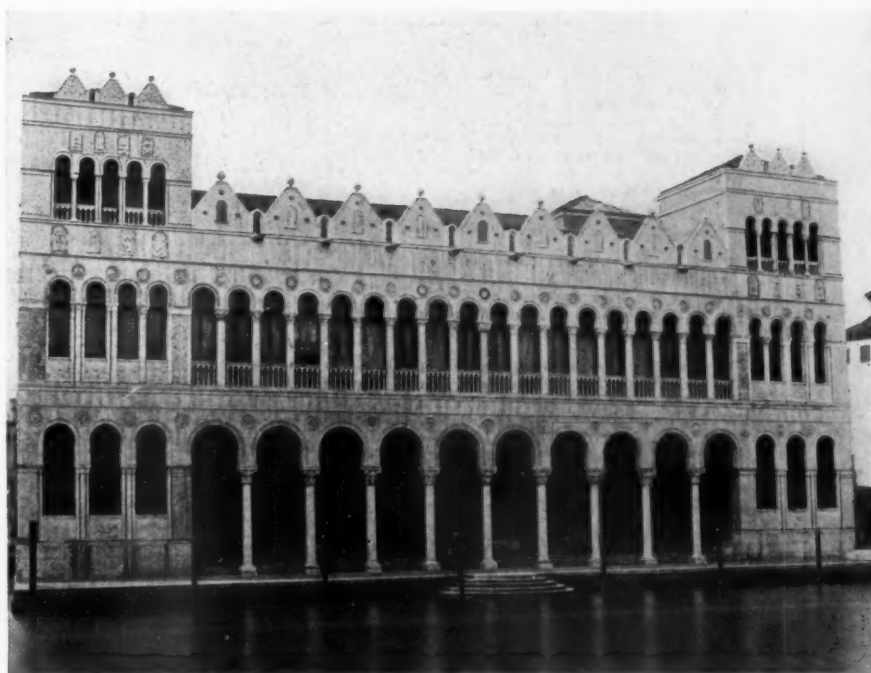


The AMERICAN ARCHITECT



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BISHOPRIC SHEATHING



First 40 Houses; Then 10 Houses; Then 50 More Houses

Gentlemen:

Irvington, N. J.

Have specified and used your stucco board on some 40 or more houses built in the Weequahic Park section of Newark and elsewhere and have always obtained the best of results.

We did not hesitate to again use same on 10 houses of the 60 for the Mesa Housing Proposition that are now nearing completion at Irvington, N. J.

When your representative first spoke to us about your Bishopric Sheathing we kept it in mind. As you know, we ordered two carloads of it, enough for the other 50 houses for the above-mentioned Mesa Housing Proposition.

We are using it under shingles, wide and narrow clapboards, etc. Although somewhat skeptical at first about placing shingles over your sheathing, thinking it would be springy, we are no longer, this idea having long since disappeared. We find it everything ordinary sheathing could be and more. Being easy to handle, the carpenters liked putting it on.

Seeing its possibilities and the economy in using it, we will not hesitate to bring it to the attention of any of our clients who, in the future, expect to build.

Yours truly,

STROMBACH & MERTENS,
Engineers and Architects,
Victor H. Strombach.

An Engineering and Architectural firm which does big things in New Jersey has written us regarding its experience with Bishopric Sheathing on 50 houses it built in connection with the Mesa Housing Project at Irvington, N. J. Read the letter. It is more significant than anything else we could say about this modern Sheathing Board.

Note the list of institutions which have used Bishopric Sheathing either on Industrial Housing or Home Building projects:

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THE AMERICAN ARCHITECT

THE AMERICAN ARCHITECT

VOL. CXV

WEDNESDAY, JUNE 4, 1919

NUMBER 2267

Allerton House

ARTHUR LOOMIS HARMON, *Architect*

ALLERTON HOUSE, illustrated in this issue, presents not only an attractive and well considered architectural solution of the often recurring problems of life in large cities, but it also affords opportunity to consider an interesting and satisfactory working out from a sociological standpoint of certain phases of the housing problem in New York City. There can be no doubt that man is very largely influenced by the character of his surroundings. In New York there are a large number of single men engaged in the professions and in the more important activities of commercial life, who have for a long time looked for just such living accommodations. Many of these men come from the smaller cities and larger towns, and some from the country, and among surroundings like these become merged into a social whole to form a community remarkable for its homogeneity and a certain *esprit de corps*.

It is interesting to note that the modern business men in large cities are becoming as keenly interested in the question of environment of their various employees out of office hours as are the manufacturers who seek to provide attractive working surroundings in addition to the best elements of modern housing.

This new venture has proved the business sagacity of its originators and promoters and from the start has been a successful commercial enterprise. There is no doubt that this fact will influence the erection of similar structures in our large cities and it is therefore believed that the working out by architects of problems that were presented and that have been so satisfactorily perfected, will afford an interesting and valuable basis for other men who may undertake a similar class of work.

This building has been erected on an interior lot approximately 71 x 100 feet and is seventeen stories high. Owing to the restrictions of the new



DETAIL OF ROOF GARDEN

zoning law in New York which took effect after the building was planned, the upper stories will be left exposed on all four sides. As will be noted, the architect has treated the building as far as possible as a tower, adopting a symmetrical plan and providing a nearly uniform wall surface treatment for all four sides. As economy of construction was a necessity in this project, there was selected a certain common red brick which was used on the front. The impossibility of providing a projecting cornice treatment except on the street front led to a treatment similar to that of mediæval Italian

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towers with a restricted use of red terra cotta trimmings. The main façade of the brick shaft on the street rises directly from a low granite base, which stone is used to trim the openings of the first floor. On the street façade the brick has been laid up with projecting headers to accent the slight vertical lines of the shaft and with wide and irregular joints.

It was difficult in superintending this job of bricklaying to get the masons to understand just what effect was desired or to get them to agree

able to produce more often an artistic result such as is shown in the brick work on the façade of this building.

In the designing of the interior and the arrangement of the plan, the architect has endeavored to get as far away as possible from the usual hotel aspect and to create an atmosphere more nearly akin to that of the private club. For this reason the lobbies have been kept small, the office has been put behind the elevators with circulation to it around that space, and the main feature of the in-



ENTRANCE LOBBY

to what they stoutly maintained was an unworkmanlike result. They were therefore told to "make a bad job of it." The foreman finally agreed to do this with the understanding that his name was not in any way to be connected with the laying of brick in such a way. This incident is set down here simply to illustrate how often it is difficult for architects to secure an artistic interpretation of material by a class of labor which stoutly maintains that it is "skilled" and which cannot visualize any result that departs from a hard and fast rule of their craft. When we shall have developed a higher state of craftsmanship, we shall, it is hoped, be

terior, the large lounge in the rear which extends for the full width of the building lot and through two stories in height, is located on this floor. On either hand, off the lounge there is a small writing room and library with clearstory windows over. The treatment is that of an English Hall of the early Renaissance, with panelling below and rough plaster above, and a beamed and panelled ceiling. As there is no outlook, the glass is not transparent and has therefore been treated in a purely decorative manner in two or three slightly varying shades, with interesting leading, and the occasional placing of well selected spots of color.

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This interesting window was designed by Clement Heaton.

The building has approximately 400 rooms, a typical floor containing thirty rooms. The larger and better located rooms have a shower and toilet between each two rooms, while for the remaining rooms the showers and toilets are located in convenient groups in the corridors. There is a lavatory in each room.

An interesting feature of this development is to be found in the planning of the roof. On reaching this point the elevator stops in a solarium treated in pebbled plaster with rough brick trim. Over the rear wing at a lower level is a larger gymnasium lighted from clearstory windows on three sides. Over the front wing facing the south and reached from the solarium by a short flight of steps is the roof garden. This is enclosed by the arcade columns forming the crown of the building. This screen gives the effect of an enclosed garden treatment breaking up the otherwise too wide outlook into interesting individual glimpses of the city. The floor of the roof garden



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is built up on the beams so as to leave pockets for earth for planting at the sides.

The present Allerton House is the third of a group of similar name that progressively have



RECEPTION ROOM

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marked the development of this housing scheme in New York. The first Allerton House was located in the Greenwich Village section and was a modest structure of fifty rooms. The name of Allerton was selected because the building was located on the spot where once stood the farmstead of one

ness activity on the East Side, near Peck Slip. When the second Allerton House was built, at Thirty-eighth Street and Lexington Avenue, the site was yet within the region that is most intimately connected with Manhattan Island's early history. It was within an easy stone's throw of the Old Bouwerie, or Bowery, the one-time important thoroughfare that led by a winding road and shaded lanes to the undeveloped country that composed Manhattan Island to the north.

The third and present Allerton House, on Thirtyninth Street, has found a site but a few short blocks away from its predecessor and it is where old New Yorkers walk of pleasant Sunday afternoons and view with reminiscent eyes a neighborhood that at one time was the scene of ultra fashionable Murray



LOUNGE FROM LIBRARY

Isaac Allerton, who journeyed to this country in the *Mayflower* and located in Greenwich Village. The Allertons were a thrifty family and their farm became one of the best developed on Manhattan Island. Later, certain members of the family entered into commercial pursuits, and the warehouse of Allerton for many years was the center of busi-



ELEVATOR LOBBY

Hill. While this particular section may not have retained the artistic atmosphere that is claimed or affected by dwellers in Greenwich Village, or that more certain artistic environment that is so well sustained in the Gramercy Park section on the South, it has a preference for the sturdy and solid things of life, the substantial elements that built New York to its present prosperity.

If, as was claimed at the outset, environment has a strong effect on the character and the contentment of people, they who frequent Allerton House should find all of those desirable things amidst surroundings that have been carefully planned and excellently carried to conclusion.

Garage and Entrance Turns—Part II

By A. D. TAYLOR, *Landscape Architect and Town Planner*

C—"Y" TURNS

"Y" TURNS are so-called because in changing direction in the least available space, the wheels of the car leave the outline of a Y. Numerous forms are made more or less

Example 9 is probably the turn best adapted to cars of short wheel base. The dimensions of 16 ft. from the door along the line of the front, and 17 ft. at right angles to this line to the inner point of the reversing space are ample for the average small



Photo. 1.—The normal problem with a small garage and limited lot. See photo. 2 and Fig. 8.



Photo. 2.—Showing the general relationship of the house to the garage on a small lot. See photo. 1 and Fig. 8.

complicated because of the requirements imposed by the direction of approach and number of cars in the garage.

This type is made necessary primarily by the introduction of garages on small lots where every effort is made to secure maximum service on a minimum area. Such turns are often necessary because of limited space, and again because the landscape effect produced is more to be desired than that of an oval or a court. They occur primarily at the garage entrance, and may be broadly subdivided into turns where the approach is:

- Directly from the front;
- Diagonally from the front;
- Parallel to the front.
- From the rear parallel to one side of the garage;
- From the rear diagonally.

(a) DIRECTLY FROM THE FRONT

Under the first are Figures 8, 9 and 10, showing the simplest form for one and three car garages.

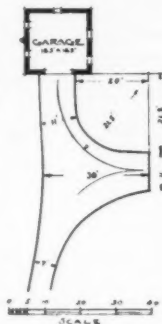


FIGURE 8

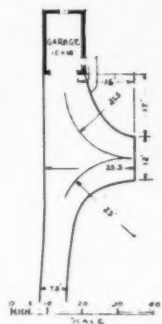


FIGURE 9

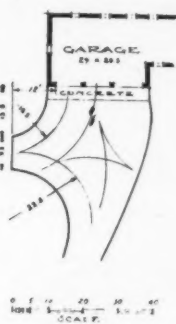


FIGURE 10

car where the wheel base does not exceed 120 in. It is to be noticed that they are less in the three-car example, as it has a wide court before the three doors.

It may be well to state here that the position of the large and small cars in the berths may enable one to reduce area in the turn. In Figure 10 the large car would best be in the right-hand berth, the small car in the middle berth and the electric runabout in the left-hand berth. If the large car is to be kept in the left berth, dimensions of the "Y" must equal those shown in Figure 8.

Care on this point will always give better results and often solves a problem of restricted area. This example unfortunately is a case of restriction by large trees and a property line.

(b) DIAGONAL FRONT APPROACH

The nature of the location in Figure 11 and the proximity of property lines in Figure 12 resulted in diagonal approach well shown in the illustrations. In Figure 11, space "S" within the dotted

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Photo. 4.—An interesting treatment in the location of a three machine garage. See photo. No. 5 and Fig. 18.

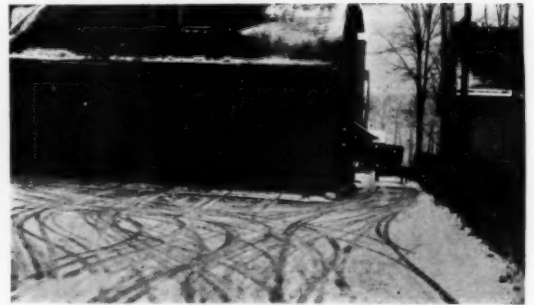


Photo. 5.—Preserving a maximum of space for the garden and allowing a minimum of space for the drive. See Fig. 18.

line is for parking of extra car. It is not necessary for the convenience of turning. In Figure 12, are evident all the refinement of curve and variation in width to allow standing and passing cars at the front door, easy access to and exit from garage, and liberal space for reversing direction of travel within the least practicable road area. The full curve just beyond the steps is necessary to bring the rear of the car close to steps. A banked drive in place of the ordinary crowned road is a distinct advantage here, as fitting the driveway curve, and



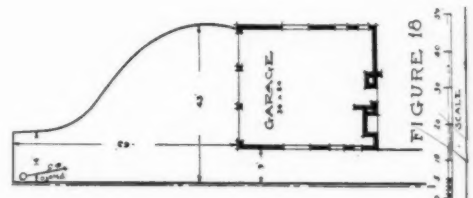
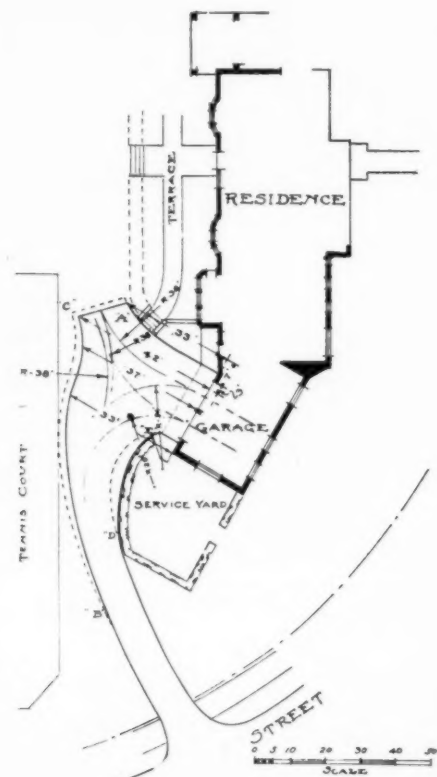
Photo. 8.—The ideal treatment of a garage for machines of small wheel base. See Fig. 9.

the natural slope for drainage away from the buildings.

(c) APPROACH PARALLEL TO THE FRONT

This example shows an easy solution when the drive is located well in front of the line of the garage, for an easy curve of approach and a reversing area of our normal measurements are all that are required. Small car berth is in stall "A."

The second example is more difficult of solution, as the driveway axis is but 12 ft. away from the line of the front of the garage. Here the wheel tracks in actual trial were the guiding element in the final design. Additional width was provided before the house entrance, while the straight short



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drive was kept to 10 feet in width. The large turning court allows any car to take any berth in the garage and provides considerable parking space for visiting machines and is not wasteful of valuable area. Planting has so screened it, as the illustration shows, that it appears small, the photograph being taken from a point just beyond the house door, yet does not show the right-hand side of the court. The designer may be asked why he did not formalize this turning area with a dignified rectangular court. A careful study of the illustration and photograph will show clearly that in order to

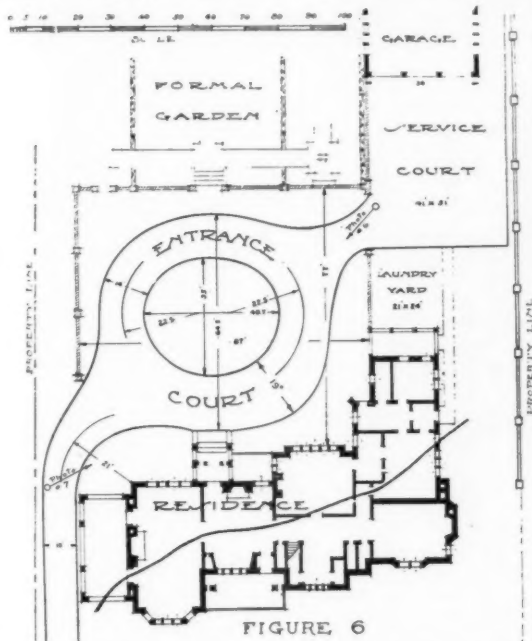


FIGURE 6

make this area into a court and still preserve ample space for parking, the area consumed by the design would have been much greater and the waste largely increased.



Photo. 7.—Placing the garage on the living side of the house in a restricted area and developing a proper relationship between the garage turn and entrance turn. See Fig. No. 6.

(d) APPROACH FROM THE REAR PARALLEL TO ONE SIDE OF THE GARAGE

This type is becoming the commonest problem of modern architects and landscape architects, and is due to the prevailing desire to attach the garage to the rear of the service portion of the house on ordinary suburban lots of restricted width. In "Y" turns designed to meet the requirements imposed by parking of an extra car, it will be noted that the parking space is in the apex of the turn. Types shown in Figures 15 and 18, with a spur preferably not less than 14 ft. in width, are more practicable for this purpose.

The simplest form, here shown, and one which will be frequently encountered, is that of a new garage attached to an old house in the only avail-



Photo. 6.—Meeting the requirements of a commodious and attractive entrance turn within a limited space. See Photo. 7 and Fig. No. 6.

able position wherein fine trees would not be sacrificed. While the turn is somewhat restricted by other trees, a satisfactory and minimum area is given for all necessary maneuvers, and the whole is splendidly away from the living area of the house and lot.

The next example is quite similar in type but



Photo. 9.—Different solution of a troublesome problem within a limited space to meet the requirements of a three machine garage.



Photo. 14.—Garage court properly framed with plantings and newly transplanted trees to soften garage line. See Fig. No. 13.



Photo. 3.—Providing garage court to accommodate large machines within a limited area. See Fig. No. 13.

greatly restricted by a ravine 40 ft. beyond the doors of the garage, hence the peculiar shape and the placing of berth No. 3, to be entered by the short-turning electric runabout, directly from the drive, while the gas cars use other doors on the turn. It is a fairly satisfactory solution of a dif-

problem is best solved by rear approach. The illustration gives an excellent idea of the small area possible for driveway. The 45 feet of width gained by a three-car front added to the drive width was combined with a long spur and full curves to produce a turn easy to navigate with one

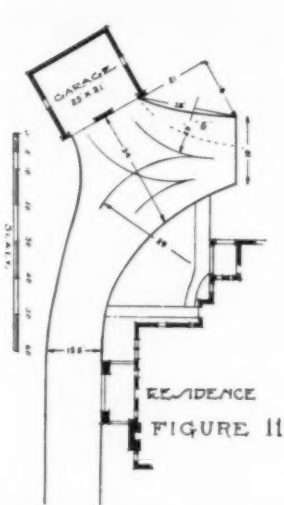


FIGURE 11

icult problem, and the relative position of the small car and large cars gives the key to the solution. A three-door front would have thrust the garage too far into the only possible garden area.

Here is shown a farm estate garage, where there was no need of cramping the turning area in any way. While lacking in grace on plan it is very comfortable in use.

Here again a very narrow and very deep lot

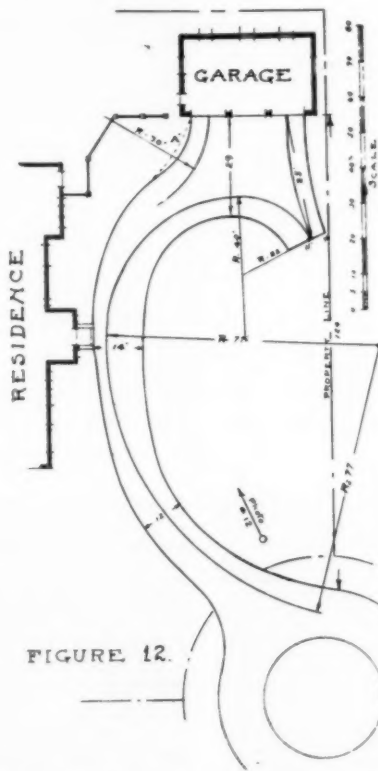


FIGURE 12

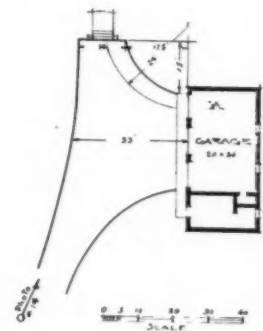


FIGURE 13

or even two other cars standing in the court, and has proved most satisfactory in service.

