

THE ARCHITECTURAL RECORD



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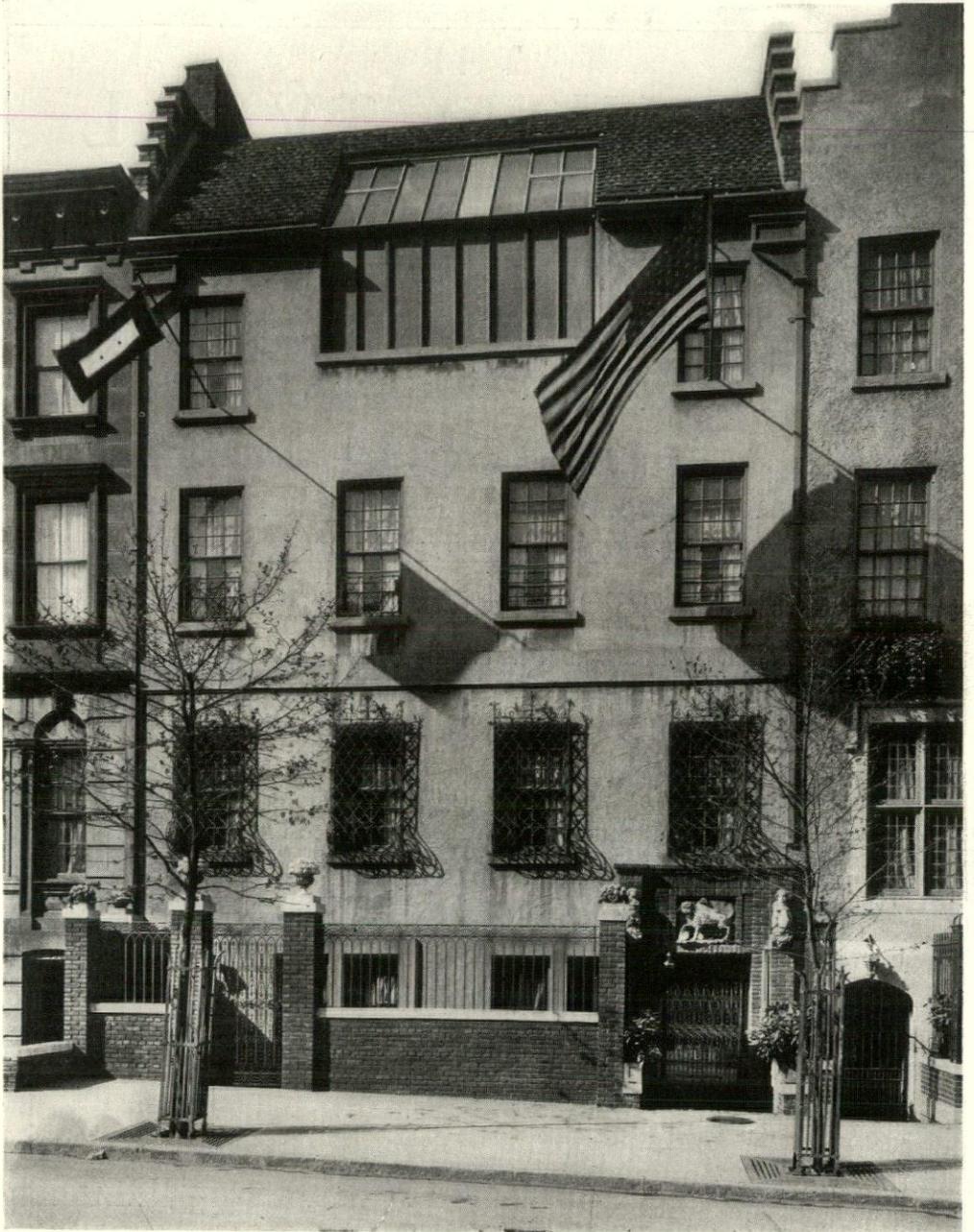
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RESIDENCE OF LEONARD M. THOMAS, ESQ., NEW
YORK CITY. F. BURRALL HOFFMAN, JR., ARCHITECT.



The CITY RESIDENCE *of*
LEONARD M. THOMAS, Esq.
NEW YORK CITY



FRANCIS BURRALL HOFFMAN, JR. ARCHITECT

By Charles Over Cornelius

THE natural development of aesthetic appreciation is from the simple to the complex. The first rudely scratched drawings on bone, created without any thought of conscious beauty, were truly the beginning of the complicated art of the later centuries when appreciation for the creations of the artist called into play the practised use of the several senses. The growth of this aesthetic appreciation has paralleled, although not at all times synchronized with, the increasing complexity of the social and economic development of the nations, so that it is but natural, with the involved social and economic life of today, that we should have an equally involved appreciation of works of art.

The city residence of Leonard M. Thomas, Esq., F. Burrall Hoffman, Jr., architect, affords an excellent example of the varied yet consonant appeal which beauty in many forms can make in a century in which subtlety has taken the place of the naïveté that has fled. Devoid of any archaeological bias, this house makes its greatest appeal through the unadulterated beauty of the past, and yet with its ineradicable stamp of modernity it is the very essence of the twentieth century.

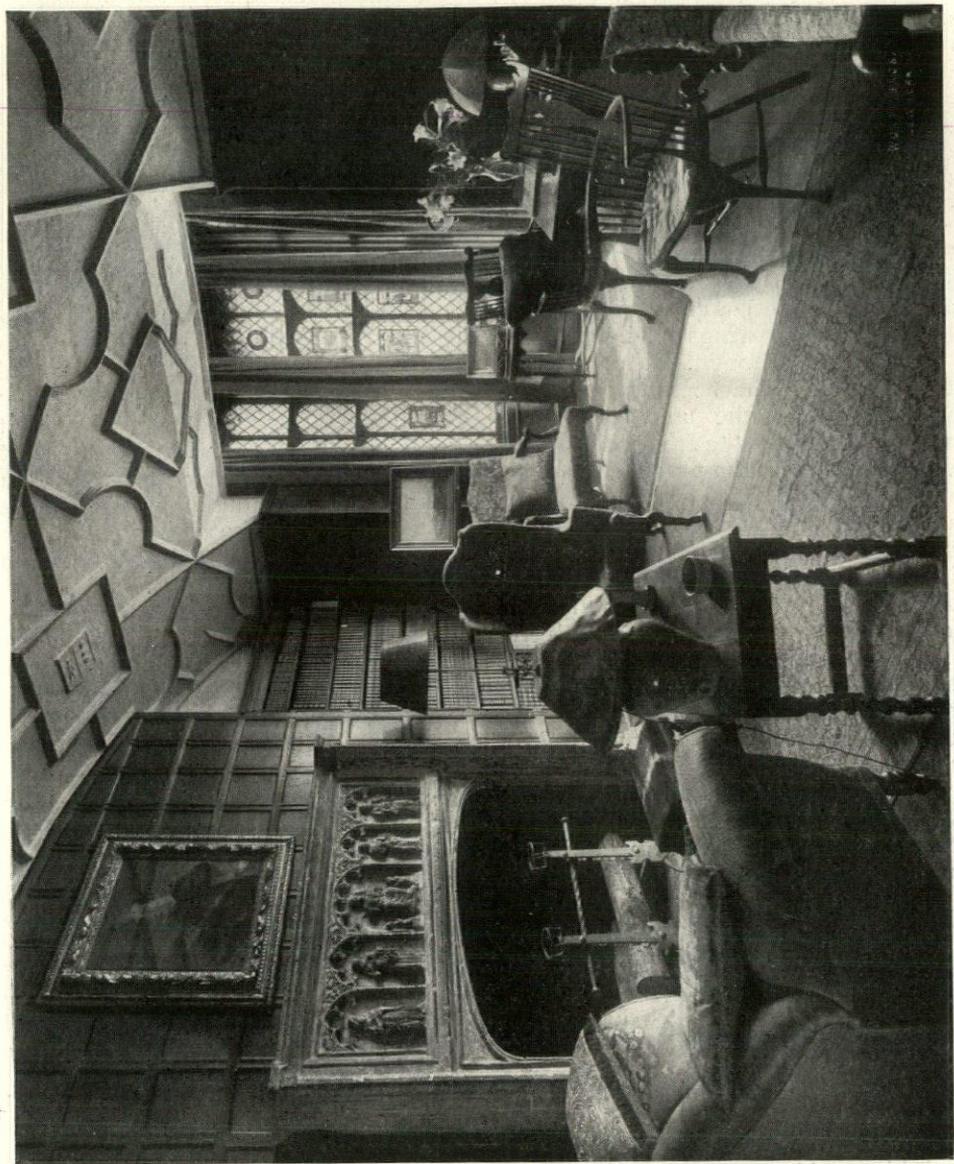
Perhaps the most striking feature in the consideration of the house is the restraint with which the architect has handled his problem and material. It is the restraint prompted by love for beauty in large effects and an instinctive sense of values which are chiefly found within the world of music—the restraint which will allow a great symphony orchestra to accompany a great pianist or a great pianist to accompany a great violinist, each considering primarily the interpretation of a composition which both admire.

In the composition of the street façade

of the Thomas residence the usual architectural impedimenta of mouldings and quoins are discarded. The scale is set by the nice relation between the window openings and the wall surfaces surrounding them. The texture of this wall contributes not a little to its air of animate repose and the material is used in its simplest form. The finest part of the decoration is the group of window grilles of the first floor, whose shadows pattern the plastered wall. The brick and stone work below the line of these windows lacks relation to the rest of the elevation, is somewhat spotty and trivial and fails to carry the breadth of treatment down to the ground. The ironwork of the fence, beautiful in itself, is lost in its proximity to that of the windows.

The plan of the house, the result of remodeling two older houses, is simple in its main features, and can be grasped easily from the accompanying illustrations. The street door opens on the axis of the long corridor which leads back, bounding one side of the patio, to the great living-room at the rear. The dining-room forms the third side of the patio opposite the living-room and a high wall encloses it on the fourth. The library is above the dining-room and its oriel overhangs the patio. There is a small entrance hall from which the stairs ascend, but it plays little part in the effectiveness of the arrangement.

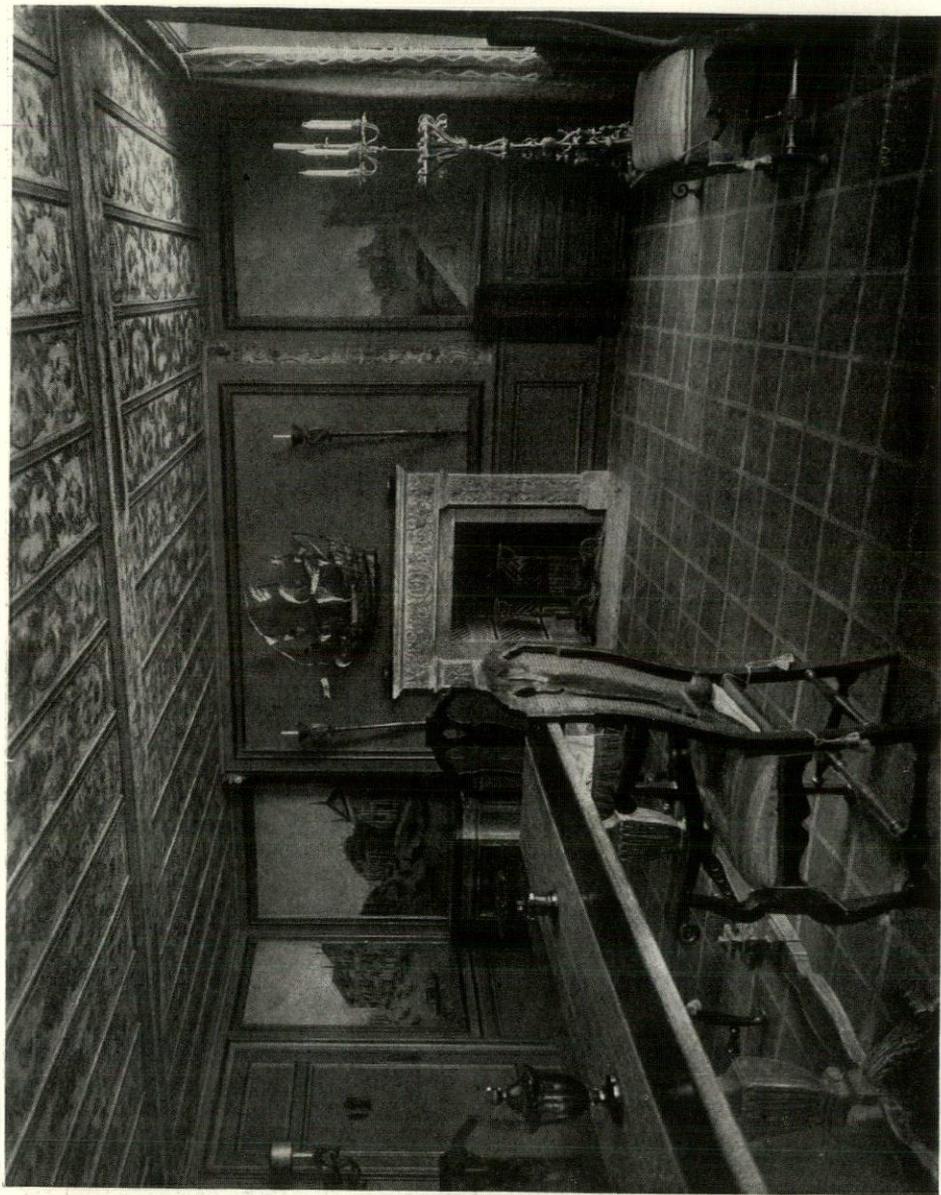
The library, one flight up, is paneled in dark oak and ceiled in warm-toned plaster. The subdued light, the rich colors of the bindings and the arrangement of the furniture contribute to give it the air of quiet and intimacy which its use demands. The Gothic mantelpiece is carved in a warm tawny stone, approaching in places the deepest tones of old ivory; and the robust Goya, which hangs on the opposite wall, exerts



LIBRARY—RESIDENCE OF LEONARD M. THOMAS, ESQ., NEW YORK CITY. F. BURRALL HOFFMAN, JR., ARCHITECT.



LIBRARY—RESIDENCE OF LEONARD M. THOMAS, ESQ., NEW YORK CITY. F. BURRALL HOFFMAN, JR., ARCHITECT.



EAST END OF DINING ROOM—RESIDENCE OF
LEONARD M. THOMAS, ESC., NEW YORK CITY.
F. BURRALL HOFFMAN, JR., ARCHITECT.



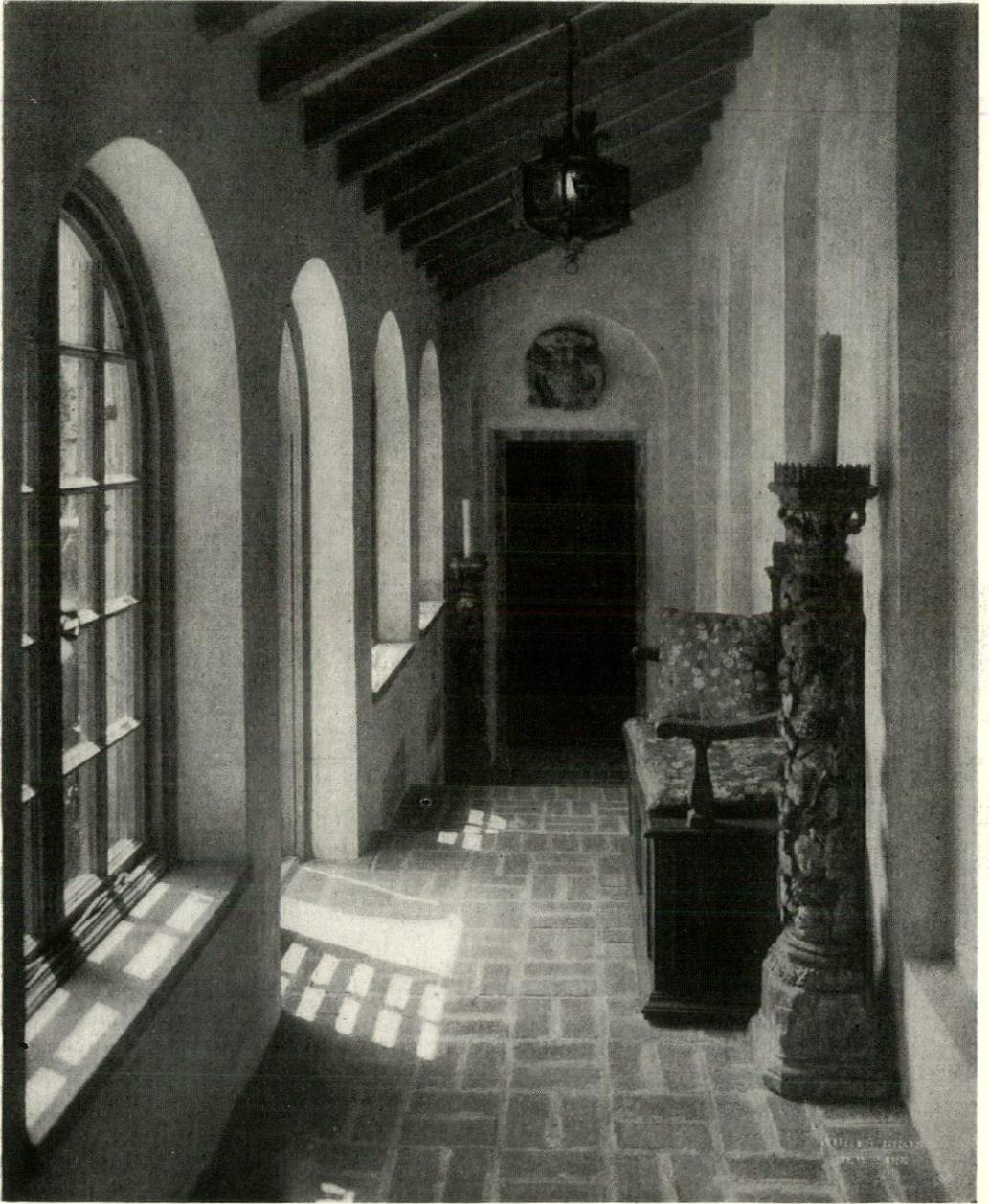
WEST END OF LIVING ROOM—RESIDENCE OF
LEONARD M. THOMAS, ESQ., NEW YORK CITY.
F. BURRALL HOFFMAN, JR., ARCHITECT.



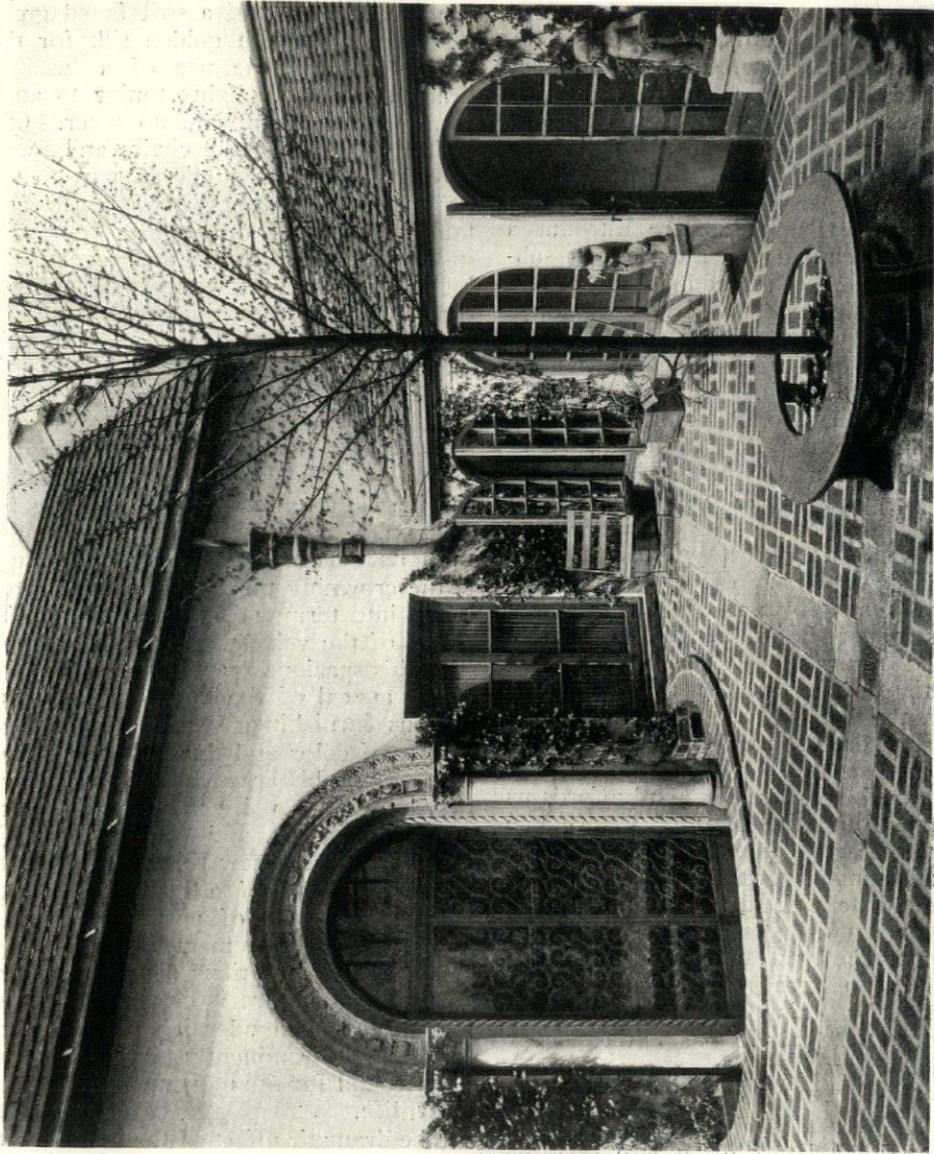
EAST END OF LIVING ROOM—RESIDENCE OF
LEONARD M. THOMAS, ESQ., NEW YORK CITY.
F. BURRALL HOFFMAN, JR., ARCHITECT.



CORRIDOR LOOKING TOWARD ENTRANCE—RESI-
DENCE OF LEONARD M. THOMAS, ESQ., NEW YORK
CITY. F. BURRALL HOFFMAN, JR., ARCHITECT.



CORRIDOR LOOKING TOWARD LIVING ROOM—RESIDENCE OF LEONARD M. THOMAS, ESQ., NEW YORK CITY. F. BURRALL HOFFMAN, JR., ARCHITECT.



PATIO—RESIDENCE OF LEONARD M. THOMAS, ESCO., NEW YORK CITY. F. BURRALL HOFFMAN, JR., ARCHITECT.

an almost hypnotic attraction increased by the perfection of its setting. Less dependence has been thrown upon upholsteries in this room than is usually the case, the rich color of the old wood giving warmth and light reflected from the wide boards of the flooring and the uncovered chairs, bench and tables; while such textiles as are introduced have been chosen for their colors subdued by time and the added richness and comfort which they supply. The stained glass in the windows gives more color of a different quality which plays in upon the rich woodwork.

Below this room, and practically twice its size, is the dining room, whose keynote is struck by the series of eighteenth century Venetian paintings which fill the wall spaces. The ceiling is made up of small panels of typical eighteenth century Venetian decoration, whose neutral tones form no distraction from the stronger notes of the walls and painted furniture. The panels of Venetian scenes have the softened beauty which the hand of time and the many glazes, whose use the Venetians knew so well, give to the brilliant colors. The large panel over the sideboard affords us a glimpse into the heart of Venice, the Piazza of St. Mark on a fête night. The myriad human figures, the strange beasts and the distant Cathedral are all seen by the glow from lighted windows and up-raised torches. The light in the room itself is so arranged as to heighten dramatically this effect and to add mystery to the canal vistas in the smaller panels.

The living room at the opposite side of the patio is the most important room in its dramatic effect. It is a separate small building, to which the corridor leads from the main house, and whose air of detachment lends it a particular distinction. Exquisite quattrocento bracket capitals support the semi-circular wall arches which intersect the vaulted ceiling, whose surface, like the wall, is finished in suave, creamy plaster flushed with orange. The fireplace is a deep grey pietra serena, lightened in places by a silvery patina. The colors in the room give it much of its unusual character,

the predominance of a soft faded green brocatille shot with golden silk for the upholstery and the use of a luscious orange, in certain lights toning to apricot, for cushions and piano cover. Old yellow brocade on the chairs and settee at either end give subtle support to the yellows in the brocade of couch and table covers; while the orange is re-echoed in the vestments on the wall beneath the high splayed window and the vibrant orange of the thin silken window curtains made up of two thicknesses of silk, one yellow and one rose. While this yellow-green and orange form the strongest accents, there is yet an under current of soft reds, blues and greens in the tapestries, rugs and incidental upholstery to give body and bass to the color composition. The wrought iron flower stand, with its orange tree, heavy with fruit, is the crowning touch of artistry, translating into terms of nature the artificial colors of the velvets.

