS
JONES BEACH STATE PARK
WANTAGH, LONG ISLAND, N. Y.





Above: Lobster panel. Background, light green cement with smooth finish. Wavy lines, brass. Lobster, light gray slate. Shells in corners, purple and light gray. Border, alternate black and terra cotta red. Joints are same color as background of panel.

Right: Seahorse panel. Background, light green cement with smooth finish. General color scheme matches that of the lobster panel, except that gills of the seahorses are terra cotta red. Panels are 10 ft. by 12 ft.





CONSTRUCTION. Exterior walls: variegated shades of red brick, with some clinkers and warped surfaces. Trim: buff terra cotta, lighter at top of the building than at bottom. Roof: variegated red clay tile. Windows: steel sash and frames. Structure is of reinforced concrete columns and beams with reinforced concrete joist floor construction. Cubic content: 1,000,000 cubic feet. Cost: exclusive of property or furnishings, \$429,323, or 43 cents per cubic foot. Building completed January, 1933.

CENTRAL Y. M. C. A. BUILDING, HARRISBURG, PENNSYLVANIA

LAWRIE & GREEN, ARCHITECTS

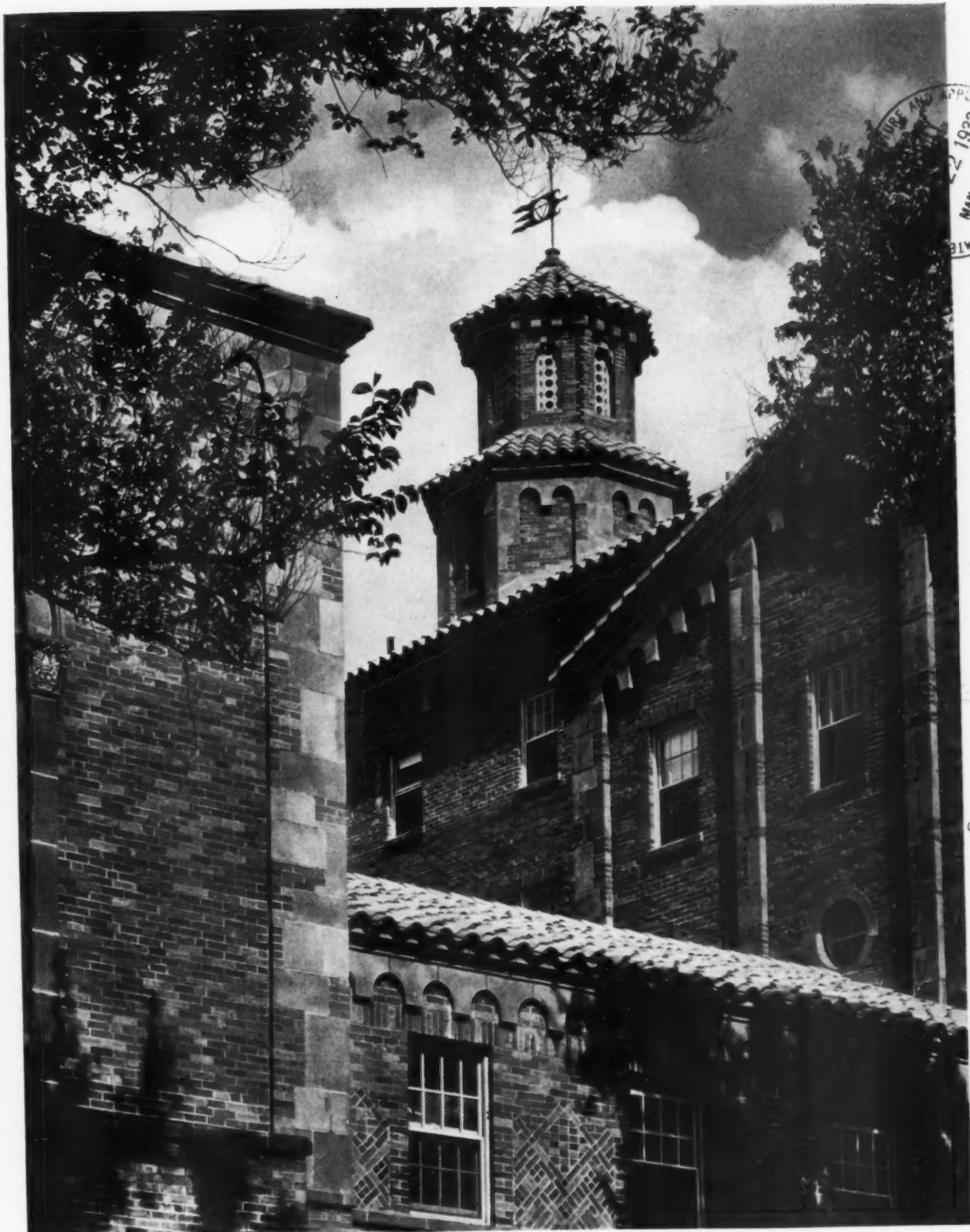
Photographs by Charles L. Burd



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CENTRAL Y. M. C. A. BUILDING, HARRISBURG, PENNSYLVANIA. LAWRIE & GREEN, ARCHITECTS



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CENTRAL Y. M. C. A. BUILDING, HARRISBURG, PENNSYLVANIA. LAWRIE & GREEN, ARCHITECTS



Above: Social Lobby. Floor, dark brown tile; wainscot and trim, Briar Hill sandstone. Walls, textured cement plaster; ceiling, structural concrete beams and panels decorated in blue, red and green. Right: Patio Fountain from lobby entrance. Fountain is polychrome terra cotta set against a background of green faience tile



CENTRAL Y. M. C. A. BUILDING
HARRISBURG, PENNSYLVANIA
LAWRIE & GREEN, ARCHITECTS



Above: Young Men's Social Room. Floor, dark brown tile; walls, colored cement plaster with rough texture finish. Ceiling, structural concrete beams and panels. Fireplace (not shown), carved soapstone. Left: Doors from Game Room to Social Lobby. Social Lobby is between Billiard and Young Men's Social Rooms

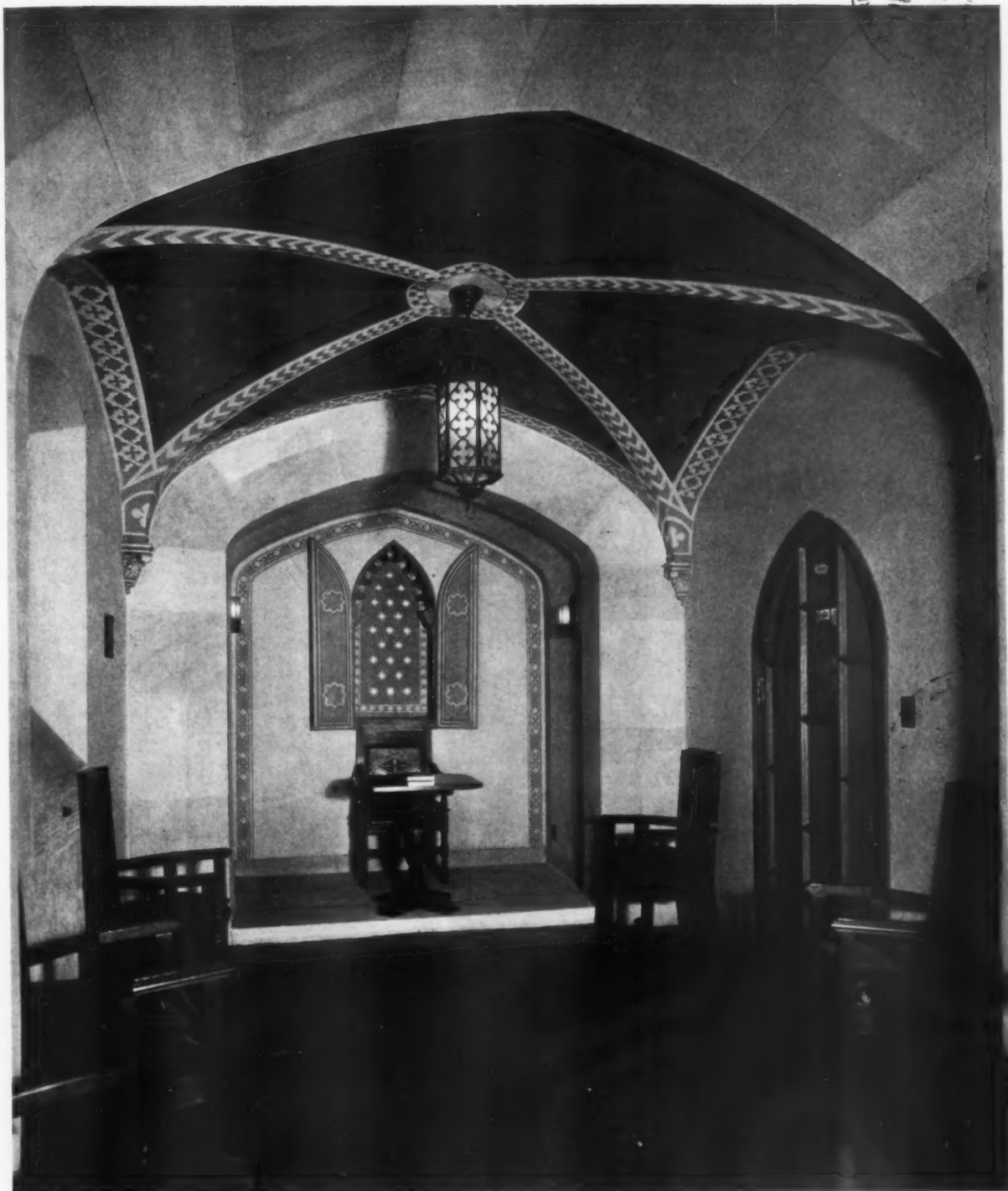
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LAWRIE & GREEN, ARCHITECTS





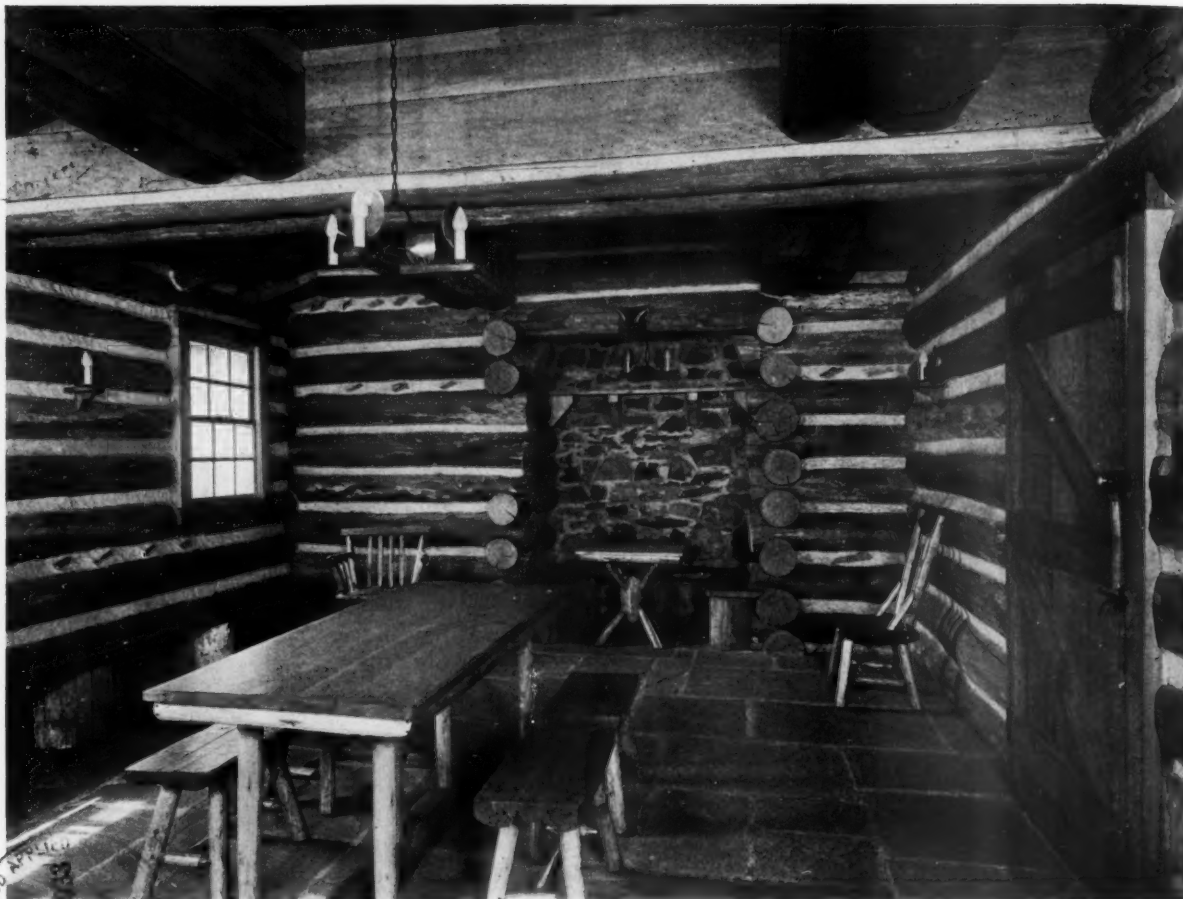
CENTRAL Y. M. C. A.,
HARRISBURG, PA.
LAWRIE & GREEN
ARCHITECTS





Above: The Chapel. Light buff cement plaster walls, dark gray linoleum floor, blue and gold stenciled ceiling. On facing page, above: Billiard Room. Brown and gray asphalt tile floor, sandstone wainscot, structural concrete ceiling. Below: Detail in Boys' Game Room

CENTRAL Y. M. C. A. BUILDING, HARRISBURG, PENNSYLVANIA, LAWRIE & GREEN, ARCHITECTS



Above: Boys' Club Room. Right: Fireplace End of Boys' Social and Game Room. Gray and green asphalt tile floor. Tile wainscot, green with brown inserts. Structural concrete ceiling



CENTRAL Y. M. C. A.
HARRISBURG, PA., LAWRIE
& GREEN, ARCHITECTS



HOUSE OF FRANKLIN IRVING SMITH, JR., ROWAYTON, CONN.

MARGARET R. HOYT, ARCHITECT

Photographs by George Van Anda



Construction: Frame walls and floors. Exterior: shingles painted white, dark green blinds, common brick chimney, roof shingles natural color. Interior: walls, painted plaster; floors in bath, kitchen and pantry, linoleum, oak elsewhere. Stock doors and trim. Contains 24,364 cu. ft. Built in 1931 for \$8,500, exclusive of humidifying hot air heating system.

HOUSE OF FRANKLIN IRVING SMITH, JR., ROWAYTON, CONN., MARGARET R. HOYT, ARCHITECT

ELECTRICAL WIRING MATERIALS

NEW standards in electrical wiring systems, based on adequacy rather than mere safety, have made obsolete many practices and specification forms hitherto commonly used by the architectural profession. This article undertakes to provide a basis upon which necessary changes in former methods may be founded.

By law and local ordinance the National Electrical Code (commonly referred to as the N. E. Code) has become a practically universal standard controlling safety features of electrical installations. But because there are no manuals of design having anything like the same currency as the Code, the Code has been extensively used as a design manual,—a purpose for which it is wholly unsuited. It must be appreciated that this Code has only one objective—safety against fire and injuries to persons. It is a product of insurance experience, not solely electrical experience. It is restrictive rather than constructive. It has no interest in quality, adequacy, convenience, operating economy, or any other design factor except as these may affect the requirements of safety. By mere coincidence, the requirements for safety include enough of these properties to provide materials of reasonable durability and installation standards that work well in ordinary practice. But unfortunately, the Code has come to be looked upon as a guide to good practice instead of what it is in fact—namely, the regulations necessary for *safety alone*, with no regard for other considerations. Indispensable as it is in providing for safety, the Code should never be considered as a criterion of design, except for installations where mere compliance with the Code will produce an installation sufficient for the owner's purposes.

NEW TRENDS IN WIRING DESIGN

THIS need for a better basis of design than is offered by the N. E. Code has been recognized by the electrical industry, important groups of which have issued two "Minimum Specifications for Adequate Wiring of Lighting Circuits"* for various types of large buildings and "Adequacy Wiring Standards" for residences. While intended to overcome deficiencies in present lighting practice, the first two are based on sound principles that apply with equal force to minor power and non-

lighting circuits. The recommended practices hereinafter set forth in italics are largely based upon these new Minimum Standards of Adequacy.

WIRE SIZES

1. *Wire sizes shall be computed for a maximum voltage drop in each circuit not exceeding 1½% and shall not be smaller than No. 12 A. W. G.* The importance of this rule will be appreciated when it is realized that each foot of wire in a circuit reduces the "pressure" or voltage delivered at the end of the wire just as a long garden hose will deliver less water at the nozzle than a short hose. This voltage drop is a dead loss to the owner. He pays for the current flowing through the meter but he doesn't get all of it at the outlet. The larger the wire for a given current and length of circuit the smaller the voltage drop. The N. E. Code does not take this factor into consideration, as a wire of given size is just as safe if 100 feet long as it is if only one foot long.

But loss of voltage does more than waste electricity; it diminishes the power available and it seriously affects the amount of light delivered by incandescent lamps. For each drop of 1% in voltage below the rating for which the lamp is designed, there is a three per cent loss of light, as shown by the chart, Figure 1. (See also AMERICAN ARCHITECT, March, 1933, page 19, "How Wire Sizes Affect Lighting Economy" by W. H. Horton.)

The method of computing wire sizes is given in Table 1.

NUMBER AND KINDS OF CIRCUITS

2. *Lighting circuits for fixed lights shall not serve convenience outlets nor power loads.*

3. *Lighting circuits of 15 amperes capacity shall be provided in sufficient number so that the initial load shall not exceed 1000 watts, except when the circuit serves a single lamp of larger size.*

4. *Convenience outlet circuits shall be provided in sufficient number so that the total initial load likely to be connected to any single circuit shall be less than its designed capacity. Where devices rated at 500 to 1650 watts input are likely to be connected to convenience outlets, wire sizes shall be increased one size.*

5. *Power loads (1650 watts or more) or loads requiring a high starting current shall be served by separate circuits designed to carry the maximum load likely to be imposed at any time with a voltage drop not exceeding 1½%. Electric ranges, for example, must be served by a separate circuit for each range.*

*Architects are advised to obtain and use in their work the following documents: (a) "Minimum Specification for Adequate Wiring of Lighting Circuits in Commercial and Public Structures"; (b) "Minimum Specification for Adequate Wiring of Lighting Circuits in Industrial Structures"; and (c) "Adequacy Wiring Standards for Residence Buildings." These are obtainable through most Utility Companies, the larger electrical manufacturing companies, or from the Edison Electric Institute, 420 Lexington Avenue, New York, at 10c per copy or all three for 25c. An architectural specification for use on residential work is in preparation and may be published early in 1934.