(e) APPROACH FROM THE REAR DIAGONALLY

In this case the essential feature is the wide throat of the turn. This turn allows a direct radial sweep into the garage with the small car in first berth and a curve of longer radius for larger car in second berth. The wide throat makes it easy to come from the reverse, after backing out, into the main curved drive. A standing car at "A" does

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not interfere with use of the turn, but enlargement to the dash line B-C would improve the turn were there ample room on the lot. The dash line D-E can be adopted as shown to reduce roadbed to a minimum and provide space for a better screen planting of shrubbery.

D—COMBINATION OF OVAL & "Y"

A five-car garage requires a large expanse of court, and in Figure 20 is shown an island which

should never be less than 35 or 40 ft. The radius of curvature for grades exceeding 6 per cent should never be less than 50 or 60 ft. On roads which exceed these extremes, the efficient operation of a pleasure car is seriously handicapped. In photographs Nos. 16 and 17 are shown interesting types of curves on entrance drives. A most pleasing effect on sharp degrees of curvature is that resulting from "banking" the drive. The curved lines of the drive are better emphasized,

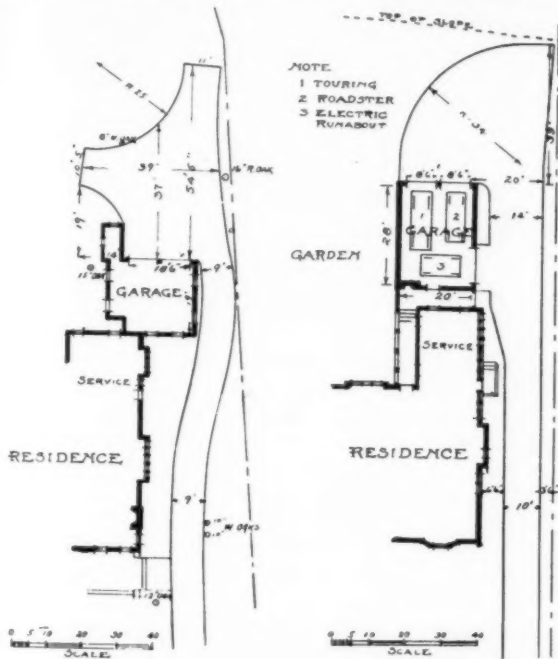


FIGURE 15

FIGURE 16

was heavily planted and served three purposes. It reduced the extent and cost of road metal, it gave a convenient loop for service vehicles, and provided opportunity for the high planting to partially screen the garage front from the house and entrance gate in the lines of sight shown by arrows A and B.

Two or three photographs have been introduced into this article in order to bring out one other interesting and closely allied point in the designing of entrance drives. There are numerous entrance drives on private estates, which, with careful consideration, could have been made very interesting and pleasing, but which possess extremely awkward curves, both from the standpoint of looks and from the standpoint of operating a car easily. The radius of curvature on entrance drives bears a direct relationship to the grade of the road. This radius on grades of less than $4\frac{1}{2}$ to 5 per cent

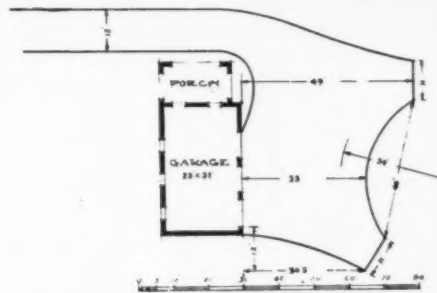


FIGURE 17.

and the wear on the roadbed from frequent or rapid traffic is much less, and the curve is easier for the driver than on the road with the ordinary crown. The ordinary crown on an entrance drive is $\frac{1}{2}$ in. to the foot. A 16-ft. road would, therefore, have approximately a 4-in. crown. All roads on grades of less than 4 per cent should have at least an 8 to 10-in. bank on the curved portions. On steep grades as high as 8 per cent and with sharp curves, the bank of a 16-ft. road should be not less than 16 to 20 in. Good practice calls for an increase of width on sharp turns, particularly in the case of steep grades. This widening should commence 50 ft. before the sharper curve begins, increase up to 25 per cent of the road width in the depth of the curve, and taper out of 50 ft. beyond the end of the curve.

Considerable study has been given to the possi-



Photo 16.—Sharp entrance drive curves should be safeguarded by ample width of road-bed.

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bilities of drawing from accumulated data definite fundamental principles which may be applied to all garage turns. The subject, which seems simple, is in reality so complicated that it is much better to make a few general suggestions than to endeavor to cover fully the field of possibilities. The latter course would only serve to confuse the amateur and perhaps the professional designer as well.

1. It is not possible to establish precise diameters of turns for cars of different wheel bases under the present conditions of manufacture. Possibly the manufacturers will eventually arrive at a point where a car of short wheel base and a car of long wheel base will turn in proportionately varying diameters.

2. The width of the drive opposite main entrance steps should be no less than 15 ft. to allow one automobile to pass with comfort with another car waiting before the entrance.

3. The depth of the "Y" turn measured perpendicularly to the face of the garage, and directly opposite the doors, should not be less than 33 to 35 ft. for large machines. (See Fig. 17.) Outward swinging doors call for an increase in this dimension equal to the width of the door itself.

4. The minimum measurement across a "Y" turn, parallel with the front of the garage, from one side to the end of the "Y" for a car of long wheel base, should be approximately 30 ft., and for cars of shorter wheel base should be approximately 25 ft. (See Figs. 8 and 9.)

5. Much more consideration than is frequently the case should be given in locating a garage to

the possibilities in the development of the turning area. One factor to be considered is the type of door to be used, as it is evident that the use of sliding doors will minimize the amount of ground devoted to this purpose. Another factor is the relative arrangement of the long and short cars in the garage berths.

The providing of sufficient space for the turn, in addition to that required by the garage itself, is oftentimes such a dominant factor as fundamen-

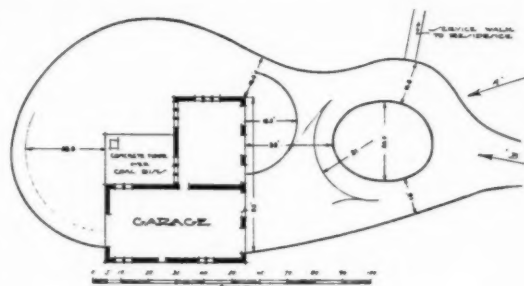


FIGURE 20.

tally to influence the planning of the position of the garage, even to the extent of modifying the location or orientation of the residence itself, and thereby the design of the entire composition. The whole matter should receive attention at the time of the determination of the arrangement of the major features of the estate, and not, as too often the case, as an incidental item in connection with the finish grading of the areas about the buildings.



Photo. 17.—A variety of interesting road curves is often the charm of many estates.

England Revives Art in Industry

In the past century many British manufacturers recognized the importance of art in industry, writes Captain B. S. Townroe. The pottery made by Josiah Wedgwood, and the furniture created by Chippendale are still famous throughout the world. Recently, however, a soulless commercialism, aiming at dividends, has turned out thousands of articles on the same pattern, at the cheapest price, regardless of æsthetic quality or artistic design. Industry, careless of the traditions inherited from the craftsmen of former generations, has divorced craft. Those who are guiding British industry during the present period of reconsideration and reconstruction, are determined to bring them together again in the national interests.

A brief study of the steps which are being taken to encourage manufacturers to use the imagination and art of the craftsmen, will not be without interest to those Americans who have studied John Ruskin's efforts in the Mid-Victorian era to secure that the cheapest machine-made articles of trade be designed with art. He wrote in 1859:

"Let it be for the furnace and for the loom of England, as they have already richly earned, still more abundantly to bestow comfort on the indigent, civilization on the rude, and to dispense, through the peaceful homes of nations, the grace and the preciousness of simple adornment and useful possession."

Already in England and Wales there are some 200 schools of arts and crafts, which it is hoped will be the backbone of training in the application of art to industry. These schools are influencing furniture manufacturers to depart from the sham antique, textile weavers to turn out beautiful designs, and glass and dress and china to be made in good styles. In fact citizenship and workmanship are advancing together. At the Central School of Arts and Crafts in London, for example, a scheme has been introduced, both to raise the standard of English music-engraving, and to develop a trade which up to the war was largely in German hands. Under the new British education act there is ample opportunity for the establishment of day technical schools to provide for boys and girls between 13 and 16 years of age a pre-apprenticeship education in craft.

Unfortunately there is the same difficulty in Great Britain as occurred in the United States in 1910. In that year the report of the American

commission of labor stated that "the old system of apprentices has died out," and the "present system of specialization confines a beginner to one machine, or one operation." "The individual worker finds his life narrow and monotonous, his work a mere round of drudgery instead of a means of self-expression." In America this crisis was faced 10 years ago; the British are only beginning to face it today. Education is aiming at making the artist a better craftsman, and the craftsman a better artist, and, equally as necessary, at teaching the middlemen and the shopkeepers to understand what they sell, and to desire a higher standard. Yet ultimately a nation's trade reflects its character, and only the buying of an educated public can influence production. Purchasers have to be taught not to take nasty things home and live with them, but to create a demand for good work.

There are definite agencies at work to foster this better spirit, for in the future employers and employed are to be brought into co-operation on the Whitley councils, new democratic conferences, now being set up in all parts of Great Britain. Similar committees have existed in certain trades in the north of England for some time, and have improved the designs in book production, jewelry and kindred trades. In addition design and industries exhibitions are touring the country with specimens of fine workmanship, and a recent private exhibition this spring has already had a far-reaching influence. Further, the board of trade and the board of education are proposing to establish a British institute of industrial art, which will provide a permanent exhibition of work, showing a high standard of original design, and will also develop machinery to bring designer and art workers in closer touch with manufacturers. Special works of art are to be purchased by the state and special scholarships provided for research and experiments.

King George once said, "Wake up, England." His words did not seem to have much effect at the time, but the war has stirred even Rip Van Winkle. The British are at least awakening to a realization of the place of art in industry. Producers, craftsmen, distributors and consumers show signs of demanding quality as essential, both for industry and the nation. If this spirit is translated into action, we may see a new renaissance in the old country.

An English Review Of American Architecture

AN exceedingly entertaining and well-informed contributor to *The Architects' Journal* of London, writing under the pseudonym of Aero, tells in the issue of March 26 the thoughts that were revived when he came across in a portfolio of an architect friend a bundle of snapshots the contemplation of which results in an exceedingly interesting retrospection of American architecture. He writes:

The other day, while searching among the portfolios of an architect friend, my fancy was caught by a brown-paper parcel. It was not a respectable package. The string was knotted, the paper was frayed at the edges; but somehow the packet had the look of having been neglected long enough to prove interesting. The legend on the cover, "World's Fair, Chicago: Snapshots Taken in 1893," whetted my curiosity still more. As I went through the photographs and sketches, the conclusion was forced upon me to rediscover America at leisure, so the package found its way to Tothill Street, and this week provides material for my causerie.

* * * * *

For the past twenty years we have lived in the shadow of American architecture, and a very big shadow it is. No wonder we talk wildly about our insularity. Yet I sometimes wish that the wiseacres who imagine the buildings of this country to be all that could be desired would hire telescopes of abnormal power and take a nearer view of the American horizon. They would in all probability amend their parochial ideas. It is not my purpose to generalize or sermonize, but to talk of the rise of architecture in America from the seventeenth to the twentieth century. For a hundred and sixty years building remained traditionally Colonial in expression, but pre-eminently British in pedigree. The men who settled on the east coast and founded the towns, as well as those who started the plantations in the South, did their best to transplant building idioms with which they were familiar. A great number of timber-framed houses were built in the early days, with the consequence that proportions were slightly changed. Merchants imported bricks by the shipload from England and Holland for their own and other people's use; as a result houses were often delayed in finishing, but each year witnessed a slight change in design, or some addition to the comfort of home life, which was reminiscent of the distant motherland. As the years progressed a high

degree of efficiency in construction was attained. Later on came the German settlers, who built Germantown, and the French colonists, who settled in Louisiana. The scale of the country stamped the architecture from the outset. The housing question was handled with dexterity, for it was a primary need. Then came the time of Independence, which, curiously enough, did not disturb either emigration or the flow of architectural ideas from England. At the end of the eighteenth century the building vernacular in the settled parts of the States had assumed definite lines—the development of civic buildings followed as a matter of course.

* * * * *

In Washington's day a man of average intelligence, referring to Batty Langley's or some other work, was able to design a moderate building. A lawyer could direct the erection of Independence Hall at Philadelphia, or a doctor could build a church on the Gibbs model. The days of Jefferson, Latrobe, Hoban, Isaiah Rogers, and Strickland were to follow. I think my readers will concur with the statement that even as late as the year 1840, when Ithiel Town was an influence, architectural inspiration from England was accepted as a matter of course. After this, when Richardson stirred the country with his original thoughts, producing fanciful conceptions in the Romanesque manner, and inspiring a host of feeble imitators to track his steps, a further change took place. The Civil War was no sooner over than there ensued a veritable Reign of Terror, particularly in domestic work, which lasted into the late 'eighties. All this experimenting was destined to be changed, for new leaven was at work. About this time our American cousins turned their thoughts to France. Several New York architects had had the advantage of training at the École des Beaux-Arts in Paris; others not so fortunate subscribed to the *Croquis d'Architecture* published by the Intime Club; a good sprinkling of Frenchmen had emigrated to New York after the war of 1870, and these found immediate employment as designers, construction being left to the English. From this it will be gathered that the times were ripening for changes both fresh and drastic. The truth is, America was becoming a World Power. To what end must the chimneys of Pittsburgh smoke, New York rise, and Washington legislate if no means could be found to express these facts in literature of stone?

(Continued on page 787)

THE AMERICAN ARCHITECT

THE AMERICAN ARCHITECT

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Why Not Get Busy?

JOHN THOMAS SIMPSON in his recent book, *Hidden Treasure*, states that what led him to write that interesting story of farm life was the facts learned on a visit to the old farm where he had lived as a boy. Not a single boy of his former acquaintance was to be found on the neighboring farms, and even the names of the original owners had, in some cases, been forgotten.

Undoubtedly the case in that specific locality is duplicated in many another, and it is also undoubtedly true that this great hegira is due more to the general unattractiveness of farm life than to any other cause. If we are to preserve the continuity of occupation, to hand down from father to son the wide domain of our farm lands, we must certainly redeem life on the farm from the many dreary aspects that so often surround it. The most certain way to keep our young men and women on the farm is as far as possible to improve every feature of the farmer's domestic life, and to promote some social atmosphere, the absence of which is creating so wide a difference between country and urban life.

IT is unreasonable to expect that we may succeed in an effort so laudable if better houses and better farm buildings are not provided. No man or woman can form and carry forward worth-while ideals among conditions on the farm as at present they generally exist. It is unreasonable to expect the pride of home or any lure to younger people where the houses suffer in comparison with those of town dwellers in no better circumstances. Small wonder that farmers' sons and daughters regard with dissatisfaction a future that holds so few allurements. And, small wonder that the farmer's wife, tired of drudgery that comes from the lack of ordinary domestic conveniences and labor saving things, should lose interest in her surroundings and give ready consent that her children seek other fields rather than to carry burdens similar to those which are making her life one sordid round of daily toil.

THE improvement of our farm buildings is a matter of great importance. The whole future of our agricultural prosperity hangs on this very necessary thing. The matter has been discussed for a long while in these columns, it has been taken up by the Institute on the recommendation of George W. Maher, president of the Illinois Chapter. The Governors of the leading agricultural States have signified by letters to the editors of THE AMERICAN ARCHITECT their approval of this movement, and those in charge of our agricultural colleges throughout the United States have also signified a very active interest. Many of these communications have been printed in these columns. All well and good. But why should a matter so generally approved among those who might be expected to take the initiative, be further allowed to languish?

IN our issue of March 12, there was outlined a plan that it was suggested might be followed in setting this matter forward. Briefly it was by commissions appointed by the Governors of the various States. These commissions were to be non-political and composed of representatives of architectural and engineering professions, bankers and real estate operators. This plan received the endorsement of the Illinois Chapter of the Institute, and as stated, has also been concurred in by the Institute at its recent convention.

This is identically the time of the year when such a commission could proceed with some measure of good results. If every Chapter of the Institute will give energetic action, and if all the agricultural colleges will freely co-operate in an appeal to the various governments, we shall be able to set this very desirable matter afoot. Why not get busy at once?

Labor Value Measured by Production

THE true value of labor is the wealth it produces, and the lower the production, the less there is to share in the community. This is the point of view of W. C. Teagle, president of the Standard Oil Co. of New Jersey, a corporation which employs more than 11,000 men.

To a greater extent than ever before does the problem of labor inject itself into every economic question. By what terms shall we describe a labor system that permits thousands of people to suffer for want of proper housing, while labor all over the country is seeking employment?

Restricting the law of supply and demand has in the past been so insistently practiced that it has become accepted by labor as the rule and guide of their organizations. Seeking to maintain high cost by restricting supply is now demonstrated as fallacious. The reacting influence is shown to be always detrimental to labor. Labor is beginning to learn this salutary lesson, and further to realize the error of many of their stoutly maintained contentions. It is productivity that really is the test.

Pomeroy Burton, of England, in an address on labor conditions in that country, has clearly pointed out that the chief errors of trade unionism have been the deliberate and persistent policy of restricting output and the opposing of the introduction of labor saving machinery. He directed attention to the relatively greater prosperity of the United States, and stated that it was because the average production per workman in the United States was three times that in England.

A FACTOR that in the not distant future, when we resume our normal activity, will have a large influence on labor conditions in the United States is that there will exist in all lines of work a shortage of men. Since 1914 there has been a tremendous narrowing of the labor supply. It is estimated that a million men left this country before we entered the war. These men returned to Europe in response to the call to arms of their native countries. It is predicted by the Department of Labor

that at least a million men will remain in the Army and Navy, and their branches at the close of the year. In addition, this country is short the millions of immigrants that normally would have reached here during the past three years.

With this certain shortage, it is not only possible but highly probable that the United States will not be able to put her factories on a peace-time basis for some time to come. This scarcity of labor naturally points to a higher scale of wages. It is therefore inconsistent to maintain that there will be any material cheapening of labor in the near future, and any hesitation as to the commencement of a proposed building operation based on a lower scale of wages will not be justified.

The United States Employment Service reports for the week ending May 24 that 90 representative cities show a decrease of 10 per cent in unemployed labor over the previous week. Of the 90 cities reporting, 39 of them or 40.3 per cent report a surplus of 227,425, while 17 cities or 18.9 per cent show a shortage aggregating 8,267, leaving 44 cities or 40.8 per cent of them reporting showing an equality.

Unemployment conditions by states from the 38 states reporting show 6 reporting a shortage of labor, 14 an equality and 18 a surplus. It will be readily seen that even with the present retardation of many operations, particularly construction, it will not be very long before there will exist an absolute shortage of labor.

It accordingly becomes necessary, if, in the future, labor maintains the present high scale, that production be increased to the highest possible point. By this means there would be a certain cheapening in materials without the usual cheapening of labor. As the present conditions advance, it will be less difficult to impress the fact that the only way in which organized labor can hope to maintain this present scale is to encourage the fullest measure of production. It is impossible to apply a line of argument to conditions in this country to-day, when in every type of building we are greatly underbuilt, similar to that advanced in 1914-1915 when conditions were exactly the reverse.



THE AMERICAN ARCHITECT

An English Review

(Continued from page 784)

As yet the mass of opinion in the States had no other theory but that of business acumen. True, the size of the continent engendered a universal desire for enterprise, while the democratic constitution encouraged an atmosphere of mutual co-operation. The ingredients were ready for the crucible when the scheme for the World's Fair at Chicago was announced by a blare of trumpets that echoed from China to Peru, loud enough, indeed, to startle people in London, to whom the memories of Hyde Park in 1851 seemed recent. The projectors consulted with the architects. McKim and Burnham, Sullivan and Post, sharpened their pencils. Copies of the "Croquis d'Architecture" were sought and could not be purchased in sufficient quantities, for America was about to show the world what the power of selection, coupled with sound organization, could achieve.