In this spacious apartment it is that the subtle appeal of the house centers. Its various furnishings speak through their beauty of color and line or the by-paths of pleasant historical association which they suggest, a voice to which time has added poignancy, and "all this array is really less like a new thing than the last surviving result of all the more light-some adornments of past times." Yet from their arrangement and grouping, from the juxtapositions dictated by comfort and use, there is created a definite atmosphere of modernity which makes the ensemble eminently suitable as the background for the movement of modern social life.

The dramatic effect of the house is not the least of its merits, an effect gained by the variance in floor levels, by contrast in the character of the several rooms and by delightful glimpses from windows into the patio. The living room wall of this patio is of particular merit and is chiefly a setting for the Italian doorway of weatherworn marble. The great iron bracket lantern high on the opposite wall lights the patio and at night throws an eerie light through the iron scroll work of the gates, mingling with the colors

of the stained glass in the oriel which glow in the darkness.

The main apartments of the house centering around the patio follow an ancient precedent which has never been bettered; and the combined result of imaginative architectural thought and discriminating decorative sense has resulted in a house of rare distinction and beauty,

whose livable quality has in no wise been lessened by an observance of the best convention and in which a majority of the seven arts unite, each in its proper relation through beauty of color or line, dramatic quality and harmony of tone, to produce an indefinable atmosphere of richness and dignity.



BOUDOIR—RESIDENCE OF LEONARD M. THOMAS, ESQ.,
NEW YORK CITY.

F. Burrall Hoffman, Jr., Architect.

BUILDING AND THE COST OF CONSTRUCTION

By

Michael A. Mikkelsen

The increase in the cost of construction varies greatly according to the type of project contemplated, for the advance in prices of materials and in wages has not been uniform. The advance has been most conspicuous in the metal products group of materials—structural steel, heating and plumbing supplies, etc. The index number for construction materials, including steel, has advanced 89% since 1913; excluding steel, the advance is 84%.

As regards wages, the principal advance has been for common labor. Basing calculations not on actual earnings, which include overtime and other variable factors, but on union wage scales, the index number for wages in the building industry in 41 leading cities has advanced only 28.5% since 1914.

The result is that the cost of construction has gone up somewhat more than 80% for, say, a high grade steel skeleton office building and somewhat less than 50% for dwelling houses and other buildings in which the metals group of materials is not so largely represented.

However, the cost of construction even of a high grade steel office building has not advanced on a par with commodity prices; the Bureau of Labor Statistics index number for which, registered an advance of 106% in November, 1918, and of 97% in February, 1919 (Dun's March number is slightly higher than the February, the Bureau of Labor statistics number for March not being yet published), compared with the year 1913.

What is the prospect for a reduction

in the cost of construction? A study of the general price level with an analysis of causes which raised this level and of the causes which may lower it will throw some light on this question.

The causes of the great rise in prices may be briefly analysed as follows:

1. An abnormal demand for commodities by the governments at war.

2. Scarcity of certain commodities.

3. Increased purchasing power of the governments of the belligerent countries, acquired by the sale of bonds and issue of paper currency which increased the total purchasing power of the countries out of proportion to the quantity of commodities available.

The governments could purchase commodities without limit as to price, and the chief consideration of the governments in regard to prices was that the price offered to manufacturers should be high enough to draw forth the goods required. Manufacturers of war materials being able to obtain abnormally high prices, competed with one another for labor and materials, forcing up the price level. Manufacturers of non-war materials, for which no abnormal demand existed, were obliged to compete with war industries for labor and materials, thus greatly increasing their costs of production and forcing a rise in prices of their products. In general, the price of war commodities was forced up primarily by the abnormal demand and the price of non-war commodities by abnormal costs.

Present prices of commodities pro-

duced by any business cover the costs of doing business and profits, which may be itemized as follows: Interest on borrowed money; wages and salaries; materials used; taxes; a fair return on the capital and labor of the owner, and excess profits.

Present prices cannot fall unless present costs decrease or business men, including farmers, are willing, or are compelled, to forego their profits. What is the prospect of a decline in the costs and profits enumerated above?

INTEREST ON BORROWED MONEY.

The interest rate has advanced on account of the war, and has, therefore, played a part in higher cost of production, although a minor part. There is no prospect of any substantial decline in interest rates and still less prospect of any appreciable reduction in the total cost of production from this source.

WAGES AND SALARIES.

The war has brought about a permanent improvement in the standard of living of wage workers in the United States. In the interest of war production, the Government assumed control over labor as well as over materials, credit and transportation. Having assumed such control, it was obliged to standardize, as far as possible, the conditions of employment. The eight-hour work day was proclaimed as the basic work day for industry. Furthermore, the principle was laid down that every workman was entitled, at the minimum, to a "living wage" and to sanitary working and living quarters. Through the Government's war control over industrial labor, and the consequent impetus toward a higher minimum standard of living, the cost of industrial production has been increased.

The Government, in one sense, did not introduce a new standard. It merely enforced an accepted American standard already in existence and on a large scale eliminated violations of it which had been common before the war, when immigrant labor was plentiful.

The position of labor has been per-

manently strengthened in this country, by the virtual absence of immigration for four years, during which period about 9,000,000 men of military age have been destroyed, largely in the countries from which our immigrants come. Just now, about 700,000 men are unemployed in the United States. While this is a large number in comparison with a year ago, the fact is that 1,000,000 men were generally employed in the pre-war days.

Wages are perhaps the largest item in the cost of production, and although wages have risen, union wage scales have not, generally speaking, risen above the cost of living. If we examine the cost of living budgets since November, 1918, we find that the only notable decline which has occurred is in the case of clothing. However, the saving in the budget there is offset by increased rents. Food at retail, which constitutes the largest item in the budget, has not materially changed. In other words, the cost of living to the workman has not declined and shows no immediate prospect of declining.

There are two good reasons for not expecting a fall in wages until the cost of living is reduced. First, employers generally are not desirous of forcing down wages until prices drop; second, wage earners will oppose any reduction and are in a strong position to make their opposition effective.

RAW MATERIALS.

The raw materials of one industry may be the finished products of another. Hence, the analysis at this point is difficult. It may be maintained, however, that the cost of raw materials of any particular industry, including agriculture, will not decline until the costs of production or profits of other industries have declined. Hence, generally speaking, any decline in the cost of raw materials must be the result of a decline in interest, wages, profits or taxes.

TAXES.

Taxes may be subdivided for our purpose into excess profits and income taxes

and other taxes. No substantial decline in taxes may be expected in the next few years except that as profits or income of any business decline, its taxes likewise will decline. Even if Federal taxation should decrease materially, it is altogether likely that this decrease will be offset by an increase in state and local taxation. Hence, no considerable reduction in the cost of production is to be expected as a result of decreasing taxation.

A FAIR RETURN ON THE CAPITAL AND LABOR OF THE OWNER.

It is not to be expected that, in the future, business men generally will be content or be compelled to accept less than a fair return on their capital invested and their labor applied. There will, of course, be some exceptions. In view of the strong expectation entertained in many quarters that food products will decrease in price, it should not be forgotten that a large part of the cost of production of farm products consists of the cost of labor of the farmer and his help, heretofore very inadequately paid. During the war the farmer has really obtained fair wages for his labor and will not easily be compelled to take less in the future.

EXCESS PROFITS.

Excess profits will no doubt diminish and some decrease in prices will result. Some industries during the war enjoyed huge profits and cannot hope to continue selling their products at war prices. Competition or Government interference would bring down their profits even if no immediate voluntary reduction is made. The copper, iron and steel industries have made substantial voluntary reduction. Other industries will doubtless follow suit, but excess profits are by no means a general condition in all industries, particularly not in many industries producing building materials. It should be added here that a large part of what many consider excess profits of farmers is only a fair wage for farm labor as pointed out in the preceding

paragraph and no great drop in farm prices of food stuffs can be expected for this reason.

Part of the effect of the decreased prices established by business men, by means of foregoing further excess profits will be lost by the consequent decline in Federal revenue from excess profits taxes. This decline in revenue will have to be made good by heavier taxes of other kinds which will tend to increase the cost of production.

NO MARKED DECLINE TO BE EXPECTED.

In brief, we must conclude from the foregoing analysis that prices will not fall materially—practically not at all except as the result of a decline in excess profits. In so far as prices of certain articles, such as iron, steel and copper, have decreased by removal of excess profits as an item in their composition, the price of certain other commodities into which these articles enter as raw material will fall. This, in turn, will affect the cost of living, and, in a round-about way, possibly wages. Without attempting to trace all the repercussions of such a sacrifice of excess profits, one may say the final results will not be marked, since the cause is relatively not very important.

INCREASED EFFICIENCY AND PRICES.

In the foregoing discussion, one important point which might be expected to reduce prices has not been touched upon. That is increased efficiency of labor and capital. Wages per day or week may remain the same and cost of labor decrease if labor is made more productive, whether by training of the workers, by proper provision for their health, by giving them an incentive to increase production by proper treatment, or by better organization of the plant. There is every reason to believe that in all these ways labor in the next few years will be made much more effective than ever before. Will prices, therefore, not decline for this reason alone even if no reduction occurs for any other reason? Not necessarily.

It is not to be assumed that increased efficiency of labor will mean reduced cost of labor. Labor will doubtless demand, and probably receive, even higher daily wages in the next few years than at present. It is easy to argue that labor should be content with the present money earnings and let any increase in efficiency go toward cutting down cost of production, which, in turn, will reduce the cost of living, and this, in effect, will amount to a rise in wages. But labor will see no plausible reason for accepting this roundabout and uncertain method of increasing its real income instead of driving at the more direct and immediate method of higher money wages for increased output. Of course, to obtain this increase, labor must be in a strong position and have a voice in industrial management; but labor will be in a strong position to demand a voice in industrial management, since democracy has been too much talked about during the war to be easily forgotten in times of peace.

THE NEW PRICE LEVEL.

But it may be asked, will not the increased volume of production upset the present price equation by increasing the quantity of commodities out of proportion to the volume of money and credit? Probably not. As Professor Irving Fisher has pointed out, an expansion of world credit currency is to be looked for in the future. This expansion is the more likely to occur if the volume of production increases with heavy underlying costs. Furthermore, it may be added that if labor in general becomes more efficient, labor in the gold mining industry will also become more efficient, thus increasing the output of gold and making an additional expansion of credit possible. In a paper entitled the "New Price Revolution" written by Professor Fisher, the leading authority on prices, for the Department of Labor, his conclusion is summed up in this paragraph:

"The fundamental practical question confronting business men is whether the general level of prices is going to fall. In my opinion, it is not going to fall much, if at all. We are on a permanent-

ly higher price level. . . . Our currency is not inflated at the present time relative to the new level of prices in the world which the war has brought about. The country's volume of money will have to be judged in terms of this new price level, not in terms of a price level that is past."

OTHER FACTORS AFFECTING PRICES.

In the foregoing discussion of the prospect of price reduction resulting from a possible decrease in the cost of production, some points occasionally brought forward as a basis for a prediction of decrease in price and hence in cost of construction were omitted. These will now be briefly considered.

In some quarters a decrease in freight rates is expected to decrease the cost of construction. The answer to this is that the transportation industry can be considered as included in the analysis of cost of production made above. As long as the cost of transportation, including wages, materials and taxes, does not decrease, there cannot reasonably be expected a reduction in freight rates. In the case of transportation, there have been during the war no abnormal profits, but on the contrary deficits. The only hope for decreasing the cost of transportation is increasing efficiency and this cannot be expected to result in an early reduction in freight rates.

CONDITIONS FOLLOWING CIVIL WAR NOT ANALOGOUS.

Many persons point to the fall in prices after the Civil War as an indication of falling prices after this war, but the conditions now are not the conditions following the Civil War and one cannot reason by analogy when there is no analogy. Prices in the United States in 1865 were high by reason of our own Civil War. Prices are high in the United States at the present time as a result of European conditions reflected in the United States. As a general rule economic disturbances and changes are the more permanent in proportion as they are more widespread. Hence, naturally, we cannot expect as rapid a readjustment of prices after the

world war as came about after our Civil War.

As it is now five months since the armistice was signed, we have already a considerable period for which we may compare the course of prices with a similar period in the Civil War time. Let us note the actual price movement during the four months after the surrender of the Confederate armies was a certainty and the movement of prices after Germany's surrender was foreseen. During the four months from January 1 to April 30, 1865, the index number of wholesale prices declined from 216 to 190, a drop of 12 per cent. During the four months from November 1, 1918, to March 1, 1919, prices in the United States declined only 5.9 per cent., according to Dun's index number. During March prices reacted so that the index figure for April, 1919, is only 4.6 per cent. under that of Nov. 1, 1918.

We cannot expect in the near future lower prices in the United States as a result of lower prices in other countries, since our prices are low in comparison with European prices. They are almost the lowest in the world. Instead of needing to fear an influx of cheap goods from abroad because of our high price level and a consequent fall in price, we can in all reason expect a period of heavy exportation because of our comparatively low price level.

PRESENT CONSTRUCTION COSTS COMPARATIVELY LOW.

What then are we to say concerning the construction industry as affected by a possible fall in prices? As our analysis above indicated, the only reason for expecting a general fall in prices is the disappearance of abnormal and excessive profits of certain industries benefitted by the war. As already pointed out, it cannot be expected that such a fall in prices will be very pronounced. If prices in general, and hence costs of production in general, do not fall materially, it is not to be expected that costs of building construction can fall materially since these costs are at present comparatively low.

It is to be remembered that the construction industry was curtailed, instead of stimulated, during the war. In order to divert the materials, labor and credit normally employed in the industry, severe restrictions both on the production of materials and on construction were enacted. The output of sixteen building materials, for example, was reduced twenty-five to sixty per cent. Because the construction industry was one of those that were repressed during the war, wages in that industry and also prices of building materials were kept down, the metals group of materials forming the most notable exception to the rule.

BUILDING NOW A SAFE INVESTMENT.

It is possible that some building materials may come down in price, but it is just as probable that some other building materials or the wages of some trades in the building industry may go up. The reductions in steel prices, including those of March 20, 1919, have brought the finished steel products index number down from 228, in November, 1918, to 195 at present, a drop of not quite 15 per cent. But the effect on the cost of construction has already, in some communities, been largely or wholly offset by wage increases. Even in the case of a high-grade steel skeleton office building, as we have seen, the percentage of increase in cost is far below the percentage of increase in the general index number for commodity prices. One can hardly escape the conclusion, therefore, that the cost of construction will not come down to such an extent as to endanger a judicious investment made in the erection of a new building. Where the rents offered show a fair net return on the cost today of a new building, after deducting a reasonable sinking fund allowance, no one should hesitate to build or to lend money for building.

RIISING RENTS.

Rents are determined by supply and demand. In the case of housing, during the early part of the war, the demand was curtailed by the rapid advance in

commodity prices, which impelled many tenants to crowd into or get along with less space than their normal standard of living required, and by the drafting of the young men of military age. Within a year, however, these influences had spent their force. By the end of 1918, according to the replies obtained from a questionnaire sent to real estate boards in 91 cities, only four of these cities had a housing demand that was below normal; while in 52 cities rents had advanced 10 per cent. or more, in some instances 40 per cent. to 50 per cent. This rise in rents took place at a time when the population at home was as economical of house room as possible and while several millions of soldiers were absent in the service.

LAND VALUES CERTAIN TO ADVANCE.

Another important fact was disclosed by the replies to the questionnaire, namely, that despite rising rents for housing in the majority of the 91 cities, the market values of house sites had declined in six cities, and had remained practically stationary in 72. The market value of land is, like rents, determined by the interplay of supply and demand. During the war the demand for city land was relatively small, because dealing in real estate was discouraged by the banks as a non-war activity requiring the use of credit. With a restoration of easier mortgage loan conditions, the demand for real estate will inevitably increase; nothing can seem more certain than that in our growing American cities, the market value of land must advance briskly. City land at present is probably the least inflated of all material wealth.

INCREASE IN CONTRACTS AWARDED.

Evidently this line of reasoning is being adopted by growing numbers of practical men, for recent construction figures show a remarkable increase. In March, the aggregate of building and engineering construction contracts awarded in the district north of the Ohio and east of

the Missouri was \$151,000,000, as against \$95,000,000 in February and \$51,000,000 in January, the lowest month since the government began to cancel war projects. The total of contracts awarded in March of this year is the largest of any corresponding month as far back as our records go, except March, 1917. The March totals for the last seven years, translated into the 1918 price level, are as follows: \$151,000,000 in 1919; \$116,000,000 in 1918; \$153,000,000 in 1917; \$132,000,000 in 1916; \$118,000,000 in 1915; \$89,000,000 in 1914; and \$94,000,000 in 1913.

BACK TO PRE-WAR LEVEL.

The contracts awarded cover every construction contract of whatever kind, both in cities and in villages and rural districts. They show that the revival of the construction industry is most notable outside the large cities. They show, further, that the greatest activity is in housing (dwellings and apartments), followed first by industrial plants and next by stores, offices and banks. The bulk of the work is for private owners; public work, though increasing, is comparatively slow in reaching the contract stage.

IMPROVEMENT TO FOLLOW VICTORY LOAN.

The very notable increase in construction activity, mainly outside the big cities, revealed by the contracts awarded was achieved in spite of hesitation by bankers to make long-time commitments before the Victory Loan is floated. Each bank must be in a position to take care of its allotment of the Loan and must husband its resources until events make clear how large a part of its allotment it can sell to the public and how large a part it will be obliged to retain. When the Victory Loan is out of the way, the banks will be more free to act on applications for mortgage loans, and we are likely to see a sharp upward turn in the building permits of the larger cities.

CARSON C. PECK MEMORIAL HOSPITAL AND NURSES' HOME, BROOKLYN, N. Y. LUDLOW & PEABODY — ARCHITECTS



By
LEON V. SOLON



HYGIENE AND MENTAL STATIC.

MODERN efficiency no longer confines itself to the manipulation of material things. For some little time certain phases of art activity have been claimed as accessory to its ends, which on occasion are hitched to the team. In this extension of the sphere of efficiency, architecture has naturally figured prominently, not merely by contriving premises for economic production of convenient operation, but in endowing with psychic properties masses of structural material, evolved to meet more intimate requirements of our civilization.

The prime purpose of efficiency is to redirect all energy wasted through unnecessary friction or duplication of effort; its secondary aim is to induce mental processes that are helpful to the accomplishment of the set purpose, and that neutralize antagonistic forces.

An increasing complexity in human interests and requirements makes it imperative that a self-contained subject, such as the hospital, be disentangled from complicating side issues, and that everything contributing to the realization of the main idea be conceived with clearness, indirectness having no place in true efficiency.

A propitious mental state is almost as important a factor in the recovery of lost health as is treatment and hygiene; in fact, from all time, cures have been operated by this means alone. Recognition of this element makes it compulsory to consider many subtle factors extending even into the fields of decoration and accessory equipment, including numerous considerations, apparently

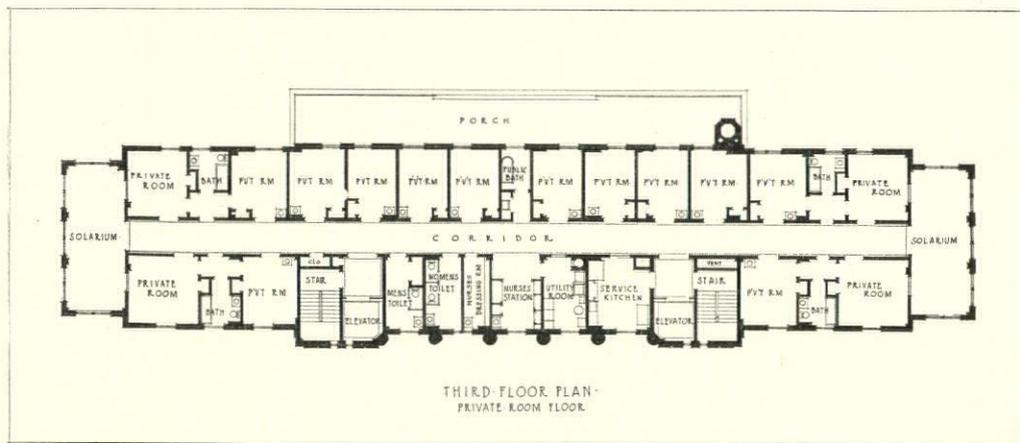
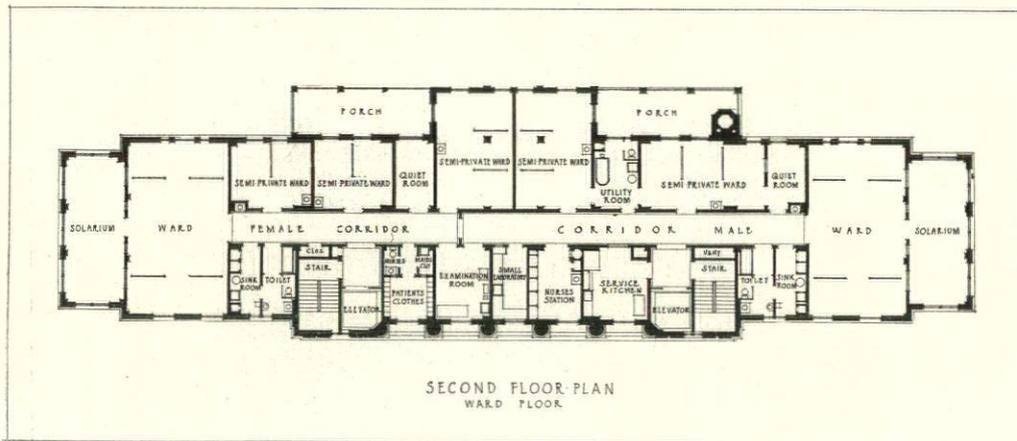
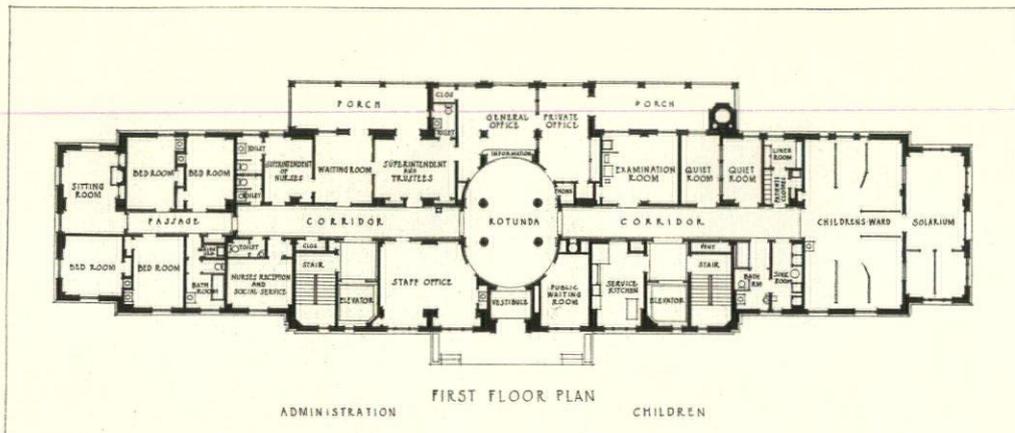
trifling, which however react beneficially on the minds of those reduced to a hypersensitive condition through illness.

The psychic power of architecture has been a recognized asset, almost as far back as the days when shelter was the sole purpose of construction. The fortress was so designed that an impression of impregnability wrought discouragement in the rank of the enemy, thereby giving the defenders the consequent advantage. The loyalty of the subject was stimulated, while he was overawed, by the magnificence and dignity of the ruler's court. As mundane standards of comparison and judgment were often dangerous to the prestige of priestcraft, it was necessary to invest the temple with mystery, that a plastic condition of mind might result in the followers of the cult, making them more receptive of the needful impressions. It is characteristic of modern times that as impressions are registered more rapidly, they become less permanent, and that a fertile suggestion makes a deeper impression in many cases than statistics—a fact exploited to the utmost by our more skillful advertising men. The automatic deduction which has generated through the appearance of a building in former times was of an elemental nature, appertaining to the simpler emotions; today the process is more intricate due to the reason that the desired deductions are often of a complex nature, for which the more obvious means for stimulation are ineffectual.