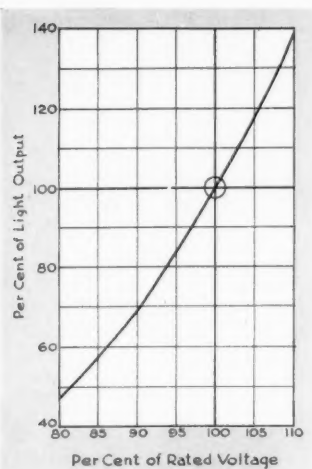


Figure 1. Incandescent lamps give best service at 100% of rated voltage. If voltage is lowered through losses in conductors the light emitted drops three times as fast. Hence the economic value of adequate wire sizes

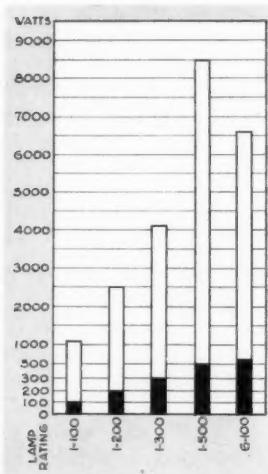


Figure 2. Modern gas-filled incandescent lamps now in common use (known as Type C) draw from ten to seventeen times their rated wattage at the instant they are turned on when cold. This surge causes arcing at the switch, resulting in gradual deterioration of ordinary switch mechanisms. New type switches are now made especially for Type C lamp loads

TABLE I
METHOD OF COMPUTING WIRE SIZES

The proper size of wire required to carry a current any distance with a given loss in volts can be determined from the following table based on Ohm's Law:

$$\frac{\text{Length of run in feet} \times \text{amperes} \times 21.5}{\text{Volts lost}} = \text{Circular mils}$$

In this formula the number of feet must be measured one way, not both sides of the circuit. Volts lost should be taken as the drop allowed in volts. Circular mils show size of wire to use.

Example: What size wire should be used on a 250-volt circuit where it is necessary to carry 150 amperes a distance of 300 feet to a center of distribution with a loss of 3 per cent under full load?

$$\frac{300 \times 150 \times 21.5}{7.5}$$

= 129,000 circular mils, or No. 00 A.W.G., which is the next size heavier. Wire sizes computed for voltage drop should always be checked for carrying capacity. See table, page 86, National Electrical Code, 1933 edition.

TABLE 2
FEEDER CIRCUIT DESIGN

	Industrial	Commercial and Public
Capacity per 15 ampere branch position	9 amps	7 1/2 amps*
If initial exceeds 1000 watts per circuit	Increase proportionately	
Voltage drop from service entrance to any panel-board under above total load	1 1/2%	1 1/2%
Feeder conduits or circuits for expansion or feeder replacement.	1 spare conduit for each feeder	Original conduit sized for wires 2 standard gauge sizes larger than initial installation
Spare positions on panel-boards	1 for each six circuits or fraction in service	1 for each five active circuits or fraction
Panelboard location		1 on each floor located to keep branch circuits under 100 ft. in length
Panelboard switches	All circuit positions except those controlled by time or automatic devices should be supplied with switches in addition to fuses	All circuit positions except those controlled by time or automatic devices should be supplied with switches

*Special exceptions noted in Minimum Specification. See Original Documents.

Residential Service Entrance Design

Service entrance should be at least three No. 6 A. W. G. conductors or conductors equivalent in capacity, with protective equipment of corresponding rating. Where capacity in excess of above minimum is necessary, under the National Electrical Code, to take care of equipment installed or contemplated, entrance wires and protective equipment should be increased in size in accordance with requirement of that Code.

The following may be used as a basis for checking size of service entrance equipment against minimum standard recommended, to determine whether increased capacity will be required.

(a) The size of service entrance equipment required is computed from total of wattages determined in (b) and (c) below.

(b) For lighting, portable appliances, and fixed appliances each less

than 1500-watt rating, allow two (2) watts per sq. ft. for the first 2000 sq. ft. of floor area, plus one (1) watt per sq. ft. for area in excess of 2000 sq. ft. plus 1000 watts.

(c) For fixed appliances each of 1500-watt rating or above, total wattage rating of appliances installed or contemplated. Experience indicates that not all appliances will be used to full capacity at the same time, hence it may not be necessary to install entrance capacity for total rated wattage where two or more appliances each of 1500 watts or above are installed. Local inspection authority should be consulted on this point.

If both range and water heater are installed and water heater is so wired that it cannot be in operation while full capacity of the range is being used, then wattage rating of water heater need not be included in determining service entrance capacity.

These four rules contribute to convenience, economy and adequacy. It costs far less to provide surplus capacity in the initial installation than to re-wire an inadequate existing system or to pay for the waste of insufficient wiring capacity.

USE OF RACEWAYS

TWO other rules recommended in the interests of future economy and adequacy are:

6. *All feeders and sub-feeders which may be required in the future to carry increased loads due to extensions or heavier power or lighting demands shall be run in rigid conduit or other approved raceway of a size adequate to carry eventually conductors of double the initial capacity. It is far less costly to install an oversize conduit during construction than to add extra conduits in completed buildings.*

7. *Branch circuits similarly subject to future loads beyond their initial capacity should also be run in rigid conduit, underfloor ducts, or other raceways having an ultimate wire-carrying capacity of double the initial requirements.*

KIND OF MATERIALS

LIKE the designer of wiring installations the manufacturer of electrical wiring materials has been almost wholly governed by the requirements of the National Electrical Code. These requirements are sufficiently rigid so that, for the most part, but one grade or quality of unit is manufactured to serve each wiring condition permitted by Code regulations. There are, however, so many different installation conditions to be satisfied and there are so many different types of wires, cables, switches, outlets and other devices needed to serve these various conditions that, in effect, the architect has an opportunity to choose products of almost any degree of durability, adequacy or convenience for every part of his wiring installation. There is an actual difference in grade or quality in certain products, such as in the insulation of conductors and in the manufacture of flush switches, switch plates, and lampholders.

Buildings themselves are of different grades of quality; some are erected at the lowest possible first cost, others are designed for maximum income producing capacity; still others for maximum life, calling for the highest quality and durability of materials throughout. Selection of wiring materials and design of wiring systems should be governed by similar considerations, choosing those of minimum first cost for one type of building, or of some higher degree of quality and performance characteristics for the better structures. The following rule, therefore, should be kept in mind throughout the design of systems and the specification of component materials.

8. *The design of wiring installations and the selection of wiring materials by type or quality should be governed by the same considerations of initial cost, operating cost, performance, and durability that determine the general quality and character of the structure the installation is to serve.*

DESIGNING THE SYSTEM

COMPLIANCE with the National Electrical Code is the first requirement in the design of any wiring system. Local ordinances and regulations may be somewhat more rigid than the N. E. Code with respect to some details and therefore must also be taken into consideration as a design requirement. Beyond these restrictive regulations the architect must assume responsibility for the adequacy and completeness of the layout. Matters beyond mere safety considerations are discussed in the following paragraphs.

SERVICE ENTRANCES AND DISTRIBUTION CENTERS

REGULATIONS of the local utility company completely govern the location and character of the service entrance, service equipment and primary distribution center. The architect has little option in the design of these elements other than the choice (in some cases) between overhead and underground service entrance, and minor details concerning the physical arrangement of the panel or switch boards. Beyond the service equipment, however, the architect may have the option of utilizing automatic circuit breakers instead of fuses and his design of the layout of circuits may govern the position of secondary distribution centers in places remote from the service entrance.

In dwellings it is becoming common practice to locate fuses or circuit breakers in or near the kitchen or service hallway instead of at the meter. This offers maximum convenience to the home owner in restoring service after an overload has occurred. Similarly in apartment houses and many types of commercial structures where current is paid for by the tenant, submetering panels and secondary distribution centers may be located at convenient points throughout the structure. In the design of feeder circuits, the new Minimum Standards of Adequacy should be followed. Their principal requirements are summarized in Table 2.

LIGHTING CIRCUITS

THE number of lighting outlets and their distribution is wholly governed by the nature of the building, its occupancy and the character and intensity of lighting desired. This field is so complex as to warrant separate discussion in a future AMERICAN ARCHITECT reference data article. However, certain general recommendations are established by the several Minimum Standards of Adequacy. These have been summarized in the briefest possible reference form in Table 3, 4, and 5.

It should be appreciated that these are minimum standards and are subject to expansion to meet individual requirements. They refer only to the location of fixed outlets and do not govern distribution of secondary lighting in the form of portable lamps or fixtures, nor do they provide for modern panel lighting or decorative lighting, both of which have definitely entered the architectural field as developments of great significance. Secondary lighting will be considered again in relation to convenience outlet circuits.

TABLE 3
CONDENSED STANDARDS OF ADEQUACY FOR LIGHTING, CON-
VENIENCE AND SPECIAL OUTLETS IN RESIDENTIAL BUILDINGS

Standard Number	Location	Lighting Outlets and Switches	Other Outlets
A. GENERAL RECOMMENDATIONS			
A-1	Ceiling Outlets	1 or more ceiling outlets for lighting, controlled by wall switch, in every active room. Wall lighting outlets as discussed in Section B.	
A-2	Closet Lights	1 lighting outlet in every closet 3 ft. or more deep or with floor area of 10 sq. ft. or more.	
A-3	Switch Control	1 or more wall switches at each main entrance to every room, hall, passage or storage space for control of ceiling and wall fixtures. 3-way, or 3-way and 4-way switch control of lighting outlet to be most frequently used at each main entrance to every room or hall in which such entrances are 12 ft. or more apart. 3-way switch control in main building to control at least 1 lighting outlet in or on detached garage or outbuilding. 3-way and 4-way switch control from head and foot of stairs for lighting outlets for hall and stairs. Single switch control of wall brackets at main entrance to any room.	
A-4	Convenience Outlets		All convenience outlets should be of duplex type, unless otherwise specified, installed in or near baseboard.
B. WIRING STANDARDS APPLICABLE TO PARTICULAR ROOMS			
B-1	Front Entrance	2 wall lighting outlets where arrangement permits; otherwise 1 wall and 1 ceiling. Outlet for illuminated house number. A switch inside door to control wall outlets and one to control house number.	1 convenience outlet for decorative lighting.
	Side and Rear Entrance	1 ceiling or wall outlet for lighting, controlled by switch inside door.	
	Covered Porches	(For enclosed porches see B-3). 1 wall or ceiling lighting outlet. Additional ceiling or wall outlets if necessary, to provide at least 1 for each 100 sq. ft. of floor area or fraction. Control by switch inside door.	Convenience outlets on porches, terraces and patios to provide at least one outlet for each 15 ft. or fraction of wall space on house side.
B-2	Halls, Passages, Stairways	1 ceiling or wall lighting outlet on each floor to illuminate head and foot of stairways. Additional ceiling or wall lighting outlets, if necessary, to provide at least 1 for every 15 ft. of length of any hall or passage. (See A-3 for switch control.)	1 convenience outlet for every 12 lin. ft. or fraction of hall or passage.
B-3	Living Room, Bedrooms, Reception Hall, Library, Den, Sun Room, Children's Play Room, Recreation Room, Enclosed Porches, and Similar Rooms	1 ceiling lighting outlet in each room. Where ceiling lighting is used primarily, at least 2 ceiling lighting outlets for each room with area in excess of 300 sq. ft. and length more than 1½ times width. Wall outlets for decorative or supplementary illumination purposes should be symmetrically located and placed with consideration to probable furniture location. Control wall outlets by wall switch or switches.	Convenience outlets placed so that no point along floor line in any unbroken wall space is more than 6 ft. from outlet in that space. 1 convenience outlet placed in every wall space 3 ft. or more in length unbroken at floor line. At least 1 convenience outlet flush in top of mantel shelf. Radio ground and aerial connection near or in connection with convenience outlet in living room and master bedroom.
B-4	Dining Room, Dinette, Breakfast Room, Breakfast Nook	1 ceiling lighting outlet in each room. (See A-3 for switch control.) Wall outlets for decorative or supplementary illumination purposes should be symmetrically located and placed with consideration to probable furniture location. Control wall outlets by wall switch or switches.	At least 2 convenience outlets in each room with floor area of more than 100 sq. ft., with additional convenience outlets to provide at least one in every wall space adaptable to use of buffet, serving table, etc. Floor outlet may be considered as one of minimum two outlets.
B-5	Kitchen, Kitchenette, and Pantry	1 centered ceiling lighting outlet, with supplementary ceiling and side wall outlets to provide local lighting for work areas.	Convenience outlets at work table or kitchen cabinet, and near every other work area. Outlets conveniently located for connection of kitchen equipment.

TABLE 3 (Continued)

Standard Number	Location	Lighting Outlets and Switches	Other Outlets
B-6	Bathrooms and Lavatory	1 wall lighting outlet at each side of mirror and ceiling outlet for sun lamp fixture. Wall switch for ceiling outlet and one for wall outlets. Ceiling outlets for lighting fixture in any separate shower compartment, controlled by switch outside compartment.	A convenience outlet installed 3 to 4 ft. from floor and not adjacent to tub.
B-7	Laundry or Laundry Section	1 ceiling outlet for lighting directly over trays or tubs. 1 ceiling outlet for lighting over probable location of ironer. At least one of these outlets controlled by switch at door.	For washing machine, 1 convenience outlet suspended 5' 6" above floor from outlet box in ceiling 3 ft. in front of laundry trays. Additional outlets for laundry equipment.
B-8	Basement	1 ceiling lighting outlet at foot of stairs and in each enclosed space; also in front of furnace and over work bench. Switch and pilot light at top of stairs to control at least 1 basement lighting outlet.	At least one convenience outlet for use of tools.
B-9	Attic	1 ceiling lighting outlet at top of stairs or at entrance and in each enclosed space.	At least one convenience outlet in suitable location.
B-10	Garage	1 ceiling lighting outlet over hood of car; in multiple garages, additional ceiling lighting outlets to provide one over each car. 1 ceiling lighting outlet at rear of car; in multiple garages, additional ceiling lighting outlets to provide one between each two cars at rear. 1 side wall lighting outlet on exterior of garage, with 3-way switch control from garage and main building. In 1- and 2-car garages all interior outlets may be controlled by 1 wall switch. In larger garages lighting outlets over car hoods should be controlled by 1 switch, with a second switch for outlets at rear of cars.	One convenience outlet on rear wall at each car location, installed about 4 ft. above floor.
B-11	Protective Lighting (inside and outside the house)	Outlets for suitable fixtures for protective lighting at rear outside corners of the house, immediately under eaves. Switch control from owner's bedroom and from first floor.	

POWER CIRCUITS

Purpose	Location	Minimum Recommended Capacity
Electric Range.	Kitchen.	8,500 watts min.
Air Heater.	Bathrooms.	2,500 watts min.
Storage Water Heater (if required).	Kitchen or Basement.	As required.
Hot Plate and Laundry Equipment.	Laundry.	2,000 watts min. or as required.
Water Pump Motor (if required).	As required.	Provide two No. 12 A. W. G. wires.
Oil Burner, Stoker and Air Conditioner.	Basement.	Provide two No. 10 A. W. G. wires.

SPECIAL NOTES

F. BELLS AND BUZZERS

1 outlet for connection of bell-ringing transformer, with wiring to push button at each outside door to operate bells of different tones, or bell and buzzer, usually in kitchen.

G. TELEPHONE SERVICE

1 outlet with concealed wiring for public telephone on each active floor.

H. APARTMENT STRUCTURES

In multiple dwellings and apartment structures number and location of lighting and convenience outlets should be determined as for a single family dwelling, except that only one circuit need be installed for convenience outlets in dining room, breakfast room, pantry and kitchen, if no space intended for use as a laundry is provided.

CONTROL OF LIGHTING CIRCUITS

SELECTION of flush or tumbler switches for control of lights or minor power circuits is an important specification detail. It is a peculiarity of modern gas-filled lamps that when cold they cause an instantaneous electric surge of several times their rated capacity. This surge increases with the capacity of the individual lamps, as shown in Figure 2. While this has no effect upon

the design of circuits, it places an electrical strain on switches that may impair operation of cheaply constructed mechanisms. For this reason switches designed especially to carry gas-filled lamp loads should be used on all lighting circuits.

Various types of switch controls for lights are diagrammatically illustrated in Figure 3. The minimum use of switches for the control of fixed lighting outlets is summarized in Table 3 for residence lighting,

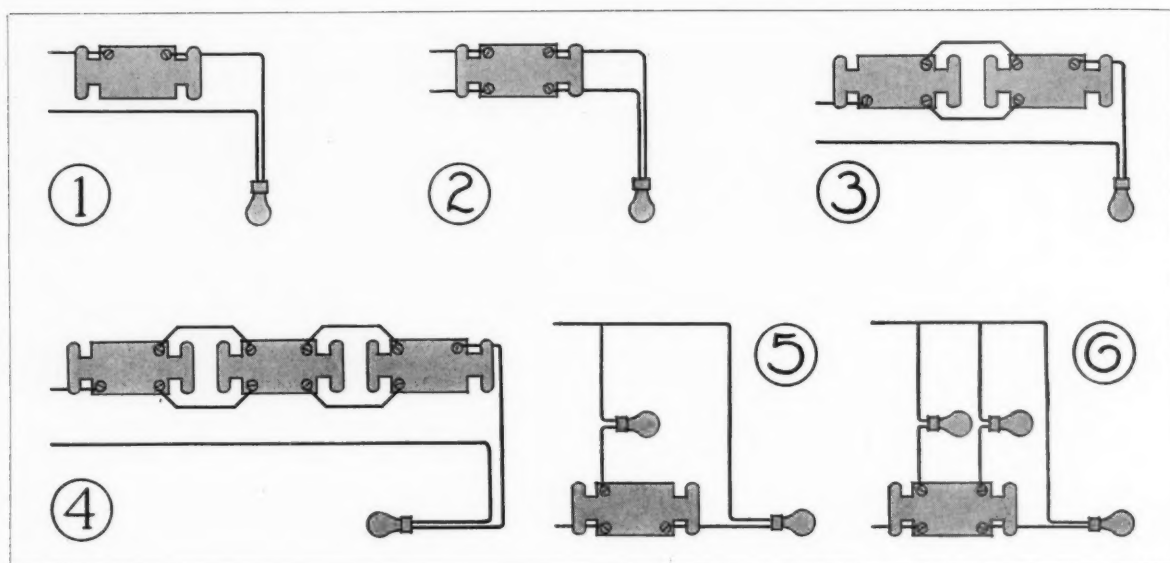


Figure 3. How the principal types of switches are used to control lighting circuits. (1) **Single Pole** switch interrupts the live side of the current only. (2) **Double Pole** switch cuts both wires in a two-wire circuit (or the two live wires in a three-wire power circuit). (3) **Three-Way** switches provide off and on control of light from either of two remote points. (4) One or more **Four-Way** switches, interposed between two Three-Way switches, provide control of a lighting branch from as many points as desired. (5) **Two-Circuit Electroliner** switch controls two circuits independently and jointly by repeated throws of the tumbler. (6) **Three-Circuit Electroliner** switch controls three circuits singly and in combination by a series of throws of the tumbler.

but is not referred to in the Minimum Adequacy Standards for commercial, public and industrial structures. The following general rules are recommended as a guide in the use of light control switches, particularly in residential work.