On the desk in front of me I have arranged the photographs my friend secured years ago: preparatory to applying the magnifying glass. All the sensations of Gulliver are mine as I look upon this collection of views. There are extraordinary experiments among them, lath and plaster for the most part, ranging from the domed "Administration Building" to a replica of the gateway to Donegal Castle. It is as though all the architects of the

world's history had foregathered at the bidding of Imre Kiralfy to produce a show a hundred times larger than the White City. The exhibition was intended to prove that America could act as a universal market immediately it advertised the commercial value of sound architectural design, and in this heterogeneous assemblage of gigantic compositions I can see the genesis of modern design as it is understood in the United States.

I should like to have been at McKim's elbow when he discussed the plans with Burnham, or to have listened to the conversation in the drawing-offices when well-thumbed pages of Durand and the early Grand Prix designs were turned over. American architects without question had the perception to base the official style of the exhibition on classic lines, but it was the ghostly army of French students, many of whom had fought under Napoleon, who were responsible for its success. There was no precedent at this period in America for such masterly conceptions. Façades a quarter of a mile in length were unblushingly lifted from the pages of the Croquis, to form sides to the "Peristyle," the frontispiece of the "Horticultural Hall," the "Women's Building," and the "Machinery Hall." The "Art Palace," designed by McKim, was the exception, but even in this the portico bears some resemblance to Bernard's Grand Prix design.

How Color of Surroundings Affects Health

The aim in selecting color schemes is twofold. That of securing good decorative effects has heretofore predominated, to the practical exclusion, in many cases, of the other. This other is the mental reaction which follows from the choice and arrangement of the colors. Some colors soothe, others irritate. The result is either repose or excessive stimulation of an unpleasant sort.

If the contention is made that good decorative effects presuppose wholesome mental reactions on the part of the inmates of the room decorated, this cannot be supported. Particularly in general living rooms where visitors are brought, conflicting temperaments and personalities will cause discordant impressions, and even the internal changes which mark the mental progress of the normal man may tend to make him discontented with his surroundings, and suggest that these should be as flexible as possible. Protective coloring, apart from its recently acquired usage in the sense of camouflage,

may also mean the function of color to protect him against his own melancholy or exhilaration, and as a matter of fact, physicians and psychologists have in recent years been experimenting elaborately with the effects of specific color-surroundings upon specific types of people. It is known that the average person is more alert to visual stimulation than to auditory sensation; for this reason the importance of the subject is considerable.

Mr. H. Kemp Prosser, a writer in the English medical press gives the results of such investigations with regard to neurasthenic and shell-shocked persons.

Color acts in three ways, he points out: as a stimulant, as a sedative, or as a recuperative.

Stimulating color, such as yellow, is necessary to a great extent in cases of neurasthenia and shell-shock, as it excites hope. In a great many cases strong, powerful, physical colors, representing physical power, must be used as well as mental

THE AMERICAN ARCHITECT

ones to overcome the inactivity of the mind. In the case of neurasthenia minor tones should not be used, as strong measures are necessary. Shell-shock and neurasthenia, according to many doctors, create fear in the mind. Here, again, is the danger of the grey and minor tones.

Blue is a favorite color with most people. An interesting fact is that it has a health-giving power not only for human beings, but also for plants. Flowers grown under blue glass greatly increase in size and vitality. Red has its uses—so have morphia and chloroform! It has its place in the universe of color vibrations, but it must be used with knowledge. Scarlet rooms for lazy boys have been tried in this country. They have a tonic effect. Athletes also find help in fixing their eyes on a red handkerchief before running a race. This color causes restlessness in some people.

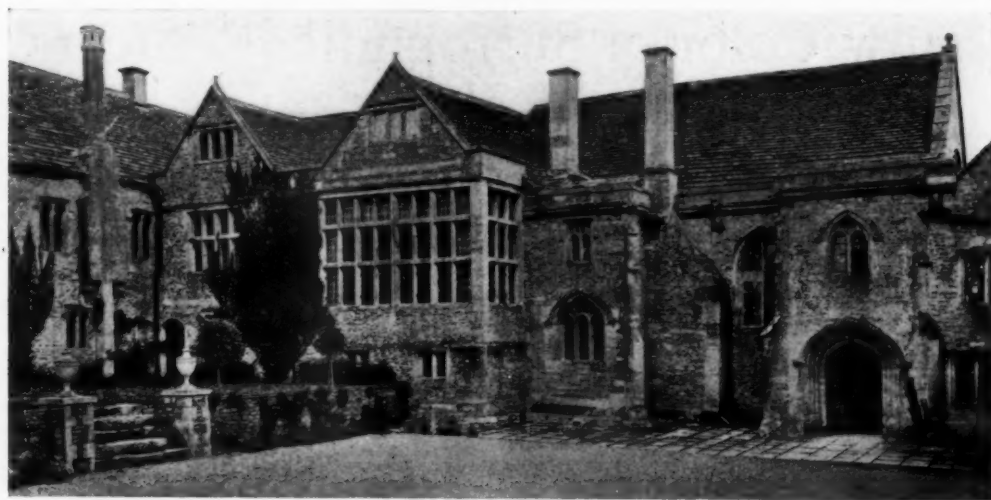
A most important matter in hospitals and houses is the medium formed by curtains through which the light comes. Purple is sometimes necessary, as it excludes the heat, while yellow increases it. In all rooms there should be a secondary curtain of yellow. It is an easy matter to arrange things so that only the one required is drawn. In mental cases color-tone curtains play an important part, according to the mental state of the patient. White has been used a great deal in the decoration of hospitals and houses for some time past, and the

present failing eyesight is largely owing to the glare of it. This opinion is confirmed by well-known oculists.

The proportion of color is very important. When a doctor gives a prescription, it is the proportion of each drug which he considers. This practice may very properly be observed in dealing with color. Color is often used by people who have not studied it, but what would be thought of the doctor who prescribed for his patient without any knowledge of medicine? Yet we take color medicine from people who are unable to give a logical reason for prescribing it.

It is not generally realized to what extent the Greeks delighted in colors, especially strong colors. Even their statues, many of them, were painted, and vivid purple and blue were among the colors used.

It will be found as this subject is studied, that as a nation declines, there also decreases the love of strong or barbaric color and gives way to a liking for minor tones. Therefore if the race is to be kept physically fit we must see that the people are surrounded by major colors. Nature is greater than art, and it is to Nature that we must go for our colors to maintain health, because they have a vitality which nothing else possesses. We must study Nature's vibrations, and, aided by science and theory, we shall then be able to attain good results.



SOUTH WRAXALL MANOR HOUSE



PLATE 179

ALLERTON HOUSE, EAST 39TH STREET, NEW YORK

ARTHUR LOOMIS HARMON, ARCHITECT





PLATE 180

ALLERTON HOUSE, EAST 39TH STREET, NEW YORK

ARTHUR LOOMIS HARMON, ARCHITECT



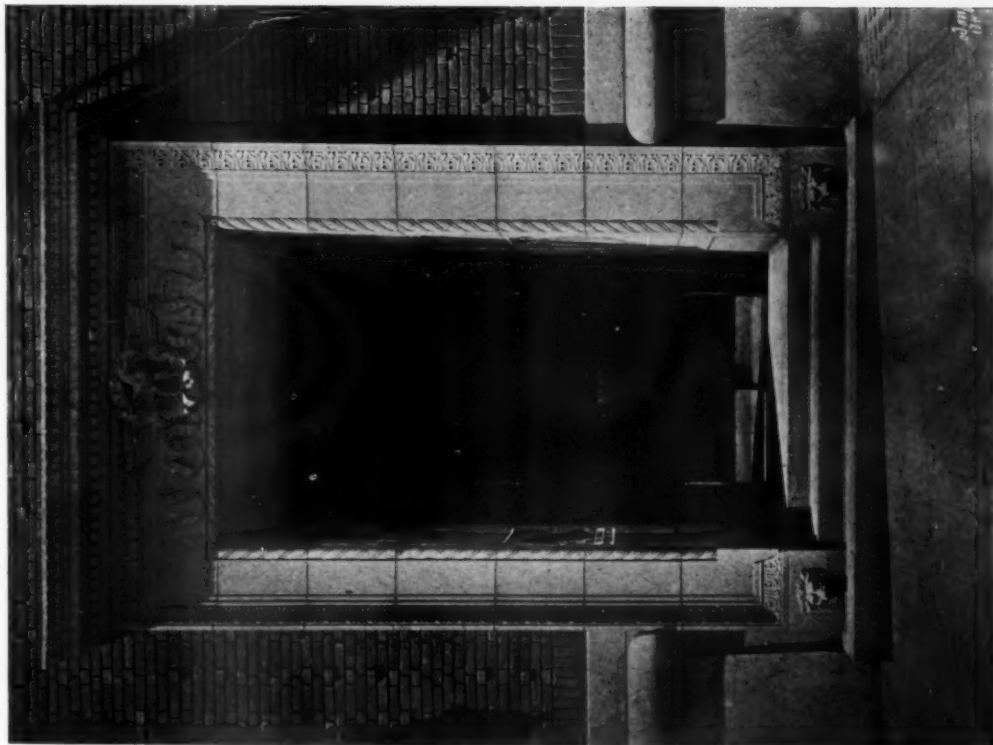
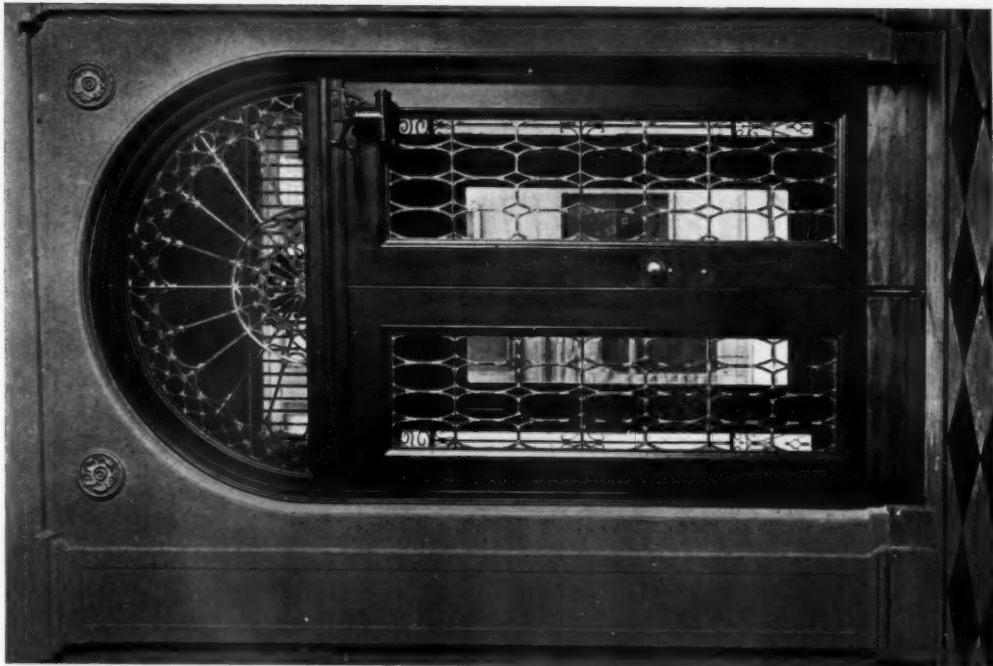


PLATE 181



EXTERIOR AND INTERIOR ENTRANCE DETAILS

ALLERTON HOUSE, EAST 39TH STREET, NEW YORK

ARTHUR LOOMIS HARMON, ARCHITECT

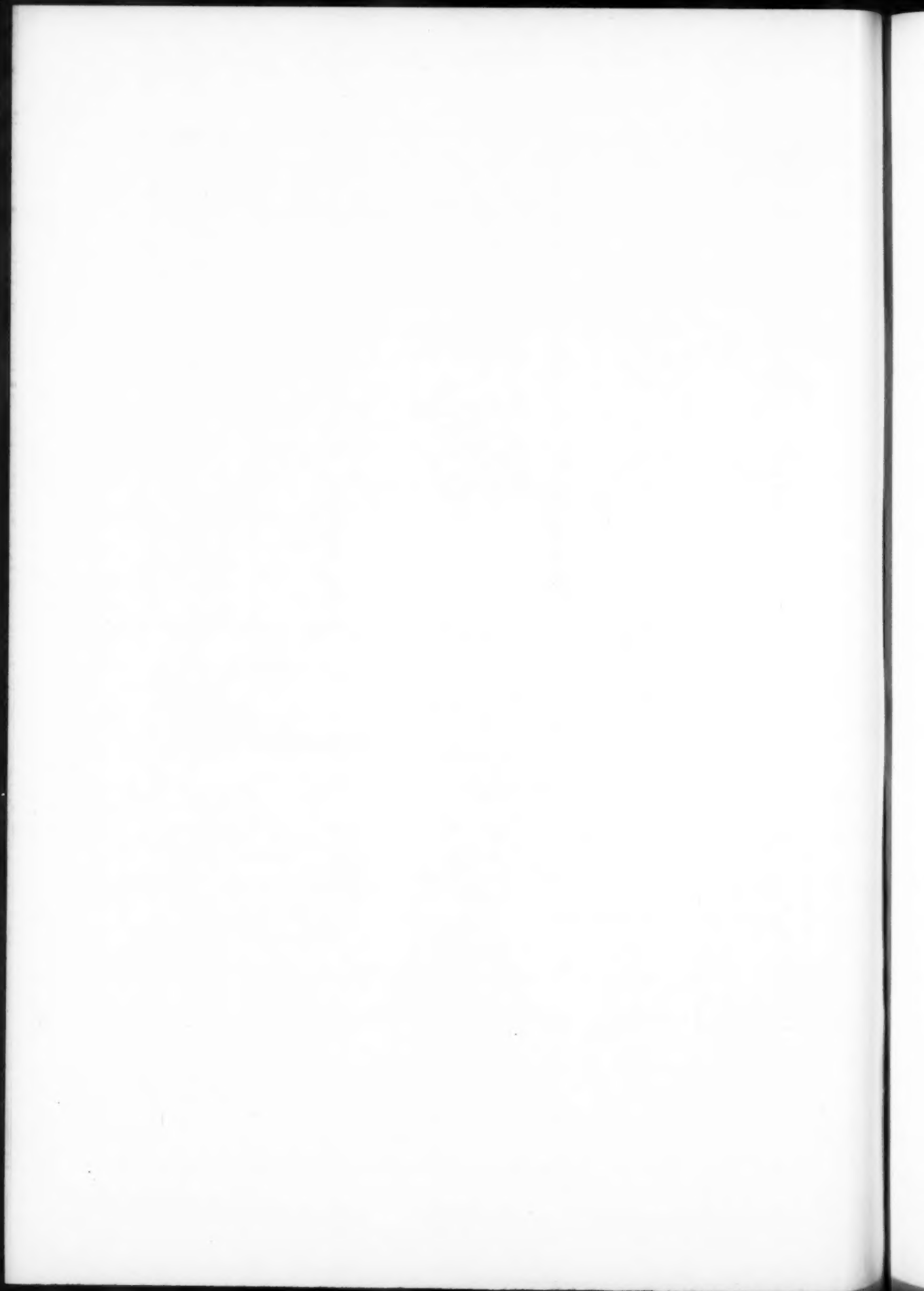


GROUND FLOOR PLAN



ALLERTON HOUSE, EAST 39TH STREET, NEW YORK

ARTHUR LOOMIS HARMON, ARCHITECT



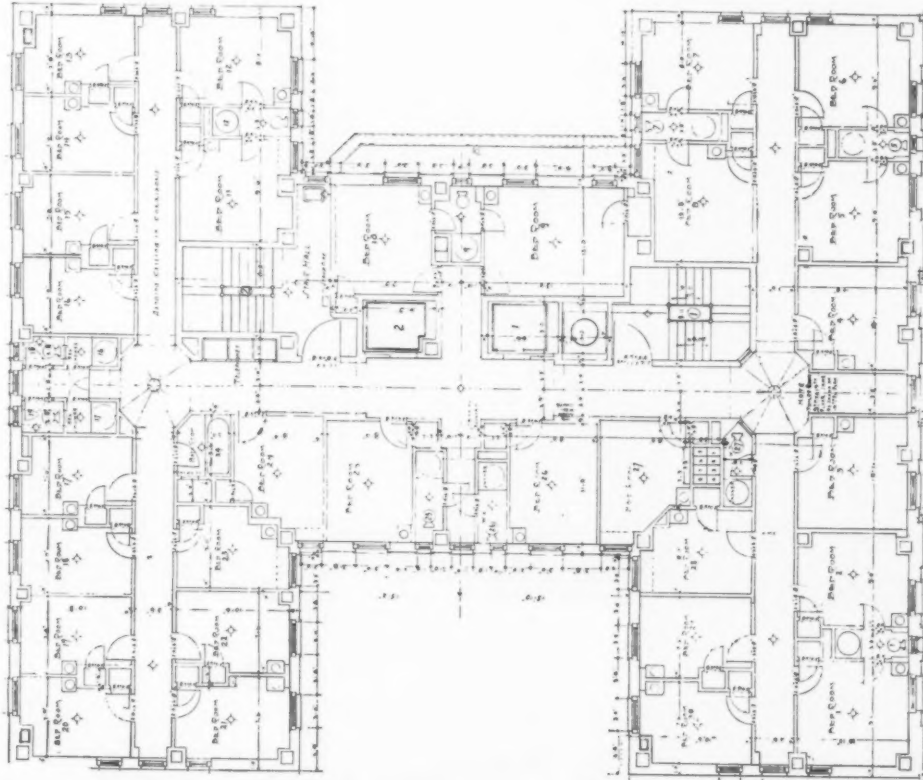
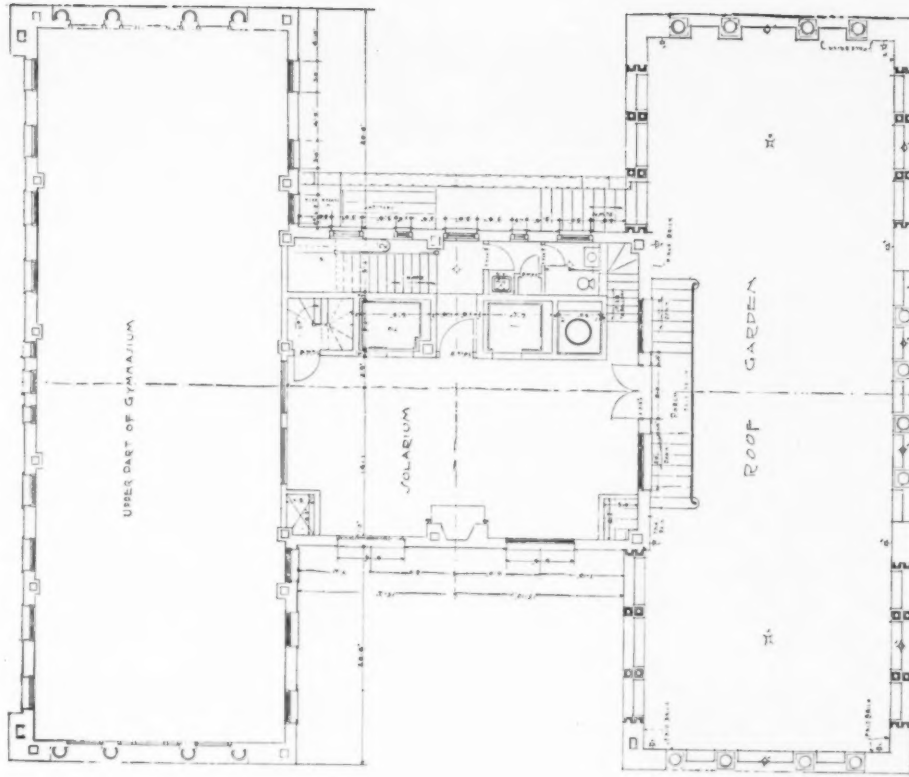