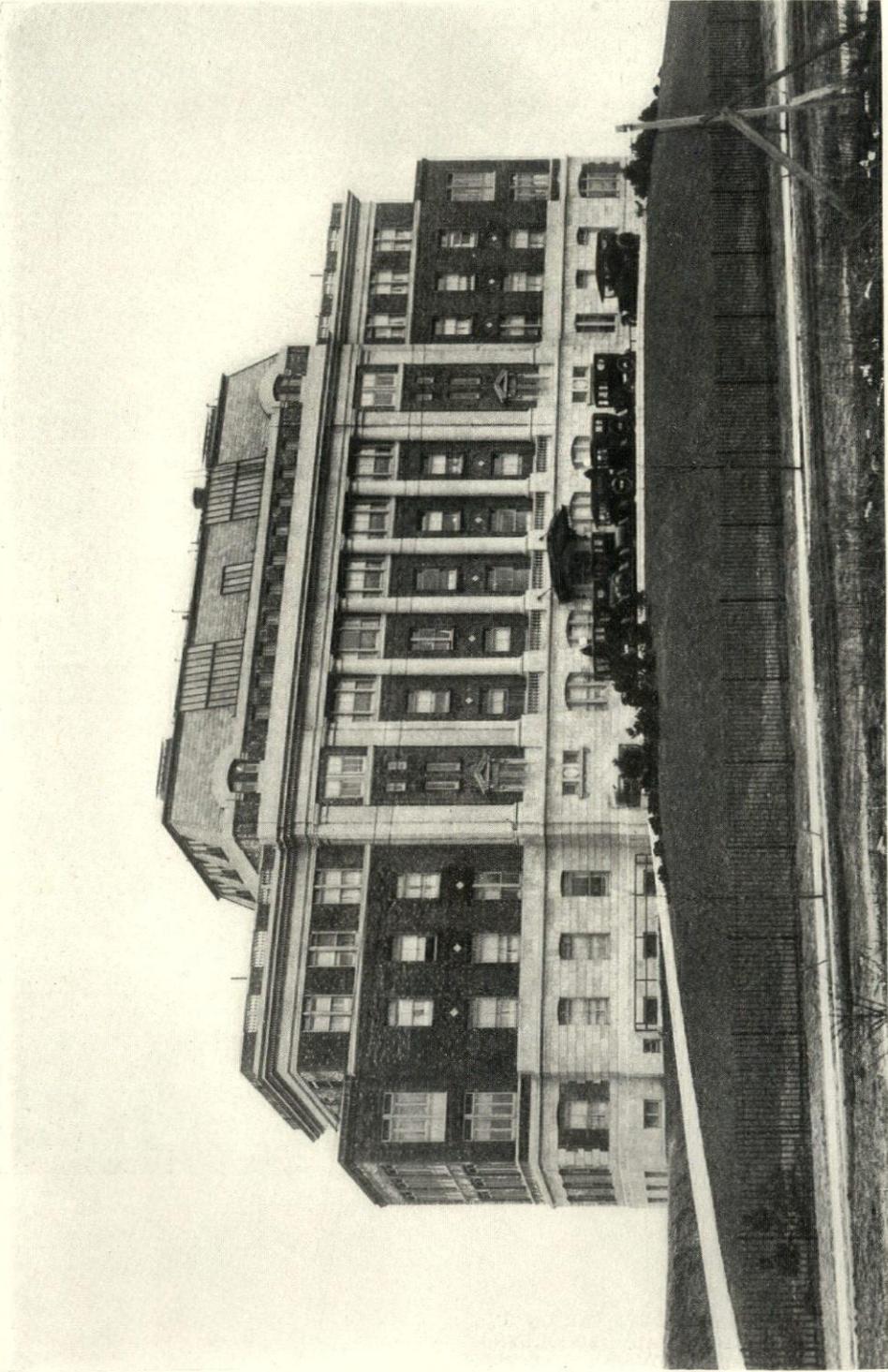
Since the advent of the science of hygiene all matters connected with the



CARSON C. PECK MEMORIAL HOSPITAL, BROOKLYN, N. Y.
Ludlow & Peabody, Architects.



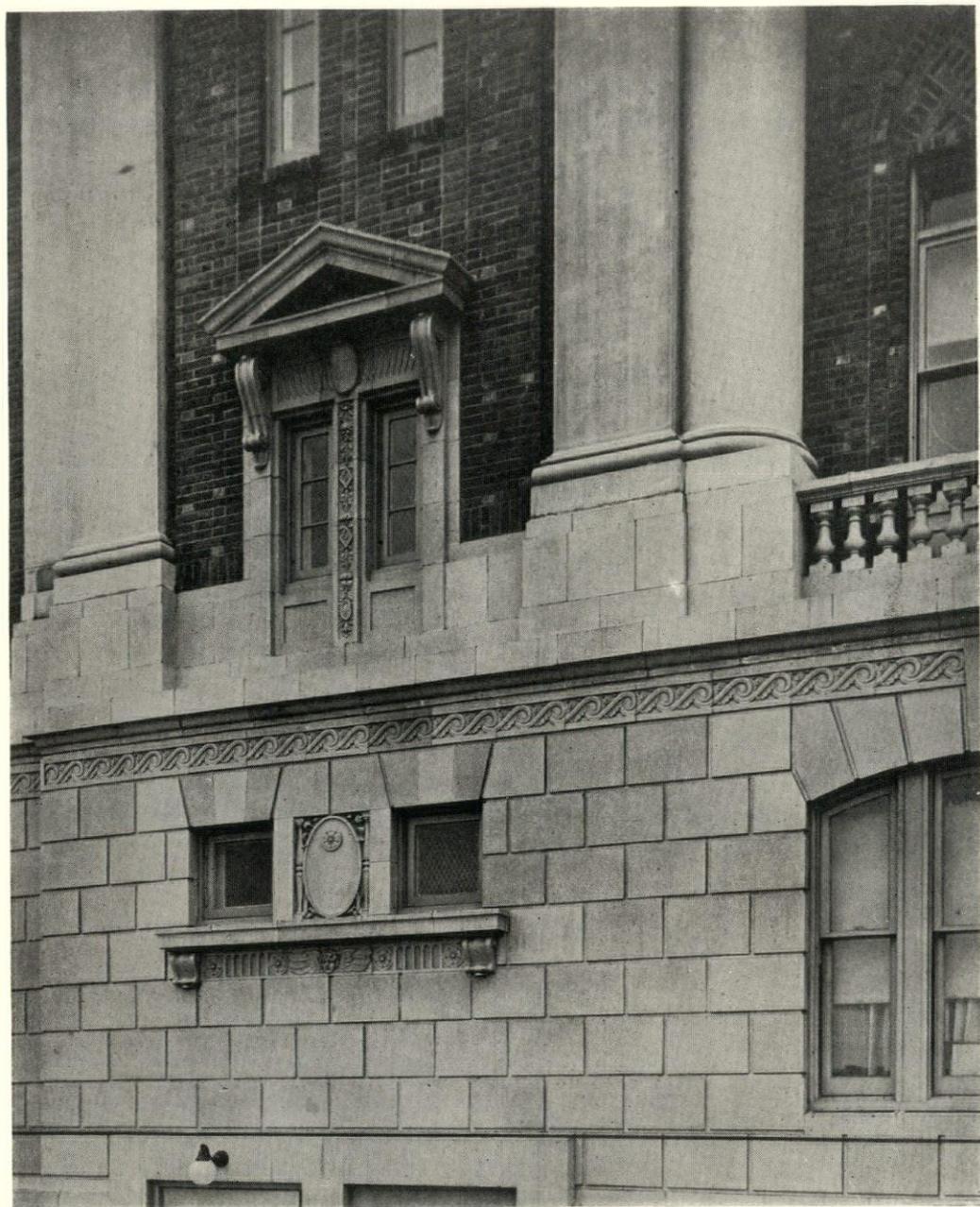
CARSON C. PECK MEMORIAL HOSPITAL, BROOKLYN, N. Y.
Ludlow & Peabody, Architects.



CARSON C. PECK MEMORIAL HOSPITAL, BROOKLYN, N. Y. LUDLOW & PEABODY, ARCHITECTS.



DETAIL OF ENTRANCE LOBBY, CARSON C.
PECK MEMORIAL HOSPITAL, BROOKLYN,
N. Y. LUDLOW & PEABODY, ARCHITECTS.



DETAIL SHOWING COMBINATION OF BRICK AND TERRACOTTA, CARSON C. PECK MEMORIAL HOSPITAL, BROOKLYN, Y. N. LUDLOW & PEABODY, ARCHITECTS.



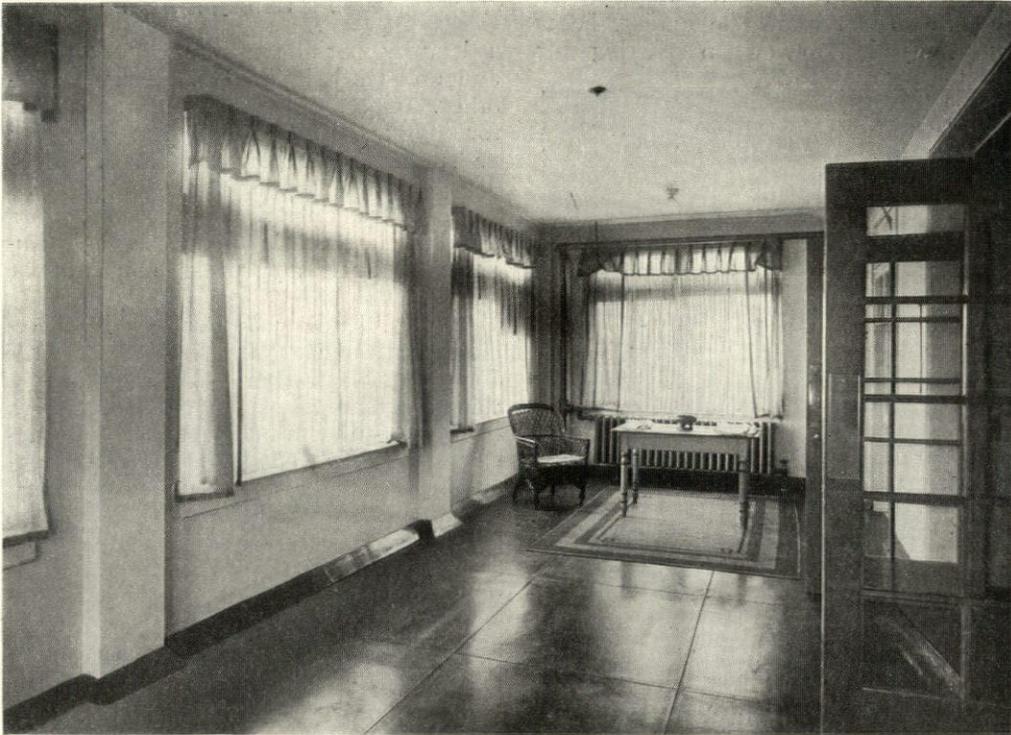
NURSES' HOME, CARSON C. PECK MEMORIAL HOSPITAL,
BROOKLYN, N. Y. LUDLOW & PEABODY, ARCHITECTS.

building of the hospital have naturally been subject to its ruling. Its decrees, arbitrarily enforced in the making of a hospital, made a clean sweep of all that rendered human habitation endurable. The aesthetic sense of the modern medical scientist, if we may hazard the implication, seems moulded after the model of the Cromwellian reformer and iconoclast, whose place of worship must be repellent to be adequate. Suspicion has evidently been cast on anything on which the eye of the sick man might rest with satisfaction, be it color, decoration, or meagre luxury. True, the operating theaters of many hospitals are tiled with soft toned glazes, in lieu of the shining white; but, as the majority of the patients in that room are under the influence of an anesthetic, we may assume that the comfort of the medical staff is the objective.

The conventional appearance identified with a sanitary hospital building, its repellent and comfortless air, is more

terrifying to the highly strung individual than an accidental contact with a mortuary; possibly because the idea of Death itself is less appalling to the sick than the suggestion of a grim approach. There is probably no subject set the architect in the range of practice, where there is such a scope and need for human sympathy, ingenuity and forethought, as in that of the hospital; or where the successful solution is rewarded with such heartfelt appreciation. An ardent desire to create ease for the afflicted must be quickened by a philanthropic temperament; he must remember that he is building a refuge for the sick, not exclusively a fortress against the germ, as the elemental idea of the hospital—an edifice to house hideous disease and human wreckage—is not stimulating to the esthetic sense.

It is incumbent on the architect to remind the "case" by suggestion through its surroundings, that in the complement of a dual existence, it is an individual,



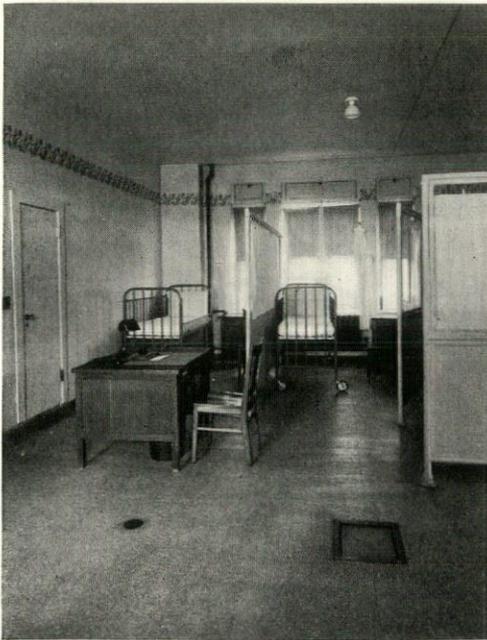
TYPICAL SOLARIUM, CARSON C. PECK MEMORIAL HOSPITAL, BROOKLYN, N. Y.
Ludlow & Peabody, Architects.

not a disease. He must modify the traditions of the sanitary structure without impairing its benefits, and refrain from providing premises for those in mental and physical distress that would be unendurable in robust health. To ascertain the value put upon many of the measures enforced in the hospital, it would be instructive to know whether the scientists who formulated these drastic measures carry their conviction to the length of relegating themselves to their tiled bathrooms when ailing, by reason of its sanitary treatment and comparative absence of germ carriers; or whether a sense of well-being is sought in preference as more directly beneficial, and a chance taken in the midst of comfortable upholstery, curtains and carpets, regarded theoretically as stock farms for pathogenic bacteria.

From time to time we have read of experiments made by eminent scientists with color, to gauge its influence on the temperament of zoological specimens. Wild animals are reported to have responded to a remarkable extent, being abnormally irritable when existing for



A CHILDREN'S WARD, CARSON C. PECK MEMORIAL HOSPITAL, BROOKLYN, N. Y.
Ludlow & Peabody, Architects.

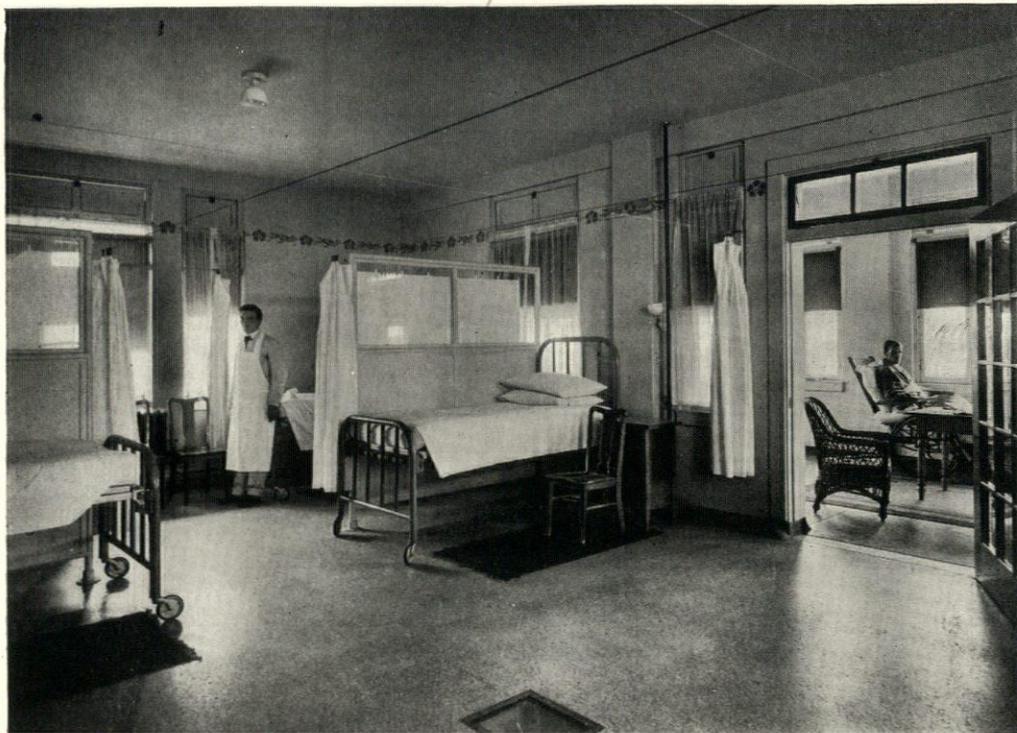


A CHILDREN'S WARD, CARSON C. PECK MEMORIAL HOSPITAL, BROOKLYN, N. Y.
Ludlow & Peabody, Architects.

a lengthy period in one colored light, and unusually joyous and docile in another. Color is so conspicuous a factor in our daily outlook that it cannot be suddenly eliminated from our sight in a hospital without necessitating some unnecessary mental adjustments; at a time when a static mental state is imperative, such a process may not be politic.

Messrs. Ludlow & Peabody have decided that their hospital should be a home for the sick, rather than the conventionally treated hospital, their objective having been attained without the sacrifice of any measures of safety or prevention. This has stimulated them to make departures, in many directions, from the current ideals of barrenness and desolation which fill the stricken with despair.

This building was erected as a memorial to Carson C. Peck, by his widow, which called for the suggestion of the monumental treatment which the architects have introduced in the façade. It is partly endowed; the endowment covers a proportion of the cost of mainte-



PUBLIC WARD OPENING ON SOLARIUM—EACH BED IS SCREENED FROM ITS NEIGHBOR TO GIVE A FEELING OF PRIVACY—CARSON C. PECK MEMORIAL HOSPITAL, BROOKLYN, N. Y.
Ludlow & Peabody, Architects.

nance to the extent that it may be available to persons of moderate means, who find service and comforts there which elsewhere would be beyond their purse.

The façade is well conceived and proportioned, the difficult problem of fenestration being cleverly handled. The use of columns imparts the impressive air we associate with the commemorative structure, and stabilizes the tendency to restlessness that often proceeds from diversity in the size and alignment of openings. The manner in which the relation of stone to brick has been adjusted, from the point of view of color interest, is very satisfactory; it is regrettable, however, that this combination has not the decorative development on the solarium walls at each end of the building, as the box-like appearance of these extensions might thereby have been neutralized. As they are, they detract from the general scheme, and one cannot

help feeling that the joyous intent of the sun-room might have been suggested by an appropriate decorative combination of the contrasting color and the texture of brick and stone; but the critic sometimes assumes that an opportunity has been overlooked, which, had he been acquainted with the monetary appropriation, he would realize had never existed.

Considerable thought has been given by the architects to the question of color, even to the selection of the most harmonious stains for trim and floors. The windows are cheered with printed curtains, in defiance of the dictum pronouncing them havens of refuge for the ubiquitous germ; the curtain designs are bright and quaint and give the sick-room the appearance of a cheerful bedroom in a simple country house; and as the material is just as easily laundered as the bed linen, there is little risk that the patient's sense of comfort will be charged to his physical account. Small rugs of pleasing

tone supply their complement of color to the scheme; pictures adorn the walls, and provision is even made for hanging favorite pictures from the patient's home—duly sterilized we may be sure.

The solariums are arranged after the conventional plan, nearly all open, with windows to shield from the cold winds. On the rear the porches are approached from the adjacent bedrooms by casement windows, so that beds and wheel-chairs can be rolled into these from the rooms. These get the southern sunlight and enjoy an extensive view over many miles of Brooklyn extending to the Narrows.

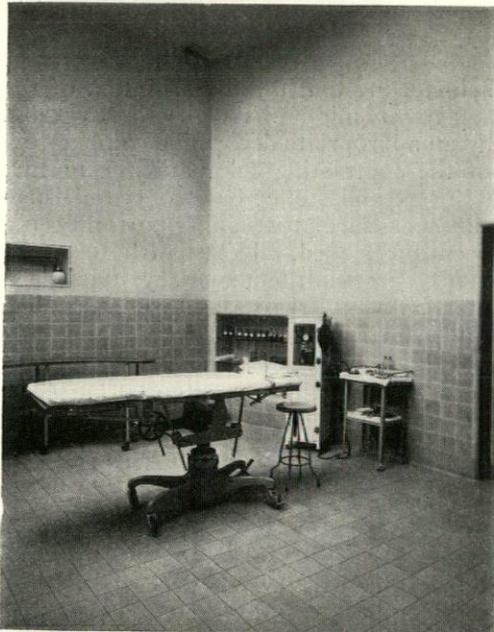
The interior walls have been tinted a cheerful sunny buff, equally pleasing on the dull days of winter or during an over-bright summer day. Throughout the buildings every effort has been made to get as much light as possible, so windows are made as extensive in area as the exterior design would permit. The little iron hospital bed is taboo in the private wards, and wooden beds painted in attractive colors take its place; these

are treated in such a way as to harmonize with the oak or mahogany bedroom furniture.

Throughout this building the architects' concern has been for the individual who sojourns there, rather than the creation of the institution at his expense. Innumerable kindly contrivances have been introduced at the outlay of much thought and study, which take into account the fads, fears and fancies of the suffering, and the sensibilities of overwrought nerves. The jaded appetite of the invalid has been a determining factor in the choice of the pottery tableware, and a variety of patterns chosen, in place of an institutional design, so that the recurring article of diet may appear less distasteful through its varied presentation.

Lighting fixtures have been placed with great care in order that the rays may be concentrated on essential spots, and the eyes of the occupant of the room may suffer no unnecessary strain.

The signal service from the head of the patient's bed is contrived to relieve him of any fear that his call has not



OPERATING ROOMS—WAINSCOT AND FLOOR TILED IN HARMONIOUS TONES—CARSON C. PECK MEMORIAL HOSPITAL, BROOKLYN, N. Y.

Ludlow & Peabody, Architects.

registered, and that help may not be forthcoming. A pear-push hangs on a wire at the head of the bed, close to the patient's hand, which on being manipulated registers with lighted bulb in the nurses' station, sink room, diet kitchen on the same floor, and the head nurse's room on the first floor. This signal can only be cut off by pushing a ring on the pear-push with which the call was made. The head nurse is able to note whether calls are promptly attended to, by the duration of the lights. One of these tiny signal lights shines over the patient's door, conveying the reassuring information that the signal is visible in the other parts of the building.

The banging of elevator doors, which is so startling and annoying in a hotel, or even in an office building, is a very serious matter in a hospital. The architects have contrived their plan so ingeniously that elevators open on vestibules instead of on the corridors. The clicking latch has been eliminated for noiseless contrivances with arm-hooks instead of knobs, so that a nurse can open the door even if her hands are occupied. To insure still further quiet, the partitions of nearly all the bedrooms, other rooms, and halls, are built double with air spaces between.

The entrance lobby is decorated in a warm Pompeian color scheme; the Doric caps are treated after the orthodox manner of Aegina. A panel in mosaic with an inserted metal medallion gives decorative interest to the terrazzo floor. The tone values of the colors in this rotunda are well adjusted, with the exception of that of the base of the walls and columns, which is too high in key; the optical defect proceeding from such a choice of tone is that there is a sense of suspension in the superimposed areas.

The nurses' home is a simple, but characteristic building. The brick used here and in the main building is well handled; an attractive effect results from the introduction of a lighter brick in irregular spotting, giving a color charm to wall surfaces which would otherwise be deprived of interest. The brick paneling in the upper story is well judged, and the

cornice ingeniously contrived. The appearance of this building is homelike, and should aid the nurses in distracting their minds for a time from the pathetic scenes surrounding them while on duty. From the psychological aspect sufficient emphasis can hardly be placed upon the contrast needful between the nurses' home and the wards, in order that the personnel may retain their normal mental balance and avoid the morbid or callous state of mind resulting from constant environment.

The terra-cotta work in the exterior is of that technical excellence which now characterizes the American product. In the modeling of the detail, however, we find a lack of refinement and little comprehension of the essential subordination of treatment to material; this heavily discounts its technical perfection.

Terra-cotta is a material of such vast service to the architect with so brilliant a decorative future that the time has come when the architects of this country must awaken to the fact that clay has a beauty of its own and a distinctive type of ornamental and sculptural expression, to the same extent as bronze, wood or stone. Terra-cotta which expresses the plasticity of clay is an infinitely more beautiful product than terra-cotta masquerading as limestone. The architect who demands an imitation of stone carving in clay does not appreciate the model he sets; the character and beauty of stone carving are evolved by peculiarities of substance; these cannot be translated indiscriminately, even for motives of economy—true appreciation precludes parody.