9. *At the main entrance to every room there should be one or more wall switches controlling at least the major general lighting outlets. In rooms having two or more entrances more than twelve feet apart, three-way switches should be used at each entrance to control the same general lighting outlets.*

10. *All hallways, passages, or rooms serving as passages should be so equipped with three- and four-way switches as to permit passage in any direction, turning on the general lighting upon entering each space unit and extinguishing the lights upon exit without retracing steps. This rule also applies to passing between separate buildings—as between house and garage, or between floors of buildings—as from the ground floor to the basement or upper floors. Where lights controlled by a switch are not visible from the switch point, it is advisable to employ a pilot light to indicate whether the circuit is open or closed.*

11. *All switches should be located at the point where control is most frequently exercised. Where two or more circuits serve the same room, it is usually best to group the switches controlling the secondary lighting circuit at one of the points where the main circuits are governed; but where a single fixture, such as a reading light, is turned on and off at the point of use, the light should be controlled at the fixture.*

12. *Wall switches at doorways should be placed at*

the latch side of the door (never concealed by the swing of the door), and at a uniform distance of four feet above the floor.

Where several lighting circuits or large groups of lights of heavy wattage need to be controlled from one or more points distant from the panel box or switchboard, economy is frequently served by the use of remote control switches. These are operated by "momentary contact" switches at the control points through simple and inexpensive circuits, carried to whatever location is most economical for the remote control switches. Remote control devices are also made for automatic control of emergency power sources, and for control of lights or power loads by time clocks, photo-electric cells, or other similar automatic governors.

CONVENIENCE CIRCUITS

THE minimum number and general location of convenience outlets is indicated in Tables 3, 4 and 5. These minimum standards, however, should be exceeded in the great majority of installations.

Location of convenience outlets depends upon the type of equipment serviced. Those used for secondary lighting and for portable appliances are commonly installed either in the baseboard (preferably about 4" to the center line above the floor, to permit mopping beneath the plug), or on the wall about 18" above the floor. The latter position requires less stooping, but the plate should be decorated to match the wall in all important rooms. Convenience outlets serving appliances of known type are generally best located higher on the wall at

TABLE 4

LIGHTING AND CONVENIENCE OUTLETS IN INDUSTRIAL STRUCTURES

CONVENIENCE OUTLETS AND CIRCUITS THEREFOR

There should be at least one convenience outlet circuit for each 1200 sq. ft. of manufacturing space and one for each 2400 sq. ft. of storage space and at least one outlet in each bay.

Where convenience outlets are installed for a definite power load known in advance, characteristics of load should govern number of outlets on each circuit and size of wire.

LIGHTING OUTLETS AND CIRCUITS THEREFOR

There should be one branch circuit for general or localized general lighting for each unit of area shown in following table. A three-wire circuit is to be considered as two circuits, a four-wire, three-phase circuit as three circuits in applying this rule. If local rules limit branch circuits to less than 1,000 watts, area factors should be proportionately reduced.

USE OF SPACE—FLOOR AREA PER CIRCUIT

Storage of bulk materials, etc.....	1200 sq. ft.
Rough work, thoroughfares, material handling..	600 sq. ft.
Medium work, ordinary machine and hand work, offices, etc.	400 sq. ft.
Fine bench and machine work, drafting, etc.....	200 sq. ft.
Extra fine work and where obstructions are present	Special design

SPACING OF OVERHEAD OUTLETS FOR GENERAL LIGHTING

Ceiling Height (or Height in the clear)	Spacing between Outlets		Spacing between Outside Outlets and Wall		Approximate area per Outlet (At usual Spacings) (Square feet)
	Usual	Maximum (for Units at Ceiling) Not more than*	Aisles or Storage benches, etc. to Wall Not more than*	Desks, work-benches, etc. Against Wall Not more than*	
(feet)	(feet)				
8	7	7 1/2	3	3	50-60
9	8	8	3	3	60-70
10	9	9	3 1/2	3 1/2	70-85
11	10	10 1/2	3 1/2	3 1/2	85-100
12	10-12	12	Usually 3 1/2-4	3 1/2-4	100-150
13	10-12	13	one-half	3 1/2-4 1/2	100-150
14	10-13	15	half	4-5	100-170
15	10-13	17	actual	4-5	100-170
16	10-13	19	spacing	4-6	100-170
18	10-20	21	between	4-6	100-400
20	18-24	24	units	5-7	300-500
22	20-25	27		5-7	400-600
24	20-30	30		6-8	400-900
26	25-30	33		8-9	600-900
30 and up	25-30	40		8-10	600-900

*Where it is known that some form of indirect lighting will be used, maximum spacing between outlets may be increased about two feet, distance from outside outlets to wall one foot. In hallways and corridors spacing shall not exceed 20 ft.

TABLE 5

LIGHTING AND CONVENIENCE OUTLETS IN COMMERCIAL AND PUBLIC STRUCTURES

Spacing of Outlets for General Lighting

In offices	No two adjacent outlets shall be spaced further apart than ceiling height.
In school rooms	No two adjacent outlets shall be spaced further apart than ceiling height.
In other interiors	Space between outlets may be extended to 1 1/4 times ceiling height.
In halls and corridors	Maximum spacing between outlets shall not exceed 20 feet.

Area for Branch Circuit for General Lighting

Working space or rentable area	One circuit for each 400 sq. ft.
Hallways or passageways	One circuit for each 800 sq. ft.
Auditoriums	One circuit for each 600 sq. ft.
Drafting Rooms	One circuit for each 200 sq. ft.
Hospital Wards or Private Rooms	One circuit for each 600 sq. ft.
Hospital Operating Rooms	One circuit for each 400 sq. ft. Plus 3 circuits
Hospital Laboratories and Rooms for Sterilization of Instruments	One circuit for each 200 sq. ft.
School Drawing and Art Rooms	One circuit for each 200 sq. ft.
School Corridors and Stairs	One circuit for each 600 sq. ft.
Garage Driveways and Ramps	One circuit for each 1000 sq. ft.
Garage Wash Racks	One additional circuit from panel board to the wash rack for special illumination.
General lighting from other than ceiling outlets	One circuit for each 200 sq. ft.

Convenience Outlets

General	Not more than ten convenience outlets shall be placed in one circuit.
In barber shops, dentist's and doctor's offices, etc.	Not more than two convenience outlets shall be placed in one circuit.
In stores	At least one convenience outlet on or in each supporting column.
In office buildings	1 branch circuit to supply convenience outlets for every 800 sq. ft. of floor space or fraction thereof.
In separate offices—400 sq. ft. or less in area	At least 1 convenience outlet for each 20 lin. ft. of wall or fraction.
In separate offices—more than 400 sq. ft. in area	At least 4 convenience outlets for first 400 sq. ft. of floor area and at least 2 additional convenience outlets for each additional 400 sq. ft. or fraction.

For Show Window Lighting, Exterior Electric Signs, Show Case Lighting, etc. see "Minimum Specification for Adequate Wiring of Lighting Circuits for Commercial and Industrial Structures."

a point where they can be conveniently reached when using the appliance.

The general rule recommended in the Minimum Adequacy Standards for the spacing of convenience outlets is based on average cord length of six feet and therefore calls for a maximum outlet spacing of twelve feet. In the opinion of many architects this does not provide adequate service; hence the following rule is recommended as a general guide.

13. *Convenience outlets should be installed so that there is one outlet in every wall space 18" to 8' of uninterrupted baseboard length; at intervals not exceeding 10' apart in longer uninterrupted wall spaces; plus additional outlets at all locations where lights or appliances will normally be used.* This rule provides greater flexibility than would be provided by a literal interpretation of the twelve-foot spacing rule and takes care of many short wall spaces between doors or corners where small pieces of furniture carrying decorative or local lights are frequently placed.

Where convenience outlets are used primarily for decorative or secondary lighting, it is advantageous to control these outlets from a wall switch at the main entrance to the room. This saves many steps in turning out individual lights. However, additional convenience outlets not controlled by the switch should always be provided for electric clocks and for the attachment of portable appliances in the daytime, such as vacuum cleaners, radios, toasters, etc.

SPECIAL OUTLETS

SPECIAL outlets, though not necessarily special circuits, should be provided where indicated by project requirements for electric clocks, electric fans, door switches, and illuminated house numbers or name plates. Other special outlets may be required for exit lights, exterior lighting of gardens or grounds, and other special purposes not embraced in the recommended minimum standards.

POWER CIRCUITS

DESIGN of power circuits cannot be reduced to simple formulae beyond the general requirement that wire sizes should be computed for a maximum voltage drop of 1½%. In commercial, industrial and institutional structures, the arrangement of power circuits and the load carried by each is a matter of engineering design. In dwellings, the principal power circuits for which provision should be made are indicated in Table 6, which is based on the Adequacy Wiring Standards for Residence Buildings. Here again, however, it is necessary to call attention to the minimum nature of these new standards. A study of household kitchen planning (which was made for the Reference Data article No. 6 appearing in the July issue) developed the need for several more circuits and considerably larger capacities in the typical modern kitchen than is indicated in this table. Future studies of bathrooms, recreation rooms, and other special areas will similarly show the advantage of more electrical service than is here indicated.

PROTECTIVE CIRCUITS

PRACTICALLY all types of buildings require protective circuits of one type or another. In dwellings the use of exterior lights or a single circuit serving one light in each room, controlled from a switch in the master bedroom, offers highly effective protection against intruders. By the use of a master remote control switch and a third wire running to each fixed lighting outlet, it is possible to turn on all lights in the building from one or more points without interfering with normal controls. In commercial, public and industrial buildings, protective circuits may include, in addition to burglar protection, such protective and control circuits as are required for maintaining water level in fire service and water supply tanks, protective and control circuits for heating plants of all sorts, watchman's clock systems, and other similar special services. Many of these operate on line voltages; some at low voltage. No standards have been adopted governing design of these systems.

LOW VOLTAGE CIRCUITS

FOUR types of low voltage circuits should be considered in every dwelling, apartment house, and in many kinds of commercial and institutional structures.

Bell and annunciator circuits. These are usually operated through a low voltage transformer and may include door bells, dining room to kitchen buzzer and annunciator circuits to servants' quarters.

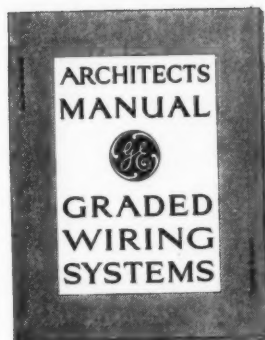
Telephone service. In all buildings empty conduits or raceways should be installed for private automatic exchange or public telephone extension circuits to such parts of the building as may require the convenience of telephone service. In dwellings the new adequacy standards recommend a minimum of one outlet for a telephone on each active floor. Public telephone companies and manufacturers of private exchange systems will gladly submit recommendations for adequate telephone service.

Radio wiring. In residences provision should be made for built-in aerial and ground connections to all logical radio receiver locations, or to centrally located remote control radio receiver. If the latter type of installation is adopted, conduits or raceways should be carried from the central receiver to each room where a reproducer or remote control may be subsequently located. In apartment buildings, a multiple outlet antenna system requiring but one antenna or a small group of antennae to serve individual radio receivers in each apartment is a desirable facility. To each antenna outlet should be brought a suitable ground connection and a power outlet. In schools, hospitals, hotels and similar buildings complete radio wiring and frequently public address system wiring should be provided in the electrical layout.

Heating and air conditioning control circuits. Where heating and air conditioning equipment is to be operated by electrical control devices, provision should be made for installation of necessary circuits as part of the wiring system of the building. Complete data should be obtained from manufacturers of control devices.

Consideration of all of the foregoing details will assure wiring adequacy consistent with modern trends.

This 44-page manual, containing complete Design Standards and Time-Saver Specifications for each G-E Graded Wiring



System, will appear in Sweet's Architectural Catalogs for 1934 and will be issued immediately in separate manual form. . . .

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A REVOLUTIONARY advance in the planning and specification of electrical wiring systems has been developed by General Electric Company for the benefit of Architects and Owners. Simple, logical and complete, it saves time, eliminates guessing, prevents oversight of important details and assures a wiring installation of the exact character demanded by the building it serves.

Wiring Graded According to Quality of Building

Three graded selections of materials have been scientifically planned by competent General Electric engineers to meet the requirements of all types of buildings. If your project demands initial economy above all else, G-E Code Grade Wiring provides safety and maximum economy in wiring materials and devices. But if your building is to have a long life; if it is planned for maximum rentability or sales value; if it must show low operating costs and remain up-to-date for years to come; then you will want to use G-E Supr-Code Grade Wiring. Should your project be of monumental or public character, or a building demanding the utmost in quality, durability and luxury in its electrical equipment, G-E DeLuX Grade Wiring will meet your needs.

Materials Designated by G-E Engineers Allow Freedom in Design

Each Graded Wiring System is based upon modern standards of design that are recognized as sound by high electrical authorities. These standards are adaptable to

any size or type of building. They allow the Architect or Owner freedom in determining the extent of the system, the number and location of outlets and controls, and the character of electrical service to be rendered. They establish no arbitrary layouts.

The standards serve only as a basis for *designing* the installation. But General Electric has taken a second logical step—it has PRE-SELECTED the materials best adapted to each grade of installation. It can do this without prejudice because General Electric manufactures every type and kind of electrical wiring material needed in any building. G-E engineers, thoroughly conversant with electrical engineering practice, have chosen "balanced" materials of the type, characteristics and cost best suited to each graded selection of materials.

How to Use the Convenient Time-Saver Specifications

These PRE-SELECTED materials have been brought together in convenient "Time-Saver Specifications," one for each grade of System. These specifications designate materials representing *approved standards under normal conditions* for each part of the installation. They allow the electrical contractor adequate leeway in choosing variants of these standards to meet unusual situations. Their simplicity and convenience is demonstrated in the complete presentation of Time-Saver Specifications for G-E Supr-Code Grade Wiring Systems on the two pages immediately following.

Please study this Supr-Code specification form. Note that it is complete. (Text continued on third page following)

TIME-SAVER SPECIFICATIONS

Supr-Kode Grade
Wiring System (I)

Sheet No. Date

Specification

Architect **SAMPLE**

TITLE

PAR. NO. of Specification designated above

G-E SUPR-KODE GRADE WIRING SYSTEM

The electrical contractor shall furnish and install all wiring materials necessary to complete the electrical installation herein after defined or indicated on the drawings, using wiring materials of General Electric manufacture throughout of types or grades of materials as designated in the following table. When the materials thus designated as Approved Standard Under

Normal Conditions are not applicable to the conditions of the installation, the contractor shall install companion items of General Electric manufacture. All fittings and accessory materials not indicated in this table but necessary to complete the installation shall be furnished by the contractor as though herein defined in detail, and they shall be of a type or grade appropriate to the quality of specified parts. No substitutions of materials of another manufacture nor of a quality or type inferior to the typical item designated as standard shall be made without written permission of the architect or owner and a proper allowance made in the contract price.

Part of System or Location	Types or Grades of Materials Representing Approved Standard under Normal Conditions
SERVICE ENTRANCES AND DISTRIBUTION CENTERS	
All Service Entrance Materials: Overhead Entrance, pole to building and between buildings: Building Entrance to distribution center: Underground Entrances, pole to distribution center: Underground Distribution between buildings and for private street or garden lighting: Meters and Service Equipment: Panel Boards: Bell Ringing Transformer:	• Shall comply with requirements of local utility company. Unless contrary to regulations the following types shall be used: • G-E Service Drop Cable or Weatherproof Wire. • G-E Service Entrance Cable or Code Wire in G-E Black Rigid Conduit. • Shall be G-E 600-volt Lead-sheathed Cable in G-E White Rigid Conduit, except where local regulations permit use of G-E Parkway Cable of type adapted to subsoil and installation conditions. • Shall be G-E Parkway Cable of type designated on drawings, or, if not indicated, use Type RJ when installation method and soil conditions minimize mechanical hazards and dampness; Type RLJ under similar conditions except that soil is frequently wet; Type RLJIJ where cable is run under roadways or close to surface or in rocky soil, where extra mechanical protection is required; or Type RLJFJ when installation method, depth of laying or harsh rocky subsoil requires maximum mechanical protection and durability. • G-E Watthour Meter and Trumbull Outdoor (or Indoor) Meter Box and Meter Service Switch of type designated by Utility Company. Shall consist of Trumbull Panel Boxes of sizes adequate for the number of circuits and spaces to be served with G-E Tumbler Switches for Panel or Box Mounting, such as GE269943 or GE235685, or G-E Entrance Switches and Fuses, such as GE42869, as required. • Shall be provided and installed on Panel board of capacity adequate for the load indicated on the drawings, such as GE2333.
DISTRIBUTION MATERIALS	
All Conductors: All Circuits: In fireproof buildings, new work: In non-fireproof buildings, new work: All buildings, old work, underplaster extensions: Power Circuits: Outlet Boxes: Pull Boxes and Junction Boxes:	• Shall be G-E Flame-retarding Intermediate Grade Rubber-covered Wire unless otherwise noted. • Shall use wire sizes computed for maximum voltage drop as follows: Feeder circuits, entrance to panel board 1½% drop (preferably 1½ volts maximum) based on appropriate demand factor allowed in "Minimum Specification for Adequate Wiring of Lighting Circuits" as referred to in G-E Supr-Kode Standards; branch circuits, panel board to outlet, 1½% drop (preferably 1½ volts maximum) based on connected load. No wire smaller than No. 12 B. & S. gauge shall be used. For runs of over 50 feet from panel board to first outlet no wire smaller than No. 10 shall be used for that portion of the circuit, and none smaller than No. 12 between outlets. Runs exceeding 100 feet shall be avoided wherever practicable. Convenience outlets shall not be placed on the same circuit with outlets for general illumination. All lighting circuits shall be designed for 15 ampere load, but shall be sufficient in number so that the initial load shall not exceed 1000 watts except in the case of a single lamp of larger size. • Shall be run in G-E White Rigid Conduit. • Unless otherwise shown on drawings all main feeders and branch feeders to junction boxes, all power circuits and all circuits exposed in basements shall be run in G-E White Rigid Conduit; minor branch and switch circuits shall be run in BX in dry locations or BXL in damp locations. • May be run in G-E Oval BX or G-E Oval Metallic Tubing where conditions require. • Shall be designed for the maximum load likely to be connected; those terminating in receptacles shall be distinguished from ordinary convenience outlet circuits by being equipped with polarity receptacles. • Shall be G-E Stamped Steel Boxes with solid covers, such as Cat. No. SP52151.