PLATE 183

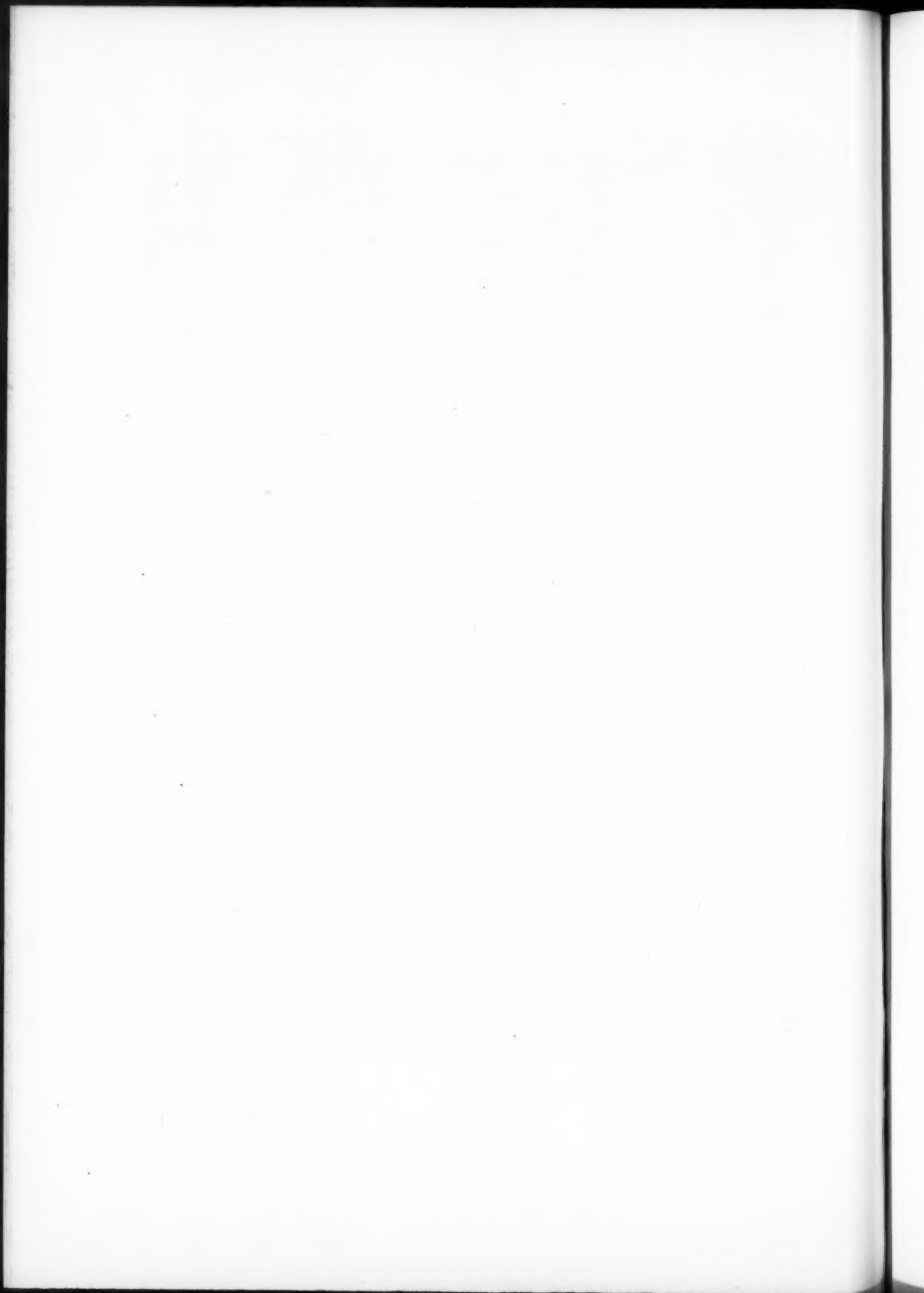
TYPICAL FLOOR PLAN



ROOF PLAN

ALLERTON HOUSE, EAST 39TH STREET, NEW YORK

ARTHUR LOOMIS HARMON, ARCHITECT



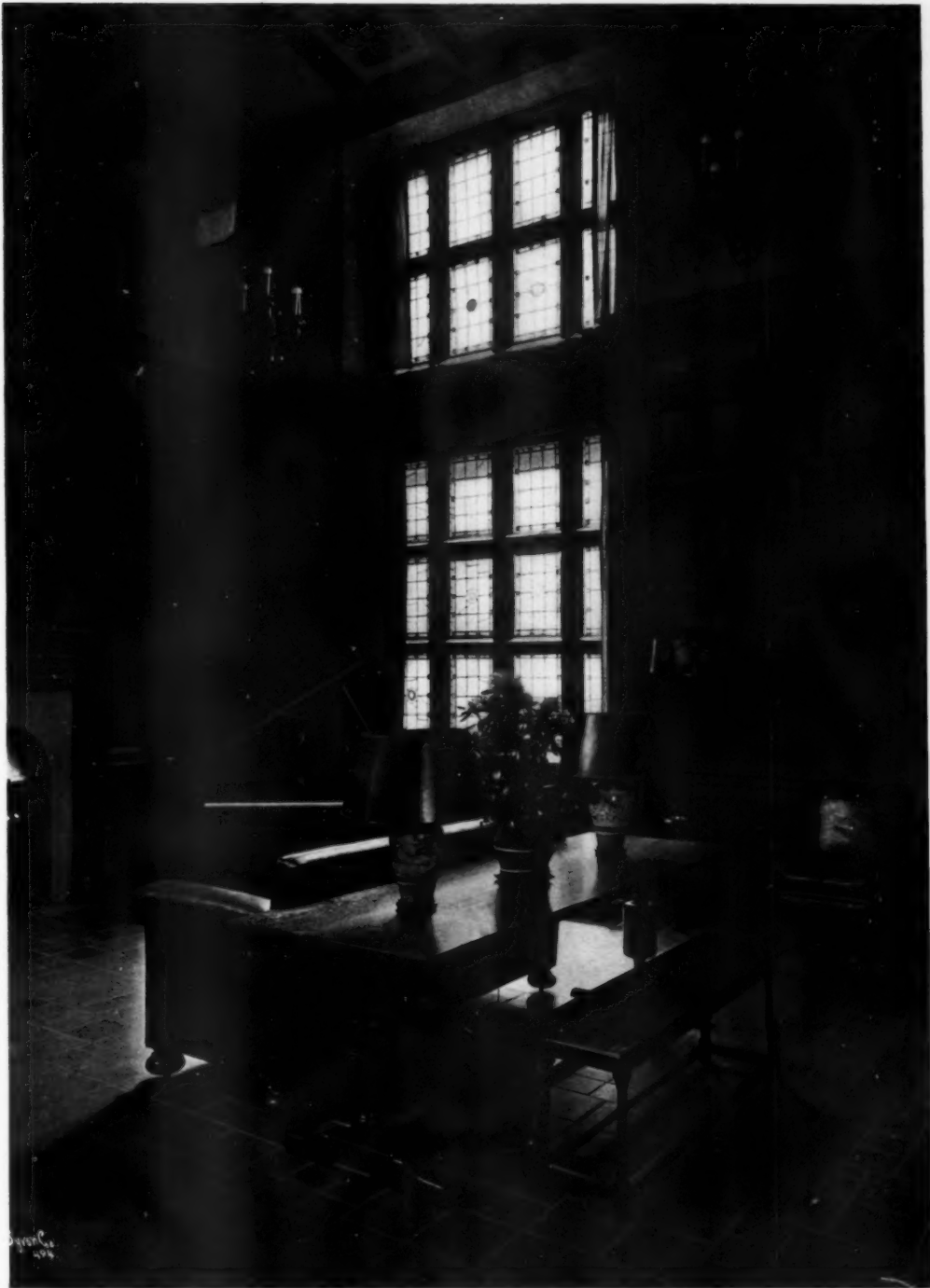


PLATE 184

DETAIL OF LOUNGE

ALLERTON HOUSE, EAST 39TH STREET, NEW YORK

ARTHUR LOOMIS HARMON, ARCHITECT

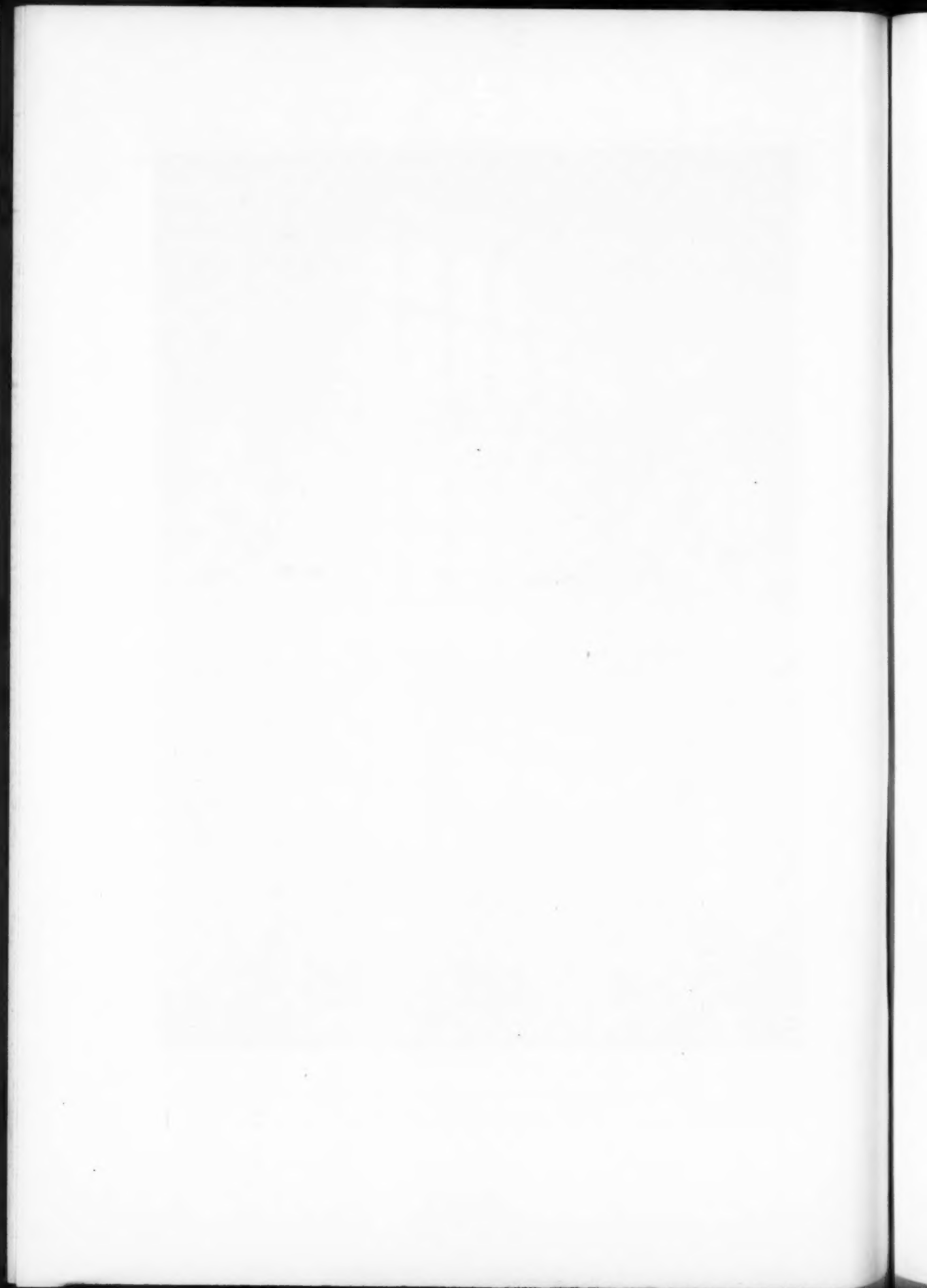




PLATE 185

TWO VIEWS OF THE LOUNGE

ALLERTON HOUSE, EAST 39TH STREET, NEW YORK

ARTHUR LOOMIS HARMON, ARCHITECT



PLATE 186

SOLARIUM—SEVENTEENTH FLOOR

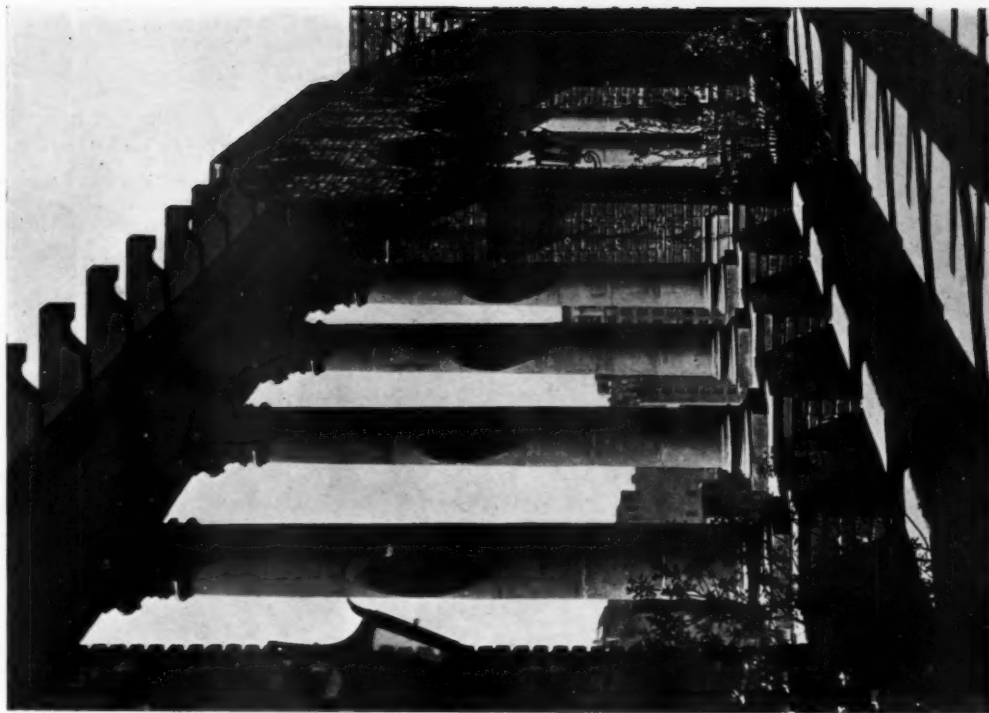
ALLERTON HOUSE, EAST 39TH STREET, NEW YORK

ARTHUR LOOMIS HARMON, ARCHITECT



PLATE 187

VIEW FROM SOUTHWEST



DETAIL OF ROOF GARDEN

ALLERTON HOUSE, EAST 39TH STREET, NEW YORK

ARTHUR LOOMIS HARMON, ARCHITECT

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Current News

Reconstruction of Art Study

Writing under this topic, the last issue of the *Vocational Summary*, published by the Federal Board for Vocational Education has the following well stated account of present and prospective conditions.

After much more or less vague discussion something now is being done toward the reconstruction of art study. The Architectural League has appointed a committee to look into the matter of an industrial school and craftsman shop, the National Academy of Design has appointed a committee on industrial art training, the Municipal Art Society has appointed a committee on industrial art, and the National Society of Craftsmen has appointed a committee on schools. The manufacturers of the country are joining the new federation of business, educational, and art associations that has been formed under the name of "The National Association of Decorative Arts and Industries." The older members of the conservative art organizations of the city are showing themselves thoroughly awakened to the need of schools of industrial art that shall in some degree, it is hoped, supply the training of the old atelier or apprentice system by which practice and theory went hand in hand and the pupil worked by the side of his master toward practical ends. Various schemes are in the air which will give the art students of this country what they so greatly need, effective teaching in industrial art.

Whatever form or direction of effort turns out to be the most effective, there is no doubt that this general interest in the proper teaching of industrial art will result in that co-operative and collective activity which is quite as essential today as it has been in the past to any important national achievement.

The war will stimulate such activity, again as in the past. Aside from the psychological reaction leading the minds of the public away from individual aims and ambitions and toward national interests, a conspicuous result of the discipline and associative habit of war, there has been clearly revealed the need of the country for practical craftsmen to be used in the industries upon which the commercial health of the nation depends. Such craftsmen are not numerous among us. They must be trained, and the few highly trained foreigners who have come to this country are priceless assets in the new business of building up industrial art. They should be paid enough to keep them here and give them ease of mind to do their work with care and conscience. If we are to ask an educated public to prefer modern objects of art to those made in the past we must face the necessity of making things that will bear comparison with what was made in the past. When we are able to place an American chair, or an American enamel, or an American piece of ironwork by the side of the ancient furnishings gathered by Mr. Altman and Mr. Morgan and Mr. Frick, with confidence in their equal honesty of craftsmanship and their equally intelligent design, there is little doubt that American industrial art will be "patronized," to use the hideous word consecrated to the arts and professions. Such a situation is, of course, to be seen only in far perspective. The task of "translating quantity into quality" will be slow, and it can be accomplished only by collective effort and the sacrifice

of temporary gain. Much time must be spent and much money, before we can establish a system of training that will make fine craftsmanship in the field of industrial art the matter of course that it should be.

The technical side of teaching industrial art must be left to those who have thrashed out the problems of the present situation in this country and who already are prepared to submit practical solutions. A most encouraging capacity for developing a simple and feasible plan has been discovered among the various committees, who presently will make public their program. In carrying out any program, however, the spirit in which the actual work is approached usually determines success or failure. Such craftsmanship as we are looking for in our industrial arts, and as we shall find essential to the creation of fine design, implies a degree of humility and patience not at present the recognized ideal of the American student. The mediaeval workmen who have raised the most glorious monument in all history to anonymous labor left the dignity and importance of their work rather than the dignity and importance of having their names signed to it.

Co-operative Housing Plan in Washington Square, New York

Everyone in and around Washington Square, New York, is interested in a \$6,500,000 project for that section, conceived by Lewis Stockton, a Buffalo lawyer, and now in the hands of I. N. Phelps Stokes, architect of New York. It includes a solution of the housing problems in that neighborhood, and involves a reduction in the price of foodstuffs. The plan provides for dormitories for New York University, family apartments, clubrooms, assembly halls, restaurants and cafeterias, and studios for artists and musicians in that well-known district. The site proposed is the west side of Broadway between Tenth and Eleventh Streets, opposite Grace Church. It would be a twenty-three story structure if erection is undertaken. The financial arrangements are being considered by the president of the Chamber of Commerce in New York. If the building goes up, it will be in tribute to the women who have helped win the war.

For National Budget Plan

The National Security League has announced that its Committee on Congress would soon undertake a campaign to urge Congress to adopt a national budget system. The league will disseminate information through the country on the "evils and wastes of the present lax system of handling the national purse strings" in order to consolidate public opinion back of the projected new order.

"The prime objectives of good business administration are efficiency and economy," said a statement on the plan, "and if Congress wishes to convince the people of the country that it is determined to encompass these two important conditions, it must do so by establishing itself on

THE AMERICAN ARCHITECT

a business basis. Its forces must be so organized and applied that there will be no superfluous machinery and no useless expenditures.

It is admitted that Uncle Sam is extravagant, and the people pay the bill in taxes—some direct and some indirect in the form of high prices. When the expenditures of the Government were \$1,000,000,000 or less annually the per capita tax for Governmental extravagance was necessarily not so great as it will be hereafter when several billions are going to be the annual tax budget.

"The greatest single factor in the direction of Government economy would be the establishment of a budget system. The United States is the only great country which does not follow it. Divested of the refinements of argument for and against, the fundamental propriety of this method of controlling and directing expenditures is a non-debatable subject. If the head of a household, who knows what his income is, or is likely to be, would permit every member of his family to spend what suited their fancy, or what in their individual judgment was desirable, he would soon meet with disaster. The United States Government averts disaster under similar circumstances merely because it can call upon the people at large to pay the bills, but the inherent fallacy of the methods followed by the Government remains apparent."

More Architectural Draughtsmen Needed

Revival of building activities has proved that there is a serious shortage of draughtsmen, according to reports received by the U. S. Department of Labor. Architects in all parts of the country, it is stated, are experiencing difficulty in obtaining men and are offering a decided advance in salaries, but in many cases the much needed workers cannot be obtained.

The shortage was first reported from Ohio, where construction projects of various sorts were begun soon after the signing of the armistice. St. Louis, Mo., and Louisville, Ky., also have found difficulty in meeting the demands made by architects. Possibly draughtsmen are still in the army service and it might be that personal appeals from architects would hasten their release. It is probable, also, that many have drifted into other vocations and publicity might induce them to return to their former line of work.

Origin of English Weights and Measures

According to a letter formulated by the World Trade Club advocating universal adoption of the metric system, the present coinage of the British Isles, as well as the weights and measures of both the British Isles and of America, is German. The British pound, both sterling and avoirdupois, originated with the old German Osterling Hanseatic League, which for hundreds of years controlled the trade of England. What is still more remarkable is that America and Britannia continue to use these old German tools after Germany herself has forgotten them. The latter country adopted in 1871 the simplest decimal system of quantity expression known—the application of

the decimal to weights and measures, the invention of that truly great Briton, James Watt, in 1783.

Japanese Bathhouses

The public bathhouse in Japan has performed one of the functions of the American saloon, namely, that of serving as a sort of social club. Two doors open upon the street, one of which leads to the women's half of the building and the other to the men's. In the evening, from early until late, these bathhouses are busy.