Wherever the architect of recent years has cultivated connoisseurship in the decorative treatment of a material, progress has been instantaneous and considerable. It is only a question of time, or more probably of leadership, when terra-cotta will be recognizable on our buildings as a plastic material.

Messrs. Ludlow and Peabody are to be complimented on a thorough and an interesting work. The hospital as a subject is neither exhilarating nor inspiring;

nevertheless their design is invested with dignity and repose and conveys most adequately the memorial idea which was responsible for its inception. Their plan

is excellently contrived, replete with ingenious thoughts. Those who succeed in brightening the outlook of the stricken have not toiled in vain.



ENTRANCE DETAIL, NURSES' HOME—CARSON
C. PECK MEMORIAL HOSPITAL,
BROOKLYN, N. Y.
Ludlow & Peabody, Architects.

The SOCIAL CENTER PART I — COMMERCIAL AND COÖPERATIVE ENTERPRISES.

By
Fiske Kimball

THE elemental need of human intercourse, we have come to recognize, has been starved and neglected in modern industrial life no less than the need of food and shelter itself. The city wilderness of slums and poverty teems also with a hunger for companionship, too often compelled to go unsatisfied, or satisfied at the peril of society. Social workers bitterly realize that the drab existence of the garments workers is scarcely one to fill exiles from the Russian pale with enthusiasm for American institutions. In the city, "where play is crime," the corner gang finds its enemy in the police, and its animal spirits become a menace instead of an asset. The mushroom growth of industrial communities during the war has made these conditions even more painfully acute. Their relief involves the provision of adequate social facilities for all the less-favored groups, a task of tremendous scope, which commercial, philanthropic, and civic enterprise alike are still far from having accomplished. Each of these forces, however, has already made its significant contributions to the solution of the problem, and it is from the elements already developed and tested by practical experience that the ideal creations of the future will come.

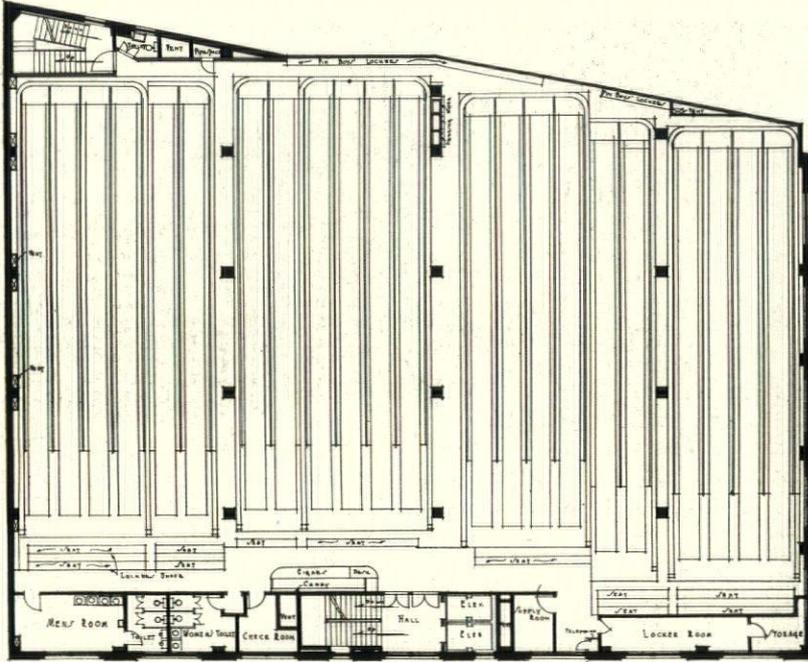
Commercial agencies—intent, of course, on their own profit—do much to combat the barrenness of industrial life, and frequently offer the sole available escape from its grinding. We must acknowledge that the saloon, the pool room and the public dance hall, directly or indirectly connected with the saloon, have been in fact the chief social centers for the great body of city dwellers to the present. Whatever their demerits, they have had,

beside the sale of drinks, many powerful forces of attraction, and many qualities which philanthropic or civic enterprises must emulate if they are to draw and hold the attendance of their constituency. Thus the saloon, for instance, is completely democratic, opening its doors to all and offering to each the personal welcome of the keeper; there is no limitation of time; there is something to act as a stimulus to self expression and put a man in a social temper. The saloon has acted, moreover, as a political headquarters, as an employment bureau, a loan agency, and an inexpensive lunch room. Whatever one's attitude toward the abolition of the saloon, one must recognize that in this event such positive advantages and facilities must not be sacrificed. With the national adoption of prohibition it becomes imperatively necessary to provide adequate and acceptable substitutes for the social provisions which will be abolished. Even were the licensing system to continue to be employed, it would be scarcely less essential to supply decent and orderly places which might make these social provisions free from association with corruption and vice, and accessible to those of both sexes and all ages.

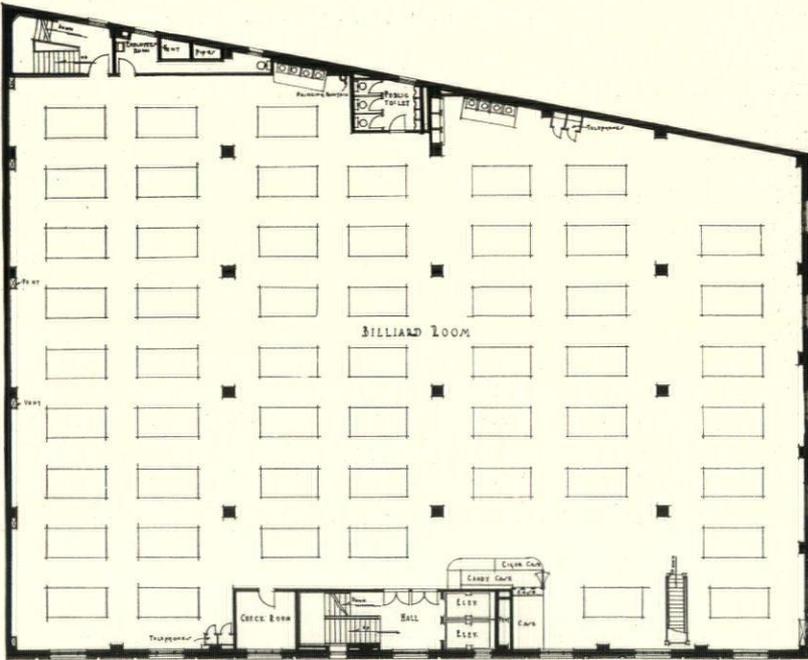
Certain commercial enterprises, fulfilling social needs in some degree, are of course free from the drawbacks suggested; and, in the measure that their success brings wide establishment, these tend toward the solution of the problem without the intervention of charitable or governmental agencies. Thus the amusement parks maintained by electric railways and excursion steamboat companies bring recreation to thousands of city dwellers in summer. Most profit-



RECREATION BUILDING, DETROIT, MICHIGAN.
SMITH, HINCHMAN & GRYLLS, ARCHITECTS.



Fourth Floor Plan.
RECREATION BUILDING, DETROIT, MICHIGAN.
Smith, Hinchman & Grylls, Architects.



Second Floor Plan.
RECREATION BUILDING, DETROIT, MICHIGAN.
Smith, Hinchman & Grylls, Architects.



SECOND FLOOR—RECREATION BUILDING, DETROIT, MICHIGAN.
Smith, Hinchman & Grylls, Architects.

able and most wide-spread of all is the moving-picture theatre, the "house of dreams," which broad-minded social workers like Miss Addams have recognized as a valuable force in keeping children off the streets and encouraging families to seek their amusement together.

Where prohibition has removed the competition of establishments with the economic advantage of a bar, it seems likely that other social and recreative enterprises of a desirable type will be able to operate profitably. A notable undertaking of this sort is the new Recreation Building in Detroit, opened coincidentally with the operation of a "dry" amendment in the state. This is a large downtown building of seven stories, specially designed, costing with its equipment a million and a quarter dollars. It is devoted fundamentally to billiards and bowling; but to insure its attractiveness is provided with lounging rooms, restaurant, lunch counters, soda

fountains, shower baths, and so on, as well as a billiard theatre for exhibition matches. Intensive use of the floor space was of course required, so that these features are largely relegated to mezzanine stories, leaving the main floors free for fifty-three tables or twenty-two alleys each. One floor is entirely devoted to the use of women. As the alleys and tables provide for a thousand persons simultaneously, without counting spectators, it is obvious that the building is an important social factor in the community, and to some degree justifies its advertisement as "a vast public club." The opportunity to enjoy it, however, is naturally limited to those who can pay well, and this excludes the great majority, at least, of unskilled workers.

It is questionable whether enterprises of the sort, less luxurious and with a lower scale of charges, could make a profit without the addition of undesirable features. It is indeed very doubtful

whether any far-reaching social provision can be expected from commercial sources. In recreation facilities, as in housing, it is unfortunately true in general that purely commercial interests and truly social interests are in fundamental conflict.

Larger contributions to the solution of the problem have been made by enterprises in which the idea of financial profit is absent, but in which the people who benefit cooperate to support the undertaking, at least, in part. In England there has been a remarkable development of working men's clubs, primarily social in aim although with some educational features, which are managed entirely by their own members and are with few exceptions self-supporting. The number of these in 1905 was nearly a thousand, and the membership almost a quarter of a million. They supply cards and billiards, and give occasional entertainments to which the women of the families are invited. Although in the beginning of the movement it was

exceptional for these clubs to maintain bars, these have gradually been introduced almost universally. It has proved difficult without them either to hold the membership or to render the organizations self-supporting. The margin of financial success—never very great—is made possible, however, only by the English excise laws, which do not require a license fee of clubs not selling drinks to non-members. Thus it is questionable whether similar organizations could succeed under American conditions even with a bar, without some external support or endowment.

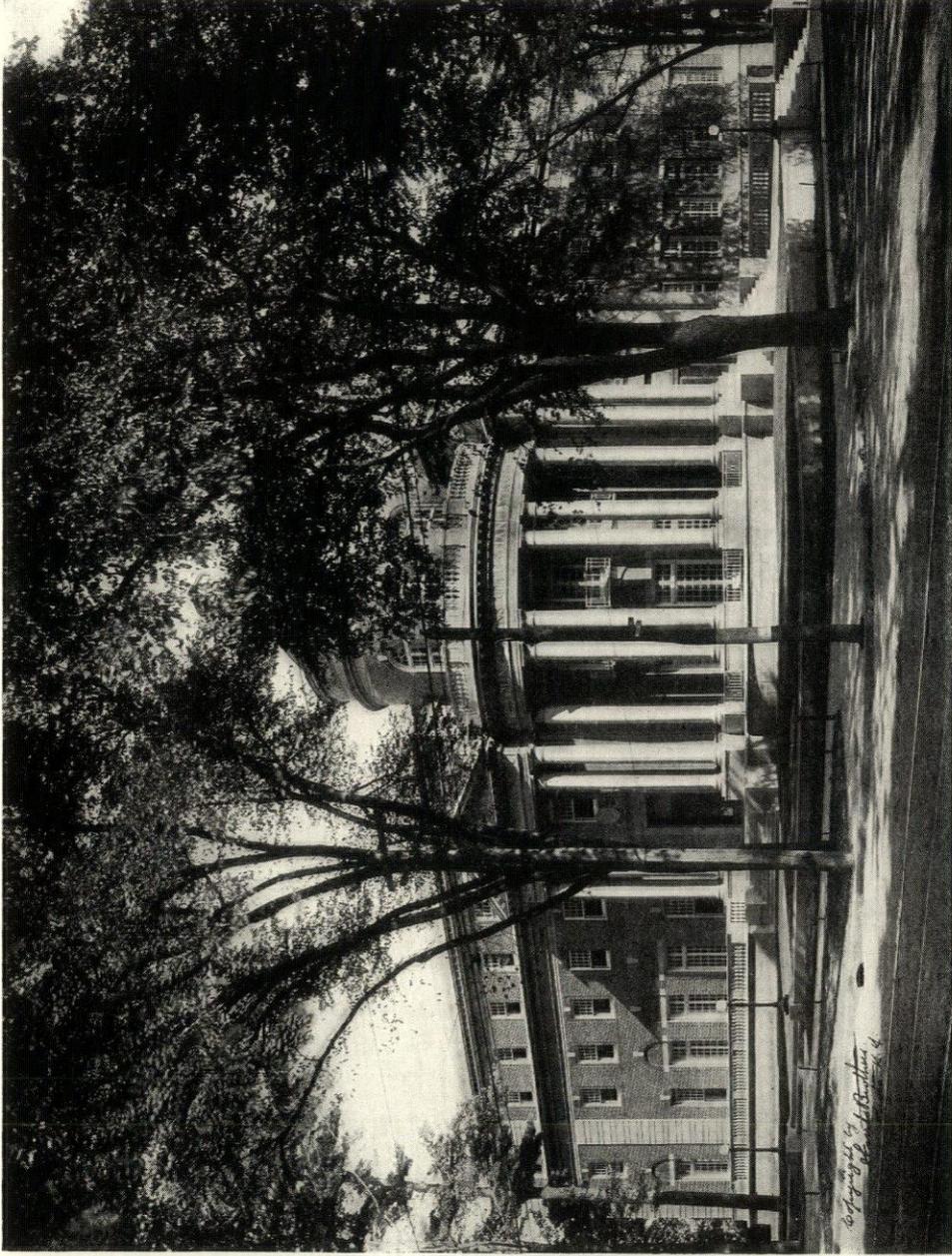
Fortunately in America such external support, especially in the provision of a building, has been very readily furnished, and organizations thus provided, maintained by moderate membership fees, have had especial success here. Chief among these are of course the Young Men's Christian Associations, with the corresponding Catholic and Hebrew associations and the similar organizations for women. Their field is espe-



FOURTH FLOOR—RECREATION BUILDING, DETROIT, MICHIGAN.
Smith, Hinchman & Grylls, Architects.

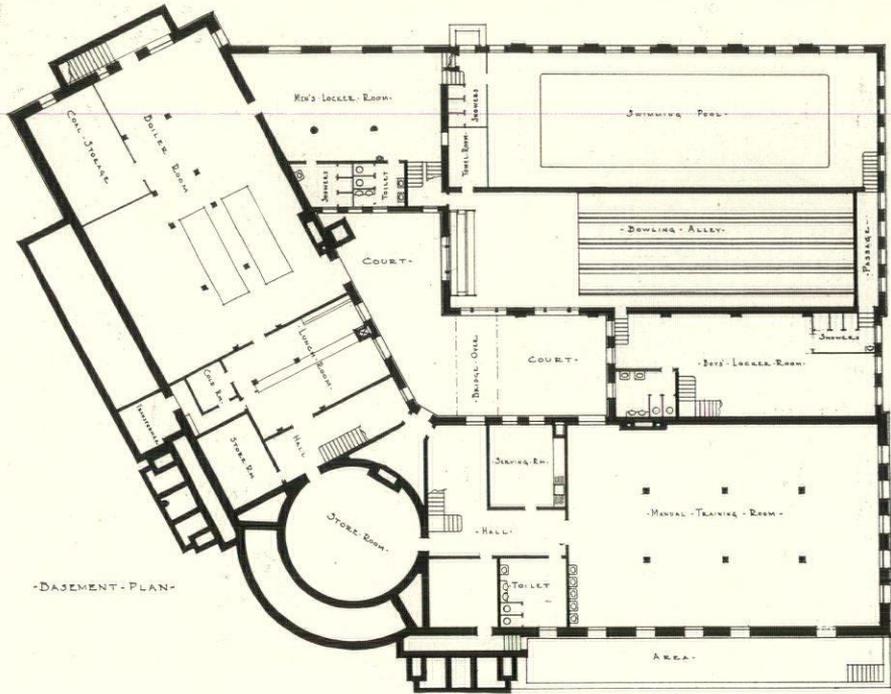
STANDARD PRACTICE FOR Y. M. C. A. BUILDINGS OF DIFFERENT CLASSES.

Main gymnasium (feet)	Auxiliary gymnasium (feet)	Pool (feet)	Lockers	Showers	Hand-ball courts	Billiard tables	Bowling alleys	Auditorium seats	Bedrooms
Brooklyn Central...78x86	2 of 50x56	25x75 18x60	310 men's (1785 boxes) 392 B.M.'s 204 boys' (1162 boxes)	30 men's 24 boys'	5	12 men's 8 boys' 7 men's	8	650	550
Cincinnati Central...53x85	33x53	25x75	.....	.....	3	4 boys'	6	.....	200
Rochester Central...50x90	20x50	25x75	.....	.....	4	6 men's	4	400	310
Worcester .....50x95	45x60	25x96	.....	.....	1	7 men's	5	300	230
Springfield, Mass...60x80	40x60	25x75	200 men's (1210 boxes) 210 B.M.'s 100 boys' (500 boxes)	16 men's 12 B.M.'s 11 boys'		4 men's	5	300	104
Greenwich, Conn...55x75	.....	18x60	.....	6 men's 3 boys'	3	3 men's 2 boys'	4	300	38

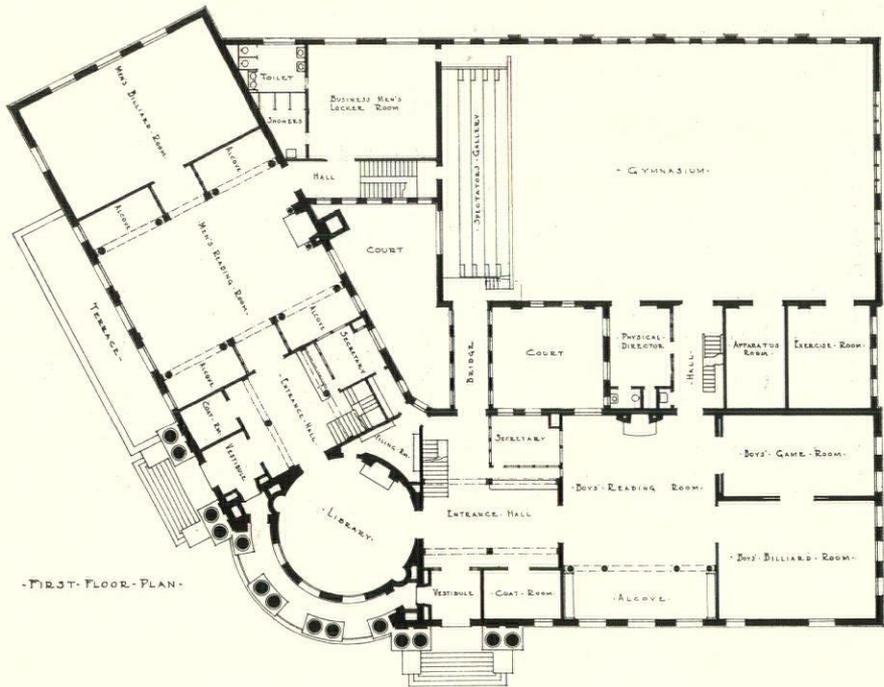


Photograph copyrighted by Wurts Bros.

GREENWICH Y. M. C. A., GREENWICH,
CONN. M. L. & H. G. EMORY, ARCHITECTS.

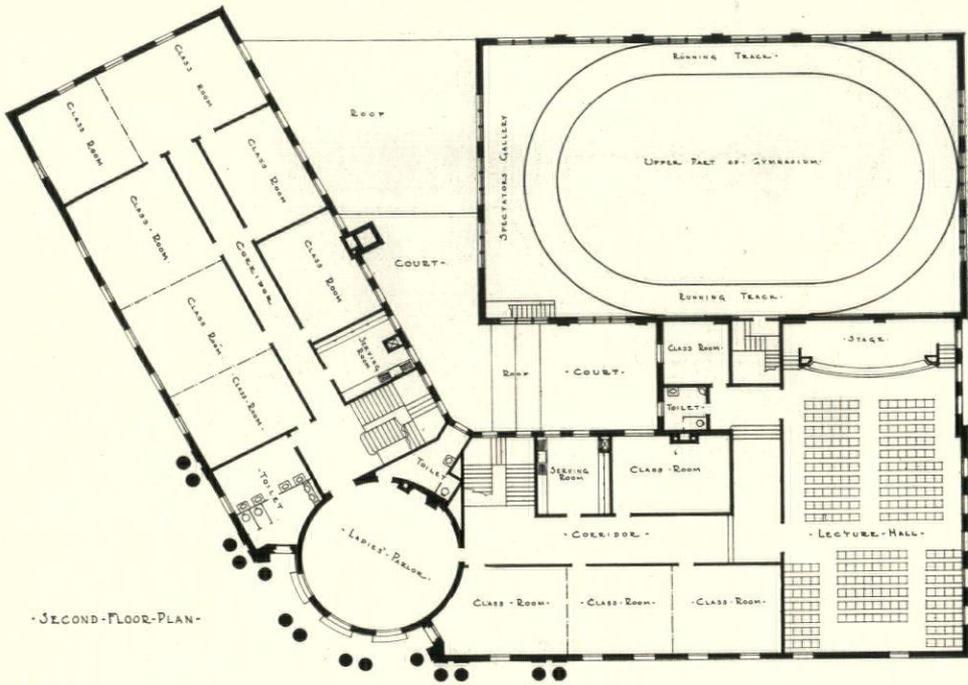


-BASEMENT-PLAN-

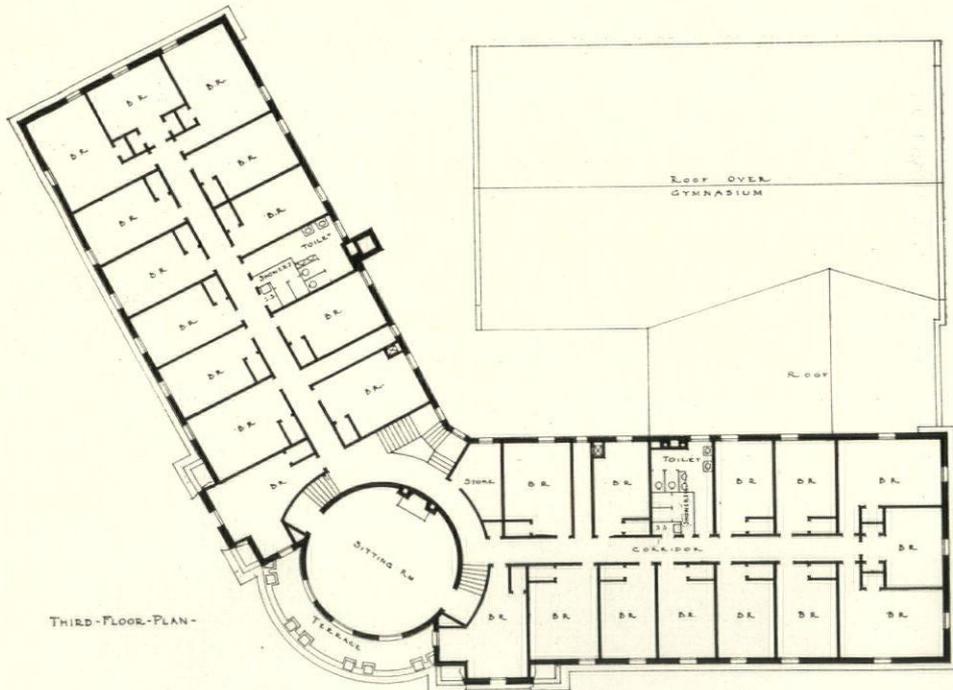


-FIRST-FLOOR-PLAN-

BASEMENT AND FIRST FLOOR PLANS—
GREENWICH Y. M. C. A., GREENWICH,
CONN. M. L. & H. G. EMORY, ARCHITECTS.