TIME-SAVER SPECIFICATIONS

Supr-Code Grade

Wiring System (2)

Sheet No. Date

Specification

Architect **SAMPLE**

Part of System or Location	Types or Grades of Materials Representing Approved Standard under Normal Conditions
Floor boxes in masonry floors:	● Shall be G-E Floor boxes such as Cat. No. SP8400 where weatherproof adjustable boxes are required, or Cat. No. SP8200 where waterproof, non-adjustable boxes will serve. ● Shall be G-E Utility Outlets, Cat. No. SP8000. ● Shall be G-E Octagonal or Square Boxes of suitable size, such as Cat. No. SP54151 or Cat. No. SP52151, mounted on suitable hangers if in stud construction, such as Cat. No. SP6602; except where construction conditions require Shallow Boxes such as Cat. No. SP56121. ● Shall be G-E Sectional Switch Boxes such as Cat. No. SP6972.
Floor boxes in wood joist floors:	
Outlet boxes for wall or ceiling fixtures:	
Switch Boxes:	
SWITCHES, OUTLETS, PLATES	
Switches: In all locations except as noted below:	● Shall be G-E Single-pole Compound Box Flush Tumbler Switches, such as GE2842. ● Shall be used to control at least one light in every space served by two doors more than ten feet apart, in all stair halls, between main building and garage or outbuildings, and shall be G-E Three-way Flush Tumbler Switches, such as GE2593 with equivalent Four-way Switches as required. ● Shall be used where designated on drawings (in living or bedrooms, hospital rooms, etc., where silent operation is desired) and shall be G-E Mercury Tube Flush Tumbler Switches, Cat. No. GE2756. ● Shall be used on circuits controlling appliances drawing more than 1500 watts, on circuits serving convenience outlets designed for ungrounded appliances drawing over 1500 watts, and on all 3-wire circuits, and shall be equivalent to Cat. No. GE2846. ● Where indicated on drawings shall be G-E Heavy-duty Tumbler Switches, Cat. No. GE2923 type as required. ● Shall be Cat. No. GE2903 or any combination in this series as required: Switch and Pilot Light Combination Cat. No. GE2734, or Switch and Outlet Combination Cat. No. GE2736 or their equivalent, where indicated on drawings. ● Shall be G-E Door Switches; either Cat. No. GE273 where light is on when door opens, or Cat. No. GE274 where light is on when door is closed; mounted in G-E Door Switch Boxes, Cat. No. SP6597. ● Shall be Top-wired Twin Convenience Outlets such as GE2534, except where circuit is designed to serve but one appliance, when an equivalent single outlet shall be installed. ● Shall be G-E Fan Hanger Outlet GE2755. ● Shall be G-E Electric Wall Clock Hanger Outlet, Cat. No. GE2942. ● Unless brass plates are designated, all switch and outlet plates shall be Textolite. Where brass plates are designated they shall be .060" thick in service and secondary living or public areas and solid plates .10" thick in main living and public areas, finished as elsewhere specified.
Step-Saver Switches:	
Silent Switches:	
Double-pole Switches:	
Heavy Duty Switches:	
Special Switches:	
Combination Switches:	
Door Switches:	
Convenience Outlets:	
Portable Fixture Outlets: for fans, etc.	
Electric Clock Outlets:	
Switch and Convenience Outlet Plates: In all outlets:	
LAMPHOLDERS	
Lampholders: In all locations:	● Shall be Textolite Lampholders except where brass shells are designated and these shall be Brass Shell Fluted-catch Lampholders. ● Shall be Textolite Lampholders except where brass shells are designated and these shall be Brass Shell Threaded-catch Lampholders. ● Shall be G-E Textolite Lampholders.
Not subject to handling or strains:	
Subject to frequent handling or strain:	
Subject to dampness:	
SPECIAL CIRCUITS	
Range Circuit:	● Shall be equipped with G-E Range Receptacle, and a G-E Unicord or a G-E Range Connection Cable, depending on grounding requirements. ● Shall be G-E Rubber Covered Fixture Wire. ● Shall consist of G-E White Rigid Conduit where conductors are subsequently to be installed by Telephone Company unless a G-E Underfloor Fibreduct system is provided. ● Shall be G-E Telephone Wires run exposed except where conduit circuits are indicated. ● Shall be run in G-E White Rigid Conduit where tampering would endanger operation; otherwise in BX as designated on drawings. ● Shall be run in G-E White Rigid Conduit where future changes require possible withdrawal of circuits, or shall be BX with sheathing grounded as designated on drawings. ● Shall be BraidX single conductors or cables.
Low Voltage Circuits: For bells, annunciators, thermostats, etc.:	
For public telephone extensions:	
For private telephone:	
For protective, signaling and line voltage control devices:	
For radio wiring:	
Shielded circuits:	
Non-shielded circuits:	

GENERAL ELECTRIC GRADED WIRING SYSTEMS

(Continued from third preceding page)

requiring only the designation of finishes on flush plates and the indication of special conditions on the drawings themselves.

The use of these Time-Saver Specifications is simplicity itself. You merely design the layout of your system, showing outlets, switch locations and special requirements on your working drawings or electrical drawings. Complete standards of design for each grade of system are contained in the manual described later. Then insert in your specification for the project the Code, Supr-Kode or DeLuX Grade Time-Saver Specification.

Special conditions may be covered by dictating one or two brief paragraphs. Optional materials indicated in the Time-Saver Specifications may be similarly added in brief notes.

This method is applicable to every type of project in which the electrical system is of normal character. The services of a competent electrical engineer should be employed on all complex electrical installations. Copies of these Time-Saver Specifications for all three grades of systems may be had in single sheet form, in any desired quantity for direct insertion in your specifications.

Reliability of G-E Graded Wiring Systems

You no longer need to write complex technical specifications to assure the right quality throughout your project. Nor is it necessary to pass the responsibility for adequate wiring to the electrical contractor under generalized specifications. There is nothing experimental about G-E Graded Wiring Systems. They are the logical and practical association of accepted standards of design with General Electric Wiring Materials of appropriate character. By adopting them you get General Electric reliability and performance. Your work is simplified by the care and skill of trained engineers.

Evidence of the authority of these Graded Wiring Systems is to be found in the standards upon which they are based:

Basic Standards Employed

G-E Code Grade Wiring Systems merely require compliance with the National Electrical Code and local governing ordinances. The Code provides for safety acceptable to all insurance companies. The materials specified are all listed by the Underwriter's Laboratories and are of minimum cost for the respective types.

G-E Supr-Kode Grade Wiring Systems are based upon new standards which recognize the economy and

advantage of *adequacy* in wiring in addition to the safety requirements of the N. E. Code. They are: (1) "Minimum Specification for Adequate Wiring of Lighting Circuits in Commercial and Public Structures", (2) "Minimum Specification for Adequate Wiring of Lighting Circuits in Industrial Structures," and (3) "Adequacy Wiring Standards for Residence Buildings." The first two were issued November 1, 1932, by the Commercial National Section of the National Electric Light Association (now superseded by Edison Electric Institute). The third was issued September 1, 1932, by seven societies and associations representing all branches of the electrical industry with the endorsement of the International Association of Electrical Inspectors.

G-E Supr-Kode Grade Wiring Systems therefore represent the *minimum* standards of design now recommended by the electrical industry as a whole. There is nothing extravagant or uneconomic about these systems. The materials used are selected for durability and adequacy.

G-E DeLuX Grade Wiring Systems are based upon the preceding standards except that wire sizes are heavier, circuits are designed for greater expansion in the future and the materials selected are the finest and most durable of each type commercially available today.

Handy Architects' Manual

Complete design standards and Time-Saver Specifications for all three grades of wiring systems are presented in a 44-page "Architects' Manual—G-E Graded Wiring Systems." This manual also includes illustrations and non-technical descriptions of the materials embraced in all three specifications. The proper use of each wiring device is clearly indicated. It is the first "inter-

pretive" manual of electrical wiring materials issued by any manufacturer.

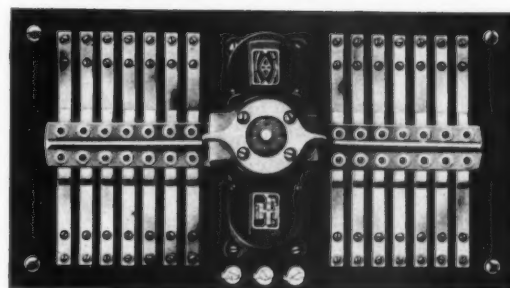
This manual will be distributed to architects as an Architect's Reference Bulletin by Taylor, Rogers & Bliss, Inc., New York, and will also appear in full in the 1934 edition of Sweet's Architectural Catalogs. Copies may be obtained upon application direct from

GENERAL  ELECTRIC
WIRING MATERIALS

MERCHANDISE DEPARTMENT, GENERAL ELECTRIC COMPANY, BRIDGEPORT, CONNECTICUT

When Heavy Lighting Loads Need CONVENIENT CONTROL

Dollar Saving "Diamond H" devices permit Push Button, toggle switch or Automatic Control of heavy lighting loads without expensive wiring.



LOWER wiring costs and greater convenience are obtained by the use of "Diamond H" Remote Control Switches where any of the following typical conditions exist:

MASTER CONTROL—For Residences. Where individual groups of lights are to be controlled from one or more points with minimum wiring expense. For example: Every light in the entire house may be turned on, regardless of regular control switches, from a single switch in master's bedroom, or other selected points. This is an excellent form of burglar and kidnapping insurance. All exterior lights may also be so controlled.

GROUP CONTROL—For all Commercial Buildings. Where groups of large wattage lights are to be controlled from several points too remote to justify extending the main service wires to the control points. Typical examples: Signs or Flood lights on tops of buildings; in theatres the house and stage lights may be controlled from several points; in churches and auditoriums the many circuits are under simple push button control. All corridor and stairway lighting as well.

AUTOMATIC EMERGENCY CHANGE OVER—Theatres, Hospitals, Auditoriums, etc., where an emergency current supply is provided and instantly put in service upon failure of the normal service, and changed back automatically upon resumption of normal supply. Examples: In theatres and auditoriums where EXIT,

STAIRWAY and AISLE lights are required to be always lighted. In Hospital operating rooms where failure of light during operations might mean life or death.

AUTOMATIC CONTROLS—Where any heavy lighting load is to be controlled automatically by a device not capable of handling the current involved, such as by a time clock, water level indicator, photo-electric cell, thermostat, or low capacity switches of any type, "Diamond H" Remote Control Switch does the job.

HOW ECONOMY IS OBTAINED—"Diamond H" Remote Control Switches will solve the above control problems and provide economies. These switches may be located on the main panel boards with manually operated push or toggle type momentary contact switches placed in convenient locations. Instead of carrying main wires to these control points they are wired with No. 12 or No. 14 wire. This means a considerable saving.

COMPLETE DATA AVAILABLE—Architects are invited to submit their control problems—preliminary or final—for suggestions or recommendations. "Diamond H" Remote Control Switches can save costs and provide convenience, and our engineers are at your service to select the best types and prove their advantages. Write for Bulletin 10-A.

THE HART MANUFACTURING CO.
HARTFORD CONNECTICUT

Fuseless Protection

FOR EVERY *Electrical Circuit* **WITH** **WESTINGHOUSE NOFUZE "DE-ION" BREAKERS**

*The COMPLETE line of fuseless circuit protecting devices
15 to 600 amperes—110 to 600 volts*

WHETHER it's the 600-volt power mains of a factory building, the 120/208-volt distribution system of a skyscraper or the 110-volt circuit of a residence; it can be accurately protected by a Westinghouse Nofuze Circuit Breaker. Hence, with this thoroughly-developed breaker, you can assure permanent, non-tamperable protection for *every* low-voltage circuit you design.

In actual service, many thousands of "De-ion" Breakers, used in Nofuze devices, have proved the following benefits:

Tamper-proof protection—Dangerous overloads automatically open the breaker, protecting the wiring. No fuses to blow . . . no hazards from backing blown fuses with coins or other protection-destroying materials. The breaker's action cannot

be blocked . . . it trips free from the breaker handle. Its calibration cannot be changed as it is *sealed* in a moulded housing in the factory.

Fewer outage periods—The breaker has a time-lag feature which practically eliminates interruption of electrical service on short-time, non-injurious overloads. This is of special value in the operation of motor-driven appliances and machines where momentary overloads often occur.

Economical . . . Convenient—After a dangerous overload or short circuit has been interrupted, service can be restored by simply resetting the breaker handle. There is nothing to replace . . . no time wasted waiting for an electrician.

For complete information, call the nearest Westinghouse district office or simply mail the coupon.

SEND FOR INFORMATION

Westinghouse Electric & Manufacturing Company
Room 2-N—East Pittsburgh, Pa.

Gentlemen:

Please send me full particulars about Nofuze Circuit Breakers.

Name

Company T 79784

Address..... 11-33

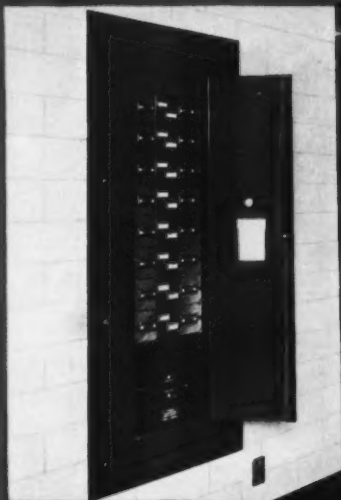
Westinghouse

Quality workmanship guarantees every Westinghouse product





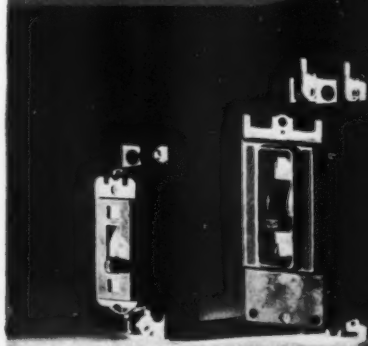
A Westinghouse Nofuze-equip'ed switchboard in Fitzgerald-Mercy Hospital, Darby, Pa., provides permanent protection of the building's circuits, varying from 30 to 600 amps. capacity. It requires only approximately 2 1/2 the space of the conventional type switchboard. Architect—Hoffman-Henon Co., Philadelphia.



One of 14 Westinghouse Nofuze Power Panels used in the Times-Star Building, Cincinnati, Ohio. In addition, 37 Nofuze Panelboards provide non-tamperable protection for its lighting circuits. Architect—Samuel Hannaford & Sons, Cincinnati, Ohio.



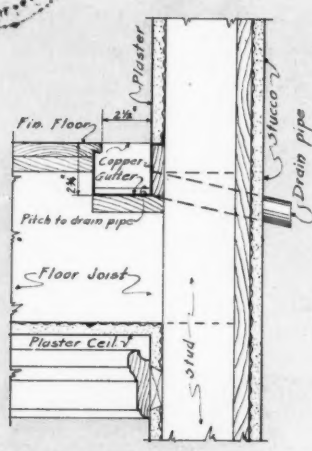
The modern home should no longer be subjected to the inconvenience of blown fuses... the Westinghouse Nofuze Load Center guards home wiring, affording convenient, automatic protection. Restoration of service after an overload has opened a circuit is as simple as flipping a wall switch.



Westinghouse "De-ion" Breakers—used in Nofuze Panelboards, Switchboards, Load Centers, and Industrial Circuit Breakers—are available in capacities up to 600 amperes, 600 Volts a-c or 250 Volts d-c.



Things You Didn't Learn in School

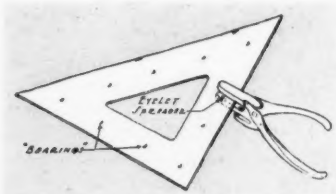


• Gutter for Sleeping Porch

By Max Sandfield
San Antonio, Texas

WHEN the design of a sleeping porch over a room calls for a solid wall up to the line of the screens, the gutter shown in the accompanying sketch will be found an aid in avoiding leaks in the room on the first floor.

Water, whether from rain or from floor mops, will be easily and quickly drained before it has a chance to work its way in at the junction of the floor and the wall.



• Bearings for Triangles

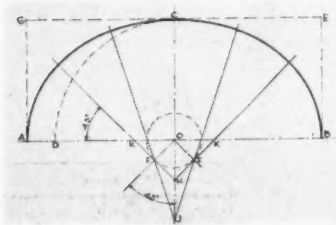
By Fred H. Elswick
Rush, Kentucky

PUTTING "bearings" on transparent triangles can be easily done with the spreader device of an ordinary eyelet punch and fastener. These bearings are the only parts of the triangle that come in contact with the drawing surface, which is a great help in keeping the drawings clean—especially pencil tracings.

• Collected Building Data

By Stanley T. Shaw
Tacoma, Washington

AS an aid in developing working drawings or writing specifications, miscellaneous information is conveniently kept in a book of "Building Data" made from an old loose-leaf catalog. Index sheets carry the standard A. I. A. classification with added headings as "Costs," "Contractors," "Standard Details," etc. Under the headings can be bound or pasted the pages from booklets requiring frequent reference. The book is a great time-saver and a general help.



• Drawing an Ellipse and Computing Radii

By Walter M. Swarts
New London, Connecticut

THE method of drawing an ellipse shown in the accompanying diagram is not only a simple procedure, but also permits computing the radii. It is useful when size makes full size detailing impractical.

Having the rectangle AGEBA and the center line, with O as center and a radius OC, describe a semi-circle intersecting the spring line at D. With a radius DA describe a circle using O as center. From center O draw a line at 45 degrees from the spring line intersecting the circle at F.

At right angles to the line just drawn and at 45 degrees from the spring line, draw a line intersecting the circle at F and the center line at H. Lay off on the center line OJ equal to 2 times OH. The points F, J and K are the centers of the arcs required. Extend the lines and thus determine the length of the arcs.

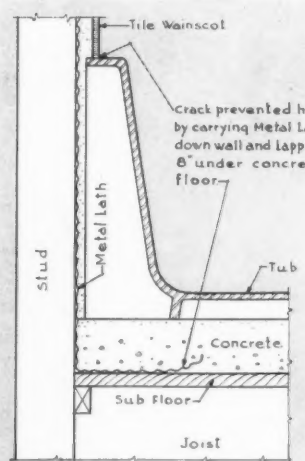
• Formula for Joist Spacing

By Frederick E. Markus
Lawrence, Mass.