Heretofore the price of a bath amounted to two cents, and the houses were open all day. A recent desire to increase the price to a half cent more has been discountenanced, and bathhouse keepers have retaliated by discontinuing daytime service altogether, claiming that the cost of fuel was not warranted by the small number of morning patrons.

There are many places in this country where conditions would justify a larger number of public baths, for tonic results, both physical and social.

French Ask Wilson to Dedicate Site

President Wilson has been invited by the monument committee in Paris to dedicate the place where the monument to commemorate American intervention in the war will be erected, at the mouth of the Gironde. Deputy Maurice Damour, chairman of the committee, said the committee would be delighted if President Wilson, on returning to the United States, after having secured the triumph of right, would depart from Point de Grave, from which Lafayette sailed when he left France to aid the American colonies in their fight for independence. The Point de Grave is at the mouth of the Gironde, some distance from Bordeaux.

Seven Million Workers Need Training

Upwards of 7,000,000 workers in this country have not had opportunity to become properly trained in their tasks, according to the United States Training Service, of the Department of Labor, the function of which is to promote industrial training in manufacturing plants in this country. The system of training which the Training Service advocates is one of upgrading workers by extending their knowledge of processes and increasing their skill. It devotes itself to raising the average output of poor and mediocre workers and fitting the more promising persons for promotion.

These and many other facts equally pertinent to reconstruction problems, are set forth in a vest pocket bulletin entitled "Seven Million Candidates for Training" issued by the Training Service. This pamphlet shows that part-time and continuation training, splendid as it is, does not reach the great majority of the 7,000,000 workers referred to. They are already at their jobs and because of economic necessity cannot sacrifice time or wages to attend continuation classes. To meet this situation training departments in the shops and factories, maintained at the employers' expense, are urged as the most practical remedy. The publication referred to

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maintains that the training department idea has already demonstrated its great value for peace-time industry, and that the number of firms introducing training in their plants is growing week by week.

The task of the government's Training Service is to provide interested manufacturers with expert advice in planning their training departments and to supply them with carefully prepared training courses. The bulletin referred to above and others on this subject can be had free of charge by addressing the United States Training Service, care of the Department of Labor at Washington.

Balzac's Home is Restored

The home of Honore de Balzac in the Rue Raynourd at Passy has been reopened as an artists' center. The house had been sadly neglected, but has been restored to present the appearance it had in Balzac's time, with its vestibule painted blue and the original oak carvings and dark red tapestries decorating the apartment where Balzac wrote his masterpieces.

On the table stands the big china coffee pot from which the author was wont to refresh himself, for Balzac was a mighty drinker of coffee. Old wood cuts and original printing proofs adorn the walls. In the garden the vine that Balzac tended still grows and his beloved lilacs have been replanted there.

In one room there is still the trapdoor through which Balzac used to disappear when importunate creditors called.

"Inharmonious Distribution of Expenditure"

A great American architect was in the habit of using this expression to his clients and students—"The inharmonious distribution of expenditure!"

When asked for his meaning, he explained that he once stopped in a hotel with a white marble "grand" stairway, the posts and balusters of which were elaborately carved. To one side of this stairway was the cheapest type of passenger elevator; one that most of the time did not run because it was out of order.

The architect went on to explain that it would have been a more harmonious distribution of expenditure to have spent less on elaborate marble carving and more on the elevator.

There is going to be a lot of home building within the next few years, and this principle of the inharmonious distribution of expenditure will apply to the frame dwelling quite as much as to the commercial structure.

In our home building of the past we have sacrificed much in the way of comfort and convenience for mere bigness and useless elaboration.

But we are learning, for instance, that a chicken will cook just as well with the kitchen table or sink along side and next to the range rather than on the other side of a 16-foot room.

The modern kitchen is small, very much in the nature of a laboratory, and is being designed to save steps and motions as in the case of the modern factory.

We are learning that it is better to expend the cost of towers, dormers, elaborate gable fronts and beveled glass windows in more and better plumbing, heating and the general utilities of a dwelling; that this is the more harmonious distribution of expenditure.

Greatness of U. S. Exemplified in Recent Industrial Statistics

The following interesting statistics appear in the current issue of *The Cincinnati*, official organ of the Cincinnati Chamber of Commerce:

Before the war the United States was a debtor nation, owing \$5,000,000,000; to-day the foreign nations owe us more than \$10,000,000,000. This nation has but 6 per cent of the population of the world, and only 7 per cent of the land, according to Finance and Industry.

It was the United States which was the deciding factor in winning the world war and establishing peace. It is the United States which is the financial center of the world, as well as the greatest producing nation on earth, now setting out to supply the commercial wants of all other peoples.

Some reasons why the United States has this record are that more than 22,000,000 of its citizens became financial backers of its war expenditures and that it produces:

- Sixty per cent of the world's supply of copper.
- Forty per cent of the world's supply of lead.
- Fifty per cent of the world's supply of zinc.
- Sixty per cent of the world's supply of aluminum.
- Sixty-six per cent of the world's supply of oil.
- Seventy-five per cent of the world's supply of corn.
- Sixty per cent of the world's supply of cotton.
- Forty per cent of the world's supply of silver.
- Twenty per cent of the world's supply of gold.
- Fifty-two per cent of the world's supply of coal.
- Forty per cent of the world's supply of iron and steel.
- Twenty-five per cent of the world's supply of wheat.
- Eighty-five per cent of the world's supply of automobiles.

To help in the distribution of these basic commodities the United States operates 40 per cent of the world's railroads, and is destined to control a big percentage of the ocean tonnage of the world.

Public Work in France Held Up by Labor Shortage

There is work right now in France for every man who wants to work, according to M. Claveille, minister of public works, who recently told an Associated Press representative that the lack of labor alone is holding back some of the important public work for which material was assembled while the war was going on.

Besides the immense task of rebuilding Northern France, M. Claveille pointed out the following projects which will be executed as soon as the labor can be found:

The enlargement of the canal from the Rhine to the Rhone to give Alsace a better outlet for her products to central France and to the Mediterranean; extension of several other canals; enlargement and improvement of the ports of Algiers, Marseilles and Brest, with the extension of railroad lines leading to those ports; the building of water power plants of several hundred thousand horse power in the Alps, the Pyrenees and around the central plateau to furnish electric power to railroads and lighting current to cities, including Paris, the levelling of the wall of Paris; the extension of the Paris subways into the suburbs as soon as the fortifications have disappeared, and, eventually, the digging of the tunnel under the English Channel.

Personal Mention

A. H. Knox, architect, Chicago, moved from 104 S. Michigan Ave. to 14 W. Washington St.

Mr. Fred A. Evans has removed his architectural offices to 704 Book Building, Detroit, Michigan.

Architect Jos. W. McCarthy, old address 4551 Sheridan Road, has moved to 1418, 139 N. Clark St.

B. Robert Swartburg has opened offices for practising architecture at 51 E. 42nd St., New York City.

M. F. Strauch, architect, has moved his office from 1356 Diversey Blvd. to 608 S. Dearborn St., Chicago.

Ray W. Leible, architect, has opened offices at 311 Valley National Bank Building, Des Moines, Iowa.

Architect L. M. Mitchell announces the removal of his offices from 19 S. La Salle St. to 607—35 N. Dearborn St.

Lowe & Bollenbocker, architects, 14 E. Jackson Blvd., have removed their offices to 108 S. La Salle St., Chicago, Ill.

F. Burr Modie, architect, Galion, Ohio, has opened offices, specializing on residence work. Catalogues and samples desired.

Albert S. Hecht, architect, announces the removal of his office from 154 W. Randolph St. to 64 W. Randolph St., Chicago.

Toltz, King & Day, Inc., has been organized to practice architecture and engineering at 1410 Pioneer Bldg., St. Paul, Minn.

Walter E. Perry, architect, formerly of Perry & Thomas, 140 S. Dearborn St., has moved to 607—64 E. Van Buren St., Chicago.

Architects C. W. and Geo. L. Rapp of 1005—69 W. Washington St., have moved their offices to Suite 1200, 190 N. State St., Chicago.

The architectural offices of Harold E. Paddon, will, on May 1st, be moved from 120 Broadway to 280 Madison Avenue, New York.

Governor Smith has appointed Edward S. Walsh of Brooklyn, State Superintendent of Public Works to succeed Lewis Nixon, resigned.

E. R. James has returned from Government service and has opened an office in the Dudley Building, Danville, Va., for the practice of architecture.

Mr. Edmund C. Stout, care of the Prudential Insurance Co., Newark, N. J., architect, desires catalogues and information from manufacturers.

Washburn & Nebelung, architects and engineers, have opened offices at Ranger, Texas. Mr. Geo. P. Washburn was formerly located at Ottawa, Canada.

Walter Scholer announces the opening of offices for architectural practice at 801 States Life Building, Indianapolis. Samples and catalogues desired.

Albert Speiden of Speiden & Speiden, architects, Washington, D. C., has been elected an associate of the Washington chapter, American Institute of Architects.

Two prominent Washington, D. C., architects, R. B. Atkinson and J. C. White, have formed a partnership. The firm's office is at 818 Connecticut avenue northwest.

Architects Vitzthun & Teich, 212 Van Buren St., now practice separately, the new firm being F. J. Teich, 305 S. La Salle St., and K. M. Vitzthun Co., 21 E. Van Buren St.

Herman F. Cason & Co., architects, have moved their offices to 311 Praetorian Building, Waco, Texas, where they desire manufacturers to send samples and catalogues.

Offices for the practice of architecture have been opened by Beshgetoorian and Cobelli, at Ranger, Texas, and not at Bangor, Texas, as previously stated. The firm desires to receive manufacturers' samples and catalogues.

Philip S. Avery, after an interval during which he has been engaged in Government housing work, has reopened an office at 95 Milk Street, Boston, Mass., for the practice of architecture, and would like to receive manufacturers' samples and catalogues.

Mills & Millspaugh, architects, 67 E. Long St., Columbus, Ohio, have recently opened a branch office at 1002 Marshall Building, Cleveland, Ohio. Mr. Glenn Snyder, formerly of Allen Osborn Co., will be in charge of the Cleveland office for Messrs. Mills & Millspaugh.

Having completed his services with the Military Intelligence Section, Plant Protection Division, General Staff Corps, United States Army, C. E. Schermerhorn, architect, announces the resumption of his practice at 430 Walnut Street, Philadelphia, Pa.

Urging a movement for better housing facilities in Buffalo, N. Y., and giving specific instances of what has been done along these lines in other places, Albert Hart Hopkins, architect, spoke recently on "Proper Housing for Laboring Men" before the Real Estate Association of that city.

Mr. William Leigh Carneal and James Ambler Johnson announce that O. Pendleton Wright has been admitted to partnership with them and that the business is to be continued by them under the present firm name of Carneal & Johnson, architects and engineers, Chamber of Commerce Building, Richmond, Va.

The firm of Meyer, Strong & Jones, Inc., has succeeded to the engineering practice of Henry C. Meyer, Jr., and Basset T. Jones, Associated, and of William E. S. Strong. The new firm will act as consulting engineers for steam and electrical work, power plants, etc., and will have offices at 101 Park Avenue, New York.

A new architectural firm with offices at 30 East 42nd Street has been formed in New York, with the following members as partners:

Edgar I. Williams, Registered Architect, B.Sc. and M.Sc. in Architecture, Massachusetts Institute of Technology, winner of the Rome Scholarship and Fellow of the American Academy in Rome, Italy; Walter R. Mahnken, Registered Architect, a graduate in Architecture of Pratt Institute and of the University of Pennsylvania; both having practiced in offices of prominent architects in New York, Pittsburgh and Boston and executed their own work; and Alfred J. Mahnken, B.Sc. and C.E., Rutgers College, with ten years' experience as an architectural, civil and structural engineer and in general engineering and building construction; all having recently been in active service as commissioned officers with the United States Army.

Late News from Architectural Fields

Special Correspondence to THE AMERICAN ARCHITECT

Housing Hampered by Michigan's Code

DETROIT, MICH., May 31.—Asserting that provisions of the state housing code are unreasonable in the extreme and should be taken into court and "knocked out," Commissioner of Buildings and Safety Engineering John C. McCabe has described to the council committee of the whole certain injustices worked upon those who desire to construct houses.

In one case mentioned the owner of a lot 140 by 30 feet desired to erect a building. His plans were drawn and taken to the inspectors of the health board for approval.

But under the state code it was impossible for the inspectors to approve any building on this lot for dwelling purposes unless it stood 10 feet on each side from the lot line. Consequently the house would have had the unique and peculiar dimensions of 10 feet wide by 140 feet long.

By direction of the common council the commissioner will have printed the new regulations drawn up to amend the city housing code. These will be as liberal as is possible without conflict with the state law.

Carpenters Urge \$7 a Day Minimum Wage

DALLAS, TEX., May 30.—Adoption of a universal minimum wage of \$7 per eight-hour day for carpenters in Texas is indicated as the result of recommendations made at the annual convention of the Texas State Council of Carpenters.

A resolution favoring the adoption of this minimum rate throughout the district represented was approved by the delegation, which is composed of representatives from almost every carpenter's local organization in the State. Although the recommendations made by the State council are only approbation measures favoring the \$7 minimum wage, and have no compelling force, the delegates expressed the conviction that the action of the convention body will be accepted by the unions affiliated with the Texas State council.

Des Moines Architect Made Housing Officer

DES MOINES, IA., May 31.—R. W. Leible, architect, has just been appointed housing commissioner by the Des Moines city council at a salary of \$2,500 a year.

Million Ready for New Homes

DETROIT, MICH., June 2.—With a capitalization of \$2,000,000, of which \$1,000,000 will be subscribed within a week the Community Housing Corporation is nearing an active state.

The board of directors is nearly complete and comprises many of the city's ablest business men.

One of the organizers believes 20,000 homes will be built or under construction within the first year. The corporation will not build, but will finance the building of homes, duplexes and multiple dwellings.

Philadelphia Housing Bill Approved

HARRISBURG, PA., May 31.—Governor Sproul has announced his approval of the Vare Senate bill prescribing the minimum live loads to be considered in designing dwellings to be hereafter erected or altered in Philadelphia. The bill established factors of safety, makes numerous definitions and classifications. The penalty is \$50 fine for the first offense and \$75 for subsequent offenses, city magistrates being empowered to hear cases and the chief of the Bureau of Building Inspection being charged with the duty of carrying out the act.

Lumber Prices in Washington

WASHINGTON, D. C., May 26.—"The present level of prices of both material and labor represents a stable basis from which to figure construction work for the year 1919 and nothing can be gained by further postponing building operations," was the report of the Central Stabilization Committee this week to the District Commissioners. This committee was appointed in April to investigate the building situation here with a view to stabilizing construction and they further said: "Lumber prices today are firm with an upward tendency in the better grades. Indications are that the increase in prices will be felt the remainder of the year on better grades, while others will remain stationary."

Architects Admit Women

British women have secured admission as members to the Institution of Naval Architects. The vote taken by the institute on the question was 491 to 220. In announcing the vote, Sir William Smith moved that women be admitted as members on equal terms with men. Sir Alfred Yarrow, in seconding the motion, gave instances of the excellent work done in this field by British women.

C. W. Parks Named for Navy Projects

WASHINGTON, D. C., May 26.—C. W. Parks, chief of the bureau of yards and docks here, is the architect for the three projects for which the Navy Department has asked bids. Estimates are requested for a storage development plant at Galveston, Tex., costing \$758,000; a storage building for the medical department at Hampton Roads, Va., and officers' quarters at Hingham, Mass.

Says High Money Costs, Not Material Prices, Retarded Post-War Building

Construction Attracts New Capital

THAT it is the high cost of money and not the high cost of building materials that has retarded post-war building activity, is the opinion concretely expressed this week by a leading New York builder. It is felt by this authority that builders have held off from starting new building on a large scale, not because they expect materials and labor costs to drop within the next few years, but for reason of the high rate asked for money. A stumbling block has been the plan of many bankers for amortization of mortgages. Builders discourage the tendency to force this scheme, which, while it is good banking, absolutely repels the ordinary speculative builder.

Freer loaning of building mortgage money, which has been scarce owing to the diversion of large sums into Liberty bonds, was a feature of the market this week, when many of the larger corporations showed evidence that now Government issues are over it is their duty to divert at least some of their funds from other investments into helping solve the building problem. For the first time in months, many prominent mortgage companies showed a desire to use their own money, together with all the capital they could attract, with which to make building and permanent loans on apartments and office structures.

Loan money, because of scarcity and like every other commodity, has advanced in value. It is logical that banks should desire to take advantage of opportunities to invest their money at more than the old rate of interest. There are many more attractive investments for them today than the $4\frac{1}{2}$ per cent loan. From the banks' standpoint it can be clearly seen that with loans definitely restricted and limited and based on pre-war costs, there has come a prevailing insistence on amortization.

With the coming of an easier market for building loans, there is a more universal tendency to disregard the comparatively small average advance in the price of materials. With money at 5 per cent and the certainty that it will soon reach 6 per cent, there came hesitancy on the part of speculative operators. In some quarters the opinion is very freely expressed that with mortgage loans at six per cent bankers would be disposed to withdraw their insistence on amortization requirements and that building operations would at once gain impetus toward their normal condition.

There is not so much inconsistency as may at first be felt in arriving at a conclusion that an increased rate of interest would result in increased construction. With this condition revised, operators would be able to figure their equity and fix their price with a certainty that would inspire confidence. Another aid in overcoming the difficulties of the present building problem would be the establishment of a definite tax limit. Real estate for the past twenty years has borne an unfair proportion of the taxes of the cities. Thirty per cent of the rent from a house is at once paid for taxes. The difficulty has been that it has been hard to induce capital to build when a fair return cannot be assured and the landlord is held up as a rent profiteer.

In the meantime, the formation of housing corporations in many of the larger cities, following the notable example of Detroit, has interested private capital in the solution of the problem of building financing. This with strong efforts being made to secure Government and State aid through a system of loans at a low rate, similar to farm loans, is giving the prospective builder increased confidence in the future.

In New York added interest in the mortgage market has come about as a result of charges that have been made that title companies, savings banks and life insurance companies are withholding funds which should go to the builders; that three brokers with suitable connections are the only ones from whom appraisals will be accepted; that bonus must be paid for loans; and that men in need of building money have hard work getting it. Investigation has shown, however, that large institutions which make a business of financing building projects are endeavoring to do all in their power to provide relief for the situation which will make for a healthy development of construction.

A suggestion has been made by a prominent New York loaning interest that if all the savings banks would come together and agree to finance for a reasonable proportion of the value all new construction it would greatly increase the housing facilities of the earner of moderate wages. The banks should always have reserve funds for this purpose.

Lumber statistics of the manufacturers for last week show a large increase in orders received, and this is true especially in the great Southern lumber region and all along the west coast. For a month now the larger Pacific coast manufacturers have reported heavy orders and last week their orders ran far above normal. The Southern pine manufacturers show a big jump in orders and the Northern pine and North Carolina pine regions indicate slight advances in orders, the former cutting more than usual.

For many months the general lumber movement has been below normal and retailers have been allowing their stocks to become low. The present increases show that retailers are buying heavily and it goes without saying that they would not do this if they were not receiving many orders in realization of a big building boom.

Reports from THE AMERICAN ARCHITECT'S correspondents this week show construction conditions to be growing better daily, particularly in the mid-West section, where conditions have been such as to make it imperative that building proceed. The wave has slowly but surely been moving eastward. New York architects feel that it is only a matter of a month or so before there will be a great shortage of architects and draughtsmen to handle the tremendous amount of work that is developing. The large percentage of permits taken out this week were for residential work, which indicates that the building

(Continued on Page 804-A)

Department of Architectural Engineering

Back Venting versus Simplified Plumbing

Has Simplicity, Economy and Safety in House Drainage Actually Been Attained?

WHILE plumbing installations date back many centuries, it is interesting to note that probably the first man legally appointed "Inspector of Plumbing" in the United States (Samuel A. Robinson, Washington, D. C.) assumed his duties as recently as 1873. In his report of July, 1877, rendered after a most thorough investigation of plumbing installations in the District of Columbia, he earnestly recommended that regulations be adopted providing for the proper installation of drains, traps and *vent pipes*. On March 27, 1879, typewritten recommendations were made and distributed to those interested, but not until July 1, 1880, were these, with slight modifications, given the full effect of a city ordinance. So far as can be ascertained, this constituted the first Plumbing Code in force in any city in America. The earliest code known to have been in effect in any country predated the Washington code by only a few years, having been incorporated in the "By-laws" of Up-pingham, England, about 1875. The New York Board of Health in 1877 issued to the people of that city a pamphlet with cuts showing the proper method of laying out the plumbing system, and in the year following recommended simple rules governing such work. Thereafter the matter of adopting plumbing codes was taken up by many of the leading cities in the United States as well as abroad, and the regulations later adopted followed somewhat after the pattern of those in force in the District of Columbia.