SECOND-FLOOR-PLAN-

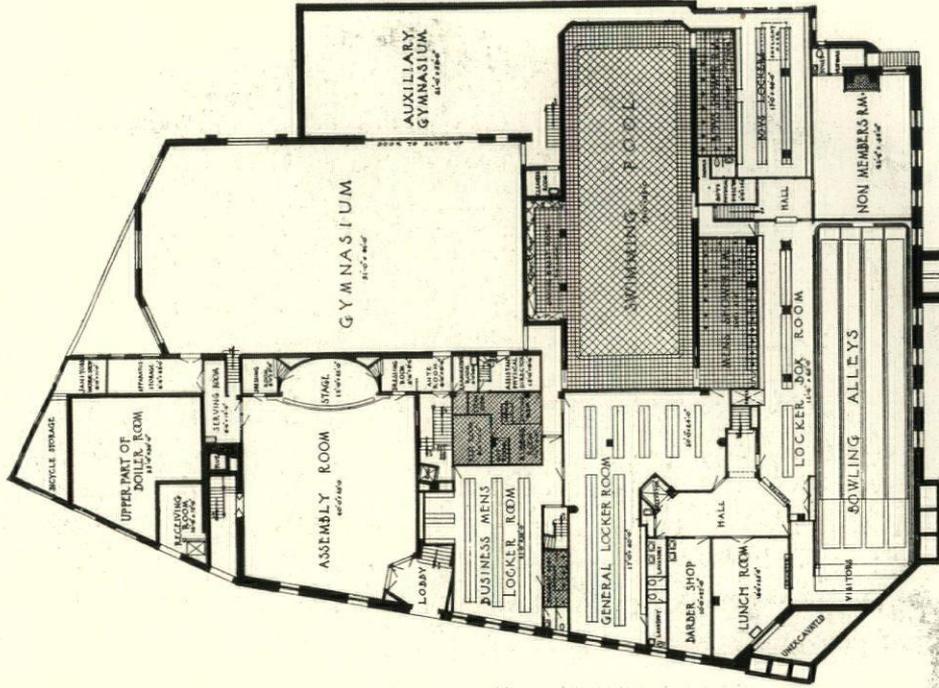


THIRD-FLOOR-PLAN-

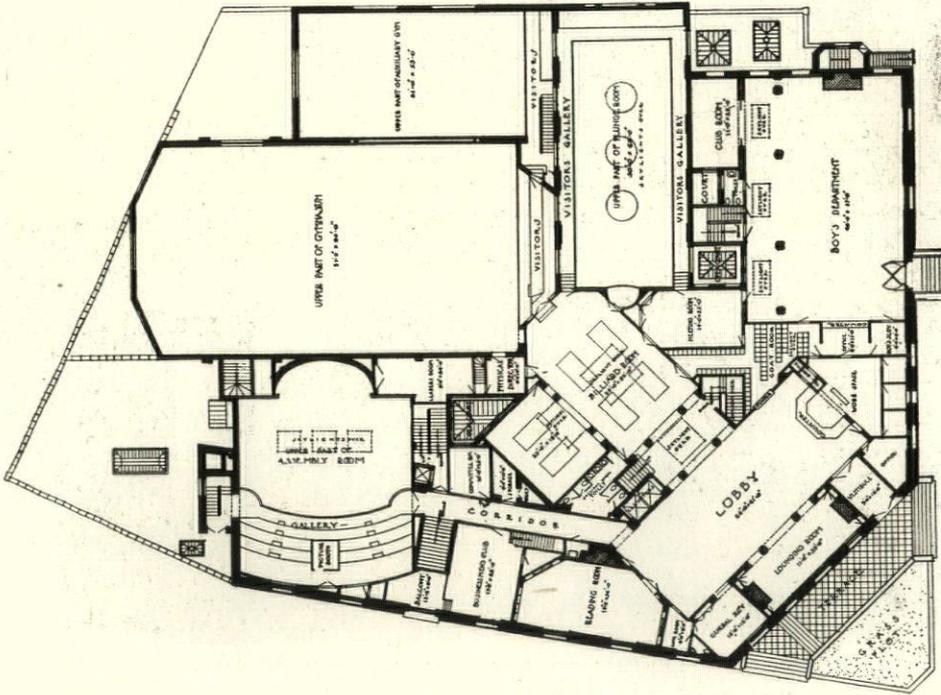
SECOND AND THIRD FLOOR PLANS—
GREENWICH Y. M. C. A., GREENWICH,
CONN. M. L. & H. G. EMORY, ARCHITECTS.



CENTRAL Y. M. C. A., ROCHESTER,
N. Y. JOHN F. JACKSON, ARCHITECT.



GROUND FLOOR PLAN—CENTRAL Y. M. C. A., ROCHESTER, N. Y.
John F. Jackson, Architect.



FIRST FLOOR PLAN—CENTRAL Y. M. C. A., ROCHESTER, N. Y.
John F. Jackson, Architect.



CENTRAL BRANCH, Y. M. C. A., CINCINNATI, OHIO.
Elzner & Anderson, Architects.



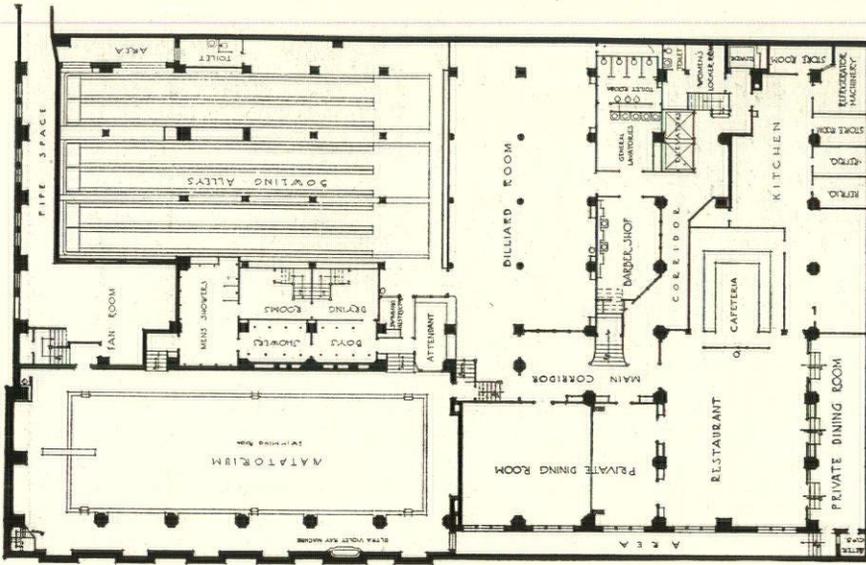
MAIN LOBBY—CENTRAL BRANCH, Y. M. C. A., CINCINNATI, OHIO.
Elzner & Anderson, Architects.



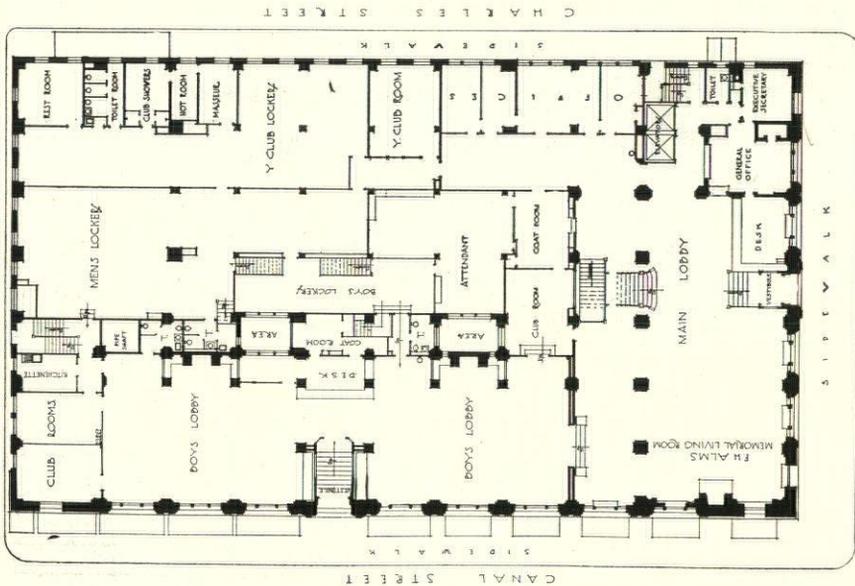
BOYS' LOBBY—CENTRAL BRANCH, Y. M. C. A., CINCINNATI, OHIO.
Elzner & Anderson, Architects.



MAIN GYMNASIUM—CENTRAL BRANCH, Y. M. C. A., CINCINNATI, OHIO.
Elzner & Anderson, Architects.

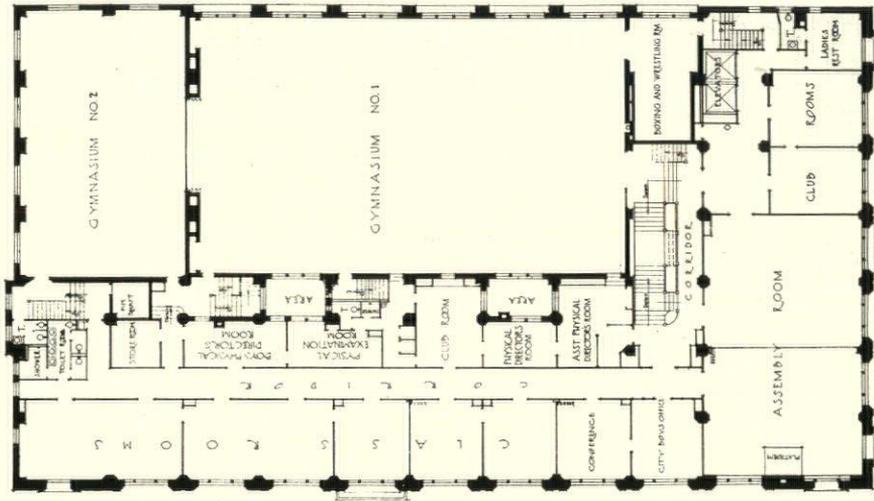


BASEMENT FLOOR PLAN
SCALE 1/8" = 1'-0"

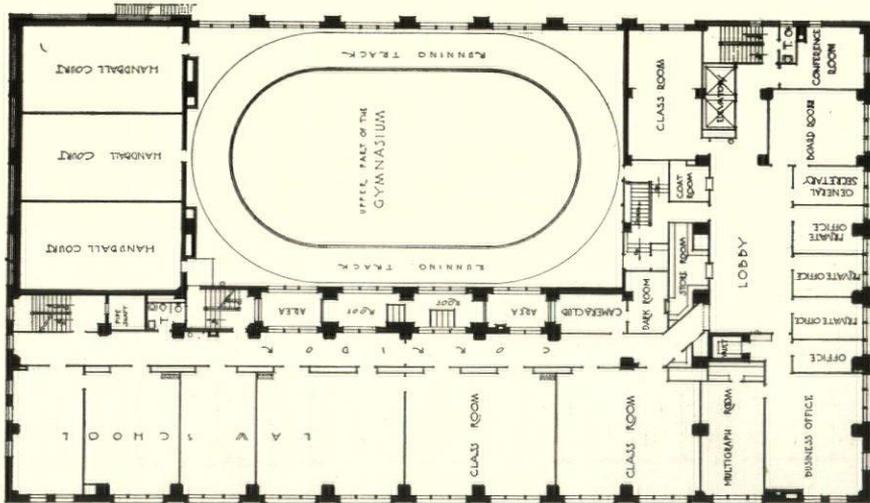


ELM STREET
FIRST FLOOR PLAN
SCALE 1/8" = 1'-0"

PLANS OF THE CENTRAL BRANCH, Y. M. C. A., CINCINNATI, OHIO. ELZNER & ANDERSON, ARCHITECTS.

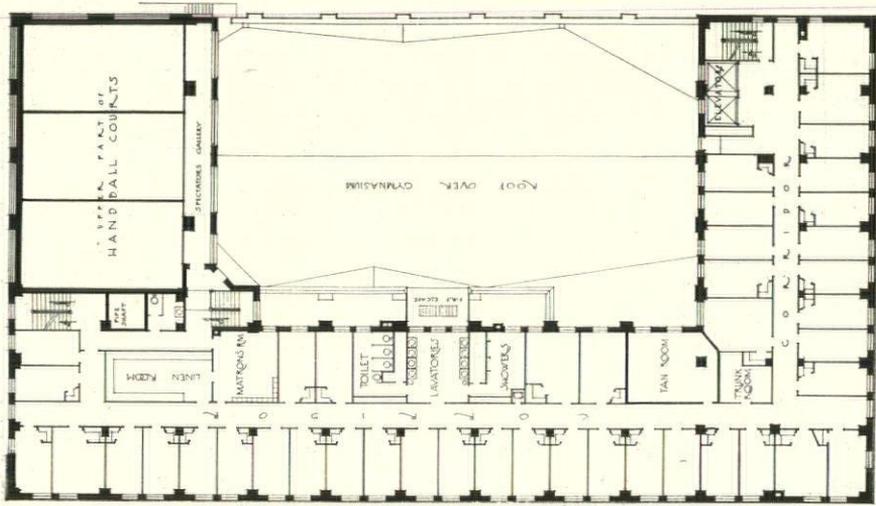


SECOND FLOOR PLAN
SCALE 1/4" = 1'-0"

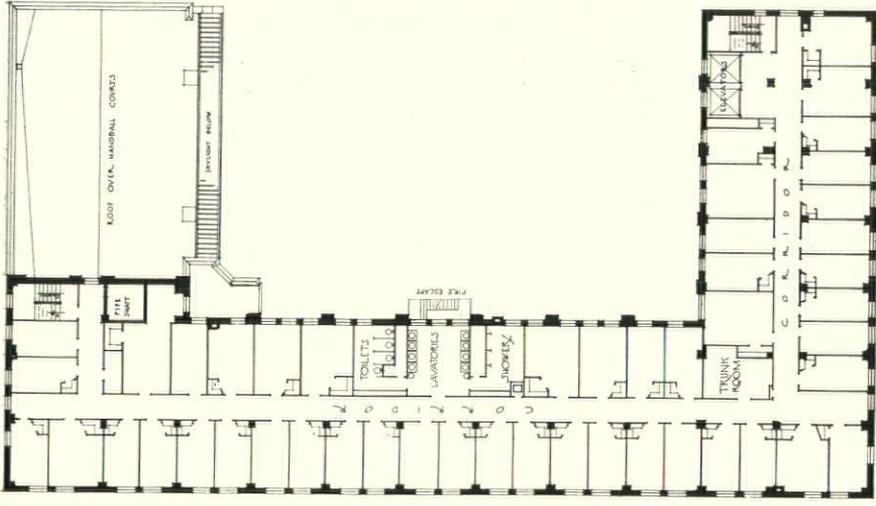


THIRD FLOOR PLAN
SCALE 1/4" = 1'-0"

PLANS OF THE CENTRAL BRANCH, Y. M. C. A., CINCINNATI, OHIO. ELZNER & ANDERSON, ARCHITECTS.

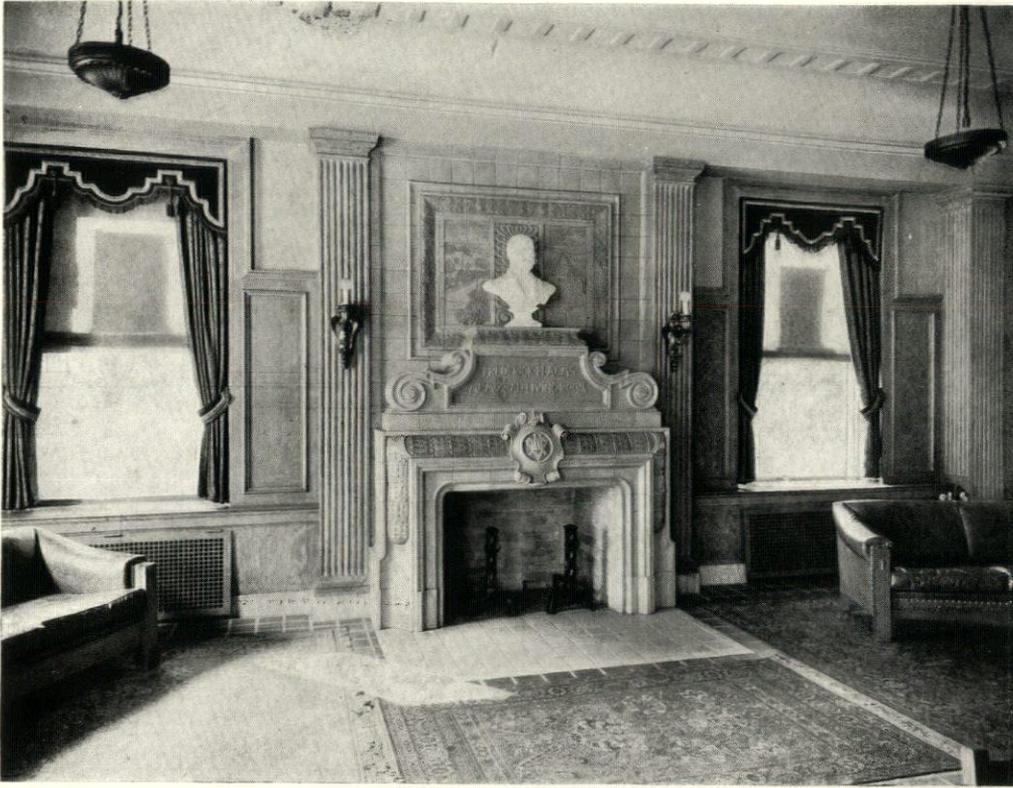


DORMITORY ROOMS
FOURTH FLOOR PLAN
SCALE 1/8" = 1'-0"



DORMITORY ROOMS
FIFTH FLOOR PLAN
SCALE 1/8" = 1'-0"

PLANS OF THE CENTRAL BRANCH, Y. M. C. A., CINCINNATI, OHIO. ELZNER & ANDERSON, ARCHITECTS.



PART OF MAIN LOBBY, FREDERICK H. ALMS MEMORIAL LIVING ROOM—CENTRAL BRANCH, Y. M. C. A., CINCINNATI, OHIO. Elzner & Anderson, Architects.

cially the unattached youth of the cities, those of the commercial classes predominating. In general the Y. M. C. A. may be taken as the type of all. Its membership and resources are by far the greatest, and its buildings furnish the ideals for the others both in their size and provisions.

The city Y. M. C. A. building, with its well-known combination of social, educational, gymnasium, and dormitory facilities, offers a highly developed type, which has been standardized as the result of immense experience. Even the size and expense of the building best suited for communities of differing population are well understood, although with multiplying activities the standards are constantly rising.

On the eve of our entry into the war some of the newest buildings in different classes ranged as follows:

	Population (1910)	Cost
Staunton, Virginia.....	10,600	\$115,000
New London	20,000	140,000
Butte	36,000	200,000
Springfield, Mass.....	89,000	325,000
Worcester	146,000	377,000
Atlanta	155,000	425,000
Rochester "Central".....	218,000	610,000
Cincinnati "Central".....	364,000	565,000
Bklyn. "Central Branch".....	1,634,000	1,600,000

Each class has its own characteristic problems, and its own most successful recent solutions.

In the small city or town the controlling factor is the securing of simplicity and the convenience of supervision, so as to keep running expenses at a reasonable figure. Thus the administration department occupies a central position, with oversight of all activities by a small staff. To the left and right are the social departments for men and for boys, with their reading rooms, billiard



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CENTRAL BRANCH, Y. M. C. A., BROOKLYN,
N. Y. TROWBRIDGE & ACKERMAN, ARCHITECTS.



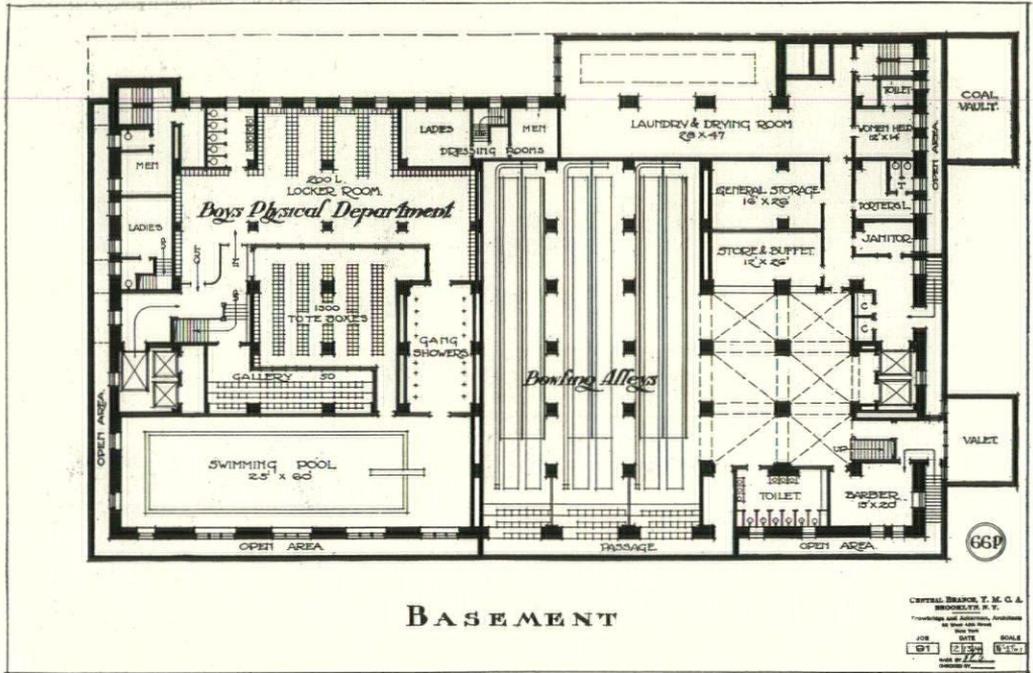
AUDITORIUM—CENTRAL BRANCH, Y. M. C. A., BROOKLYN, N. Y.
Trowbridge & Ackerman, Architects.

Photograph copyrighted by Wurts Bros.

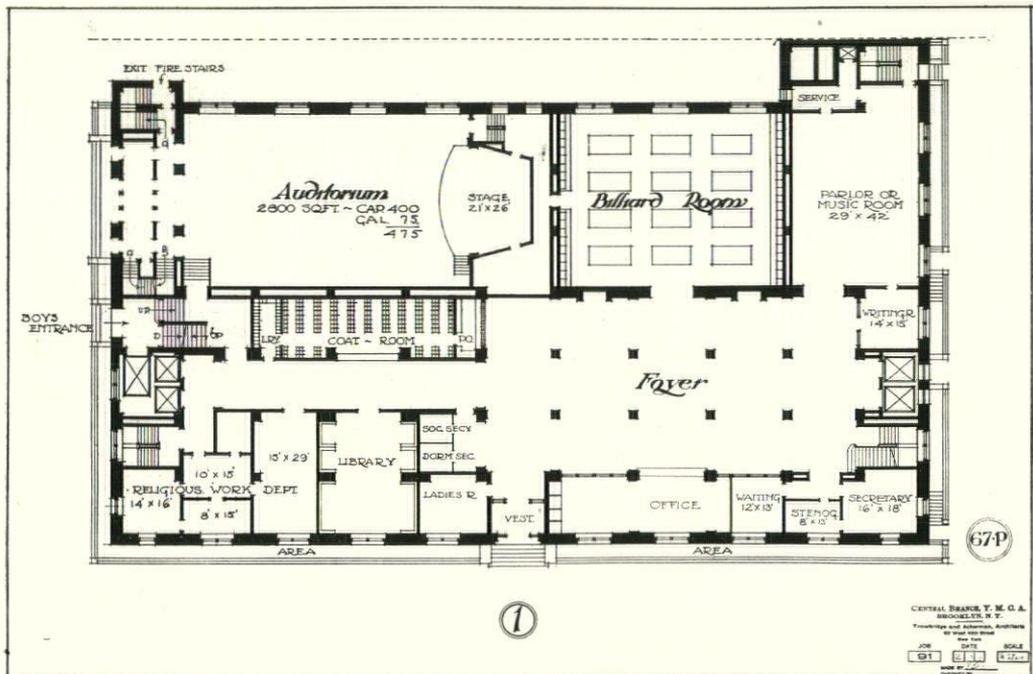


MAIN LOBBY—CENTRAL BRANCH, Y. M. C. A., BROOKLYN, N. Y.
Trowbridge & Ackerman, Architects.

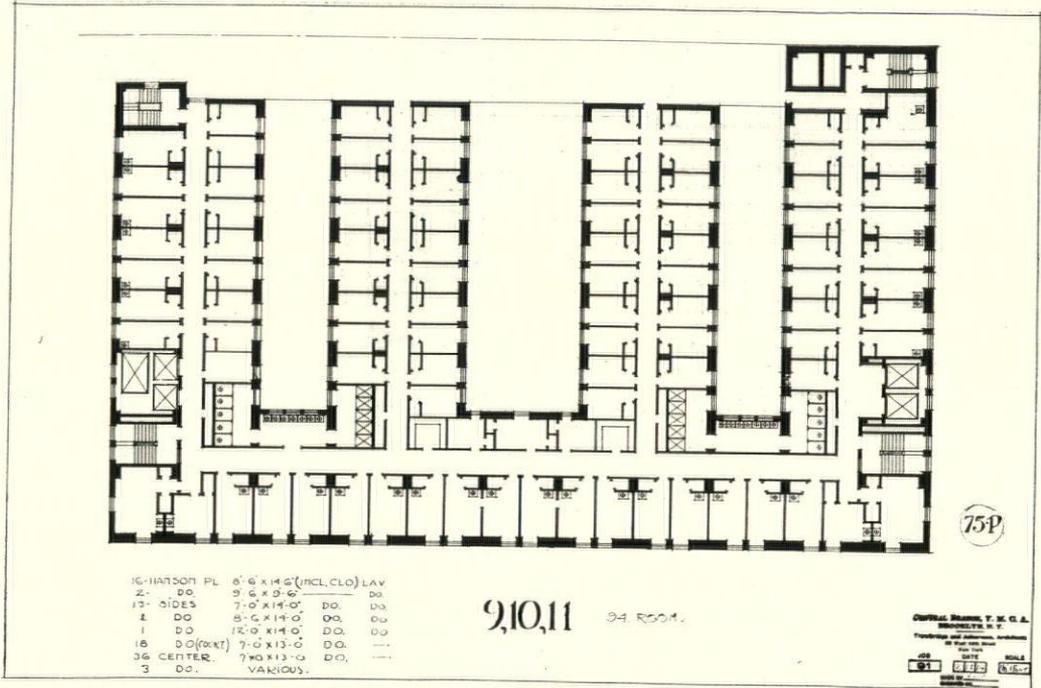
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BASEMENT PLAN—CENTRAL BRANCH, Y. M. C. A., BROOKLYN, N. Y.
 Trowbridge & Ackerman, Architects.