IN laying out floor joists it is often convenient to assume a certain size joist throughout for the sake of uniform floor thickness and to vary the spacing according to the span. Usual computations for this are tedious. However, with formulas properly combined and converted in terms of spacing, much can be cancelled out and the maximum allowable spacing easily obtained. Combination of formulas gives,

$$\text{Spacing} = \frac{8 b d^2 f}{6 w l^2}$$

Where 8 denotes single span (from—) W1
 b " breadth 8
 d " depth
 f " fibre stress
 w " total load per sq. ft.
 l " span in ft.



• Preventing Cracks Around Bathtubs

By Ronald W. Catto
Toronto, Canada

A METHOD of preventing cracks occurring between a bathroom tile wainscot and the tub consists in extending the metal lath of the tile backing at least eight inches under the concrete sub-floor. This also minimizes the cracks at the juncture of floor and walls.

American Architect will pay \$5 for each suggestion published on this page



The Shower Bath

Are You Specifying Safe Floors?

THERE is no need for a slipping hazard in shower baths. Alundum Tiles are positively non-slip—and when wet. They provide a safe, sure footing—even for careless, playful youth; are comfortable to bare feet.

If you prefer terrazzo floors for showers they, too, can be made non-slip when wet—by the use of Alundum Aggregate, another NORTON FLOORS product.

Catalog B describes Alundum Ceramic Mosaic Tile; Catalog C gives full details about Alundum Aggregate for terrazzo. Send for either or both—no obligation.

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The Readers Have a Word to Say

• LACK OF MONEY IS THE TROUBLE

Editor, AMERICAN ARCHITECT:

THE proposed building program of the NRA is but the priming of the pump, so far as building recovery is concerned.

Our mortgage companies are the valves that raise money—savings, trust funds, insurance and other capital for investment—for productive use and happy homes in the form of buildings and equipment.

The mortgage companies are making a "New Deal." New mortgage companies in the State of New York are emerging out of the old ones, which have been taken over by the State Superintendent of Insurance for orderly liquidation. The new companies will proceed on the same basis as that for Government loans, guaranteeing interest, their loans being limited as to their capital as a percentage of the interest thus guaranteed.

Lessening the amount of the first mortgage will not improve soundness, for it is inducive to usurious second mortgages which will jeopardize the owner's success, causing foreclosure and a new owner who is probably not so able as the first in producing income. The technical studies of an able architect who carefully analyzes the income the owner will produce with the building, or the ability of the home-owner to pay proper amortization, are the surest guarantee of the soundness of the investment. As a further guarantee, the architect's financial setup is reviewed by the mortgage company before finance is approved.

Lack of financing only, seems to be in the way of recovery of building. Yet finance is seeking a place for investment as evidenced by subscriptions to Government bonds. The speedy reorganization of the mortgage companies is therefore necessary for the success of the National Recovery Act; and architects should get their projects prepared.—*Frederick O. Lewis, Architect, New York City.*

• INDUSTRY CAN HELP ITSELF

Editor, AMERICAN ARCHITECT:

I HAVE read with interest your article in the September issue of AMERICAN ARCHITECT, and I am in entire

accord with you regarding the importance of the building industry and the desirability of its early revival.

If I were to differ with you on any point it would be on the advisability of bringing the Federal Government into the picture. It seems to me that there is little if anything that the industry cannot do for itself, and do better, through concerted action of the various groups of which it is composed.

Would it not be feasible to sell the various groups interested in the building industry—architects, engineers, contractors, manufacturers, mortgage brokers, etc.—on the idea of cooperating for the revival of building and the solution of common problems, through some such organization as the American Construction Council?—*Anton S. Rosing, Editor, "The Taxpayer," Middletown, Ohio.*

• THAT FEE PROBLEM AGAIN

Editor, AMERICAN ARCHITECT:

THAT conditions will improve is made more evident by your article on Revival of Building. There are always snags. Just now I feel that one of them is the question of minimum charges. For example, a fourteen thousand dollar house at 6%, even with modest overhead, barely produces a living, yet if we start now to boost the rates we will be still further cramped by Sears-Roebuck and other quantity production outfits. It is an unfortunate anomaly that while the Institute is considering a boost in the rates, many of its members are cutting the existing scale.—*An A. I. A. Member.*

• LET BUILDING BE PART OF RECOVERY PLAN

Editor, AMERICAN ARCHITECT:

YOUR article entitled "Jobs for Millions" is a lucid and interesting statement of a serious phase of the Recovery Program, which until recently has received very little attention at Washington. Since March 4th, all efforts have been directed towards improving Industry and Agriculture, and little attention has been given to the important department of private construction. Until that phase of the problem is constructively attacked, the President's recovery program will continue to be lopsided.

It is gratifying to see that in the last

two weeks he has started to pay considerable attention to this branch of Industry, and so is rounding out the entire plan.—*Mackey Wells, President, Kerner Incinerator Co., Milwaukee, Wisconsin.*

• PROMOTING BUILDING IN SYRACUSE

Editor, AMERICAN ARCHITECT:

AS secretary of the Syracuse Society of Architects I have received your letter of September 18th, together with the article "Jobs for Millions."

I was very much pleased and interested to receive your communication, especially in view of the fact that I am a member of a joint committee appointed from the Architects Society and the local American General Contractors Association, whose purpose it is, through proper publicity, to endeavor to stimulate the Construction Industry in the Central New York area.

This committee was appointed some three or four weeks ago and has prepared the first of several articles to be published in the local press regarding the very great importance of the building industry to the economic welfare of the community.

The movement suggested by you is certainly a very vital and necessary one and we take a good deal of what might be termed pardonable pride that we had started such a movement here locally on our "own hook" without prompting from the outside.—*Harry A. King, Architect, Syracuse, N. Y.*

• DANGEROUS TO BUILD NOW

Editor, AMERICAN ARCHITECT:

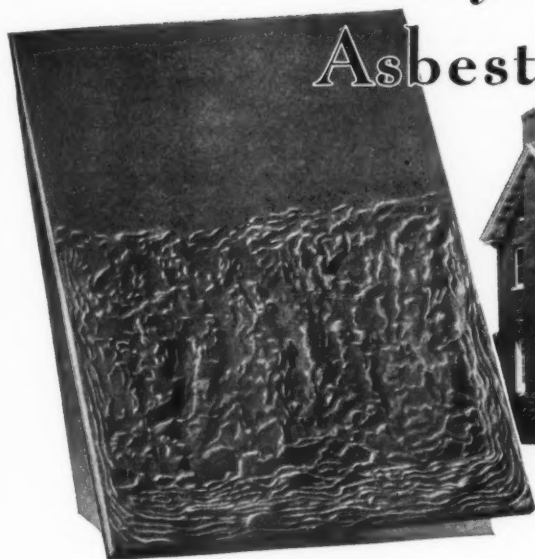
I HAVE been tremendously interested in the future of the building industry as far as it will apply to private construction. It seems to me that this will come to a complete standstill for the next two years, or during the building program which will be financed by the Public Works Administration of the N. R. A.

The cost of building construction has mounted in Atlanta to considerable height, and we have found that within the last three months, the cost of some sub-contracts has increased as much as 70% since the middle of May this year.

In preparing estimates of work to be

ETERNIT GOTHICS-

Today's Style Leader in Asbestos-Cement Shingles



Home of Dr. J. J. Noonan, Marshalltown, Ia.
Architect, R. J. Prescott. Roofed with 2,000
square feet Jade Green Eternit Gothics.

GOTHIC FEATURES

1. AGELESS AND FIREPROOF—Ingredients: Portland Cement, reinforced with asbestos rock fibres. Both are time- and fire-defying.
2. TAPERED CONSTRUCTION—Designed to provide thickness and strength where it is most required. Needless weight eliminated.
3. RUGGED TEXTURE—7" exposed shingle area, textured like rugged rock, carved by time.
4. MELLOW COLORS—Ten rich, time-mellowed colors. Ideal for color harmonies or color contrasts. The mineral oxide colors are an integral part of each shingle.
5. RANDOM WIDTHS—Full size shingle 12" x 16", spaced $\frac{1}{8}$ " apart. Supplied also in random widths of 5", 6" or 7".
6. STAGGERED BUTTS—Double sets of punched nail holes permit laying irregular shingle courses.
7. DEEP SHADOWS—Butts are $\frac{5}{16}$ " thick, assuring deep, heavy shadow lines.
8. MODERATE COST—Saving in both materials and labor permits roof cost in keeping with 1933 income.

*Patents applied for

**Rare Rugged Texture,
Mellow Colors, Tapered Construc-
tion, Heavy Butts and Random
Widths of this RU-BER-OID
Product Wins Roofing Jobs**

WHEN YOU WORK on building or modernizing plans that invite the use of stone, stucco or brick, visualize the distinctive beauty of a roof of Eternit Gothics*—today's style leader in Asbestos Cement Shingles.

Gothic's rugged texture so rare in beauty, resembles natural rock, carved by years of exposure. Varying lights and shadows of the texture are enhanced by *heavy butted* shingles sometimes staggered or laid in random widths. Charming colors of lasting beauty are offered—soft and rich like those found only in the most expensive roofs which time has mellowed, offering possibilities for blends to fit any color scheme.

See samples of Eternit Gothics, the Asbestos Shingle that wins its way on jobs because of roof beauty, individuality, durability and economy. Clip and mail the coupon now.

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Readers Have a Word to Say . . . *Continued from page 110*

financed under the public works program, the contractors who estimated our projects figured that the cost of construction in this section of the country would be materially increased on these projects.

Unless a very important private project, due to a fire loss, or some other great necessity presents itself, I do not see how an architect can conscientiously recommend that a prospective client proceed with a building project. It is evident that there will be an appreciable decline in the cost of building after the Government's Public Works Program ceases. I should say that the amount would be at least 33 1/3% of the present cost, and it would mean quite a loss to an owner of a private project. Furthermore, I find that this city has been overbuilt during the speculative period exactly as other cities.

As I say, your article ("Jobs for Millions") is most interesting, but don't you think it is trying to create a demand for building which hardly exists and which will cause much financial loss to private individuals if your program is carried out?—*Rudolph Adler, Hents, Adler & Shutze, Atlanta, Ga.*

Rising prices encourage buying. Present indications are that this is one of the Administration's objectives. There is nothing at present to indicate that prices will immediately fall as soon as there is a let-down in Public Works. An era of unsound building would be fatal. There is, however, a large volume of new construction and modernization projects that are needed in all parts of the country. These can safely proceed.—*Editor.*

• NEEDED NOW

Editor, AMERICAN ARCHITECT:

IT seems as if your long campaign to have Federal buildings designed by private architects has, at last, produced results. At any rate, it appears as if the contemplated progress of public building construction will be handled to a great extent by private architects under the jurisdiction of Assistant Secretary of the Treasury, Lawrence W. Robert, Jr.

I have been wondering whether you intend to carry your campaign a bit further, now that the basic results have been obtained. I refer to the fact that only a small proportion of the \$3,300,000,000 appropriation will be spent for building construction. Much attention is being focused on engineering projects, but very little is said about public building construction. This is regrettable, because architects and the manufacturers of building materials need this work immediately.

Engineering projects do not have any appreciable effect upon bringing back prosperity as a whole. The engineers and laborers employed live, as a rule, in camps during the entire project. The money that they might earn is obviously not put into immediate circulation.

A public building or any other building that might be started at the present time would indirectly give employment to more men than would an engineering project of the same cost. Hundreds of workers in scores of fields are directly benefited, and as they are residents of industrial centers, the employment of building trades workers means that money is immediately put into circulation. The public building uses not only labor but steel, stone, cement, brick, tile, glass, bronze, brass, lumber and terra cotta; whereas an engineering project is more or less confined to the use of concrete, steel and certain types of equipment.—*J. S. Hanofce, Advertising Manager, Atlantic Terra Cotta Co.*

• TRAVEL ADVICE WANTED

Editor, AMERICAN ARCHITECT:

WE are a group of three architectural students from the University of Cincinnati and are preparing for an extended tour. We have planned to start our trip from Cincinnati about the 1st of March, 1934, drive to New York and board a steamer for Northern Africa. This trip is to cover a period of two years and cover approximately 80,000 miles, and to include every country in the "Old World." Transportation will be by means of a new Ford.

Such a thorough trip as we are about to begin has been, we believe, rarely if ever attempted, and we feel that while we are planning to the best of our knowledge there are bound to be many things that we should know. Such advice might well include information as to steamship lines to Egypt, road and living conditions in each of the countries we have outlined, etc.

Possibly some of your readers who have traveled over parts of our itinerary will be willing to write us and give us the benefit of their experience.—*Charles H. Gearhart, Arthur Addison, Harold E. Radabaugh, 2425 Clifton Ave., Cincinnati, Ohio.*

• FINDS IDEA USEFUL

Editor, AMERICAN ARCHITECT:

WHEN in the May, 1932 issue you published an article "An Architect Cuts Office Time" by Rathbone De-

Buys, there still were some firms like ours that were not reduced to a system of one man efficiency minus personal secretaries or stenographers. Since then, however, most of us have been; and hence this article was looked over, having been remembered by me. As a result, we made up only two of the desk top letter file units described in the article. I call them desk secretaries, and we find them mighty useful indeed. I feel they have been a great idea and we are indebted to the author and *AMERICAN ARCHITECT*.—*Harry Lucht, Architect, Cliffside Park, N. J.*

• AN APPEAL TO ARCHITECTS

The following letter is published at the request of the National Terrazzo & Mosaic Association.—*Editor.*

Mr. Architect:

IN line with the efforts of our illustrious President, Franklin D. Roosevelt, the National Terrazzo & Mosaic Association has prepared and submitted a Code of Fair Competition for our industry.

May we ask you to include in all of your future specifications the statement that all work must be performed by only those contractors and workmen who have subscribed to the National Code to which their class of work is assigned and to those who have voluntarily signed the President's Re-employment Agreement?—*The National Terrazzo & Mosaic Assn., Inc., A. J. Rennen, President, J. M. Fuhrman, Sec'y. & Treas.*

• COMMENTS ON "JOBS FOR MILLIONS"

Willard L. Thorp, Director, Department of Commerce, Washington. "The Bureau of Foreign and Domestic Commerce is very much interested in the problem of the revival of private building construction, and the article was exceedingly timely."

Roger Allen, The Chronicle, Grand Rapids, Michigan. "I am using your article as the basis of an editorial that will appear next week, September 29th, in both the Chronicle and the North End Review."

Albert O. Larson, Secretary, Minnesota Chapter of The A. I. A. "Last night I read your article 'Jobs for Millions' to the Chapter. It was most favorably commented upon. Can you supply (Continued on page 126)

NEW CATALOGS . . .

Readers of AMERICAN ARCHITECT may secure without cost any or all of the manufacturers' catalogs described on this and the following page by mailing the prepaid post card printed below after writing the numbers of the catalogs wanted. Distribution of catalogs to draftsmen and students is optional with the manufacturers

MODERN KITCHEN CABINETS

315 . . . In an informative, well illustrated and useful 28-page catalog Art Metal Construction Company, Jamestown, N. Y., presents its kitchen cabinets and fittings of metal. Modern kitchen layouts, developed in collaboration with General Electric Kitchen Institute, establish helpful principles of design. Complete data, including dimensions, specification and installation details, are included.

VALVES AND HEATING EQUIPMENT

316 . . . Jas. P. Marsh Corp., Chicago, has issued Catalog No. 68, A.I.A. File 30-A, presenting their line of radiator valves, traps, gauges, thermometers and other heating and industrial instruments and accessories. The catalog contains 38 pages, bound to permit changes.

FABRICATION OF OXWELDED PIPING

317 . . . The Linde Air Products Company, New York, has published a manual of 156 pages on the fabrication of oxwelded piping. The manual, while designed primarily for the engineer and technician, also provides architects with a comprehensive knowledge of possibilities in this field.

CARNEGIE CONTROLLED CARBON STEELS

318 . . . A brief treatise on control of quality factors in the manufacture of steel by the basic open hearth process, and its importance to users of steel, has been issued by the Carnegie Steel Company, Pittsburgh. This 64-page manual is a thoroughly illustrated research document which presents in understandable language factors which govern the different quality characteristics obtainable in steel, and indicates how they can be controlled to suit requirements of the user. A bibliography is also included.

REMOTE CONTROL EQUIPMENT

319 . . . The Hart Mfg. Company, Hartford, Conn., offers a 32-page bulletin on remote control electric switches and devices used primarily for simultaneous control of multiple lighting circuits or for centralized control of power loads.

VEOS SINKS

320 . . . Veos sinks of stainless vitreous enamel in pressed steel bodies are described in a catalog to introduce the

"President" line recently issued by The Youngstown Pressed Steel Company, Warren, Ohio.

ALUNDUM AGGREGATES

321 . . . In a four-page folder, A.I.A. File 3-D-5, the Norton Company, Worcester, Mass., presents characteristics, applications and specification data on the use of alundum aggregate for non-slip terrazzo walkways, stairs, etc.

ROSTONE

322 . . . The new processed stone introduced in the House of Rostone at A Century of Progress is described in a 4-page folder, A.I.A., File 8c and in a small non-technical booklet. Both are issued by Rostone, Inc., Lafayette, Ind.

WHITE-LEAD PAINT SPECIFICATIONS

323 . . . A revised edition of "Specifications for the Use of White-Lead Paint," superseding the edition of 1931, has been issued by the National Lead Company, New York, in the form of a 32-page specification reference manual.

WESTINGHOUSE ELECTRIC WATER HEATERS

324 . . . Complete data on Westinghouse Electric Water Heaters of all types, from the self-contained storage water heater to immersion heater units and temperature controls, are contained in a 16-page informative catalog issued by Westinghouse Electric & Mfg. Company, Mansfield, Ohio.

HAMLINIZED FOLDING PARTITION

325 . . . In a 4-page folder and inserted data sheet, Irving Hamlin, Evanston, Ill., provides complete reference data on the Hamlinized Folding Partition, combining the Evanston Sound-Proof Door and Topping Mfg. Company's "Easyfold" hardware. Logical applications and typical details are included. A. I. A. File 19-E-61 and 17-A-5.

ROTOR VENTILATORS

326 . . . The United States Ventilator & Power Corp., Boston, has issued a 4-page folder giving applications, capacities and prices of "S" Rotor Ventilators and Rotor Smoke Cowls using the Savonius Wind Rotor for positive ventilation of stacks under any wind condition.

ALUMINUM EXTRUDED SHAPES

327 . . . In a cloth-bound book containing 182 full page plates, the Aluminum Company of America, Pittsburgh, presents full size sections of Alcoa Aluminum extruded shapes for which dies now exist. While these shapes are generally arranged for similarity of size or use, there is no data on the application of the shapes. The intention of the book is to show economies that often may be effected by working from available standard designs. A. I. A. File 15-J.