One of the basic requirements of these early plumbing ordinances was that each fixture be trapped, the trap to be placed as near the fixture as possible, and in addition some form of vent pipe was required to protect the seal from trap syphonage.

Inasmuch as many of the traps in use at that time contained interior mechanism such as a ball or other movable part to seal the trap, and as other

traps were of such a pattern as to become quickly fouled from the waste passing through them, later amendments to the various ordinances specified the construction of traps in more detail, and prohibited the use of such types as were deemed to be unsanitary for these reasons.

One of the greatest problems to overcome was the syphonage of the traps. Let us remember how crude such installations were when compared with modern plumbing systems. In many cases the soil or waste pipe terminated at the highest fixture, so that any discharge through it must leave a partial vacuum in its wake. The "S" or bend traps were found to syphon out more easily than the drum traps, and usually the greater the body of water retained in the trap, the less susceptible to syphonic action was the trap seal. Of the two types the "S" and half S or "P" traps were undoubtedly the most sanitary, retaining a smaller quantity of foul water and being more self-cleansing, due to decreased waterway. This type of trap has remained in favor to the present day and is probably the most largely used of any.

However, in order to continue the use of such a desirable form of trap and at the same time prevent it being syphoned out, air relief pipes, commonly called "vent" lines, were introduced and were thereafter generally required by law, as has already been mentioned. Although originally connected at the crown of the trap, they were later permitted within approximately two feet of it. These air relief pipes at first took the form of local vents, often being of small diameter and extending through the wall to the outer air. Experience proved this arrangement to be defective and often inadequate to prevent the loss of seal. Further investigation revealed the necessity of increasing the size of vent pipes and continuing them above the roof.

While experiments are still in progress to throw

further light on the matter of determining the proper size of stacks,* and much is still to be learned about plumbing design, it is but natural that experience should have taught us many things of prime importance relating to drainage systems during the forty years following the adoption of the first regulations.

Certain features stand out as essential to the proper design of such a system. Of fundamental importance is the regulation requiring every fixture to have a trap placed as near its waste outlet as possible. The purpose of this trap is obvious: it must effectually lock the door against all gases contained in the piping system, so that they cannot gain access to the rooms through the fixtures. The prohibition against traps having interior mechanism is so well understood that it will not be discussed. This eliminates the use of all traps except those providing a water seal, which, to be effective must be maintained unbroken during the most exacting service conditions.

The drum trap has been mentioned as less susceptible to syphonic action than the S trap, thus being to a certain extent "anti-syphon." The fact that a trap could be developed, capable of maintaining its seal without the installation of relief or vent pipes, has led to the development of two distinct systems of drainage.

Keen students of sanitation saw with the introduction and extension of the vent pipe, the incorporation into the drainage system of certain dangerous features, as well as the increased cost of installation. These embraced the possibility of bypasses by improper location of traps; the danger of gas leakage, due to the vastly increased number of joints in the piping system; the danger of quick loss of seal due to evaporation;† the danger of trap syphonage should the connection of the back vent to the trap become stopped up by accumulations of rust scale, grease or extraneous matter flowing into the drain; the possibility of entire or partial closure of the vent pipe above the roof by frost during extremely low temperatures, thus for the time being rendering it noneffective; and also since many vent lines connect with the soil or waste stack below the roof, accumulations of rust scale at the offset may also cause such closure. The possibility of this latter danger has been emphasized by recent investigations on pipe corrosion.‡

*Extensive tests being conducted by the University of Illinois, Urbana, Ill., under the direction of J. M. White, Supervising Architect. Results not yet published.

†It is estimated that a vented S trap will lose its seal in from one to two months if fixture is unused.

‡See the Relative Corrosion of Cast Iron, Wrought Iron and Steel Pipe in House Drainage Systems, by Wm. Paul Gerhard, copies of which may be obtained from the Am. Soc. Mech. Engr's., 29 W. 39th St., New York. Also the Life of House Drainage Piping by Thos. J. Claffy, published in the *Plumbers' Trade Journal*, Jan. 15, 1919.

Of all these the danger of stoppage of the vent (by any cause) is the most serious. This has led many sanitary engineers to advocate the entire elimination of the vent pipes, the adoption of a single pipe drainage system, and the installation of some type of trap not affected by syphonage, usually termed an "anti-syphon," but more properly named, a "resealing" trap. Such an installation is referred to as the "Simplified Plumbing System."

Each of these systems has its relative merits and objections. The two-pipe or vented system is probably all that is claimed for it by its most ardent advocates when designed by and installed under the supervision of competent persons. Unfortunately this is by no means always done, and when poorly designed and installed by incompetent contractors without proper supervision, it is probably as defective as its most severe critics would lead us to believe. There is no denying that its installation requires the use of approximately 30 per cent more pipe than would be the case for the simplified system, thus making it the more expensive of the two. The question before us is: "Are we justified in saddling this expenditure upon the owner?"

In endeavoring to answer this, we find that were it not for one great drawback the simplified system would be practically ideal. This drawback is the difficulty of finding an efficient anti-syphon trap. One essential feature of any trap (except a grease trap) is that it must be self-cleansing. This is as important as its ability to resist syphonage, for if it be not self-cleansing, the unscoured parts will soon become coated, and as accumulations of foul matter increase, it is only a question of time when the trap ceases to be anti-syphon. The drum trap is to a large extent "anti-syphon," but its self-cleansing qualities leave much to be desired. Apparently with but few exceptions every endeavor to produce an anti-syphon trap has followed along the lines of the drum trap, and it is difficult to believe that the traps of this type which have been produced to date are really self-cleansing. Other designs differing from the drum trap have incorporated baffles, interior partitions (see Fig. 1),

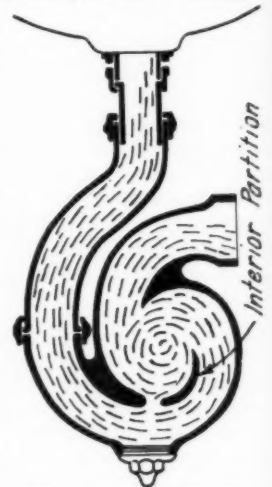


Fig. 1.—Objectionable type of re-sealing trap constructed with interior partition.

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diaphragms and other objectionable fouling surfaces. Many illustrations might be given showing to what extent inventors have gone to produce an "ideal" trap. Many of these proved impracticable and were little if ever used.

The opinions of leading authorities on the subject are of interest, and in this connection we quote from several.

R. M. Starbuck, a rather staunch advocate of back venting, as given in his book, "Standard Practical Plumbing," 1910 edition, states:

The trap constantly being sought for, and which may some day be brought out, should be simple in construction, self-cleansing, non-syphonable, have a good seal, and no internal partitions, depend upon no mechanical device, and have as few corners or places where filth may collect as possible. * * * Although there are many excellent traps now on the market, it does not appear that perfection has yet been reached. * * * When the non-syphonable trap becomes an accomplished fact from all practical points of view, there would seem to be no end to the changes that would result in the plumbing system. It will not be a matter of great surprise to see within the next few years, the plumbing system installed without the use of trap vents. When this result comes, the decrease in the complete form and in the cost of the plumbing system will be very great. *Such a system, however, will not be acceptable until the problems involved shall have been solved beyond a question of doubt.*

In a paper presented at the 11th annual meeting of the American Society of Sanitary Engineering in 1916, Louis A. Cornelius expressed his views as follows:

The perfect trap, which as you know, has not been evolved, is the one that contains a body of water sufficient to withstand evaporation for a considerable period, a seal deep enough to withstand syphonage even under unusual conditions, like stoppage of the vent pipe, etc.; and yet be a self-cleansing fixture, free at all times to promptly carry away the waste discharge. Inasmuch as increasing the volume contained in the trap body and deepening the seal, proportionately decreases its self-cleansing properties, we are immediately confronted with the difficult problem of how much of the cleansing properties should be sacrificed to conform to some syphonage test. * * *

In the first place, there is no such thing as an anti-syphon trap, using the term broadly. There has simply been a development of these fixtures which are anti-syphon to a certain degree, and this degree has been fixed by the minimum as called for in codes and by individual inspectors.

Wm. Beal Gray, a practical plumber, having served many years as such, later becoming a master plumber and now practicing as a sanitary engineer, has written a veritable compendium on plumbing, entitled "Plumbing Design and Installation," in which he has this to say on the subject:

The author does not wish it understood from anything said that he condemns non-syphon traps; they are safe and effective in competent hands; the door is open to them; they are generally specified for the locations they were designed for; the makers do not complain of any prejudice against the proper use of them and the desirable trade recognizes the merit of such goods. In fact the

U. S. Government specifies non-syphoning traps—not to save venting expenses, but because the conditions of its buildings lead the designer to believe such traps will give the best service.

Dr. Wm. Paul Gerhard, recognized throughout the country as an authority on all matters relating to plumbing, in his work entitled "The Water Supply, Sewerage and Plumbing of Modern City Buildings," says:

There are a number of water-sealed traps, called non-syphoning traps, * * * which are shaped with a view of retaining a water seal when syphonic action takes place in the system, and their seal is, as a rule, made deeper than usual.

Where non-syphoning traps and water-closets with a deep water seal are used, the special back-air pipes may be dispensed with, *provided the fixtures are located close to a ventilated soil or waste line.* In my practice I consider a run of five feet as the largest allowable length for the use of such traps without a vent continuation of the waste pipe. Long branches should be vented, either by interconnection with vent stacks or by extension to the roof, but if so arranged, the branch trap vents may be omitted.

This improved system is far superior to the one commonly required by Building Department Rules or regulations. The present tendency involves unquestionably too much complication. A comparison between the two methods shows clearly the superiority of the simpler system, which is now advocated by some of the best authorities. Hence the municipal plumbing regulations of cities should be revised so as to make it *optional* with an architect or the owner which system to adopt.

Nelson S. Thompson, chief mechanical engineer, Supervising Architect's office, Washington, D. C., recently expressed his opinion, in a letter to the editor of the *Metal Worker, Plumber and Steam Fitter*, reading in part as follows:

During the time that the front and back outlet water-closets, with their shallow trap seals, were in common use, and prior to the invention of a reliable non-syphoning trap the individual back vent system had a valid reason for existence. * * *

The use of syphon-jet water-closets and slop sinks with 3 inch deep water seals, the use of non-syphonage traps on lavatories and ordinary sinks, and the proper use of the dead-end or circuit vent to protect the shallow water seals of the "P" or running traps on urinals, shower baths, etc., solves the problem of protection of water seals from syphonage.

The only point left to consider is that of insuring a continuous circulation of air through practically the entire system of piping, which is accomplished by the circuit vent system. In the case of a branch to a fixture with a 3 inch deep water seal, or one provided with a non-syphoning trap, *no dead end or circuit vent is necessary* under ordinary conditions for protection against syphonage, nor is it necessary for air circulation until the developed length of the branch exceeds 15 feet. Tests by the Hygienic Laboratory and others have demonstrated that the law of diffusion of gases will insure practically pure air or at least a non-corrosive mixture in a branch of 1½ inch or larger pipe for the distance stated, if a continuous air circulation is maintained in the pipe to which it connects.

The system used by the Government for fixtures

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located more than 15 ft. from a stack is shown in Fig. 2. The adoption of the simplified plumbing system by the United States Government would indicate that it is more than the pet idea of a few misguided sanitary experts or inventors of anti-siphon traps. Its extensive use to conserve material during the war period is interesting. The United States Housing Corporation was organized shortly after the entrance of this country into the world war, its object being to provide good housing accommodations for war workers in as short a period of time as possible. It labored under re-

types having been installed. The question of availability and quick delivery was considered of prime importance. It is doubtful if this feature of the many dwellings erected by the Housing Corporation would have been given more than passing attention had it not been for the action of the authorities in several cities where dwellings had been erected. In the city of Bridgeport, Conn. for instance, where the Government had well along toward completion last November several groups of buildings of different types, serious difficulties developed. After permitting the construction of the

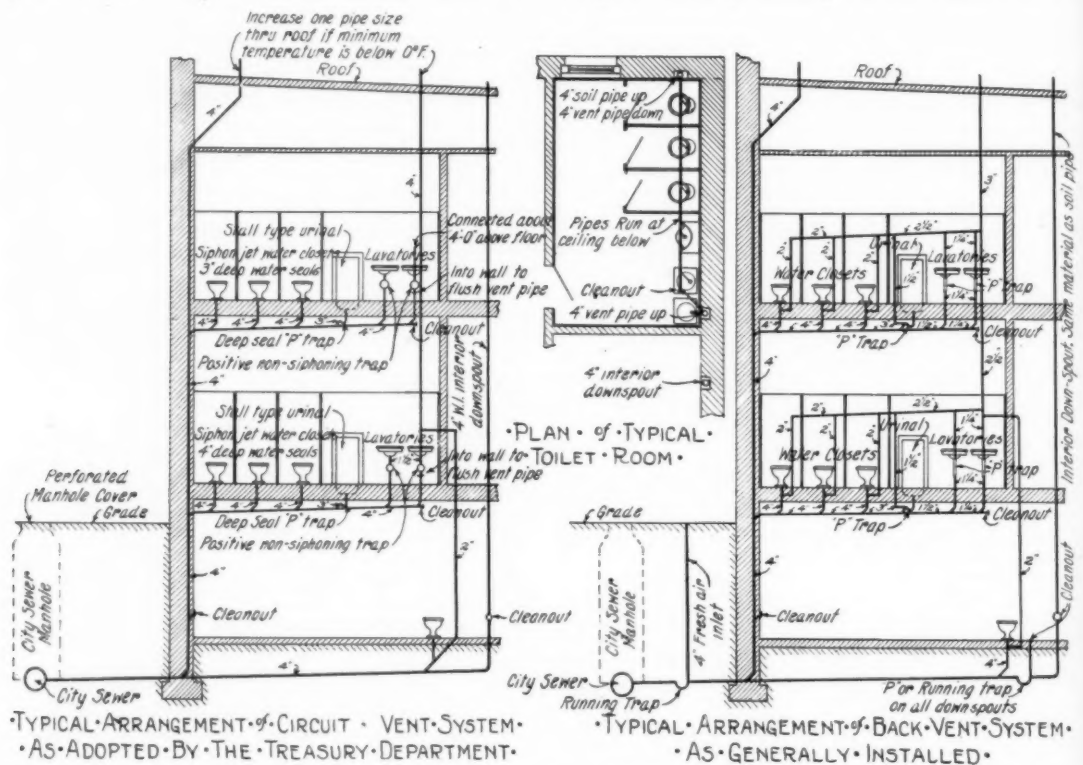


Fig. 2.—The system illustrated at the left has been in use in the United States Government's buildings for many years with entire satisfaction.

strictions governing the use of building materials imposed by the War Industries Board. The corporation endeavored to produce dwellings in all respects safe for human habitation despite such restrictions. One of the features of these numerous dwellings, adopted to conserve material, but only after the sanitary experts of the corporation had satisfied themselves as to its safety was the elimination of all vent pipes in the plumbing installations and the use of anti-siphon traps. So far as can be ascertained no definite standard was drawn as to the type of trap used, several different

buildings with unvented plumbing as a war measure, the local authorities, after the signing of the armistice, pronounced the plumbing as installed unsafe and a menace to health, and ordered that all such work be altered to conform to the Bridgeport plumbing code (which requires back venting) before occupancy of the buildings. The policy of the Government as to the final disposition of these buildings has not been decided upon as yet. It is possible that the buildings will be disposed of to prospective home owners or they may be rented for private use. In the event of their disposal, the

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approval of the plumbing by the local authorities would of course be necessary. The Government's experts declared the plumbing was safe but the local authorities were unconvinced. To determine fully the exact status of the plumbing systems under dispute the Government decided to make such tests as were necessary, and to this end retained as the test committee five authorities of unquestioned standing in the field of sanitation, to pass on the matter.

The members of this committee are: Albert L. Webster, consulting engineer, New York City, chairman; Dr. Wm. Paul Gerhard, consulting engineer, New York City, secretary; Chas. B. Ball, chief inspector, Division of Sanitation, Department of Health, Chicago; Nelson S. Thompson, chief mechanical engineer, Supervising Architect's office, Washington, D. C.; J. W. McCarthy, plumbing contractor, Washington, D. C.

The purpose of the tests* was to determine whether the plumbing as installed in the buildings constructed by the United States Housing Corporation in Bridgeport is (in the opinion of the committee) safe.

Four types of buildings were tested, representing all the different designs of plumbing in the several groups of buildings constructed by the United States Housing Corporation at Bridgeport, as follows:

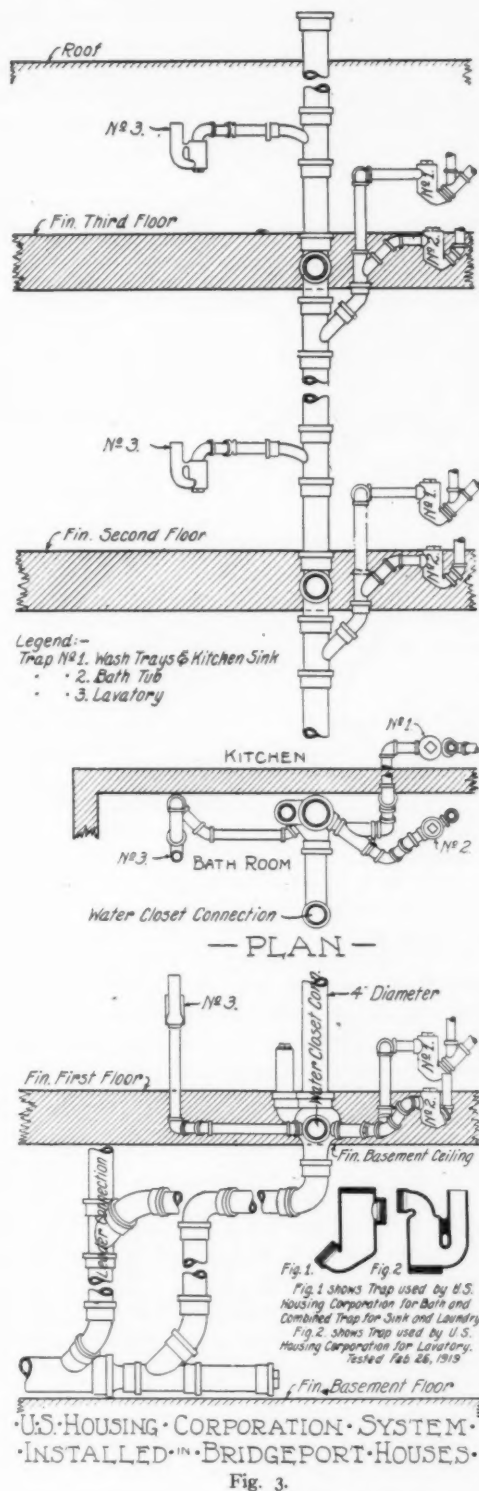
Black Rock Group, three-story, double apartment house, providing accommodations for two families on each floor; six families in all.

Mill Green Group, two-story, semi-detached house, providing accommodations for two families, each family occupying half of each story, separated by a party wall.

Mill Green Group, two types of two-story, double houses, providing accommodations for two families (superimposed apartments) one family on each floor.

Naturally the type of building in which the plumbing will be subjected to the most severe service is in the three-story apartments housing six families of the Black Rock Group. The Committee, therefore, applied extensive tests to this type of building, and had two similar buildings of the group equipped with different systems of plumbing. One represented the United States Housing Corporation's system, using anti-siphon traps, without back ventilation pipes, as illustrated in Fig. 3, and the other represented the Bridgeport system of vented traps, known as P or half S traps. Tests in these buildings gave the following results:

*Data taken from preliminary report of committee printed in full in the Bridgeport Times of March 15, 1919, and reprinted with illustrations in *Domestic Engineering*, April 19, 1919.



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The critical floor, under all kinds of tests, is the first floor.

The United States Housing Corporation's system *resists syphonage better than the Bridgeport system.*

The Bridgeport system resists back-pressure better than the United States Housing Corporation's system.

In the Committee's opinion, failure through syphonage is more serious than failure through back-pressure.

It might here be noted that no main house trap or fresh air inlet was provided in any of the Government's installations; also that the water-closet fixtures had a depth of seal of only $2\frac{1}{2}$ inches. It would seem that had deep seal syphon-jet water-closet fixtures been used, the back-pressure would have been less pronounced.