FIRST FLOOR PLAN—CENTRAL BRANCH, Y. M. C. A., BROOKLYN, N. Y.
 Trowbridge & Ackerman, Architects.



PLAN OF THE NINTH, TENTH AND ELEVENTH FLOORS—CENTRAL BRANCH, Y. M. C. A.,
BROOKLYN, N. Y.

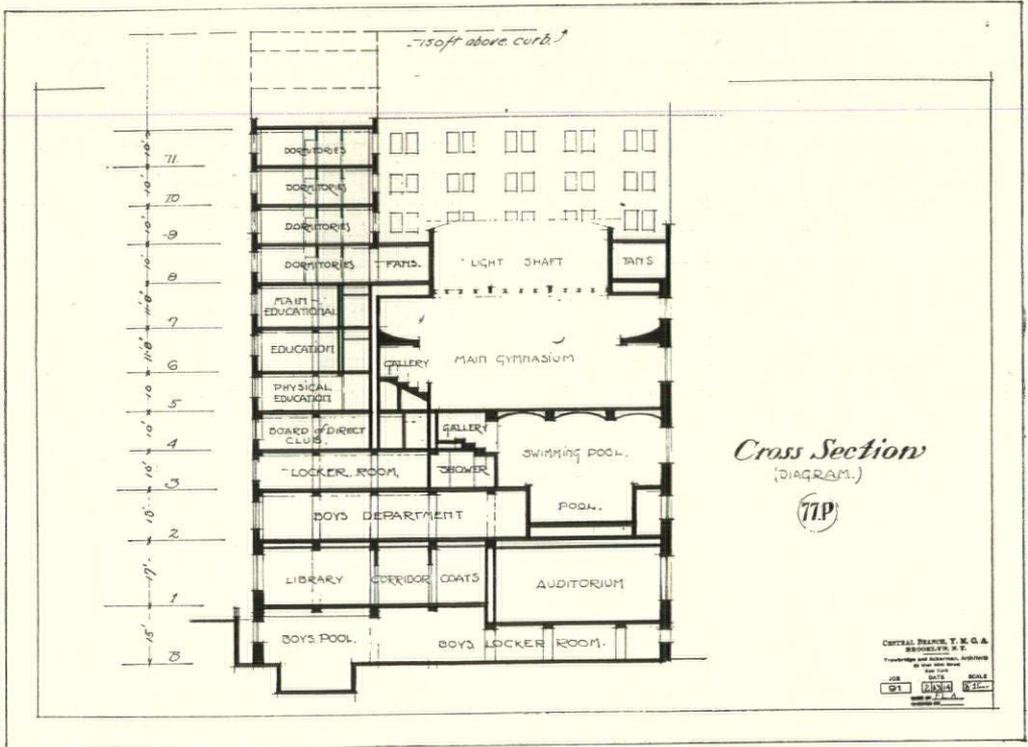
Trowbridge & Ackerman, Architects.

rooms, and club rooms kept separate; while the gymnastic department, including the gymnasium, swimming pool, and bowling alleys, is for the general use of all classes of members, at hours designated for the different classes.

Two of the finest of the recent buildings of this smaller type are those at Staunton, Virginia, where the family of Cyrus H. McCormick assisted in raising a worthy edifice at their ancestor's birth-place, and at Greenwich, Connecticut, where the entire structure was a gift in memory of Nathaniel Witherell. The building at Staunton is exceptional in having a public library combined with its facilities. The Greenwich building represents the ideal toward which the smaller communities that are less favored by individual donations are striving. Although its plan had to be adapted to a site of irregular shape, there is nothing in its analysis which is not generally adaptable. Standing at the obtuse angle of two streets, it has wings along them of equal size for the men's and boys' departments, connected by a

central circular pavilion containing the library. Separate entrances for the two classes are provided to left and right of this pavilion, and given an architectural unity by a connecting peristyle. Within, the offices of the secretaries face the entrances to each department and command the social rooms, yet adjoin one another for administrative convenience. The gymnasium and pool are behind, with access from the wings through the locker rooms of the respective classes. The basement provides bowling alleys, a lunch room and a manual training room; the second floor, eleven class rooms, capable of being grouped for large assemblies by folding partitions, and a lecture hall seating three hundred. The third floor has thirty-eight large bedrooms, with a common sitting room.

The larger cities require that the building shall stand on a circumscribed lot of expensive land, with the most economical utilization of space and a height of seven to twelve stories or even more. It must, moreover, have no confusion of functions, but a rigid separation of the



CROSS SECTION PLAN OF BASEMENT—CENTRAL BRANCH, Y. M. C. A., BROOKLYN, N. Y.
Trowbridge & Ackerman, Architects.

gymnastic as well as the educational and social provisions for different ages and grades of membership, even at the cost of multiplying the necessary attendants, and increasing the operating expenses. The separation of the men's and boys' departments extends to the gymnasiums—capable, however, of being thrown together for joint use when necessary. Special shower and locker rooms, with a club room in connection, are provided for business men of maturer years. The great expense of a pool, of course, in general forbids the provision of more than one for all classes together. For the younger men and boys the favored locker system is the space-saving one of "tote-boxes," with lockers only for use during actual use of the gymnasium; but to satisfy the business men full length lockers for permanent individual use are retained. Handball courts, Turkish baths, and barber shops are commonly provided, as well as both a restaurant and a lunchroom, and an in-

creasing number of class rooms; while desirable features added, with increasing frequency, are non-members' rooms both for men and for street-boys, laboratories, and dark-room facilities for a camera club. The proportion of dormitory area to the other features is large, the number of bed rooms ranging from a hundred to as high as five hundred, occupying nearly one half the entire floor space. Private baths and individual telephones are considered unnecessary; but bath rooms and telephone service are provided on each floor, with a buzzer call in every room.

Sharing these common requirements of the urban type, there are a number of solutions which answer to increasing size and compression.

In cities like Rochester, Springfield, and Worcester, where land values still permit, it is possible to keep the physical department wholly in skylighted lower buildings to the rear of the lot, with the gymnasiums usually on the main floor

and the pool in the basement. The large area of the main floor also permits placing there the main social rooms for both the men's and the boys' departments—preferably grouped to left and right in distinct wings—with separate entrances and with the administrative offices between. An assembly hall seating about three hundred, with its own public entrance, is also provided on the main floor if possible. The second story can thus be devoted exclusively to the educational and club rooms and the large dining room. From four to six floors of bedrooms, covering the main blocks only, provide from a hundred to three hundred rooms.

In somewhat larger cities, with a more restricted site, it becomes necessary to relieve the demands on the main story. At Cincinnati, the most recent example of the type, this has been accomplished by raising the gymnasiums to the second floor. To be sure, since the pool is still in the basement, this requires that the locker rooms shall be placed between, on the first floor; but by placing the men's billiard room down in the space freed in the basement a net reduction in ground area is secured. The differences in the height of the first story, occasioned by the fact that the social rooms of the front are necessarily higher than the locker rooms behind, are kept at a minimum and ingeniously masked by the arrangement of the lobby and the main stairs. Any large auditorium which might be made accessible to the public is precluded by the compression of essential features in all the main stories. Thus the religious and educational departments occupy all the space in the second and third stories along the two exterior sides of the lot, surrounding the gymnasiums. Although the bedrooms are carried up only along these exterior sides, the gymnasiums and handball courts are provided with side light, and have their roofs so strongly framed that it would be possible to secure extensions over almost the entire area of the lower stories.

By far the largest of the great central plants so far built, and one in which

the unique problems involved have received a masterly solution, is the Brooklyn "Central Branch," costing \$1,600,000. It covers a lot of 13,500 square feet, with a height of thirteen stories over the whole area except for necessary light courts, and provides for seven thousand members with full gymnastic privileges, and other classes in proportion. No attempt could be made in such a case to provide more than the men's social rooms (with the auditorium) on the first floor; and the problem of distribution was rather how best to assign the various floors to different departments, in convenient connection by stairs so far as possible, but in some cases necessarily reached by numerous elevators. Gymnasiums and even pools had to be placed wherever the coordination of the plans required—mostly, as it proved, high above ground. The distribution appears most clearly in the admirable set of preliminary drawings here produced, which the executed building follows with only minor variations due to crowding in still further facilities.

With the men's social rooms occupying the first story, the boys were assigned the second. The third went to the men's locker rooms and their pool (rising through the fourth story, devoted to minor rooms), with the three gymnasiums, immediately above, occupying the fifth and sixth stories from end to end. The boys' locker rooms in the basement are directly connected with the special pool which has been here provided for them, and are united with the gymnasium and handball courts by an elevator. The educational department, which in the preliminary plans occupied the front of the building in the three stories through which the main gymnasium extends, was eventually given an entire floor just above that, and the space vacated was employed for club rooms and additional bed rooms. The twenty-six class rooms with three laboratories, the library, the nine special club rooms, beside the main lounging and game rooms with twenty billiard tables and eight bowling alleys, show the great facilities of this vast social center for the city's manhood.

Special types of Y. M. C. A. buildings having their own problems are those for the Railroad Branch, the permanent Army and Navy stations, and the university communities. All these naturally lack the complexity introduced by the separate boys' department; but the development they may attain is indicated by the new Railroad Branch near the Grand Central Station in New York, costing a half million dollars.

There are, to be sure, large classes of the population which the Y. M. C. A. and the related societies have scarcely touched in the past—the industrial workers, the unskilled laborers, the sub-

merged foreign element in the great cities, many unable to afford even the modest membership fee of such an organization. In recent years, however, has come a great extension to factory towns, mining and logging camps, to the colored and foreign colonies, which marks a change of attitude in the work of the associations. With the universal provision of their facilities to the army and navy,—on the border, in the cantonments and abroad—free of charge and irrespective of membership, we may look for enormous future expansion in the associations' contribution to the great task of proving social centers.

UNITED STATES AERONAUTICAL SCHOOLS KELLY FIELD N°2, SOUTH SAN ANTONIO, TEXAS

By

Daniel B. Niederlander

IMMEDIATELY after the declaration of war against the German Empire in April, 1917, the much neglected aviation service of our army assumed a tremendously important position in the plans of the General Staff. Congress and the country at large also entertained extravagant expectations from our then very inadequate air service. Few people realized the magnitude of the problems to be solved, and fewer still thoroughly understood how pitifully inadequate our facilities for making airplanes and training aviators really were.

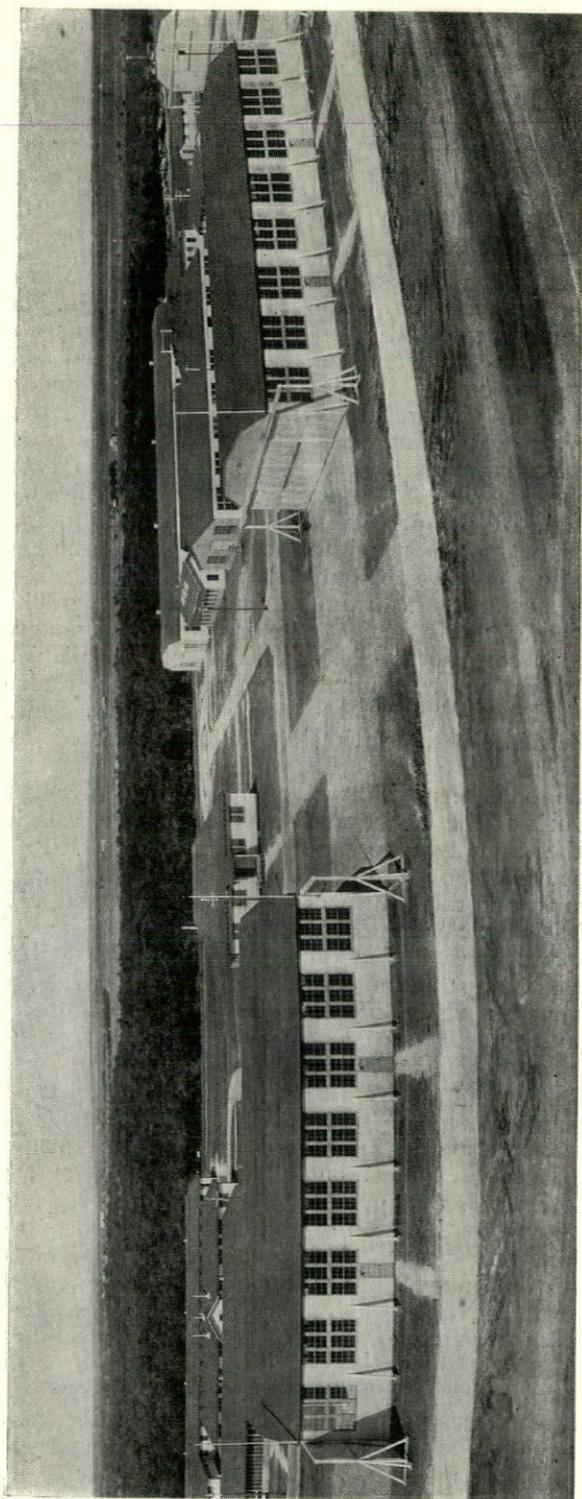
The general public is now more or less familiar with the work of the Signal Corps of the army and later the Department of Military Aeronautics in getting airplanes and pilots to our armies in France. Very little has been said or written about the work of the Construction Division of the Signal Corps in constructing and operating over thirty Flying Schools throughout the country. It is the purpose of this article to briefly describe the design and construction of one of the largest and most important of these schools, that at Kelly Field, about six miles southwest of San Antonio, Texas. This school is similar to others constructed in various parts of the United States, and along the same lines as those constructed abroad.

In April 1917, we had only four flying fields, and these were small and poorly equipped. The Construction Division of the Signal Corps came into being in May and was charged with the duty of selecting sites and constructing flying fields for the army of air pilots that our air programme required. The design of the necessary buildings to comprise a complete training school unit was entrusted to Albert Kahn, architect, of Detroit, Michigan. Work was commenced at

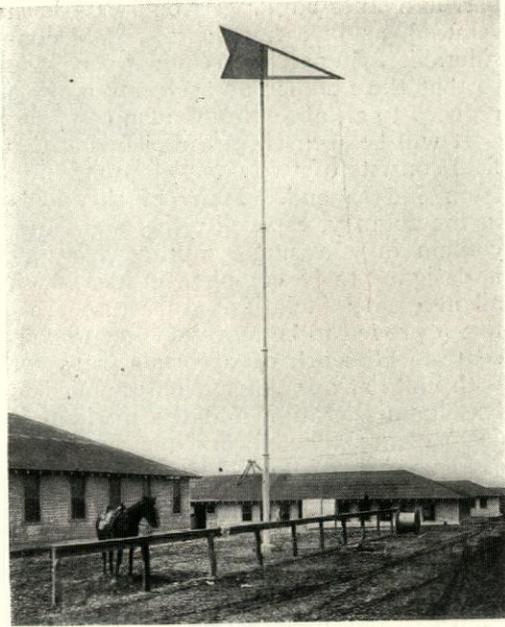
once on fields at Mineola, L. I., Dayton, Ohio, Rantoul, Ill., and at Mt. Clemens, Mich. Work was also pushed on the large experimental field at Langley, Va., which was then under way. The fields listed above were the first ones to be built and the only ones to be built in the north, as it was soon realized that it would be impossible to utilize these fields for training purposes during the winter months. All subsequent fields were therefore located in the south, where climatic and geographic conditions were more favorable, and more suitable and cheaper sites available. The market for lumber and labor also greatly favored the southern locations, but the question of climate was of course the deciding factor.

The original Kelly Field, now known as Field No. 1, was leased by the War Department in 1916 and purchased a year later. It is a 600 acre site and located about six miles south-west of San Antonio, Texas, between the Frio City road and the Southern Pacific and I. & G. N. Railroads, which parallel each other at this point. In April 1917, this field boasted a few miscellaneous buildings noteworthy for their variety, and several long, steel-frame, galvanized iron hangars without floors and with rolling canvas curtains along their long sides. These buildings bear no resemblance to the modern steel hangar which is now standard construction for the army. In June, single-story wooden barracks were constructed for four thousand men, and this field then became the principal concentration and mobilization camp for the non-flying forces of the air service. In December 1917, forty thousand men were encamped here under canvas.

During May and June 1917, the representatives of the Signal Corps, with the



BARRACKS AND HANGARS, KELLY
FIELD, SAN ANTONIO, TEXAS.



BARRACKS AND WIND-VANE, KELLY FIELD,
SAN ANTONIO, TEXAS.

assistance of the San Antonio Chamber of Commerce, arranged for the lease of a fifteen hundred acre site adjacent to Kelly Field No. 1. This land was all quite level with a gentle slope toward the south, where the property is bounded by Leon Creek. On July 17th a contract was let to Stone & Webster of Boston, for the construction of a "Double Unit" flying school to be known as Kelly Field No. 2. This school was destined to become the most important of all the schools in the United States and more pilots received their training at Kelly Field than at any other school in the country.

Stone & Webster also had the contract for constructing Camp Travis, a National Army Cantonment near Fort Sam Houston, on the outskirts of San Antonio. This arrangement eliminated any unfair competition for local material and labor.

There are over one hundred buildings in Kelly Field No. 2, including 24 Hangars, 66-ft.x122-ft.: 12 Barracks, 20-ft.x334-ft., with separate latrine buildings, each 36-ft. square; 12 Mess Halls, 20-ft.x120-ft.; 2 Aero Repair Shops, 66-ft.x202-ft.; 2 Machine Shops, 66-ft.x125-ft.;

2 Garages, 66-ft.x202-ft.; 4 Storehouses, 66-ft.x125-ft.; 2 School Buildings, 96-ft.x200-ft.; 20 six-apartment Officers Quarters, 24-ft.x134-ft.; 2 Dope Houses, 35-ft.x66-ft.; 2 Administration Buildings, 40-ft.x80-ft.; 2 Post Exchange Buildings, 40-ft.x62-ft., and also such buildings as Hospital, Blacksmith Shops, Pump House, Photographic Hut, Officers Individual Houses, Officers Club, Guard Houses, Latrines and Motor-testing Sheds. The cost of this work was approximately two million dollars, which also included a complete sanitary sewer system with modern disposal plant, water works with cast iron distribution mains, over 8 miles of surfaced roads and the preparation of an 800-acre flying field.

The work was commenced on July 25th and on September 10th the first group of barracks and hangars were ready for occupancy, complete with water and sewer connections. The whole job, complete in all details, was formally turned over to the Commanding Officer by the Superintendent of Construction on October 1st. A maximum of 6,000 were employed on the work. No work over 10 hours per day was allowed, but the work was carried on seven days a week.

This field (as were all other flying fields, except those few that were built after March, 1918) was constructed under the jurisdiction of the Construction Division of the Signal Corps, whose enormous activities are little realized at this time. This Division comprised a Construction, Accounting, Traffic, Engineering and Executive Section. The original building plans, which were used on all fields with few modifications, were prepared by Albert Kahn, of Detroit. All engineering work was handled in the field, although later the proper section at Washington assumed the engineering duties to a large extent.

The work at each field was under the immediate charge of a Superintendent of Construction, who functioned like a Constructing Quartermaster. Some of these superintendents were commissioned officers and others were civilians. The superintendent with his

staff of assistants had complete charge of operations, including engineering and the purchasing of materials. To him also reported the Field Auditor, representing the Accounting Section, and the Traffic Manager, representing the Traffic Section.

The contract with Stone & Webster was let on the usual "cost-plus" basis. The contractors, as has been seen, were relieved of a large share of the responsibilities incident to an ordinary construction contract. This arrangement permitted them to devote all their time to the employment and management of labor and the general work of construction in the field.

The layout of the buildings is governed entirely by the long row of hangars, which present a very striking appearance, as, in common with all the rest of the buildings, they are very carefully designed, architecturally as well as structurally. All buildings are covered with novelty siding and painted white, have red slate-coated roofing and either gambrel or hipped roofs. This group of buildings, almost two miles long, standing alone on the Texas plain, with perhaps 150 airplanes lined up before them for inspection, present a no less marvelous sight than some of our more spectacular war activities.

The buildings were located on the long side of the field and so located that an airplane rising at right-angles to the hangars would "take-off" against the prevailing winds. This very important consideration governed locations in all cases. While the hangars are spaced quite far apart, it was soon found that they were not laid out correctly in proportion to the field, as more airplanes could be housed and taken care of in other respects, than could be handled successfully on the field. To secure maximum efficiency from the facilities available, it was necessary to secure greater flying area, and an additional thousand acres was acquired adjacent to the original site and opposite to the rear of the hangars. This arrangement was inconvenient, and it is possible that had conditions been foreseen the number of han-

gars and other buildings would have been reduced, as in a beginners' school considerable flying area is required per plane so that the number of accidents may be reduced to an absolute minimum.

It will be seen from the plan that this field consists of two complete units built from end to end. Many of the fields in the country, especially the later ones, contain only a single unit. Each unit is designed to be complete in itself with all necessary facilities. In actual practice it proved to be more efficient to concentrate all work of a certain class for both units at one point. This applied to both administration and the mechanical departments. The officers' quarters at the extreme ends of the field were originally intended for non-commissioned officers; but when the field was put into use, it was found that the number of commissioned officers was actually greater than had been anticipated, so that the "non-coms" were housed in the barracks. Each unit was designed to accommodate six squadrons of 150 men each, two of these to consist of cadet flyers, and four of mechanics. This arrangement was not in all cases adhered to, as organization changes and work specialization made other arrangements necessary.

Built-up structural members are used exclusively in framing the hangars and other similar buildings. The material for this type of construction is readily available and can be assembled and erected by the ordinary house carpenter. This is an important consideration when the magnitude of the project is considered. To provide the maximum clear space in the hangars, roof trusses of 66-ft. span with no knee braces to the columns were used. The necessary lateral stability is given therefore by outside braces against the posts.

Each post which is 18-ft. high below the lower chord of the truss is made up of four 2x12-in. planks, the two outer planks being separated 2-in. from the inner ones by spacing blocks. The braces consist of two 2x8-in. planks having their ends fitted between the planks of the post and having a 1-in. cover board on the outside. Posts and braces are an-

chored to the concrete foundations by means of stout strap iron "U" anchors. There is a 4-in. concrete floor on a gravel fill, and the floor extends 3-ft. beyond the end of the building. A single expansion joint transversely across the building is used.

The roof trusses have all members composed of pairs of planks. The chords and end-posts have 2x12-in. planks spaced 4-in. apart so that their ends fit between the planks of the posts as noted above. The web members are pairs of 2x8-in. planks, the diagonals fitting between the chord planks, while the verticals are on the outside. The parts are put together with $\frac{7}{8}$ -in. bolts and 40- and 20-penny spikes. For slinging the airplanes $\frac{3}{4}$ -in. eye-bolts are provided in the lower chord. The trusses in the lower twelve hangars were framed in place by the use of false-work, and those on the other twelve hangars were assembled on the ground and hoisted into position by the use of gin-poles and manpower. This latter method proved to be the most rapid and efficient as well as being more economical, and also proved unnecessary to tie up a quantity of lumber in falsework as required by the first method. After the trusses were in place longitudinal struts were bolted against the middle posts. The purlins are 2x8-in. planks, 24-in. on centers, the space between them on the steep slope is blocked solid with 2x8-in. pieces. The roof boards are $\frac{7}{8}$ -in. shiplap, which is covered with a red slate-coated roofing material. Yellow pine is used throughout, and the assumed maximum fibre stress is 1,800-lb. per sq. in. The assumed live load on the roof is 25-lbs. per sq. ft. and 1,000-lbs. on each eye-bolt.