LOW PRESSURE REFRIGERATING UNITS

328 . . . More than 20 types and sizes of methyl chloride refrigerating units are illustrated and described in a 12-page

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AMERICAN ARCHITECT
New York City

November 1933

Please have the following catalogs reviewed in this issue sent to me.
Numbers

• I also desire further information about the new products described in this month's "New Materials and Equipment." . . . (See pages immediately following this insert)

Numbers
• I would like to have catalogs and information concerning the following products advertised in this issue. (See advertisers' list on following page).....

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FOR NOVEMBER 1933

These NEW Catalogs may be obtained through AMERICAN ARCHITECT

bulletin, 97-A, issued by Frick Company, Waynesboro, Pa. Illustrations and text show applications in markets, hotels, hospitals, restaurants, and for water cooling systems, dairy refrigeration, air conditioning, etc. Three pages are devoted to technical characteristics and condensed operating data.

EMERGENCY POWER GENERATORS

329 . . . A complete line of gas-electric generating sets, designed for use either as emergency power sources or for constant service, is described in an informative and well illustrated 12-page folder entitled, "Gas-Electric Sets for Every Application." It is issued by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. The booklet gives technical specifications of the equipment, indicates their logical applications, and describes their operating features and construction in detail.

KRAMER FLUSH VALVES

330 . . . An 8-page booklet, A. I. A. file 29-H-21, has been issued by the Dalmo Sales Company, San Francisco and Philadelphia, in which Kramer Flush Valves are illustrated and described. Complete details, prices and roughing in dimensions are included. The valve is of simplified design, having only two main operating parts.

DISAPPEARING STAIRWAYS

331 . . . The Bessler Disappearing Stairway Co., Akron, Ohio, has issued a 4-page folder, A.I.A. File 35-N-9, correcting its pages in the 1933 edition of Sweet's Architectural Catalogs.

BUILT-IN HEATER PRICES

332 . . . A bulletin of list prices covering Convectofin Built-In Heaters has just been published by the Commodore Heaters Corp., New York. Price information is furnished together with drawings of seven typical installation types so that

anyone can readily determine in advance what heater costs will be for any type and size.

ILLUMINATING GOLF COURSES

333 . . . Recommendation for illuminating golf courses have been presented in an 8-page folder issued by Westinghouse Electric & Mfg. Co., Cleveland, Ohio.

LIGHTING GASOLINE SERVICE STATIONS

334 . . . Recommendations for lighting gasoline service stations are presented in a 12-page illustrated booklet issued by Westinghouse Electric & Mfg. Company, Cleveland, Ohio.

SPARTA CERAMICS

335 . . . The Sparta Ceramic Company, East Sparta, Ohio, offers a 4-page folder providing architectural data on their vitreous ceramic mosaic tiles, including their new Stri-Lief, an extruded unglazed tile with one face in striated relief.

REFRIGERATION FOR BREWERIES

336 . . . In a 16-page and cover bulletin, Frick Company, Waynesboro, Pa., provides complete information on refrigerator equipment especially adapted to brewery purposes. Illustrations include many representative installations.

4-WAY FLOOR PLATES

337 . . . A new 6-page folder on Inland 4-Way Floor Plate has just been issued by the Inland Steel Company, Chicago, to describe in detail the 4-Way Plate. It is well illustrated to suggest advantageous use of floor plate and includes all the size and standard extras data needed by the user.

KOHLER FIXTURES

338 . . . In a small 16-page booklet

entitled "Modern Bathrooms and Kitchens," Kohler Company, Kohler, Wisconsin, presents selected bathroom and kitchen fixtures and fittings. Included is a useful color chart which suggests treatments for floors, walls, ceilings and accessories in combination with the colors available in Kohler fixtures.

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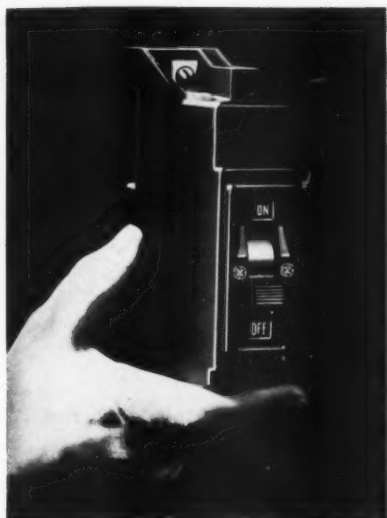
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NEW YORK, N. Y.

New Materials and Equipment

BRIEF REVIEWS OF MANUFACTURERS' ANNOUNCEMENTS
TO KEEP THE ARCHITECT INFORMED OF NEW PRODUCTS



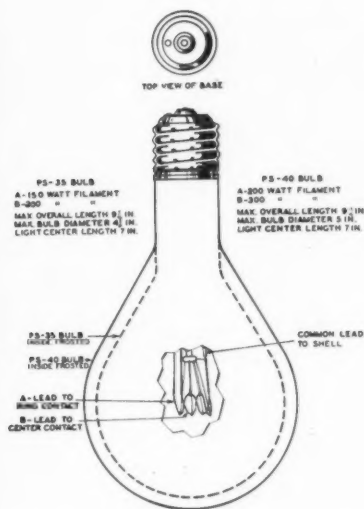
New Line of Small G-E Breakers to Replace Fuses

235M A complete line of small circuit breakers, rated up to 600 volts and 600 amperes, and designed for the control and protection of industrial circuits, house service entrance, branch circuits, refrigerators, ranges, etc. is presented by General Electric Company, Schenectady, N. Y. In addition to offering such inherent advantages as speedy restoration of service and tamper-proof protection, these new breakers, designated as AF-1, employing a unique principle of arc interruption, operate quietly and permit no external arc. When an over-current trips the breaker, contacts are disengaged within a closed metal chamber. The arc, which is drawn between the contacts, generates a pressure which increases the resistance of the arc path so rapidly that the circuit is interrupted in .008 of a second. Only the click of the trip mechanism and the appearance of a target indicate that the breaker has been tripped.

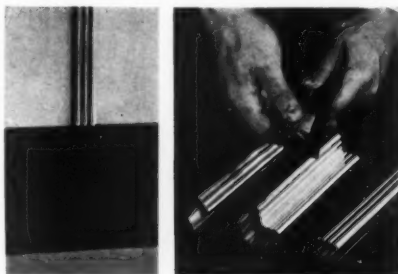
Breaker parts are enclosed in a housing of textolite, and provision is made for convenient mounting of the breaker in panelboards, dead-front distribution boards, or individual metal enclosures. All sizes of the AF-1 breaker are designed to fit the ordinary service entrance box.

Metal Wall Trim

236M A new type of metal wall trim has been developed by Wooster Products, Inc., Wooster, Ohio, especially adaptable to the mounting of Bakelite Laminated wall board material. The trim is available in highly polished and satin effects, as well as in



Left: G-E circuit breaker. Above: The new Mazda three-light lamp. Right: Weatherproof electric outlet. Below: The new type of metal wall trim



standard colors. A number of distinctive designs are offered. Installation method: First, a copper clip base is securely attached to the furring or plaster. Second, Bakelite Laminated sheets are mounted in position, leaving sufficient play for expansion and contraction. Third, the metal trim is installed by forcing the tongued section into the dovetailed spring clip.

Weatherproof Outlet

237M A weatherproof outlet that will facilitate the use of outdoor lighting fixtures and appliances has been perfected by General Electric Company, Bridgeport, Conn. Made of brass and cadmium coated, it resists rust and corrosion. The flush plate has a solid rubber pad mounted on the back, insuring a snug fit when the device is screwed in place. A cap slips over the cord plug and screws onto the device, assuring a weatherproof connection. Another rubber-insulated cap, chained to the flush plate of the outlet, screws tightly over the outlet when not in use.

Three-Light Lamp

238M A revolutionary lamp that provides three different levels of illumination from a single bulb has been announced by the Incandescent Lamp Department, General Electric Company, Cleveland. The new Mazda three-light lamp contains two filaments which may be burned singly or in combination. Two sizes are now available, one containing 150 and 200 watt filaments, the other 200 and 300 watt filaments. With both filaments operating capacities are 350 and 500 watts respectively. A special mogul screw base with an additional center contact must be used with these lamps. Control may be effected by running a third wire to the socket or by use of a canopy switch at each fixture. Uses include variable level lighting in stores and commercial buildings with minimum change in present fixtures, and in other applications where power loads requiring extra illumination occur.



Hold-Up Protection Devices

239M Diebold Safe & Lock Company, Canton, Ohio, has developed a series of devices for safeguarding valuables in banks and homes. Bank units include a teller's safety locker, an automatic-rewind, delayed control combination lock, electric, silent-signal combination lock, and an electric Rekordesk. These devices are designed to minimize the chance of loss through hold-ups or bank robberies.

Holophane Medical Examination Light

240M The Holophane Company, New York, offers a new lighting fixture primarily designed for doctors' consultation offices, clinical examination rooms, etc. It includes a porcelain enameled reflector bowl for indirect lighting, with a bottom diaphragm con-

centrating a light of any desired intensity directly downward. The manufacturer also recommends its use for drafting rooms.

Electric Time Switches

241M General Electric Company, Schenectady, New York, announces the introduction of three new timing devices, included in the line of Type T14 time switches. One is utility time switch for miscellaneous applications, operating on and off once in 24 hours. It is suitable for radio sets, store window lighting, burglar protection, etc. The second is an electric range timer: with the on-off cycle subject to adjustment. The third is a thermostat timer for use with day and night range thermostats on house heating systems, providing a day and night indicator to change temperature setting twice daily.



Amplicall System

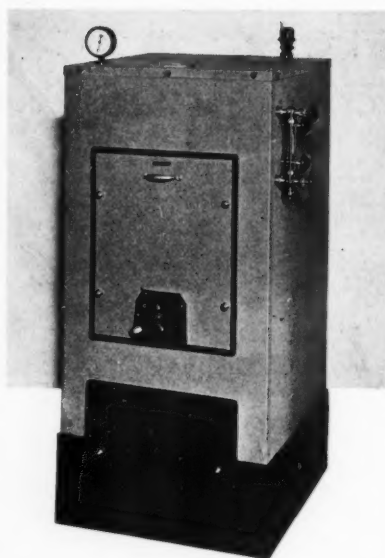
242M A low-cost call system, consisting of a microphone, amplifier and a number of loudspeaker stations, has been developed by the Webster Company, Chicago, and is offered under the trade name of "Amplicall." It is made in six standard models.

Inverted Bucket Steam Trap

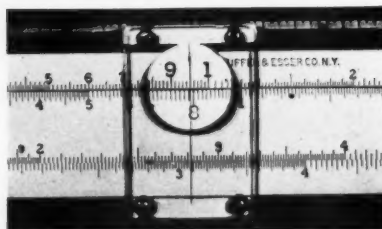
243M Jas. P. Marsh Corp., Chicago, has added the Marsh No. 500 Series Steam Trap to their line of heating devices. This trap, of inverted bucket type, is self venting and discharges intermittently. It is designed for service where a considerable volume of condensate is to be handled.

Safety Water Feeder

244M Minneapolis-Honeywell Regulator Co., Minneapolis, has introduced an automatic water feeder and low water cutoff for steam and water boilers. The unit is designed for gauge glass mounting and consists of an automatic water feeder surmounted by an electrical protective device which will automatically shut off power to firing mechanisms should any dangerous low water condition develop.



Left: Operation diagram of Amplicall system. Above: New "OilMaster" boiler designed for oil burning. Below: Portion of slide rule showing new Slip-Lens device



Slide Rule Slip-Lens

245M An ingenious device to increase accuracy and minimize eye strain in the use of slide rules is the Slip-Lens recently introduced by The Slip-Lens Company, New York. It consists of a slide fitting any standard slide rule with an accurate lens that covers one scale at a time and that can be moved to cover any scale without taking the slide off the rule. The lens is optically designed for accurate reading from any angle.

Arcola Radiator Heating Outfits

246M American Radiator Company, New York, announces an inexpensive Arcola Radiator Heating outfit for small buildings. The outfit consists of an Arcola heater—which may be used to serve as the radiator in one of the rooms to be heated—American Corto radiators, and an automatic regulation device to maintain uniform temperatures. Piping connections can be made with Arco copper pipe in existing buildings to minimize installation difficulties. The outfit is designed for all-on-one-floor installation, but an unjacketed Arcola Heater may be substituted for basement installation.

Thatcher "OilMaster" Boiler

247M A new jacketed line of oil burning boilers called "Oil-Master" 26 Series, has been developed by The Thatcher Company, Newark, N. J. They are designed exclusively for oil burning, providing long fire travel and provision for the installation of either gun type or rotary oil burner. A built-in water heater is included. Capacities run from 450 to 940 net equivalent direct steam radiation.

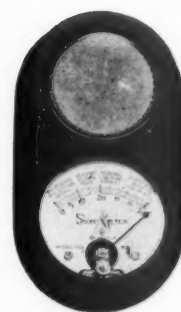
Health Window

248M A window insertion unit containing an electric fan, electric heating unit, air filter and water pan for humidification has been introduced by the Burrowes Corp., Portland, Maine, under the name of the Health Window. Louvers for direct ventilation and extension elements for adapting the units to any size window are incorporated features. For the present the unit can be purchased direct from the manufacturers, pending completion of distribution arrangements.

Stainless Metal Residence Sinks

249M Custom-made stainless metal residence sinks are now being offered by the John Van Range Company, Cincinnati, in sizes and types to meet architects' specifications. They are fabricated of 14 gauge stainless metal with all welded construction and feature the use of corners coved to $\frac{3}{4}$ " radius for ease of cleaning. Drainboards are ribbed and pitched to the basin to insure proper drainage.

Sight Meter



250M A portable meter for measuring the quantity of light at any location has been introduced by The Sight Light Corp. New York. It employs a photo-electric cell requiring no battery, and indicates the quantity of light on a dial which is also marked to show

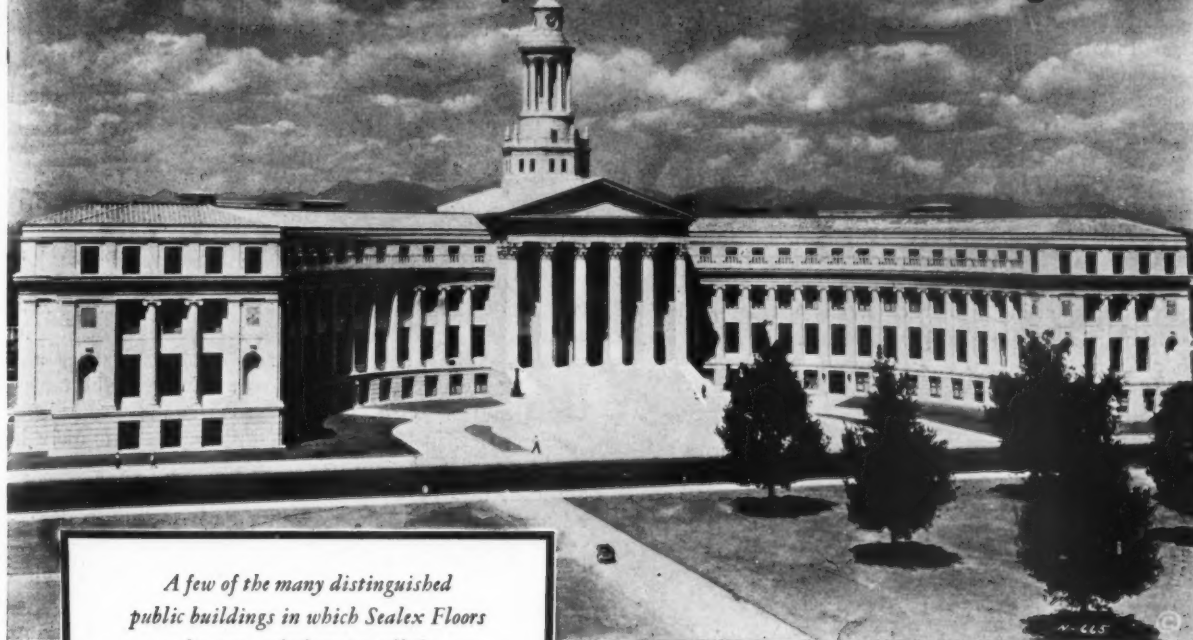
quantity of light that is desirable for different kinds of work.

Controlled Air Conditioning

251M The Edwards Mfg. Company, Cincinnati, announces the addition of automatic speed control to their gas-fired Hot-Kold winter air conditioning unit. This control is designed to eliminate the condition known as "Cold 70°" by maintaining constant circulation at all times. When the thermostat calls for less heat, it merely reduces the speed of the fan and the volume of gas consumed to the requisite degree.

Economical Resilient Floors

for another important Public Building



A few of the many distinguished public buildings in which Sealex Floors have recently been installed.

City and County Building, Denver, Colo. Allied Architects Association, Denver. Supervising Architect, Roland L. Linder.

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Columbus, Ohio.....	180,000 sq. ft.
CAMDEN COUNTY COURT HOUSE	
Camden, N. J.....	180,000 sq. ft.
DEPARTMENT OF AGRICULTURE BUILDING	
Washington, D. C.....	1,000,000 sq. ft.
DEPARTMENT OF JUSTICE BUILDING	
Washington, D. C.....	600,000 sq. ft.
UNITED STATES COURT HOUSE	
New York City.....	260,000 sq. ft.
PITTSBURGH POST OFFICE	
Pittsburgh, Pa.....	170,000 sq. ft.
HARTFORD POST OFFICE	
Hartford, Conn.....	60,000 sq. ft.
SOUTHERN RAILWAY BUILDING	
Atlanta, Ga.....	100,000 sq. ft.
ESSEX COUNTY COURT HOUSE	
Newark, N. J.....	30,000 sq. ft.
U. S. CUSTOMS HOUSE	
Philadelphia, Pa.....	200,000 sq. ft.
U. S. CONGRESSIONAL LIBRARY	
Washington, D. C.....	30,000 sq. ft.
MAPLEWOOD TOWN HALL	
Maplewood, N. J.....	35,000 sq. ft.
PENNSYLVANIA RAILROAD BUILDING	
Philadelphia, Pa.....	50,000 sq. ft.
SOUTHERN RAILWAY BUILDING	
Washington, D. C.....	48,000 sq. ft.

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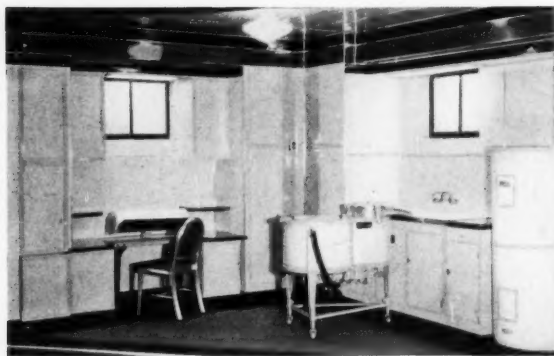
Trends and Topics of the Times . . . Continued from page 61

stimulation of buying in almost every form of industry and business. It is an interesting attack on the problem of easing the credit situation.