In order to relieve the simplified system from back-pressure, a recommendation was made by the Committee that the United States Housing Corporation's system in the Black Rock Group be corrected by the addition of a 2-inch air relief pipe at each stack (there were two stacks in each building) properly connected to the water-closet and bath fixtures on the first floor, extended to the roof and increased to 4 inches in diameter, before passing through the roof.

The tests applied to both buildings were severe and searching, and, perhaps, subjected both systems to stronger strain than will occur often in actual service, but the Committee believed that any system of plumbing should have a sufficient factor of safety, and from this viewpoint the tests applied were not too severe to insure such safety.

Attention was called to the fact that both systems would show modified results after some length of service due to fouling, although in the Committee's opinion the extent of such fouling would not reduce to the danger point the trap seals of the two kinds of anti-syphon traps used in the United States Housing Corporation's system, nor does it believe that fouling of the Bridgeport traps and vent pipes will be sufficient to endanger that system.

The installations in the two-story groups stood the tests to which they were subjected satisfactorily and the only recommendation made by the Committee was to increase the 2-inch waste where extended above the roof to 4 inches in diameter to prevent possible closure by frost.

These tests are enlightening and would seem to verify the opinions of the Government's sanitary experts who laid out the plumbing work in these buildings.

Although the Bridgeport tests were so thorough that it would seem to settle the question of safety in this type of building beyond argument, it is sur-

prising to note the action of the authorities of New London, Conn. In this city the United States Housing Corporation has ordered abandoned its entire housing project, consisting of 116 houses, badly needed and all but 3 per cent completed, full details of which action appeared in the *AMERICAN ARCHITECT* for May 14, 1919, page 687.

We cannot agree with Mr. Sherman when he refers to the present type of vented system as archaic and obsolete, but all investigations would indicate that the simplified system as installed in these buildings is equal to the more complex system required by the New London regulations.

In addition to the Bridgeport tests, probably nothing has done more to bring the "Simplified Plumbing System" to the forefront than the action in New York City by the Board of Standards and Appeals who recently amended the plumbing regulations (printed in *THE AMERICAN ARCHITECT*, Jan. 22, 1919) so as to make it optional with the architect and owner as to which system shall be installed, and further provided for additional elimination of back vents by permitting the yoke or circuit type of venting, when fixtures are arranged in batteries and located more than the permissible distances from the stack for use of anti-syphon traps.

This important action was brought about in part by the application of George Cody (now dead), who in July, 1918, requested the Board of Standards and Appeals to grant him a hearing as to the merits of an anti-syphon trap he had invented, and suggested that tests be held to determine its efficiency. A committee was appointed to investigate the matter, specifications for a test were later formulated, and the test held August 13, 1918. The committee's report submitted to the Board contained the following conclusions: "The trap satisfactorily met the requirements of the test prescribed by the Board of Standards and Appeals as to its ability to resist syphonage action and maintain a complete water seal at all times, and also as to its self-cleansing properties." This report was adopted Nov. 13, 1918. The Board, however, had no authority to approve this or any other equally meritorious trap without back venting, since the plumbing regulations then in force required such vent pipes. Amendments to the regulations were therefore drafted and published, a public hearing held, and the amendments with a few changes adopted Dec. 27, 1918, becoming effective Jan. 27, 1919. These rules provided for the approval of such anti-syphon traps as met the tests prescribed by the Board of Standards and Appeals, and on Feb. 11, 1919, the Board promulgated the requirements for tests (printed on page 804), which are

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substantially the same as those to which the trap previously submitted had been subjected, but further required before granting approval, that a trap which had been in actual service for at least one year be submitted and split in half for inspection. One of the Cody traps which had been in use for some nine years under a lavatory in the Nassau Hotel, Long Beach, L. I., was thereafter removed and split in half, and no accumulations of foreign substances being evident (see illustration) a complete resumé of the facts in the case were submitted to the Board on April 1, 1919, and the trap approved for use within the City of New York. Unfortunately the inventor, some 62 years of age, who had worked on this device for many years to bring it to a state of perfection, died two weeks after his invention had been officially approved.

At about the same time that Mr. Cody brought this matter to the attention of the Board of Stand-

ards and Appeals the United States Housing Corporation filed plans for numerous dwellings to be erected in Staten Island, in which it was proposed to install the simplified plumbing system. The Building Bureau felt it lacked authority to approve

such plans, and the matter was taken up unofficially with the Board of Standards and Appeals. Had the Board not acted as it did in amending the plumbing regulations it is likely that the matter of permitting the simplified plumbing system would have been brought up officially by the United States Housing Corporation.

At the time the plumbing regulations came up for amendment, strong opposition to any changes was voiced by representatives of the Master Plumbers' Association,* on the grounds that the present efficient system with vent pipes had been built up as the result of many years of careful study, and that the development to date in the design of anti-syphon traps had not reached such a stage of perfection as would warrant the changes

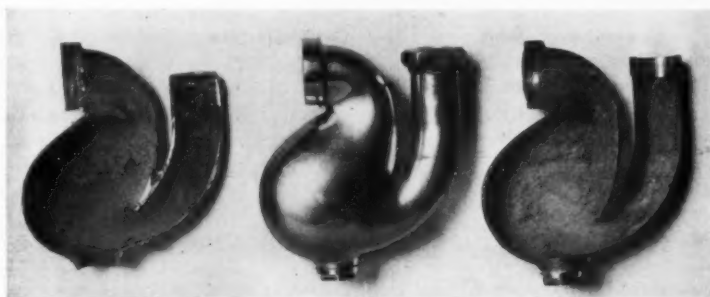
proposed. They conceded that the simplified system was sanitary, provided an ideal anti-syphon trap could be produced. Directly after the approval of an anti-syphon trap, for use in the City of New York, thus making the amended regulations operative, steps were taken by those opposed to the simplified system to prevent its installation. Request was made to the Mayor of New York City for the reception of a committee to present their views on the subject, and as this was a matter in which the public health was involved, the Mayor very properly granted the request. The Board of Standards and Appeals was represented by its chairman. After a lengthy hearing during which both sides had ample opportunity to present their evidence the Mayor said in substance: "If this trap does what is claimed for it (makes unnecessary the installation of vent pipes) I am in favor of it. If it does not, its use should be prohibited, and I am

satisfied the Board of Standards and Appeals would not want it used." Thus the controversy was brought to the bed rock of merit, and in order to decide the issue the Mayor suggested that the trap be installed in a fairly high building under actual service

conditions in order to demonstrate its efficiency. This suggestion was made, as it was claimed the test specified by the Board, to which the trap had already been subjected, was not analogous to conditions occurring in actual service, and not so severe.

Accordingly a ten-story fireproof building located on the Court House site (southeast corner Pearl and Park Streets), erected in 1902 and owned by the city, was selected. This building is at present occupied as a supply depot by the Quartermaster's Corps, United States Army. A 5-inch vertical soil line containing no offsets and exposed to view from roof to basement, into which the fixtures shown in Fig. 4, page 802, drained, was selected for use. As such a test is somewhat unusual and probably the most severe ever made on any anti-syphon trap, it will be described in some detail.

The preparatory work for the test consisted in



(1) (2) (3)
Re-sealing trap tested and approved for use in New York City. From left to right: (1) sectional view of trap taken from Nassau Hotel, Long Beach, L. I., after approximately 9 years' service; (2) general appearance of trap as now manufactured; (3) sectional view of new trap.

*It cannot be assumed from this action that this is the opinion in general of the master plumbers of New York City since the Master Plumbers' Association (New York City) has a membership of less than 400, whereas there are some 4000 master plumbers registered in the Greater City.

cutting out the back vents in each story and plugging them up; disconnecting the existing 4-inch vent stack at the bottom where it connected to the house drain and capping both ends where cut; installing a Tee Y fitting in the 5-inch soil line, first story with a 1½-inch horizontal branch waste 22 inches long, to which the trap to be tested with a lavatory was connected. This trap contained glass windows so that the depth of water seal could be observed during the test. As there were no fixtures in several of the upper floors one 25-gallon tank was installed in each of the fourth, sixth and seventh stories, each tank being provided with an anti-syphon trap having glass windows for observation, and discharging into the 5-inch soil stack. A special signalling apparatus was provided so that the persons at the fixtures in each story could be notified when to discharge same.

The official demonstration was held May 1, 1919. During the morning session the anti-syphon trap was subjected to more severe conditions than would ever be likely to occur during actual service. Approximately 350 gallons of water was emptied into the soil line at each test by the simultaneous discharge of every fixture above the first story. At the same time a heavy rain was occurring, causing a large amount of water to be conducted by the leaders into the main house drain. During the recess between morning and afternoon sessions a half S trap, with back vent connection to the 4-inch vent line was installed in place of the anti-syphon trap and during the afternoon the same tests as had been made on the anti-syphon trap were repeated on the vented half S trap in order to make a fair comparison between the two systems under identical conditions. The results of these tests were as follows:

The anti-syphon trap lost no seal from syphonage, and the water within the trap was affected but little by syphonic action during the discharges.

The water seal of the vented half S trap fluctuated considerably at each discharge, due to syphonic action, but the seal remained unbroken.

The anti-syphon trap was affected by back-pressure during one discharge which occurred during a particularly heavy rainfall, some of the water within

the trap being forced into the wash basin, but the trap resealed completely, losing no water. During all the other discharges the back-pressure, while causing commotion within the trap, did not force any water into the wash basin, nor affect the seal.

The vented half S trap was affected by back-pressure during every discharge, and practically the entire amount of water contained within the trap was forced up into the wash basin, later receding and completely resealing the trap.

A fair comparison between the two systems, based on the foregoing tests shows that neither trap was affected to any serious extent by syphonage, and at no time was the back-pressure of sufficient intensity to prevent the complete resealing of the traps. Such strong back-pressure was not unexpected considering that the water from the uppermost fixtures fell ten stories, being augmented on its downward path by the discharges from fixtures on other stories, then entered a horizontal drain already partly filled by rain water from the leaders. These results would indicate that the proper use of this anti-syphon trap without back venting was entirely safe.

Fig. 5, page 803, shows a typical layout of kitchen and bath room fixtures, with simplified system conforming to the New York City regulations as they now stand. These regulations do not permit the placing of a fixture with unvented anti-syphon trap more than 7 feet from a stack, nor the placing of an unvented deep seal syphon jet water-closet more than 5 feet from a soil line. If all fixtures can be grouped so as not to exceed these limitations all vent lines may be omitted.

However, as batteries of fixtures are often arranged in such a manner that these limitations are exceeded, it is still possible to eliminate the back vents by using the yoke or circuit type of venting. This is illustrated in Fig. 6 for a battery of seven water-closets and a comparison with the back-vented system shown. A further illustration is also shown in the drawing submitted by Mr. Nelson S. Thompson (Fig. 2, page 798), illustrating this method of venting as installed by the United States Treasury Department, in which several kinds of fixtures are arranged to drain into one horizontal branch.

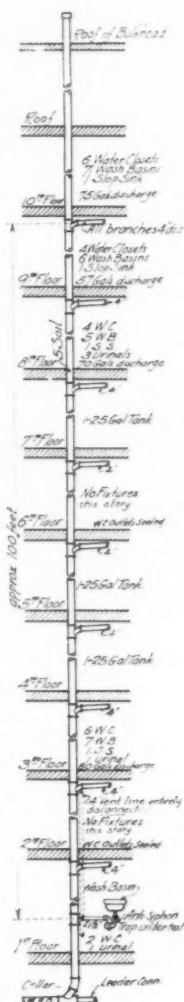


Fig. 4.—Diagram showing soil line of ten story building in which Cody resealing trap was tested

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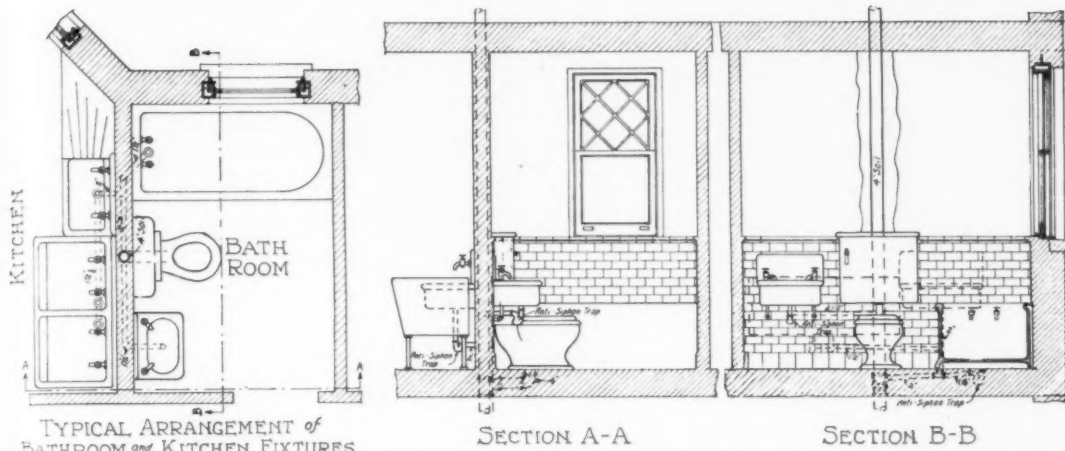


Fig. 5.—Plumbing system conforming to the New York rules, utilizing deep seal syphon-jet water closet and re-sealing traps, thus eliminating all vent pipes. Note the simplicity of connections.

Actual figures as to costs are usually of more acute interest than even drawings, and estimates for the arrangement shown in Fig. 5 for a four-story building are as follows:

Back-vented system	\$620.00
Simplified system	436.00
Saving if simplified system is installed, 29.7 per cent, or....	\$184.00

For the arrangement shown in Fig. 6 the figures are as follows for a four-story building:

For back-vented system.....	\$1,600.00
For yoke-type system.....	1,132.00
Saving if yoke type is installed, 29.2 per cent, or.....	\$468.00

These figures relate to the material and labor for piping system only from the basement ceiling to the roof, and do not include fixtures or horizontal house drains in the basement, leaders, etc., which of course would vary with each installation, depending on several factors. The cost of fixtures and these additional pipe lines would, however, be the same for both systems.

Attention is called to the fact that the simplified plumbing system is *not new*, but it is believed that recent developments in the design of anti-syphon or resealing traps and of deep seal syphon-jet water-closet fixtures have now reached that stage of efficiency which warrants the installation of this system, when properly designed.

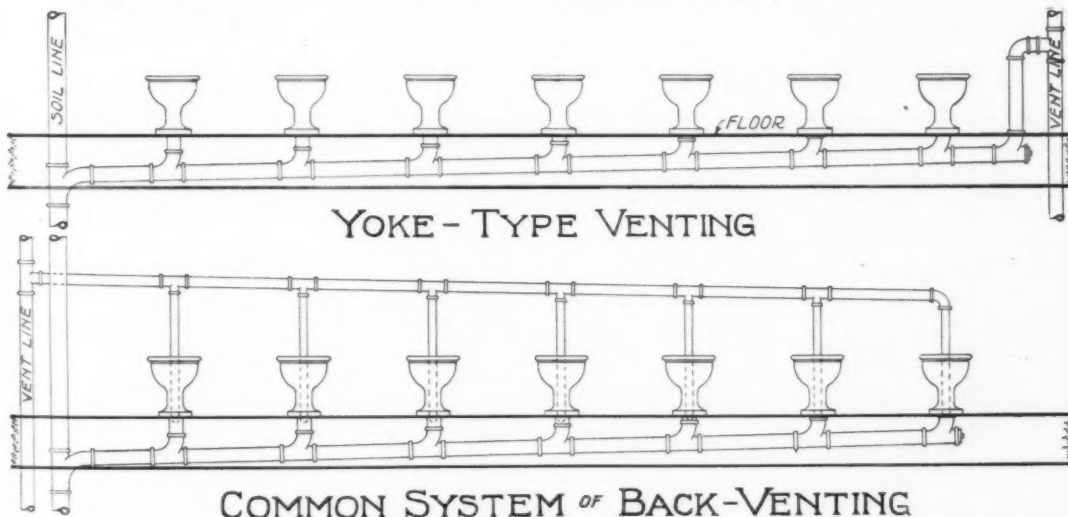


Fig. 6.—When fixtures are located as shown above the New York rules require the piping system to be specially ventilated. The Yoke type system will accomplish this with entire satisfaction, and at a saving of cost.

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The war despite its horrors has brought us many benefits, not the least of which is the lesson of conservation. Architects should be quick to retain and convert into permanent practice all those features, adopted by the Government as a war necessity to conserve labor and material, which can be shown to be safe, beneficial and at the same time economical. Where laws or ordinances prevent such proper progress the profession should lend their influence in an active way to the amendment of restrictive ordinances.

A partial list is here given of cities now permitting the simplified plumbing system.

City	State	Population
*New York	New York	5,800,000
Gloversville	New York	21,000
Johnstown	New York	11,000
Kingston	New York	26,000
Rochester	New York	220,000
Schenectady	New York	80,000
Atlantic City	New Jersey	52,000
Bayonne	New Jersey	65,000
Montclair	New Jersey	25,000
Orange	New Jersey	30,000
Trenton	New Jersey	104,000
Boston	Massachusetts	750,000
Cambridge	Massachusetts	110,000
Dedham	Massachusetts	11,000
Lowell	Massachusetts	108,000
Somerville	Massachusetts	87,000
Newport	Rhode Island	31,000
Providence	Rhode Island	250,000
Pawtucket	Rhode Island	56,000
Woonsocket	Rhode Island	41,000
Williamsport	Pennsylvania	32,000
Portland	Maine	60,000
Raleigh	North Carolina	20,000
Clarksburg	West Virginia	10,000
		8,000,000

Totals, 24 cities, located in 8 states, with an aggregate population of 8,000,000 persons.

*Largest city in the world.

†Less deaths per thousand of any city in U. S. Sanitary code makes simplified plumbing system mandatory.

Rigid and searching tests should be applied to all anti-syphon traps and deep seal syphon jet fixtures before approval by any municipality, and if only those meeting the most severe requirements are installed no fear need be had as to the safety of the system.

Below are printed the New York City test requirements.

METHOD FOR TESTS FOR ANTI-SYPHON TRAPS OR FIXTURES

Resolved, That the following be and it hereby is adopted by the board of standards and appeals as the method prescribed for tests for anti-syphon traps or fixtures, which must be successfully passed before such traps or fixtures shall be approved under Rule 99, Rules for Plumbing and Drainage:

Instructions

1. The entire cost and responsibility for the installation of the necessary equipment for such test shall be borne by the person or firm submitting the appliance.

2. Such person or firm shall also furnish the board, together with the application for test, the following material and information:

(a) A stock trap of the size and design to be tested, which shall be of the P and S type and shall be of lead or brass, cast in one piece, and without interior partitions or mechanism.

(b) A similar trap cut in half.

(c) A similar trap, to be used in the test, provided with glass observation ports of sufficient size to permit clear observation of the action occurring within the trap during test, and such observation ports shall be so located that the amount of water seal remaining after each test can be readily observed.

(d) An affidavit that the three traps submitted are regular stock traps.

(e) A list of all cities, towns or municipalities where such trap has been officially approved for use without back venting.

The testing apparatus shall be located within the City of New York, and in a place, building or structure to meet the approval of the testing authorities. Such apparatus shall be so located that every part is easily accessible for inspection.

Apparatus.

The apparatus shall consist of the following:

A tank of not less than fifty nor more than one hundred and fifty gallons capacity, with adequate water supply for refilling same during the test.

A vertical wrought iron or steel pipe line fifty feet long, connected to the underside of the tank, and of the same internal diameter as the trap to be tested.

A quick-opening valve, located ten feet below the underside of the tank.

A TY fitting located two feet below the quick-opening valve, with horizontal branch pipe connected thereto, of the same diameter as the vertical line, this branch line not to exceed two feet in length, with a pitch towards the vertical line of two inches to the foot, and the trap to be tested shall be connected to this horizontal branch pipe.

A wash basin, or fixture answering the same purpose, which can be conveniently connected or disconnected from the inlet side of the trap.

The test shall be conducted as follows:

For Anti-Siphon Qualities.

For the purpose of determining the efficiency of the trap, the tank shall be completely filled, a water seal established in the trap; and:—

The quick-opening valve shall be opened for five seconds, then closed for five seconds, and this alternating process repeated five times.

The quick-opening valve shall be opened and the entire contents of the tank discharged at one time.

The wash basin shall be connected to the trap, filled with water, and both wash basin and tank discharged simultaneously. The quick-opening valve shall be kept open until the entire contents of the tank has been discharged.