To facilitate the handling of planes the entire cross-sectional area of the building is made available by the use of double pairs of wood rolling doors, 16-ft. 6-in. wide and 18-ft. high. These doors are carried by heavy grooved rollers running on 8-lb. rail securely anchored to the concrete foundation. The rollers have Hyatt roller bearing bushings. The doors are guided by horizontal trunk rollers at the middle and top. To carry

the doors clear of the building, the top and bottom runways extend 16-ft. beyond the end of the building, the top runway being supported at the end by 8x8-in. post supported by 6x6-in. braces on three sides. The lean-to at the back of the hangars is used as a workshop. It was found that rigid end doors could not be built by the use of clinched nails in the boards and it was necessary to resort to the use of screws, which were used freely.

The barracks are long and narrow, of single story construction, and have a row of cots along each wall. For each cot there is a window. A 10-ft. wide porch, partly screened, extends the full length of the building. As originally designed, these barracks were intended to accommodate a full squadron, which consists of 150 men. For each man or cot there was allotted 40 square feet of floor area, and as the building is 10-ft. high from floor to ceiling, this allowed 400 cubic feet per man. Early in 1918, the Medical Department ruled that each man must be allowed 500 cubic feet of air space, and that not more than twenty-five men must



HANGAR AND WIND-VANE, KELLY FIELD, SAN ANTONIO, TEXAS.

sleep in one room. To provide this additional space and also keep the squadrons intact, it was necessary to move the front wall of the barracks to the outside porch line, thus making a building thirty feet wide with three rows of cots instead of two, and the distance between them was consequently increased. The barracks was also divided into six dormitories. The architectural beauty of these very picturesque buildings was ruined, but there is no doubt that more healthful conditions of living were provided for the men.

The frame of these and all similar buildings is of yellow pine and rests on cedar posts which are set on 2x12-in. cypress blocks. The sills and joists are 2x8-in., the studding 2x4-in. and the rafters, which are pitched 30 degrees, are 2x6-in. long—enough to project about two feet over the plate. The roof, side-walls and sub-floor are covered with tongue and groove sheathing or shiplap. The finished floor is 4-in. No. 1 yellow pine flooring, and the side walls on the outside are covered with novelty siding. Tarred building paper is used between the floor boards and under the novelty siding. The exterior is painted white with gray trim, and the roof is covered with red slate-coated ready roofing which is laid horizontally. Cement is used between the laps in such quantity as not to run in warm weather and disfigure the roof. Galvanized roofing nails are driven through both courses and the nail heads are exposed.

The interior is finished with paper surfaced plaster board and is painted with cold-water paint. The ceilings were sprayed, but a brush was used on the side walls. All exterior painting was also applied with a brush, as several spray outfits were tried, but did not prove efficient or economical under the conditions. The yellow pine trim and battens are stained brown before nailing into place. In the early camps the wall-board was run down to the floor and a 4-in. base-board was used. In later construction, however, a wood wainscot about five feet high was used in all buildings. Along each wall there is a continuous shelf above the windows, and also shelves

between the windows at a lower elevation. The result is most pleasing and has a good effect on the behavior of the men, who take much pride in their beautiful quarters.

The latrine building is connected to the barracks by a covered passageway, adjoining which are the barber and tailor shops. The floor is of concrete laid on the ground, which makes a slight incline necessary between the barracks and the latrine. The roof is hipped and comes to point in the center. The walls are covered with beaded ceiling and the ceiling is finished in wall board, both the sides and the ceiling being painted with several coats of white lead and oil. These latrines are steam heated and hot water is also available. The barracks in southern fields, however, are not heated; but stoves were later provided in some instances, as in even our most southerly states heat is required during a portion of the winter. This fact was not appreciated until the cold weather set in, when there was a grand scurry to provide all buildings with stoves, and in many places temporary smoke pipes were put through the windows, which marred the appearance of the building enough to make the designer weep; but then men will be warm and satisfy their aesthetic sense after their bodily comfort has been assured. The plumbing is modern in every respect and the accommodations are very generous; but this is necessary as the soldier does everything at a fixed time, and in the morning or evening when all want a bath at one time, the accommodations do not appear to be more than adequate.

The Mess Hall, Officers' Quarters, Schools, Administration Buildings, Hospital and other buildings are of similar construction as the barracks.

The Officers' Club and Mess contains a single large room, over which the roof is carried on trusses of forty foot span. These trusses are exposed and are built with dressed planks and stained dark oak. Two large brick fireplaces are provided and the room, which is finished in wall-board, is very cheery and inviting. Toilet and kitchen facilities are provided in a wing which extends from the rear

of the main building. A screened porch on three sides of the building adds much to its utility.

The aero repair shops are of the same type of construction as the hangars, except that a 2-in. wood floor laid on sleepers imbedded in a concrete sub-floor is used.

The garages are also similar to the hangars, except that the distance from floor to underside of truss is 14-ft. In later buildings this distance was reduced to 12-ft. The outside braces to the posts were also eliminated and knee braces on the inside were used instead. A well drained concrete floor is provided and all floor drains have especially constructed grease traps to prevent oils from entering the sewer system.

The storehouses have wood floors carried on framing designed to carry a floor load of 250 pounds to the square foot. Both the floor and the unloading platform are at car-floor level. The pitched roof is carried on wood posts which rest on concrete piers.

The machine shops are very light and commodious, and have concrete floors. The roof construction is similar to the storehouses. A mono-rail runs from the machine shop to the testing blocks in the motor testing sheds in the rear of the machine shop. The motor testing shed is provided with cradles to carry motors undergoing repairs, and in the shed adjoining the test blocks are located. These are thoroughly anchored to heavy concrete foundations, and the stands or blocks are of very rigid and heavy construction. They do not rest directly on the concrete, but are separated by blocks of rubber to reduce the tremendous vibration. A separate gravity gasoline system and cooling water piping is installed. These blocks are all served by the mono-rail from the machine shop.

The "dope" building, which is especially light and airy, is provided with a ventilating duct formed in the concrete floor and covered with wood slats. An exhaust fan at each end draws the deadly "dope" fumes from the building.

All other buildings are similar to those described, except the blacksmith shop,

which is of steel construction throughout. This building also has a concrete floor.

The main roads through the camp and cross roads to the garages and storehouses are gravel roads, 18 feet wide, and are surfaced with Tarvia. The road in front of the hangars is water-bound macadam of the same width. The secondary roads and paths are of crushed stone or gravel, with a small proportion of clay for a binder, and were all well puddled and rolled.

The main sewer lines, which are laid with salt-glazed vitrified pipe with cement joints, drain from both ends toward the center, and a 10-inch intercepting sewer, 8,000 feet long, conveys the sanitary sewage to a gravity disposal plant on the banks of Leon Creek. There is very little water in this stream during the dry season and therefore a modern disposal plant was required. This plant consists of a two-compartment Imhoff tank, dosing chamber, sprinkling filter, chlorination plant and sludge bed. The main sewer lines are laid on uniform grades, and all dead ends are provided with flush tanks.

The water supply is obtained from a 10-inch artesian well, about 1,200 feet deep. A steel cylinder about 4 feet in diameter is sunk to the low hydrostatic level of the well, which is about 60 feet below the ground. At this point a deep-well centrifugal pump of the vertical type is installed and is driven by an electric motor on the floor of the pump house directly above the well. The water is pumped into a 112,000-gallon reinforced concrete reservoir, built underground. The water from here is lifted by a motor-driven triplex pump into a 75,000-gallon steel tank on a 135-foot tower—also of steel. This elevated tank proved to be such a serious menace to safe flying that at subsequent fields ground reservoirs and pumps were depended upon for both domestic and fire purposes. The main distribution lines, which are laid to form a loop, are of 6-inch and 8-inch bell and spigot cast iron pipe laid with 5-foot cover. These lines are so designed that repairs can be

made by shutting down only small portions of the system. Over 100 fire hydrants with hose equipment are provided. These hydrants are contained in standard hydrant houses. There is also a central fire station, with chemical and hose carts.

Four 10,000-gallon steel tanks, buried in the ground and thoroughly anchored to concrete foundations, provide gasoline storage for all needs. A motor-driven gasoline pump is located in each of the two garages (near which are also located two of the large storage tanks) to supply gasoline under slight pressure to smaller tanks and gasoline stations on the edge of the flying field opposite the hangars. Standard 5-gallon garage type pumps are installed in small steel houses, from which the gasoline is carried to the planes. In some cases portable gasoline tanks with special filling hose were used to serve the engines and eliminate carrying the gasoline in cans. This resulted in a great saving of gasoline and also of labor.

Electric current for light and power is brought to the field on a pole line along the main road to the field. The 25-cycle current is transmitted at 2,200 volts and stepped down where needed. In the interests of safe flying it was later necessary to dismantle about 8,000 feet of this transmission line to the field and run the wires in lead-covered cable in an underground conduit. All telephone wires throughout the camp are run in lead cable laid in fibre conduit.

To indicate the direction and velocity of the wind to a pilot in the air, "megaphone" weather vanes are located on top of the hangars at the extreme ends of the field. This device consists of a revolving hoop mounted on a staff, and to this hoop is attached a long and narrow linen bag, open at the ends. Ordinary steel-arrow weather vanes are also located on high steel poles in the rear of each administration building.

Among the special features may also be noted an oil reclaiming plant, which is located in a separate building; a machine gun range of the usual construction, and an incinerator located at reason-

able distance from the buildings.

At the time possession was taken of the site, it was covered with 400 acres of mesquite, and the balance was farm land, mostly in cotton. There were also numerous cheap farm buildings and dwellings and some irrigation works, as this section of Texas has very long, dry periods. The mesquite was chopped off below the ground, as it was impossible to draw the roots from the ground in the usual manner. All the cotton was pulled up and burned. The whole field was then harrowed and finally gone over with drags, consisting of split logs and railroad rails. This resulted in a fairly level field for flying operations, but the soil was of such a character that it could not be compacted even by rolling. All flying operations were carried on for some months in a permanent dust cloud, which worked great damage to the equipment and also made living in the camp very uncomfortable. Oiling was suggested as a remedy, but the cost being enormous and the lasting benefits very doubtful. It was also believed that oil would permanently injure the soil if again used for agricultural purposes. On account of the aridity of the region it was impossible to grow grass in the usual way; but finally conditions became so bad that an extensive system of underground water mains was laid over the entire flying field and grass was planted. This to a great extent eliminated the former conditions.

Early in 1918 the wooden hangar was abandoned on future construction, and a steel hangar was adopted as standard for the army both in the United States and abroad. These hangars consisted of a steel frame of similar dimensions as the wood hangars which they superseded. The roof and sides were covered with corrugated iron, and steel sash were used. Such hangars could be dismantled and re-erected in a very short time. With solid ends, these buildings were also used in some cases as machine shops and storehouses.

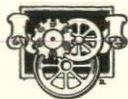
It will be seen from the foregoing description that the Flying Schools in the United States are of more or less permanent construction; and as the army is

unable to utilize all of them for training purposes, their ultimate disposition is a very interesting problem. By eliminating

the hangars from consideration we have an ideal group of buildings for military or other training purposes.



MODERN INDUSTRIAL PLANTS



By George C. Nimmons

Part VI-b

THE EXCESSIVE TURNOVER OF LABOR AND THE INFLUENCE OF EMPLOYEES' WELFARE WORK IN REDUCING IT.

A COMPLETE remedy for labor fluctuation is a most difficult and far-reaching problem to solve. Much is being written about it and a great deal of consideration is now being given to it.

The problem seems to divide itself directly into two parts: First, how to get the right man for the right place; and, second, how to keep him in that place when he has once proven himself to be adapted to it.

The problem of how to get the right man in the right place seems, from the investigation, not to have been given the importance in the past which it merits. Reports and statistics all showed that those concerns which had no employment departments had the largest turnover of labor; and the authorities also agreed that, as a rule, those plants which did have employment bureaus failed to put them under control of men with as much ability as the importance of the positions warranted; nor had such departments generally been developed or organized in any degree up to the limit of their possibilities and opportunities. Whole books and pamphlets have been written on this subject alone, and a concerted effort is being made to stir up the heads of industries to a realization of the importance of getting the right men for each job and then getting them started properly at their work.

A great deal of attention is being directed to apprenticeships for boys and girls and specialized technical training for adults. And when it is found that it is difficult to get employees for some

kinds of positions, and it is impossible to alter the character of such positions so as to adapt them better to the personal characteristics of the employees, this also is being attended to.

It has been found also that much can be accomplished by well-directed efforts to regulate and systematize commercial demands so as to bring about a more uniform production throughout the year, thereby avoiding reduced production in certain seasons. Among other things which federal control and supervision of the industries has brought to light is the absurd number of varieties manufactured of many articles in common use. Pen-knives, for instance, are made in hundreds of different styles whose variety adds no value to them. On the contrary, these numerous styles only interfere with manufacturing extra supplies in dull seasons of the year. It has been found that many things can be more standardized and reduced in varieties and styles, thereby saving the needless tying up of capital in unnecessary stock and at the same time giving the manufacturer a better opportunity to run his factory in dull periods, making up extra supplies of these standardized products. This, of course, would be a great help to giving steady and constant employment to workmen in the factories.

This article, however, is not concerned so much with the methods and reforms involved in selecting the right man for the right job as it is with keeping him in that job after he has got it. Of course, after he has it, a great deal depends on his control and treatment by the factory



EMPLOYEES' CLUBHOUSE, UNITED SHOE MACHINERY COMPANY, BEVERLY, MASS.

management as to whether or not he keeps it. But this article, in connection with "Modern Industrial Plants," has to do properly with those features of the buildings and their surroundings which tend to make the employee want to work there and stay there.

It is now recognized by industrial authorities, generally, that the policy formally adopted by some, of considerate, kindly and generous treatment of employees, can no longer be regarded as a voluntary philanthropic movement, but as a policy essential for the reduction of the excessive turnover of labor.

The result of the adoption of such policy at industrial plants has been the creation of what is now commonly called welfare work for employees, and welfare work is now regarded as one of the chief means of overcoming the excessive fluctuation of labor.

Welfare work may be broadly defined as the result of efforts on the part of employers to make their workers satisfied, contented and happy, and to improve their condition physically, intellectually, economically or socially.

Some of the principal ways in which welfare work manifests itself are as follows:

1. Convenient and wholesome locations for the buildings.
2. Improved grounds around buildings and landscaped where possible by the planting of lawns, flowers, trees and shrubs.
3. Buildings architecturally designed to express their purpose or business, and made as attractive or beautiful as circumstances permit.
4. *Working conditions.*

Workshops perfectly adapted to the work.

Proper heating, ventilating and lighting.

Convenient and adequate stairways, elevators and communications.

Complete health provisions and safety devices.

Modern sanitary lockers, coat rooms, lavatories, toilets and baths as required by occupations.

5. *Food and lunching facilities.*

Lunchrooms, including a place

for those who bring their lunches from home.

Dining rooms, cafeterias and restaurants.

Sanitary kitchens and wholesome food.

6. *Recreation and entertainment.*

Outdoor athletic fields, playgrounds, walks and gardens.

Indoor recreation rooms.

Rest rooms and smoking rooms.

Gymnasiums; athletics; field days.

Country Clubs.

Gardening; competitions in the raising of flowers and vegetables.

Music and concerts.

7. *Health and Sickness.*

Rest periods; pauses in the work; vacations.

Medical supervision: physicians and nurses.

Hospitals.

Emergency rooms.

First aid.

Dental departments.

8. *Education.*

Libraries.

Literary clubs and societies.

Boys' and girls' schools; apprenticeships.

Classes in advanced technical training.

Classes in general education.

The industrial arts: teaching of the foundation principles that underlie good construction and beautiful design.

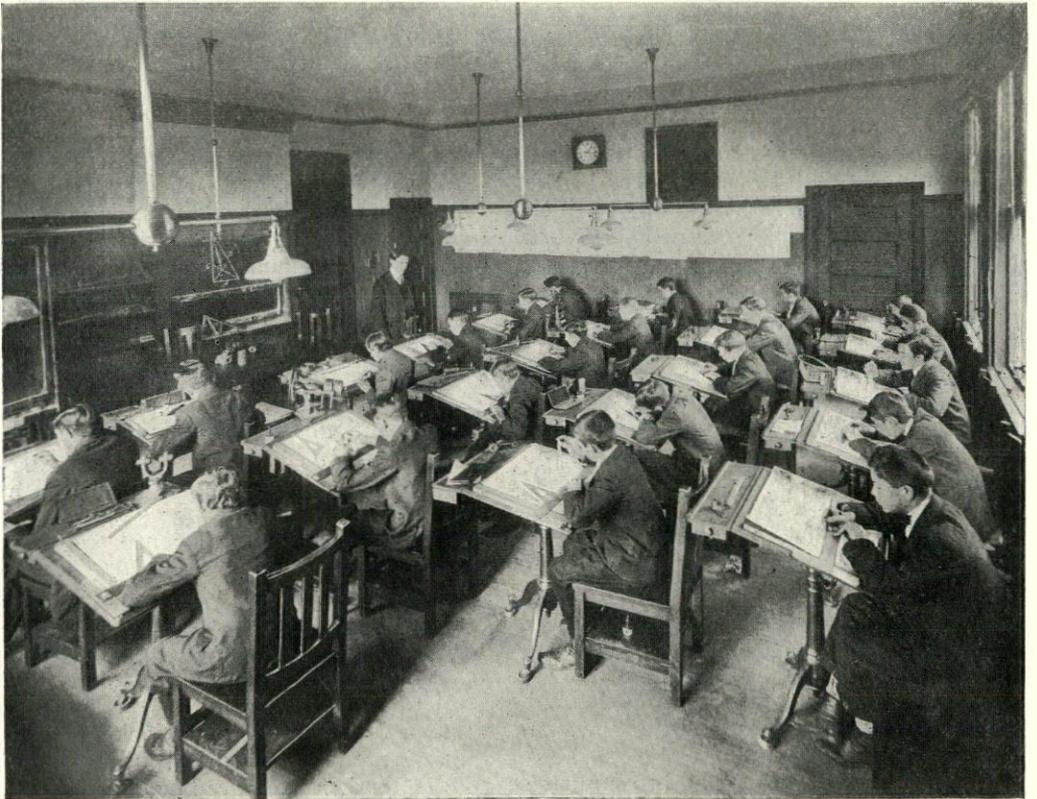
9. *Economic measures.*

Profit sharing, bonuses and premiums.

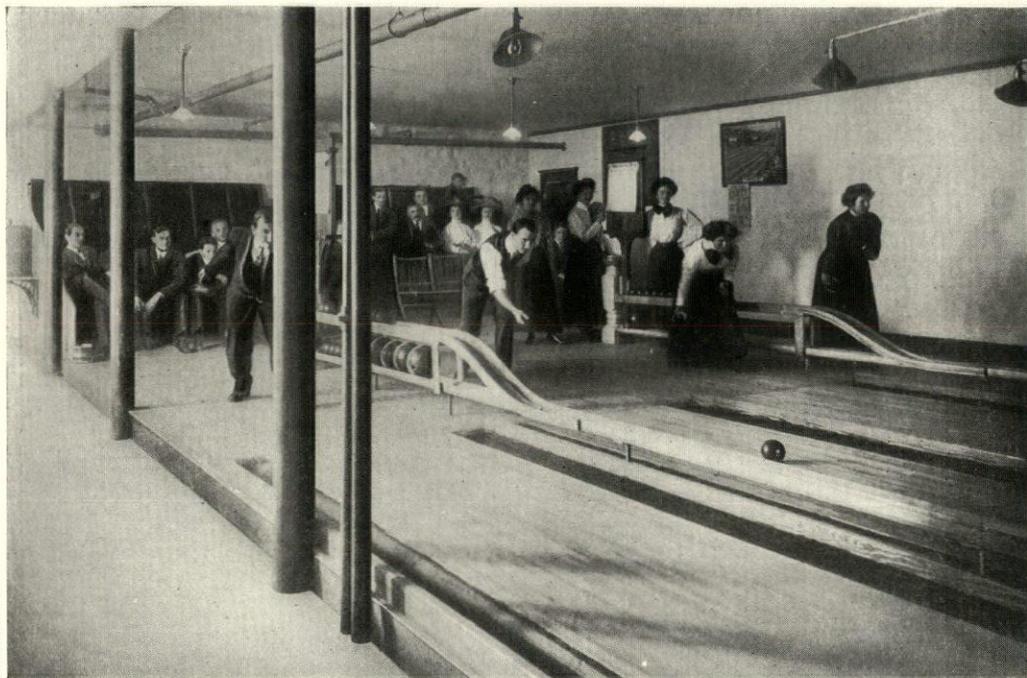
Insurance: accident and life.

Family benefits for death and sickness.

Old age pensions.



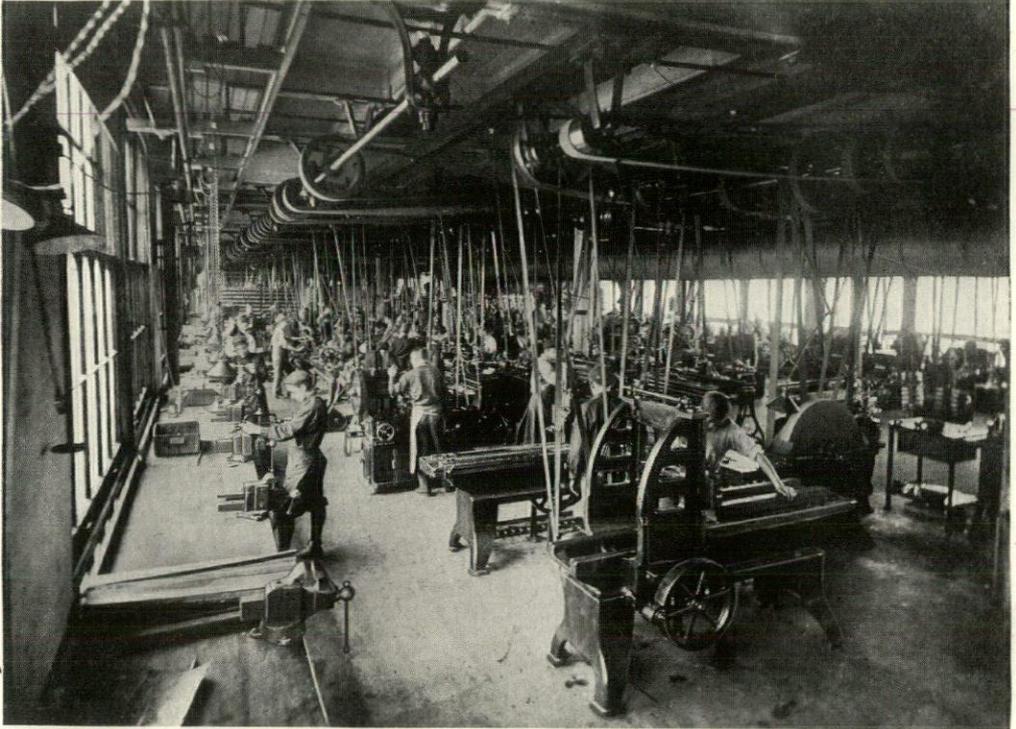
DRAFTING CLASS, INDUSTRIAL SCHOOL, FACTORY OF UNITED SHOE MACHINERY COMPANY, BEVERLY, MASS.



BOWLING ALLEYS, UNITED SHOE MACHINERY COMPANY, BEVERLY, MASS.



DANCING AND ASSEMBLY HALL, UNITED SHOE MACHINERY COMPANY, BEVERLY, MASS.



MACHINE CLASS, INDUSTRIAL SCHOOL, FACTORY OF UNITED SHOE MACHINERY COMPANY, BEVERLY, MASS.

10. *Housing.*

Model homes for employees.

Industrial villages, with complete provision for community and social life.

The above outline and the divisions into which this subject falls indicate the far-reaching manner in which its branches extend out into this vast field of work. There may be other branches which should be included, but the above list is a summary of the principal welfare work which is to be found at the present time in the different industries all over the country. Some concerns have made a specialty of certain branches of the work, and there is probably no single firm which provides for all the items mentioned. The character of the plant and class of work done is what really determines the kind of welfare work most useful and appropriate in each case.

Strange as it may seem, the trade unions at first generally opposed welfare

work. Their chief opposition to it was founded on the claim that welfare work was often substituted for an advance in wages, and that it was utilized as a means to prevent the organizing or unionizing of the employees. They recognized the tendency of such work to make workmen more loyal to their employer than to the labor organizations. There were several noted instances, one in a mining community and one in a large agricultural plant, where welfare work had been developed to such an extent and given rise to such friendly and loyal relations between workmen and their employers that the employees refused to strike when workmen in similar plants went out on a strike in their vicinity. Opposition to welfare work by organized labor grew to be quite hostile at one time, but lately and especially during the war period this opposition seems to have disappeared. In spite of this opposition, the development of welfare work among the industries has

steadily increased and now it appears that the workmen very generally appreciate it, and regard it as nothing more than what is due them under the circumstances. It is undoubtedly true that with their increased control of the labor situation, they no longer fear any interference in their rights or undertakings from the influence of welfare work.