• Albert O. Larson of the Minneapolis firm of Larson & McLaren, architects, says, "Low Cost Housing is a matter of public responsibility and would do more to speedily end the depression than any other form of labor thus far attempted.

"The great percentage of delinquency among our youth and the social evils which are filling our jails, hospitals and other institutions come from the squalor of slum housing, which has added to the cost of social service, increased fire insurance, and left a trail of delinquent taxes and greatly depreciated property values.

"It should be remembered that on all other types of construction projects such as are now being proposed, that only a relatively small part of the cost goes to local labor. On housing construction the major portion of the cost is spent for local labor, on the job and in the shops."



The family laundry has too long been the stepchild of scientific home development, according to many domestic planning experts. All this is to be changed. Science, in the guise of Westinghouse engineers, has turned its attention to the basement laundry with the above result. Cleanliness, lightness and efficiency in labor-saving equipment are three cardinal virtues of this all-electric laundry. The room illustrates an important trend toward more intensive use and more attractive development of residential basements. As part of the American Architect Reference Data series, an article on this subject will appear in a 1934 issue

• *The Octagon*, published by the A. I. A., urges expansion of the Producers' Council to embrace all groups within the building industry, pointing out that general cooperation is vitally necessary to economic recovery. *The Octagon* asserts that the Council is the only organization of producers of building material and equipment recognized by governmental agencies as devoted to furthering the best interests of the building industry and public. Since it is a national organization of many years' standing, *The Octagon* feels it to be a natural leader for the construction groups and as such deserving of active support from all branches of the building industry.

• Writing in the *Journal of the Royal Institute of British Architects*, Mr. Arthur T. Bolton, F. S. A., F. R. I. B. A., says, regarding The Permanency of the Classic Tradition, "It has been possible to create and establish a means of expression of universal acceptance from elements that derive from the earliest use of brick, timber and stone. Not until mankind ceases to wonder at, admire and understand buildings so derived will there be other than a passing rejection of Classic tradition."

• Electricity often affects household water systems and is a possible cause of tastes and odors in the water, according to a report of researches conducted by the Hackensack, N. J., Water Company. Nicholas S. Hill, Jr., President of the Company, says that investigation has apparently shown a new phenomenon of electrolysis which may involve the nation's network of underground water carriers. Stray direct current has long been known to disintegrate watermains, but until now actual electrolysis of the water itself has not been established. The current, it was found, sometimes discolors water and again may create disagreeable odors and metallic tastes. Cause of this is said to be "promiscuous grounding." The current, instead of dissipating itself harmlessly in the earth, continues its activity with damage to both pipe and contents. Research on the subject is still incomplete. Although much data have already been collected, experiments are still necessary to determine in more detail the action of electrical current on both pipes and water.

• Speaking of lighting, Mr. A. B. Reid, A. R. C. A. says, in a recent contribution to *The Decorators Digest*, "Lighting by electricity, to play its part effectively in decoration, must be an intrinsic element of the whole design. It is seldom that one finds an interior where lighting has been handled with the care and consideration that this conception of design demands. Lighting must not be made a medium for weird and mannered juggling."

• The State Association of California Architects has been granted the first State Association membership in the A. I. A., effective as of March 1, 1931. This announcement culminates a long campaign which began in February, 1931 and which, after a long series of committee meetings led to an amendment of the by-laws of both State Association and A. I. A. to permit amalgamation of the two bodies. By many unification has been considered desirable for several years. In September AMERICAN ARCHITECT stressed a present need of unification for nationwide professional cooperation. It is gratifying that an important State Association has finally driven the wedge which may ultimately result in a complete scheme of unification for every architectural society in the country.

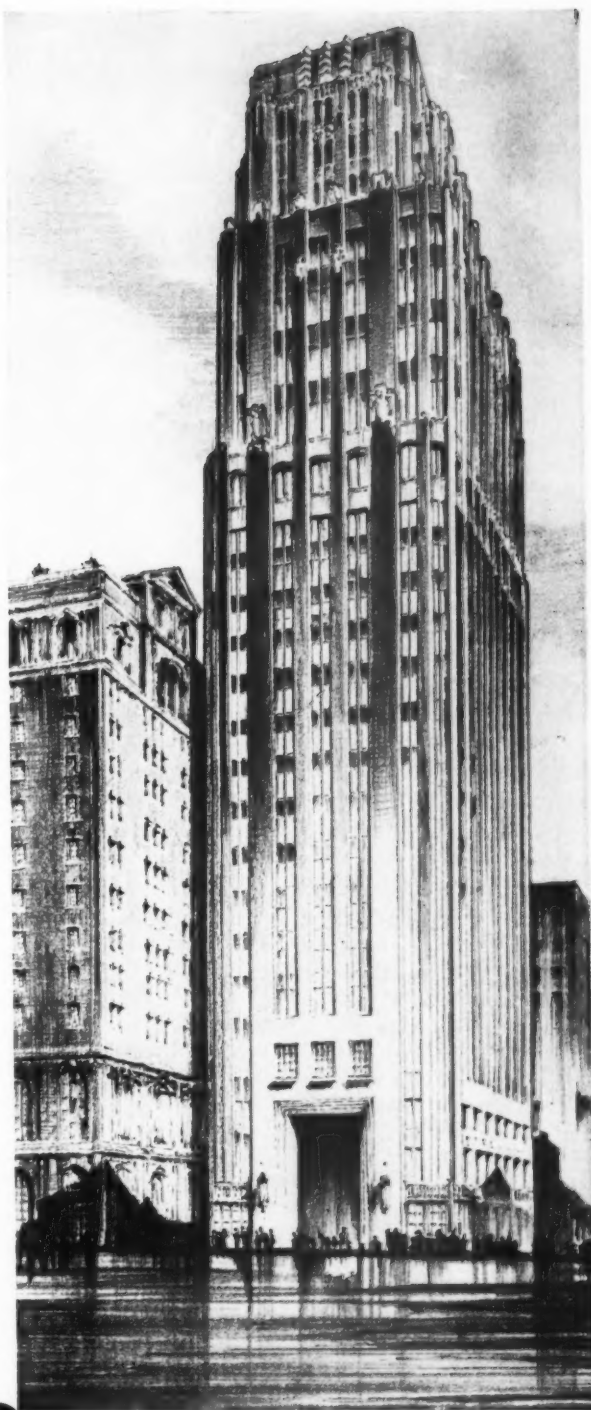
• Volumes of statistics are available to show the fight of the National Tuberculosis Association to stamp out one of the greatest scourges of contemporary existence.

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TO insure proper temperature control in the Architects Building, Philadelphia, designed for and operated by architects, the Minneapolis-Honeywell Modutrol System was selected for this unique architectural achievement . . . Radiators in this building are controlled by Modustats. These automatic orifice temperature control valves provide automatic modulation of temperature in each room according to its individual requirements, and assure efficient use of central steam by preventing wasteful overheating . . . The Minneapolis-Honeywell engineer in your city can quickly show you why the Modutrol System is receiving similar endorsements every day . . . Minneapolis-Honeywell Regulator Company, 2738 Fourth Avenue South, Minneapolis, Minn. Branch or distributing offices in all principal cities.

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Control Systems

FOR NOVEMBER 1933



The Architects Building Philadelphia. Designed for and operated by architects. Philadelphia Chapter, A. I. A., Architects; Isaac Hathaway Francis, Consulting Engineer; Bowers Bros. Company, Heating Contractors.

But figures alone cannot indicate the measure of human happiness that a contribution to the cause of the Association may bring. Architects everywhere should not fail to make some gesture of participation in the activities of the National Tuberculosis Association. This can be done by buying the Association's Tuberculosis seals which have been offered for sale during the Christmas season for many years.



the cameraman to do everything short of tying himself in bowknots. In the cut, Charles E. Knell is shooting one

- Photography is complicated enough even under the most advantageous circumstances. There is the absolute necessity for proper light, correct exposures. Even more, perhaps, there is the necessity of catering to every technical limitation of the camera. The tricks of this are learned only from experience, which—if we are to believe the movie men—sometimes causes the

of the slate mosaics at Jones Beach. It looks easy? Try it sometime from the top of a wobbly 16-foot ladder. The camera weighs about ten pounds; and the sun must be bright, for poor pictures are no good to editor, reader or photographer.

- Item: "An architect who has lived in nine countries recently observed that ours is the only country in which the client does not seek the architect first when he wants to build."—From *Quid Nunc*, Architects' League of Northern New Jersey.

- Speaking of the changes which American life is likely to experience under the implications of the NRA program, Charles D. Maginnis, Vice President of the American Institute of Architects, makes the following statement—"The leisure resulting from the new limits in the hours of work is bound to have interesting consequences. It will stimulate the gradual withdrawal of the worker from the immediate neighborhood of the city even to substantial distance. This movement will mean a great development of small housing constructed on principles which shall bring the cost of the individual dwelling to the irreducible minimum. Opportunity will be afforded for demonstrating how ingenuity in design and material, where assisted by gracious landscaping, can be made to assemble even such unpromising units into communities of positive attraction."

ANNOUNCEMENTS

- The third International Heating and Ventilating Exposition will be held in New York at the Grand Central Palace, February 5th to 9th, 1934, inclusive. A special feature of the exhibition will be newest developments in the field of air conditioning and refrigeration.

- Announcement has been made of the appointment of Professor Joseph Hudnut as Acting Dean of the School of Architecture of Columbia University. Professor Hudnut will take the place of Professor William A. Boring, who has been granted a leave of absence. Educational policies of the school will be changed somewhat to include emphasis on the business side of architecture. Greater attention to basic structural techniques and problems of field supervision will also characterize the new scholastic program.

- The General Electric Co. and four of its associated companies have announced removal of their offices in New York City to the new General Electric Building, 570 Lexington Ave. New York City headquarters of the organization were formerly at 120 Broadway.

- An architectural exhibit, described as entirely new in type, will be held in the new Convention Hall at Asbury Park, N. J., from November 27th to December 4th. Architects who wish to exhibit their work should communicate with W. Earl Hopper, director, Convention Hall.

- Announcement is made that manufacturers in the metal lath industry have formed the Metal Lath Manu-

facturers Association with offices at 208 South LaSalle St., Chicago. This new group replaces the old trade organization known as the Associated Metal Lath Manufacturers. For the present the new Association's activities are being confined to work connected with the NRA and with engineering research problems for the industry. Correspondence from architects is invited.

- Professor James Ford, of the Department of Sociology at Harvard University and Editor of the twelve volumes of The President's Conference on Home Building and Home Ownership, will be Director of an investigation announced by the Phelps-Stokes Fund. An intensive and comprehensive study of slums and blighted areas will be made with a view to their prevention, elimination and conversion for proper housing and other uses. Investigation will be referred particularly to New York City. Headquarters of the Phelps-Stokes Fund for this investigation will be at 101 Park Ave., New York.

- A consulting room in which architects and their clients may study many types of lighting problems will be a feature of the new showrooms of the Lightolier Co., recently opened at 11 East 36th St., New York.

- Recent state legislation requires any architect doing work in Connecticut to be registered in that State. The fee is \$15.00. Examination will be required unless architects can present due qualifications. Application for registration should be made to Edward B. Caldwell, 1029 Fairfield Avenue, Bridgeport, Conn.

Brass Pipe *and/or* Copper Tubes

A common sense standard for the selection of water pipe

NO one metal is ideal for every piping installation. *That is obvious.* For certain jobs, some metals lack sufficient durability to make their use truly economical. For other jobs, the cost of super-quality may not be justified by the corrosion or mechanical factors involved. These are facts . . . and you can't get away from them.

Years ago, The American Brass Company discontinued the manufacture and sale of just "brass pipe". We analyzed water conditions and made a 10-year corrosion study on a wide range of alloys. As a result, we standardized on two scientific alloys of brass . . . Anaconda "67" for normally corrosive waters and Anaconda "85" Red-Brass for highly corrosive waters.

Installations of record prove that brass pipe of the correct alloy, connected with standard pipe fittings, is second to no other commercial pipe material in durability and satisfactory performance.

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Copper Tubes available in long lengths and coils, are readily bent for ordinary turns and offsets, offering obvious installation advantages.

For years, The American Brass Company has made seamless Copper Tubes for countless uses. Within comparatively recent years, these tubes, connected with so-called compression or flared fittings, have been used with entire success for water service and distribution lines.

Intensive study of performance records now leads to the endorsement of cast solder fittings, with these tubes in sizes up to and including 4", where conditions of pressure and temperature are normal. The American Brass Company does not manufacture fittings but there are now

good standard lines of high quality solder fittings available on the market which can advantageously be assembled with Anaconda Deoxidized Copper Water Tubes. Cast solder fittings, because they hold heat during the soldering operation, and also because they are not likely to become distorted from handling, make possible sound, leak-proof solder joints.

All Anaconda Deoxidized Copper Water Tubes stocked by Anaconda distributors are drawn to the accurate sizes required for use with cast solder fittings and comply fully with the tolerances issued by the Federal Specifications Board. While tubes of so-called underground sizes (A.S.T.M. Class A) are recommended for general plumbing work, "interior plumbing" sizes (A.S.T.M. Class B) are considered satisfactory for distribution lines in buildings. The wall thicknesses required by A.S.T.M. Specifications for Classes A and B tubes are shown in the accompanying table.

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Nominal Size, Inches	Wall Thickness		Weight, lbs. per ft.*	
	A.S.T.M. Class A	A.S.T.M. Class B	A.S.T.M. Class A	A.S.T.M. Class B
1/8	.0320	.0250	0.085	0.068
1/4	.0320	.0300	0.134	0.126
3/8	.0490	.0350	0.269	0.198
1/2	.0490	.0400	0.344	0.284
3/4	.0650	.0450	0.641	0.454
1	.0650	.0500	0.839	0.653
1-1/4	.0650	.0550	1.040	0.882
1-1/2	.0720	.0600	1.360	1.140
2	.0830	.0700	2.060	1.750
2-1/2	.0950	.0800	2.920	2.480
3	.1090	.0900	4.000	3.330
3-1/2	.1200	.1000	5.120	4.290
4	.1340	.1100	6.510	5.380

*Variations in these weights must be expected in practice.



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PROCEEDINGS—NATIONAL CONFERENCE ON SLUM CLEARANCE

Compiled by Ernest J. Bohn and John H. Millar. Published by National Conference on Slum Clearance, Cleveland, Ohio. 123 pages; size 6 x 9; price \$3.00.

OF importance to every individual interested in the problem of urban slum clearance is this report which covers the Conference held July 6th and 7th, 1933, in Cleveland, Ohio. Almost every individual who has pioneered the important subject of slum clearance is quoted in the volume and many of the papers represent a valuable contribution to literature on the subject.

THE IRREPRESSIBLE CONFLICT

By David Cushman Coyle. Published by David Cushman Coyle. Third edition. Size 5 1/2 x 8 1/2; 45 pages; price per single copy, 60 cents (for ten or more, 40 cents each).

THIS privately printed little volume bears a sub-title "Business vs. Finance" and herein lies the substance that the text discusses. Mr. Coyle, though an engineer and a member in good standing of the American Society

of Civil Engineers, is well known for originality of thought in the field of economics. His present essay is a commentary on the relations which he believes must necessarily exist between power production and the economic system. The book is written engagingly.

SPECIFICATIONS FOR RESILIENT FLOORS

Published by Bryden-Craft Specifications, 101 Park Avenue, New York. Loose-leaf; illustrated, indexed; 83 pages; size 8 1/2 x 11; price (to architects) \$3.00.

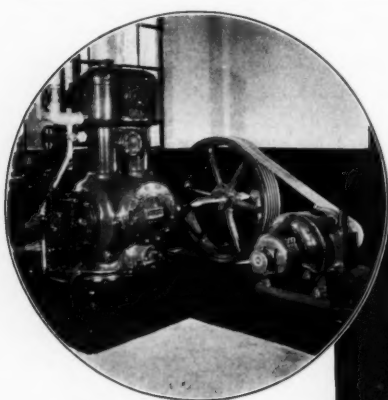
A GROWING tendency toward the use of master specifications in architects' offices probably can be explained by the completeness of the specifications themselves. Certainly if all such volumes were as completely presented as this one dealing with a special subject their use might well become universal. These specifications cover concise instructions for the installation of all types of resilient floor coverings. For clarity the volume is arranged in 13 sections. Each section

was developed with the cooperation of well-known manufacturers, and is authentic and conveniently arranged. The publishers offer a free consulting service on special requirements.

ARCHITECTURAL PRACTICE AND ADMINISTRATION

By H. Ingham Ashworth, A.R.I.B.A. Published by Pitman & Sons, Ltd., London. Illustrated, indexed; 206 pages; size 5 3/4 x 8 1/2; price \$3.75.

IT should be stated first that although this book is written for the edification of young English architects, there is much that can profitably be applied to architectural offices in this country. Primarily the text deals with practical methods of carrying out the contract for a large building operation. The author has made no attempt to outline procedure for every phase of an architect's professional practice, but in the way he treats his special subject this is very nearly accomplished. Written strictly from an architect's viewpoint the text deals with that individual's relations with client, engineer, quantity surveyor, manufacturer and contractor.



Refrigeration

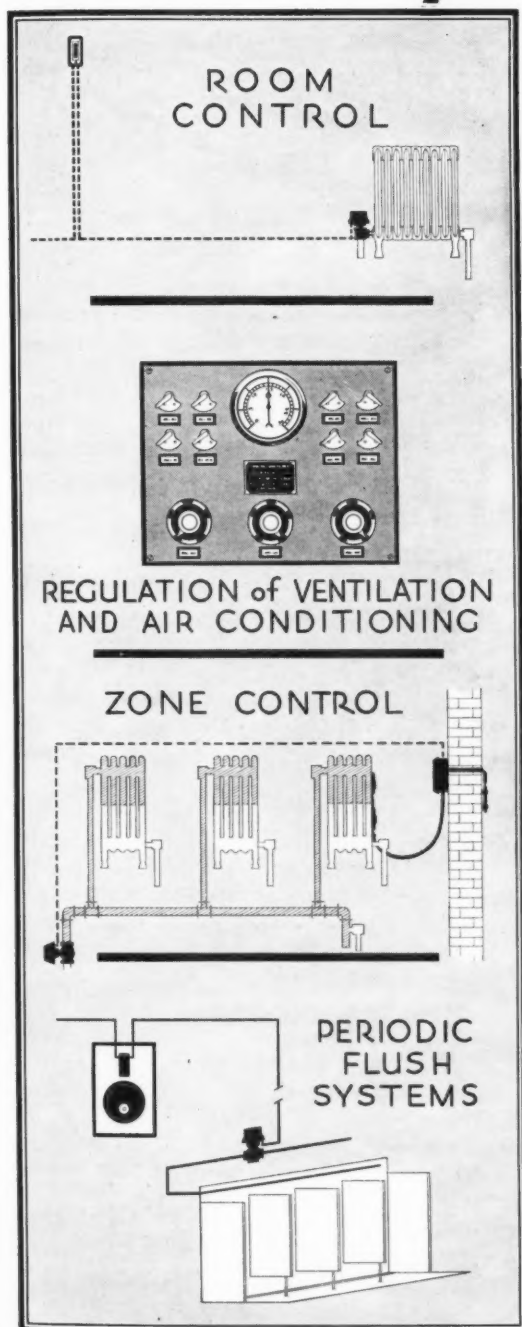
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PERSONALS

• Carlton Brush, architect, of Nashville, Tennessee, has closed his office to accept the position of Maintenance Engineer in the Birmingham Office of the Prudential Insurance Co. of America. His new address will be the Jackson Building, Birmingham, Ala.