The trap shall be disconnected and a bridge of solid soap formed across the lower half of the discharge end of the trap, so as to effectually block one-half of the clear water way, and the foregoing tests repeated.

Each operation shall be repeated several times, if desired by the testing authorities.

For Self-Cleansing Qualities.

For the purpose of determining its self-cleansing qualities, the trap shall be filled with sand and the wash basin filled with water and allowed to discharge. A similar operation shall be repeated with tea leaves, coffee grounds, sawdust and grated soap.

For Service Qualities.

The service qualities of the trap may be tested as follows:

A trap which has been in actual constant use for a period of not less than one year shall be removed under the supervision of a representative of the testing authorities, split into two halves, and submitted for inspection, for the purpose of determining whether sediment or coating of grease or other foreign matter has accumulated in the trap during service conditions.

Approval.

An approval shall not be issued for any anti-syphon trap which has been subjected to the foregoing tests unless the trap has:

1. Maintained its water seal throughout the test.

2. Been successfully scoured of any foreign substances placed in the trap, when water has been discharged through same.

3. Upon inspection, after service, shown no excessive accumulation of grease or other foreign substance.

Deep Seal Syphon Fixtures, or Anti-Syphon Fixtures, Instructions: Applicants for approval of deep seal syphon-jet or anti-syphon fixtures shall submit the following with their application:—

(a) A stock fixture of the size and design to be tested.

(b) A similar fixture, cut in half.

(c) A similar fixture, to be used in the test, provided with glass observation ports of sufficient size to permit clear observation of the action occurring within the fixture during test, and such observation ports shall be so located that the amount of water seal remaining after each test can be readily observed.

(d) An affidavit that the three fixtures submitted are regular stock fixtures.

Apparatus.

The apparatus shall be similar to that required for anti-syphon traps, except that vertical and horizontal pipes shall have an internal diameter of three inches for testing slop sinks and four inches for testing water-closets; tank shall have a capacity of not less than one hundred gallons and the fixture shall be provided with its usual water supply so that same may be flushed when required.

Test.

For the purpose of determining the efficiency of the fixture to maintain a water seal, it shall be tested in a manner similar to that prescribed for anti-syphon traps, except that no soap bridge need be provided at the outlet.

Adopted February 11, 1919.

JOHN P. LEO, Chairman.

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STRAUS BUILDING, CHICAGO
150 BROADWAY, NEW YORK

Thirty-Seven Years Without Loss to Any Investor

Construction Attracts New Capital

(Continued from page 794)

public has arrived at the conclusion that there will be no recession of prices and are now ready to build as soon as the predicted stabilization of the money market becomes a certainty.

The purchase of Southern pine lumber this week returned to the normal peace time volume for the first time since the end of the war. This fact has been brought out by the announcement that total orders received by 166 mills of the Southern Pine Association were two per cent above the line indicating normal business. Production was 81 per cent and shipments 75 per cent normal. Business has been climbing upward for the past two months. It is predicted that in face of business now in sight orders will be fifty per cent above normal within the next month.

"The lumber business has come back," said J. E. Rhodes, secretary-manager of the Southern Pine Association, in commenting on the statistics, which indicate that the demand for Southern pine is much in excess of its production.

"Since the signing of the armistice, when the government ceased taking lumber in large quantities, the production of Southern pine each week was considerably larger than the sale and shipments. This continued to the middle of April, with accumulating stocks at the mills.

"In April the number of unfilled orders reported by the members of this Association amounted to 18,433 cars. Last week the same mills had unfilled orders on hand amounting to 23,524 cars. There were received during the week by 166 mills, representing more than one-half the total production of Southern pine in the Gulf states, orders for 4,968 cars, equivalent to more than one hundred million feet. This is 25 per cent more than the output of the mills for the same week.

"The orders received by these mills during the week ending April 4 averaged 402,755 feet per mill; while the average orders last week was 631,355 feet, an increase of more than 50 per cent in business in six weeks.

"In addition to the large needs for lumber in foreign countries, especially Europe, a most conspicuous feature of the resumption of the lumber business is the great need for construction of every sort in the United States.

"The costs of manufacturing lumber remain high and manufacturers generally do not see any immediate prospect of reduction. There is still an acute shortage of labor at many Southern lumber producing points.

"With the gradual resumption of business generally, it is certain that the capacities of the Southern pine saw mills will be taxed to the utmost to furnish the building material required by the domestic market, in addition to supplying what foreign buyers will be able to ship from our shores."

The cost of erecting new buildings has increased 50 per cent beyond the cost during the pre-war period. The fifty-foot, sixteen-family house, which formerly cost \$35,000 to build will now cost \$50,000, if not \$55,000. This is the opinion of William E. Harmon, prominent builder, who is now undertaking large building operations.

Structural steel shops booked 40 per cent more business in April than in March, according to the records of the Bridge Builders' and Structural Society, which show that 24½ per cent of their capacity, or 44,100 gross tons, was contracted for in the past month, as compared with 17½ per cent in March, 12½ per cent in February, 12 per cent in January, and 64 per cent in April, 1918. The average business taken on in the four months of this year is less than 17 per cent of capacity, as against 55 per cent in the same period of 1918.

Late Quotations in Building Material Markets

(Price quotations now current on building materials and supplies as quoted by dealers and jobbers for delivery in New York and Chicago follow. The quotations set forth are placed before readers of THE AMERICAN ARCHITECT to afford an accurate review of market conditions rather than for use as a basis for actual purchase. They will not only provide knowledge of the exact state of the market as to items quoted, but will also present a basis to judge conditions as affecting co-relating materials. Items marked (*) indicate an advance over last week, while those marked (†) record a decline. Other prices did not fluctuate during the week.)

BRICK		New York	Chicago
Face brick (delivered on job):			
Common (Delivered at job in Borough of Manhattan only), per thousand.....	\$17.85	\$12.00	
Rough red	29.00	40.00	
Smooth red	26.00	40.00	
Rough buff	32.00	40.00	
Smooth buff	32.00	40.00	
Rough gray	38.00	42.00	
Smooth gray	40.00	42.00	
Colonials	24.00	30.00	
BROKEN STONE			
(Delivered on job):			
1½ in. per cu. yd.....	\$3.25	\$2.35	
¾ in. per cu. yd.....	3.25	2.35	
BURNED CLAY			
(Delivered on job)			
Block partition:			
3 in., per sq. ft.....	.18	.10	
4 in., per sq. ft.....	.20	.11	
Chimney tops:			
12 x 12 for 8 x 8 flues.....	\$3.50	\$2.25	
Flue lining:			
4 ft. x 8 ft., per ft.....	.18	.12	
4 x 12, per ft.....	.22	.16	
8 x 8, per ft.....	.22	.16	
8 x 12, per ft.....	.27	.20	
12 x 12, per ft.....	.35	.28	

	New York	Chicago
8 x 18, per ft.....	.40	.32
12 x 18, per ft.....	.49	.42
18 x 18, per ft.....	.67	.55
Wall coping (double slant):		
9 ft., per ft.....	.24	.14
12 ft., per ft.....	.27	.18
18 ft., per ft.....	.36	.30
Wall coping (single slant):		
9 ft., per ft.....	.26	.17
12 ft., per ft.....	.30	.22
18 ft., per ft.....	.42	.35
(Corners and angles four times the price of one foot of coping the same size.)		
Hollow Tile		
(Delivered at job, in New York below 72nd St.)		
2 x 8 x 12 partitions, per 1,000 sq. ft.....	\$70.15	
3 x 12 x 12 partitions, per 1,000 sq. ft.....	102.00	\$67.90
4 x 12 x 12 partitions, per 1,000 sq. ft.....	114.75	72.50
6 x 12 x 12 partitions, per 1,000 sq. ft.....	153.00	99.60
8 x 12 x 12 partitions, per 1,000 sq. ft.....		135.80
10 x 12 x 12 partitions, per 1,000 sq. ft.....		167.50
12 x 12 x 12 partitions, per 1,000 sq. ft.....		194.60
2 x 12 x 12 split furring, per 1,000 sq. ft.....	63.75	
CEMENT		
Per bbl. in 15 cent bags (Rebate 60c. per bbl. for bags)	\$3.25	\$2.80
COPPER SHEETS		
At the mill, hot rolled, 16 oz. base-price, per lb.....	22½c.	22½c.
(From jobber's warehouse add 2 to 3 cents.		
Cold rolled add 1c. per lb. to hot rolled.)		
CORNER BEAD		
Per foot	.05	.05
FIBRE		
Per bushel	.30	.30

(Continued on Page 804-B)

NATIONAL PRODUCTS



SHERARDIZED



ECONOMY



BLACK ENAMELED

SHERARDUCT

The Rigid Steel Conduit with both surfaces Sherardized and Enamelled. ECONOMY Black Enamelled Conduit. There's no better.

Write for Bulletin 50

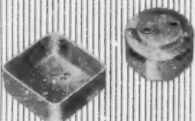


FLEXTUBE

FLEXTUBE

Interwoven — Seamless — Non-Collapsible. Inseparable and Double Compound. Easy to fish and every foot of every coil can be used.

Write for Bulletin 151



"National"

Outlet Boxes and Covers. A box for every purpose and a purpose for every box. Furnished in Sherardized or Black Enamelled Finish.

Write for Bulletin 250

"National"
BRACKETS

Complete with Insulators. Sherardized Bases. Wires run straight through. No Tie-Wires necessary.

Send for Bulletin 609

A Comparison

Sherardizing Steel and Creosoting Wood

The Purchasing Agent for one of the largest Hydro-Electric Power Companies, upon having the Sherardizing Process thoroughly explained to him, remarked:

"Then Sherardizing, as a method of protecting steel, is like creosoting for protecting wood."

He has since insisted upon the delivery of **SHERARDUCT** on all conduit orders.

The two processes are markedly similar, both in treatment and results attained. **SHERARDUCT** is the only Sherardized Rigid Steel Conduit. Both interior and exterior surfaces are Sherardized and further protected by coatings of a clear acid- and alkali-proof enamel, baked on. Has the combined advantages of zinc and enamel protection. Double value for one price. We can't tell you all about it here; write for complete information.

National Metal Molding Co.

1111 Fulton Building
Pittsburgh, Pa.

Atlanta
Boston
Buenos Aires
Buffalo

Chicago
Dallas
Denver
Detroit

Havana
Los Angeles
Manila
New York

Paris
Philadelphia
Portland
Rio de Janeiro

Salt Lake City
San Francisco
Seattle
St. Louis 119



No. 100



No. 100

"National"

METAL MOLDINGS

For two, three and four wire surface wiring. Lowest installation cost of any metal wiring system.

Write for Bulletin 101



FLEXSTEEL

Distinctive flat surface. Easy to fish, cut and strip. Ideal for wiring either old or new buildings. A complete line of improved fittings.

Write for Bulletin 201



"National"

Locknuts and Bushings

Threads sharp, clean and true. "National" quality products. Exclusive self-cleaning feature in the bushings.

Write for Bulletin 350



"National"

FIXTURE STUDS

Sherardized Stamped Steel. Hollow Stems. Stronger, and yet lighter, than any other stud on the market.

Write for Bulletin 400

THE AMERICAN ARCHITECT

Late Building Material Prices

(Continued from Page 804-A)

GLAZED SHEETS

	New York	Chicago
Nos. 18 and 20 gauge, per lb.	\$6.12	\$6.12
No. 26	6.42	6.42
No. 27	6.57	6.57

GLASS

(Discounts from manufacturer's price lists)		
Single strength, A quality, first three brackets	77%	77%
Single strength, B quality	77%	77%
Double strength, A quality	79%	79%
Double strength, B quality	81%	81%
Plate—up to 5 sq. ft.	82%	82%
Plate—over 5 sq. ft.	84%	84%
Plate—up to 10 sq. ft.	83%	83%
Plate—over 10 sq. ft.	82%	82%

GRAVEL

1½ in. (Borough of Manhattan only), per cu. yd.	\$2.75	\$2.35
¾ in. (Borough of Manhattan only), per cu. yd.	2.75	2.35

GYPSUM

Plaster Board:		
Delivered at job, Boroughs of Manhattan and Bronx.		
27 x 28 x 1	35c.	25c.
27 x 48 x ½	30c.	25c.
32 x 36 x ½	21c.	26c.
32 x 36 x ¾	21c.	26c.
32 x 36 x 1	23½c.	26c.

Plaster Blocks:		
Delivered at job, Boroughs of Manhattan and Bronx.		
2 in. solid, per sq. ft.	7½c.	10c.
3 in. solid, 12 x 30, per sq. ft.	10½c.	11c.
3 in. hollow	10½c.	11c.
4 in. hollow	12½c.	17½c.
6 in. hollow	17½c.	

LATH

Eastern spruce, per thousand	\$6.75*	\$6.50
No. 1 white pine, per thousand	6.00	5.25
No. 1 hemlock, per thousand	6.30*	
No. 1 yellow pine, per thousand	6.30*	

LEAD

American pig, per lb.	5½ to 6	5½ to 6
Bar, per lb.	7½ to 8	6 to 6½

LIME

Common, 300 lb. bbls., per bbl.	\$2.50	\$1.40
Finishing, 300 lb. bbls., per bbl.	3.70	
Hydrated, in paper bags, per ton	17.25	17.00

LUMBER

(Retail prices per M, delivered.)		
Yellow pine, 2 x 4	\$53.50	\$47.00
Yellow pine, 2 x 6	50.00	45.00
Yellow pine, 4 x 4	60.50	52.00
Yellow pine, 8 x 8	69.50	52.00
Yellow pine, 12 x 12	57.00	57.00
Yellow pine, No. 1 boards, 1 x 6	60.25	53.00
Yellow pine, No. 1 boards, 1 x 12	62.50	56.00
Yellow pine, B and better flooring (plain)	62.00	57.00
Yellow pine, 8 and better flooring (quartered)	74.50	70.00
Douglas fir, 6 x 6 to 12 x 12	62.50	63.00
Douglas fir, 12 x 14 to 14 x 14	64.00	64.00
Norway pine, 2 x 4	60.00	57.00
Norway pine, 2 x 12	65.00	57.00
Hemlock, 2 x 4	47.50	46.00
Hemlock, 2 x 12	51.00	48.00
Oak flooring, 13/16 quartered white	144.50	130.00*
Oak flooring, 13/16 quartered red	136.00	123.00*
Oak flooring, 13/16 plain white	94.50	90.00*
Oak flooring, 13/16 plain red	94.50	90.00*
Maple flooring, 13/16 clear	86.00	89.00*
Maple flooring, 13/16 select	82.00	75.00*
Maple flooring, 13/16 No. 1 factory	74.50	62.00*
Mahogany, 1" F. A. S.	300.00	300.00
Quartered oak, 1" F. A. S.	180.00	150.00*
Plain oak, 1" F. A. S.	120.00	100.00
Red gum, 1" F. A. S.	87.00	75.00*
Sap gum, 1" F. A. S.	56.00	60.00
Chestnut, 1" F. A. S.	87.50	80.00*
Poplar, 1" F. A. S.	130.00	110.00*
Birch, 1" F. A. S.	70.00	70.00*
Spruce, random 2"	52.00	50.00
Spruce, wide	62.50	60.00

METAL LATH

Under 100 sq. yd., per sq. yd.	40c.	40c.
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MORTAR COLORS

Red, per lb.	.05	.05
Brown, per lb.	.05	.05
Chocolate, per lb.	.05	.05
Black, per lb.	.05	.05

OILS

Linseed, city, raw	\$1.90	\$1.90
Linseed, boiled, advance, per gal.	.01	.01
Out of town, American seed at	1.90	1.90

LEADS:

PAINTS

American white, in oil, kegs; lots over 100 lbs.	14c.	14c.
White, in oil, 25-lb. tin pails; add to keg price.	¼c.	¼c.
Red, bbl., ½ bbl. and kegs; lots over 100 lbs.	14½c.	14½c.
Dry Colors:		
Red Venetian, American, per 100 lbs.	\$2.75 to \$5.00	\$2.00 to \$5.00

Metallic Paints:		New York	Chicago
Brown, per ton	\$24.00 to \$32.00	\$24.00 to \$32.00	\$24.00 to \$32.00
Red, per ton	24.00 to 30.00	24.00 to 30.00	24.00 to 30.00

PIPE

6 in. and heavier	\$52.10	\$51.80
4 in.	55.70	54.80
3 in.	62.70	61.80

(and \$1 additional for Class A and gas pipe.)

(Discounts to jobbers for carload lots on the Pittsburgh basing card; freight rates from Pittsburgh to New York, and also from Pittsburgh to Chicago, in carloads, per 100 lbs., are 27c.)

Wrought:		Butt Weld	
Black, ½ to 3 in.	50½%	57½%	
Galv., ½ to 3 in.	24 to 44%	41%	
Iron:			
Black, ½ to 1½ in.	29½ to 39%	39½%	
Galv., ½ to 1½ in.	2½ to 23½%	23½%	
Steel:		Lap Weld	
Black, 2½ to 6 in.	53½%	53½%	
Galv., ½ to 3 in.	41%	41%	
Iron:			
Black, 2½ to 6 in.	34½%	34½%	
Galv., 2½ to 6 in.	21½%	21%	

PLASTER

Neat wall cement in 15 cent bags, per ton	\$20.30	\$18.50
Finishing plaster	24.00	21.00

PUTTY

In bladders, per 100 lb.	\$6.25	\$6.25
In 1-lb. to 5-lb. tins, per 100 lb.	6.75	6.75

RADIATION

(A further discount, effective April 4, of 15% on direct radiators, 12½% on wall radiators, and 10% on steam and hot water boilers is announced. This approximates a drop of 36% on radiators and 33% on boilers from prices in effect before the 1st of January, 1919.) Chicago reports a 57% discount on standard heights.

REGISTERS

Cast iron semi-steel or steel, in black or white japan or electro plate and small faces and borders	40%	40%
Wall frames	40%	40%
Large faced, 14 x 14 in. and larger	60%	60%
Base board registers	40%	40%
Base board intakes	40%	40%
White enameled goods	15%	15%
Solid brass or bronze goods, except grilles	net	net
Grilles in black and white japan or electroplate in cast iron, plain lattice design—smaller than 14 x 14 in.	40%	40%
—Less than 14 x 14 in.	60%	60%

REINFORCING BARS

High carbon steel from mill	\$48.50	\$49.50
Medium steel from mill	48.50	49.50

ROOFING MATERIAL

Tarred Paper:		
1-Ply, per ton, per roll, 108 sq. ft.	\$63.00 to \$65.00	\$65.00
2-Ply	95c.	95c.
3-Ply	1.23 to 1.30	1.30
Rosin sized sheathing	per ton 60.00	60.00
Corrugated roofing, galvanized, 2½ in. corrugation, over flat sheets, 30c. per 100 lbs.		

SAND

Mason, per cu. yd.	\$1.80	\$2.25
Torpedo, per cu. yd.	1.80	2.35

SHINGLES

Red cedar, 5 to 2, clear, per thousand	\$8.60*	\$6.50
White cedar, extra star, A star, per thousand	7.45*	5.50

SLATE ROOFING

F.O.B. cars,		F.O.B. Chicago
Pennsylvania:		
Best Bangor	\$7.75 to \$9.00	\$10.20 to \$11.45
No. 1 Bangor Ribbon	6.75 to 7.25	9.20 to 9.70
Pen Arzel	7.25 to 8.00	9.70 to 10.45
Peach Bottom	10.00 to 12.50	12.45 to 14.45
No. 1 Chapman	7.25 to 8.25	8.70 to 9.95
Vermont:		
No. 1 Sea Green	3.50 to 6.75	5.95 to 9.20
Unfading Green	5.50 to 9.25	8.30 to 11.05
Red	12.00 to 20.00	14.80 to 22.80
Maine:		
Brownsville, U'f'g Black, No. 1	11.00 to 12.00	14.10 to 15.10
Slaters felt, 30 lb. roll	1.75	
Slaters felt, 40 lb. roll	2.25	

SPIRITS TURPENTINE

Per bbl.	.66½	.66½
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STONE SCREENINGS

Lime, per cu. yd.	\$2.35	\$2.35
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STRUCTURAL STEEL

Beams and channel, 3 to 15 in., per lb.	2.45c.	3.47c.
Beams and channel, over 15 in., per lb.	2.45c.	3.57c.
Angles, 3 to 6 in.	2.45c.	3.47c.
Zees and tees	2.45c.	3.47c.
Steel bars, half extras, from mill	2.35c.	3.47c.

STUCCO

In cloth, per ton (white, mixed)	\$21.50	
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