• Louis C. Hess, architect, announces removal of his office from the First Trust Building to 208 Russel St., Hammond, Ind. He requests that manufacturers' samples and literature be forwarded to his new address.

• The Kate Neal Kinley Memorial Fellowship of the University of Illinois has been awarded to Arthur Bassin of Chicago. The fellowship includes a period of study for one academic year upon a program approved by the Committee.

• Dr. Carol Aronovici, whose article on Federal-aid housing begins on page 10 of this issue, is directing housing research at the School of Land Economics organized by Dr. Richard T. Ely, President of the Institute for Economic Research. Dr. Aronovici has made housing surveys in many cities and has lectured at Brown University, Swarthmore and several other colleges.

• James Lloyd Berrall announces the opening of offices for the practice of architecture at 22 South Park St., Montclair, N. J.

• Otho McCrackin has opened an office for the practice of architecture in Hutchinson, Kansas.

• Joseph Hoover, R.A., has opened an office for the practice of architecture at 605 Star Building, Pittsburgh, Pa.

• Emory Glen Morgan and Don M. Clippinger, architects and engineers, have opened an office in the American Bank Building, Seattle, Washington. They request manufacturers' literature and samples.

• Joseph E. Gill, 2nd Lt., Q. M. Corps, Fort Mason, San Francisco, Cal., would like to receive manufacturers' catalogs covering building construction, materials for dwelling houses, warehouses, hangars, fire-houses, etc., and for utilities to service such buildings.

• Stephen F. Voorhees of the New York firm of Voorhees, Gmelin & Walker has been elected Regional Director of the American Institute of Architects for the New York division. Mr. Voorhees succeeds the late Albert L. Brockway of Syracuse.

• H. Walbert, a graduate of the Ecole des Beaux Arts of Paris and Professor at the American School of Art at Fontainebleau, has been named as fourth winner of the Delano and Aldrich Fellowship. Mr. Walbert will study American architecture and building methods under terms of the fellowship which enables a foreign architect, sculptor, painter, or student to spend a year of travel in the United States.

DEATHS

• Charles Adams Platt, internationally known and honored as both artist and architect, died at Cornish, N. H., September 13th, at the age of 71. Born in New York, Mr. Platt studied art at the National Academy of Design, the Art Students League and later went to Paris, studying at Julians under Boulanger and Lefebvre.



Though he was best known as an architect of important country houses, it was only after a remarkable success as an etcher and artist in the field of oil and water color painting that Mr. Platt began the formal practice of architecture. He was noted particularly as a designer in the classical tradition and the Hanna Building in Cleveland, the Freer Art Gallery at Washington and buildings at An-

dover Academy and the University of Illinois are witness to his ability. Mr. Platt received several medals for paintings; and was a member of the majority of important artistic organizations in this country. In 1928 he was elected president of the American Academy in Rome. He was a past president of the Century Club, a Fellow of the American Institute of Architects, and a member of the National Institute of Arts and Letters, the Society of American Artists, the American Water Color Society and London Society of Painters Etchers.

• Henry C. Trost died at his home in El Paso, Texas, September 19th. He was 73 years old and a senior member of the firm of Trost & Trost, architects, that had been prominent in building activity in the Southwest since 1904. Mr. Trost was born in Toledo, Ohio. With his brother, G. A. Trost, he was responsible for the design of many buildings in Texas and adjoining states. Mr. Trost was a member of the American Institute of Architects and a charter member of the Chicago Architectural Sketch Club.

• John Lawrence Mauran, member of the St. Louis firm of Mauran, Russell and Crowell, died suddenly September 24th at a Peterboro, N. H., hospital. He was 67 years of age. Mr. Mauran, born in Providence, R. I., studied at the Massachusetts Institute of Technology and later entered the office of Shepley, Rutan & Coolidge of Boston. He became the firm's St. Louis representative and later a partner. In 1900 he formed Mauran, Russell and Gardner, the partnership changing in 1911 to Mauran, Russell and Crowell. He was chairman of the Plaza Commission and a member of the corporation of the Massachusetts Institute of Technology. He was a fellow of the American Institute of Architects and had been an officer of several St. Louis clubs.

• William Howard Mersereau died September 15th at his home in Staten Island, N. Y. Mr. Mersereau, who was 71 years of age, had retired from active practice of architecture. He was noted for his former work on the restoration of Colonial landmarks.

How Long is the Life OF A SHINGLE?



House in Seattle, Wash. Arthur L. Loveless, Architect. Roof and siding stained with Cabot's Creosote Shingle and Wood Stains.

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will prolong shingle-life—that is certain, for Cabot's Stains are more than 60% pure creosote, and creosote is the best wood preservative known.

As the proportion of creosote diminishes, the mixture loses wood preserving value rapidly. For example:

7 gallons of a 50/50 mixture of creosote is as effective in wood preserving as 24 gallons of a 25/75 mixture (half as strong). The 50/50 mixture is more than three times as effective. With a weaker mixture, the preservative value decreases still more rapidly. The high proportion of pure creosote is what gives Cabot's Creosote Shingle and Wood Stains their high wood preserving value.

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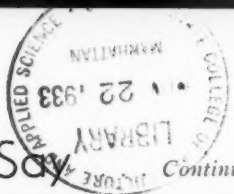


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Gentlemen: Please send me Color Card and information on Cabot's Collophakes.

Name

Address AA-11-33



Readers Have a Word to Say Continued from page 112

me with about twenty copies to go to the local press and the members of Congress."

F. Stuart Fitzpatrick, Manager, Civic Development Department, Chamber of Commerce, Washington. "I feel that this is a worth while campaign, certainly a sound building program is needed, and I am hopeful that it may accomplish some of the desired results."

S. B. Williams, General Manager, Electrical Contracting, Chicago, Ill. "We read with considerable interest your article entitled 'Jobs for Millions.' . . . we believe that you are right in your statement that until building is resumed, we will continue to have a large army of unemployed. Building construction is so fundamental to the economic growth of this country that something must definitely be done about it if we are to improve the economic status of our people."

Turner W. Battla, Office of the Secretary, Department of Labor, Washington. "As I am fully cognizant of the lack of employment among the building trades, I am interested in any method of stimulating a national build-

ing program, both Federal and private. The Public Works Administration is going ahead with building projects, but the expenditure of public money has to be made with care, safeguarding the interests of the taxpayers and at the same time, stimulating purchasing power for industry as a whole."

Charles W. Eliot, 2nd, Executive Officer, National Planning Board, Federal Emergency Administration of Public Works, Washington. "I hope to have an opportunity to discuss your proposal with the National Planning Board at its meeting in Chicago."

Frank Parker, President and Director, Philadelphia Federation of the Construction Industry. "I have read 'Jobs for Millions' and think your point of view is well taken. You may rest assured that anything this Federation or I personally can do to sponsor an economically sound building program in the United States, will be done."

George W. Herrold, Chairman City Planning Division American Society of Civil Engineers and Editor Bulletin, Minnesota Federation of Architectural and Engineering Societies. "I am

heartily in accord with the idea that the building industry should play a large part in recovery.

"I am calling attention to this article in the November issue of Bulletin of the Minnesota Federation of Architectural and Engineering Societies."

Ellsworth E. Johnson, Secretary, The State Association of California Architects. "At the first general public meeting of the Executive Board a few days ago, your letter was read, and the Board made an expression of hearty approval. The letter will be turned over to the new committee on Public Information as soon as that committee is appointed. The Association is very anxious to stand back of you and will be glad to have any information on the subject you may have or to act at your request as conditions may develop."

Isador Lubin, Commissioner of Labor Statistics, Washington. "I have read with a great deal of interest your article on 'Jobs for Millions.' The idea that you present is an excellent one, and I trust that the machinery can be developed for bringing together all of the factors concerned with the stimulation of building revival.

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Modernizing Old Rooms At Moderate Cost

Camille Cook, S.F.A.

The most common mistake made in remodeling old rooms is the failure to consider the entire room as a unit. The result is a patchwork of new and old, with no real harmony. The solution is to treat the room as a whole, and to make every change in accordance with a general plan. This means that the new should be blended with the old, and that the old should be improved, not destroyed. The result is a room that is both modern and comfortable, and that can be made at a moderate cost.

Comfort and Color In Camp Decoration

10

Nothing so simple as making a camp comfortable and attractive. The secret is in the use of color and comfort. A few well-chosen colors and a few comfortable chairs and a table will make a camp a place where you can relax and enjoy the outdoors. The result is a camp that is both comfortable and attractive, and that can be made at a moderate cost.

Cooperating in the Contemporary Manner—Good Housekeeping—Stran-Steel House

On Exhibition At A Century of Progress

By Helen Kouns, Director

When you build a house, you are not only building a home, you are also building a life. The result is a house that is both comfortable and attractive, and that can be made at a moderate cost.

Architectural Staff

Designers: David Jones, S.F.A., Harry Jay Collins, S.F.A., Myron Hart, F.A.I.A., C. Henrik Henningsen, F.A.I.A., Chicago

An example of what can be done in remodeling an old house is shown in this illustration. The result is a house that is both comfortable and attractive, and that can be made at a moderate cost.

Renovating the House You Live In

By Catherine Cook, S.F.A.

After you have moved into your new home, you will find that it is not perfect. There are a few things that need to be changed, and a few things that need to be added. The result is a house that is both comfortable and attractive, and that can be made at a moderate cost.

Studio of Architecture and Furnishings

Helen Kouns, Director

The Studio of Architecture and Furnishings is a place where you can find everything you need for your home. The result is a house that is both comfortable and attractive, and that can be made at a moderate cost.

Good Housekeeping Stran-Steel House Chicago Exhibition

By Helen Kouns

It is a great pleasure to all of us here at Good Housekeeping to have a Stran-Steel House on exhibition at the Century of Progress. The result is a house that is both comfortable and attractive, and that can be made at a moderate cost.

Colonial House Costing \$7200

By David Jones, S.F.A.

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Remodeling the Unattractive House

By J.M. Hendon, Architect

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GOOD HOUSEKEEPING

Everywoman's Magazine

DECORATE AND BANISH NOISE *with one material!*



Formerly a place dreaded by speakers and singers, the Louisville Memorial Auditorium now possesses perfect acoustics, thanks to the installation of Armstrong's Corkoustic. E. T. Hutchings, Louisville architect, solved the problem by specifying this efficient, decorative material.

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Armstrong's Corkoustic, a cork product, is available in the light buff color of natural cork and in rich chocolate brown. Three types, with a wide range of efficiency, are available, enabling you to select the material that exactly meets the requirements. Panels are furnished with beveled edges and sanded surface. All types of Corkoustic can be spray-painted any desired color without decreasing sound absorption efficiency. Delightful decorative effects can be secured through the use of stencil designs.

Armstrong's Ceramacoustic is an inorganic material, absolutely fireproof. This material also can be painted to harmonize with any color scheme.

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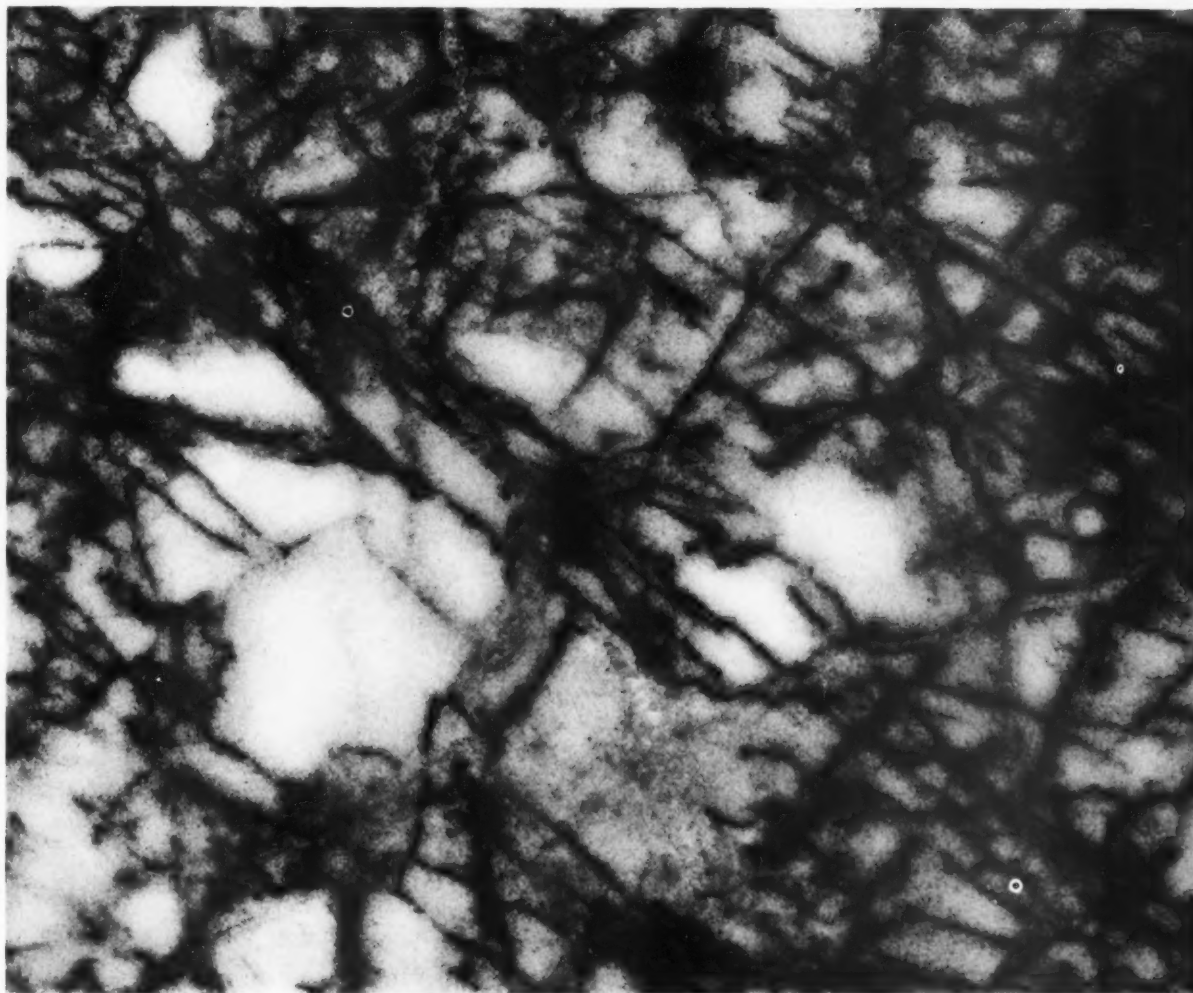
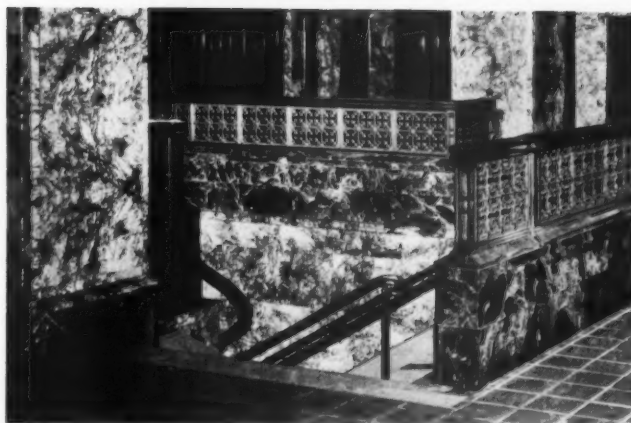
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Gravina

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VERMONT MARBLE

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FOR NOVEMBER 1933

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Kitchens at the Century of Progress

THAT POINT THE TREND FOR YEARS TO COME

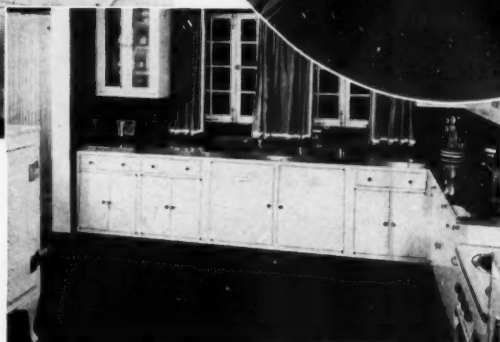


● Westinghouse All-Electric Model Kitchen at the Century of Progress, Chicago. Equipment includes INCO Model C-2060 Monel Metal Cabinet Sink.



● Above: Kitchen in the Rostone House, at the Century of Progress. Equipment includes G-E 62" Monel Metal Dishwasher Sink and Monel Metal Cabinet Tops, 25" x 30".

● Kitchen in the W. & J. Sloane House at the Century of Progress. Equipment includes G-E Monel Metal Dishwasher Sink and Monel Metal Cabinet Tops.



● Kitchen in the Brick House at the Century of Progress Fair, sponsored by the American Face Brick Assn. Equipment includes INCO Model C-2060 Monel Metal Cabinet Sink.

ARCHITECTS, designers and historians agree that the Century of Progress is shaping the tastes and desires of home owners for a generation at least...just as a previous generation was influenced by the World's Fair of 1893.

Therefore it is significant that most of the kitchens exhibited at the Century of Progress are equipped with Monel Metal.

When building or renovating today, owners want to be sure that the equipment put in their homes represents the start of a new trend...not the tag end of a dying trend. Only in this way can they know that their property will still be modern for many years to come.

All over the continent architects are taking their lead from the Century of Progress and planning kitchens with Monel Metal equipment...sinks, cabinet tops, kitchen range tops and hot water storage tanks.

Monel Metal's silvery surfaces are so easy to clean, so beautiful and irresistible to any house-proud woman that their presence makes the kitchen one of the "show-spots" of the home.

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