In the consideration of welfare work it is difficult in some instances to draw the line between what is absolutely essential for the manufacture of the product and what may be instituted for the welfare of the workers. It might be considered that nothing should be classed as welfare work which has a stronger reason for its existence among the essentials for production, such, for instance, as some of the working conditions in the factory. But there should be no quarrel over such a situation, even if some welfare work does overlap into the field of production essentials; because, after all, all welfare work has for one of its objects better and greater production. It

should be frankly admitted, in the first place, that it is in no sense charity; and is not paternalistic in character, but something that benefits equally the worker and his employer.

LOCATION, GROUNDS, BUILDINGS.

The first three classes of welfare work have to do with the exterior of the buildings, their location and the treatment of the space or ground around them.

If industrial production were altogether disconnected from the human and personal element, and if it were entirely a mechanical proposition, then nothing would be needed for the purpose but strictly utilitarian boxlike buildings, to contain the machinery and materials. But the human element in production is the feature which now calls for more consideration and more wise provision than all the machinery combined.

When it is remembered that the factory is the place where the workman spends a good part of his life, and when it is realized that it is difficult, if not



LUNCH ROOM, UNITED SHOE MACHINERY COMPANY, BEVERLY, MASS.



HOSPITAL FOR EMPLOYEES, UNITED SHOE MACHINERY COMPANY, BEVERLY, MASS.

practically impossible, to create in a high class self-respecting craftsman or mechanic a feeling of loyalty and personal interest in an establishment that in its appearance is unattractive, needlessly dirty, poorly kept, overcrowded, unwholesome and repellent, then this question of attractive buildings and their surroundings becomes of importance. Particularly is this true now since the leading authorities agree that the best solution of our present industrial difficulties is to be made only by appealing to the laborer with measures which he will recognize as beneficial to him as well as to the employer.

Of course, manufacturing buildings and their surroundings that are designed and built strictly along scientific and utilitarian lines have no attraction whatever in their appearance as a rule, and perhaps the only effect they have on a person is to create in him a desire to get away from them. The people in the better parts of towns or cities always oppose the location of factories in their

midst. Therefore no workman employed in such concerns could ever have any pride or satisfaction in the appearance of the buildings and their surroundings.

On the other hand, buildings that are designed with the expressed object in view of making them look neat, interesting, expressive of the use to which they are put, attractive in construction and detail and sometimes even beautiful without being elaborate or expensive, are always objects that appeal to every one. The influence of good architecture is as old as the building art, and there is no question but that attractive buildings—and particularly if their surroundings can be landscaped a bit with flowers, lawns and trees—are surely going to appeal to the workman, and make it easier to win his loyalty if the other conditions are right. There are plants, of course, such as those connected with some of the large steel or metal industries, where the smoke, gases and nature of the buildings appear to make attractive effects dif-

ficult to attain. Yet, as a matter of fact, few of them have ever tried it out, but those which have seem to have succeeded very well. It is astonishing what can be done often without material increase of expense, in making the most unpromising, smoky industry attractive in many ways. As a rule much of the smoke and objectionable gases that are now discharged into the sky could be largely dissipated or used to some good purpose if proper appliances were installed. Most of the rubbish and dirt could be made to disappear, and a great deal of the grounds around such plants could be converted into neat, useful and often attractive surroundings, aside from the opportunities often available for replacing some of their flimsy, rapidly decaying buildings by substantial and attractive structures.

The chief advantages to an industrial

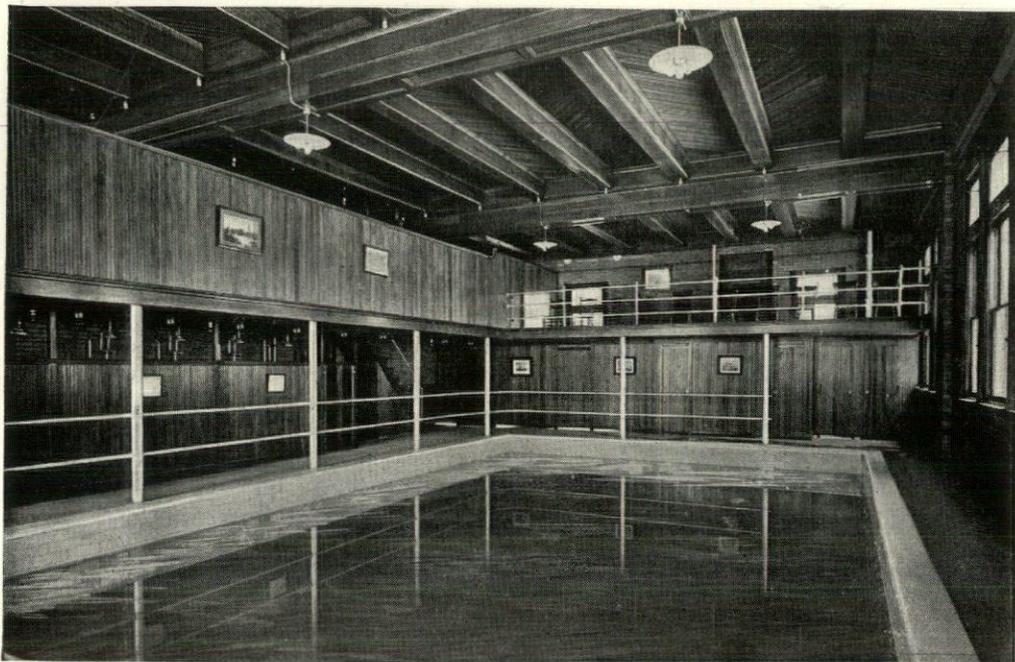
plant of attractive buildings and grounds are their advertising value, their important effect in raising the whole character of the community or city in which they are located, the pleasure and satisfaction they give the owner and the strong and valuable influence which they at all times exert upon the employees. The last item is now the most important of all, and wherever attractive buildings and improved grounds will aid materially to reduce labor turnover, they will be a good and wise investment for this one reason alone, although their cost is not nearly as great as it is commonly supposed to be.

Efforts to make industrial plants attractive are steadily increasing all over the country and their results vary all the way from a few window boxes filled with flowers to the suburban plant with beautiful buildings and extensive grounds

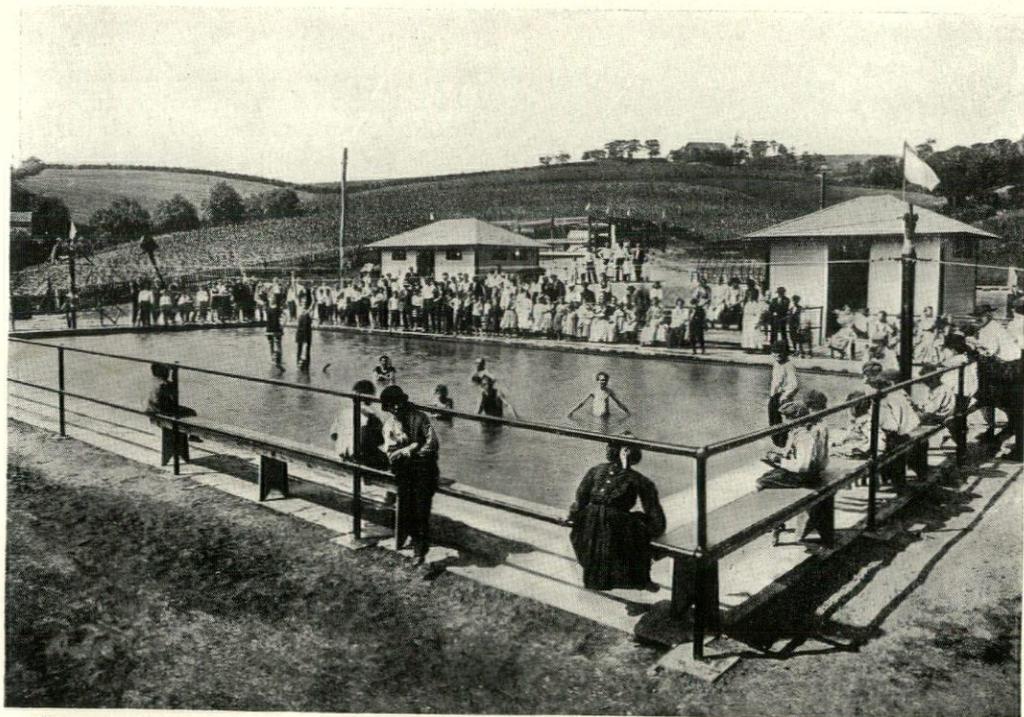


MACHINE SEWING ROOM OF THE PRINTZ-BIEDERMAN COMPANY OF CLEVELAND, OHIO.—
—WHERE THE LIGHT IS THROWN DIRECTLY DOWN ON THE WORK.

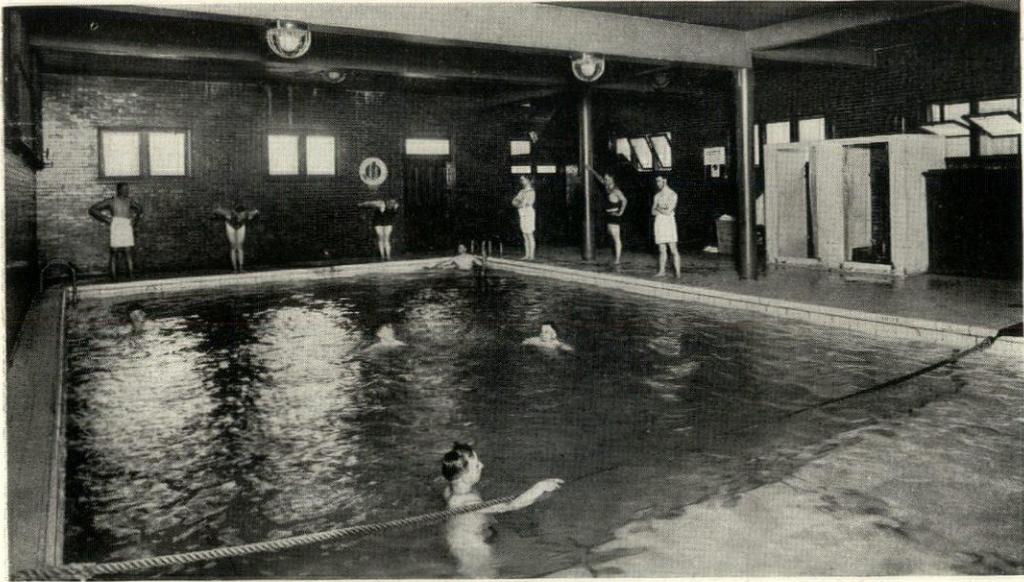
Courtesy of the Welsbach Company.



AN INDOOR SWIMMING POOL FOR EMPLOYEES, INSTALLED BY THE STANDARD SANITARY MANUFACTURING COMPANY.



THE OUTDOOR SWIMMING POOL FOR EMPLOYEES, INSTALLED BY THE STANDARD SANITARY MANUFACTURING COMPANY.



SWIMMING POOL FOR EMPLOYEES, ARMOUR AND COMPANY, CHICAGO, ILL.



MUSCULAR DEVELOPMENT AND CORRECTION OF PHYSICAL WEAKNESSES UNDER PHYSICAL DIRECTOR AT ARMOUR AND COMPANY'S PLANT, CHICAGO, ILL.



GYMNASIUM BUILDING FOR EMPLOYEES, ARMOUR AND COMPANY, CHICAGO, ILL.

landscaped and provided with all sorts of outdoor recreation and play grounds. The small or medium-sized plants also have often been made very attractive in a simple way by having their buildings well designed, and setting them back sufficiently from their front lot lines, to provide room for a foreground or small park of lawn, walks, flowers and trees.

The effect of these things upon the average workman is just like the effect of these things around a home or in a park. People have always created them for the express purpose of giving pleasure and making the place where they exist attractive.

So, in the case of a factory, the object of such improvements, so far as the workman is concerned, is to give him pleasure and enjoyment by seeing these things when he comes to work in the morning; of enjoying them at the lunch hour to-

gether with the walks, the flowers, the games and the recreations; and then again at closing time, taking away a pleasant last impression of the place before he goes home. Human nature makes plain to everyone the effect of such experiences of life. Every wholesome enjoyment and pleasure is an uplift to the normal person, and an incentive to make him work the better so as to enjoy the pleasures of life all the more. Life after all must be worth the living or else labor will be nothing but a drudgery. So that what better place could there be of cheering up and brightening the life of the workman than his workshop or the place where he spends the most of his life? And there is this satisfaction about the influence and effect of such surroundings, that, if they are really beautiful, their good effect will be just as permanent

as the attraction of the flowers that grow along the walk.

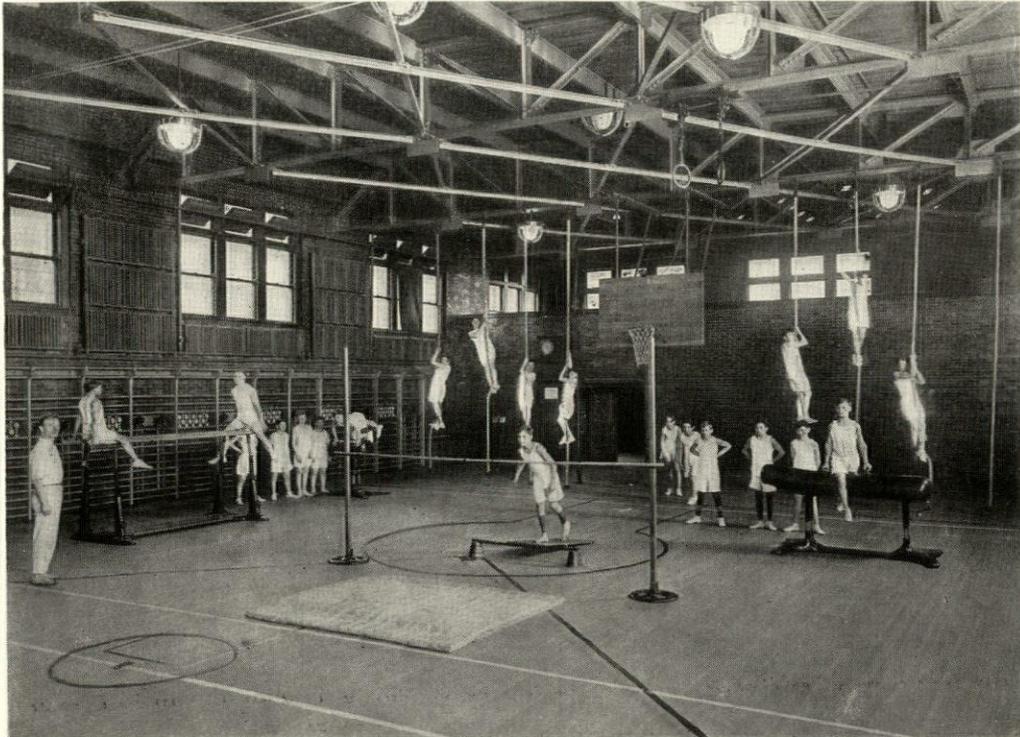
WORKING CONDITIONS.

The fourth division of welfare work refers to all those provisions on the interior of the building which tend to make good and efficient workmen. The first essential for making the work interesting is to have a proper workshop, well equipped and well adapted to the work to be done. No workman can do his full share of work or do his best in performing it unless he has an interest in it. To create a full interest in the work, conditions must all be favorable, and workmen should not be annoyed or made to suffer discomfort by the lack of any essential for this purpose. When the workman arrives at the plant he should have a proper sanitary locker with room to dress or put on his overalls. Stairways and elevators should give him convenient access to his working place; his bench or

machine should be well placed with plenty of room; good light, either natural or artificial, should be thrown not in his eyes, but on the work; the heating and ventilating apparatus should make him comfortable in all seasons, and furnish him at all times with clean fresh air to breathe. Wherever he goes about his work reasonable safeguards and protection should be provided to save him from accidents or injury. Drinking fountains, lavatories and toilet rooms should all be adequate and sanitary in every respect.

FOOD AND LUNCHING FACILITIES.

When lunch time comes, workers should be prohibited from eating at the place where they work and in some localities this is the municipal or state law. Some concerns believe that it is decidedly beneficial for them to lunch outside of the building in which they work, and have provided separate dining and restaurant buildings accordingly. At



INTERIOR OF GYMNASIUM BUILDING OF EMPLOYEES, ARMOUR AND COMPANY, CHICAGO, ILL.



INTERIOR OF GYMNASIUM FOR EMPLOYEES, ARMOUR AND COMPANY, CHICAGO, ILL.

any rate suitable and clean rooms in which to eat, with sanitary modern kitchens and nourishing and wholesome food, are now considered essential and are very generally provided for by the American industries. Some establishments have made a feature of this kind of welfare work and provided most extensive and attractive restaurants and cafes, often with good music and other entertainment combined. In large plants there are usually several kinds of places to eat: private dining rooms or cafes for the firm and heads of departments, visitors' restaurants, and then two or three kinds of places for the various kinds of employees, such as lunch counters, table d' hote restaurants and cafeterias. The cafeterias seem to have proven to be the most practical and popular for the average employee, on account of the quick service and the lower cost occasioned by the absence of waiters to serve the meals.

It seems also to have become a uni-

versal custom to charge the employees for their meals only what they cost.

RECREATION AND ENTERTAINMENTS.

Provision has often been made by plants for recreation both indoors and out. Rest rooms, smoking rooms, and gymnasiums are often provided where calisthenics, athletic exercise and training for field sports are carried on, sometimes under the direction of an athletic trainer. Tennis and baseball are the favorite sports for the noon hour; while in some few instances country clubs are maintained for employees, who use them for golf and other sports on holidays and times after work hours. Gardening has been instituted by some and encouraged particularly around the homes of the workers, and prizes or premiums are frequently given for the best results in raising flowers and vegetables. This has proven to be one of the most beneficial and wholesome occupations and has the added advantage of beautifying the

homes and providing fresh vegetables for the home table. The organization of orchestras and singing societies has also led to a great deal of very attractive entertainment in the way of concerts, dances and musicales among the employees.

HEALTH AND SICKNESS.

There are probably few departments in industrial plants that have progressed as far as those in charge of the health of employees. This is because the physicians and surgeons have freely given all that modern science could offer to the development of such departments. It is quite common to find a registered nurse in charge of a department which takes care of those who fall ill or are injured, and in many cases there may be a physician with assistants, a whole corps of nurses and a dental department as well.

Hospitals are provided that range in size and importance from a corner of a room with a cabinet of bandages, medicines and a first aid kit, up to tile lined, fully equipped sanitary hospitals, with consultation rooms, examining rooms, operating rooms, and fully equipped ambulances operated exclusively for the employees.

Employees in some plants are taken better care of than most men in almost any other walk of life. Records have been kept of headaches and other minor ailments in old-time buildings where old-time methods were in force and compared with those compiled in modern up-to-date plants with all the sanitary and health promoting advantages, and the results show a wonderful improvement and a great diminution in human suffering and physical ailments in the plants where this kind of welfare work is properly carried on.



GIRLS' DINING ROOM OF THE SHREDDED WHEAT COMPANY PLANT AT NIAGARA FALLS, NEW YORK.



GIRLS' REST ROOM OF THE SHREDDED WHEAT COMPANY PLANT, AT NIAGARA FALLS, NEW YORK.

EDUCATION.

Many plants have provided libraries with a good selection of books, and many of the magazines and publications that would likely be most interesting and useful. Literary clubs and societies have in some cases been formed where the knowledge of interesting subjects is acquired and where many of the problems of the day are debated.

Boys' and girls' schools, apprenticeships and advanced technical training are maintained and given by some plants and great assistance is afforded in this way to those who seek to improve their store of knowledge and prepare themselves for advancement. The greatest need for instruction, however, at this time, is by all odds the need for instruction in the industrial arts. If there is anything in which American products are inferior in many instances to those of Europe, it is in their design; and it would therefore

be a most excellent thing for almost every concern which produces any material thing that has to be designed with ornament on it, to start an industrial art school which everyone should attend, including particularly the boss of the concern and all of his assistants—who need it, as a rule, more than anyone else.

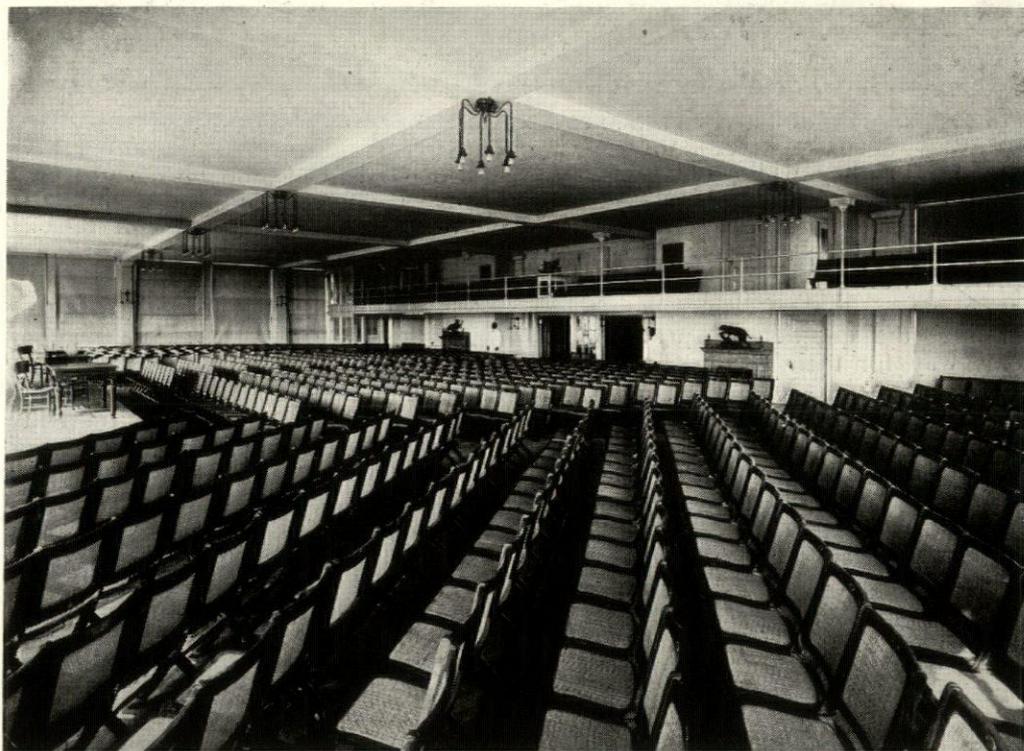
ECONOMIC MEASURES.

The chief connecting link in the relations between the employer and his employees is the wage which he pays them. The minimum rate paid by each industry is usually an amount which has been fixed and agreed upon by the combined action of the employers and employees' organizations. In addition to these regular rates of pay, efforts have been made from time to time by various employers to reward deserving employees with additional remuneration and benefits in the way of profit sharing, bonuses, premiums, pensions and insurance. It has long

been recognized that the young, capable and ambitious employees, who exhibit a growing and promising ability and who manifest a sincere interest in their work and in the interests of their employers, are bound sooner or later to demand for themselves fair opportunities at least for larger remuneration and a better future than the regular salary and conditions that their positions provide. In order, therefore, to provide a means that may satisfy the ambitions of such employees, who are really the men from among whom the leaders usually develop, this system of profit sharing, bonuses, etc., has been adopted by many concerns. Profit sharing has not always been successful, however, and there are firms who have tried it and failed to accomplish the desired results. Authorities seem to agree that these instances of failure have been due to the indiscriminate payment of these extra benefits to all the employees of a plant, including the

lazy and undeserving ones. Their claim is that profit sharing can only be successful when it is paid exclusively to those employees who deserve it by having really helped to earn the extra profits which make profit sharing possible.

The plan of paying bonuses on the sole basis of increased production has its limitations also. When production is speeded up by any one of the slapdash methods that are likely to result from some of the feverish, strenuous and spectacular sayings and writings of the present day on industrial production, the result is very likely to bring ruination of quality for the sake of quantity production, and also premature wearing out of the nerves and strength of the workman. Speed, of course, is vital in competitive industry, but it is not by any means to be secured at the expense of quality or the health and ability of the worker. Speed bonuses or piece work must therefore be watched



AUDITORIUM OF THE SHREDDED WHEAT COMPANY PLANT, AT NIAGARA FALLS, NEW YORK.



OFFICERS' DINING ROOM, PIERCE-ARROW MOTOR CAR COMPANY, DETROIT, MICHIGAN.

carefully or they will result in defeating their own ends. This they have done in some noted cases, and consequently have been abandoned.

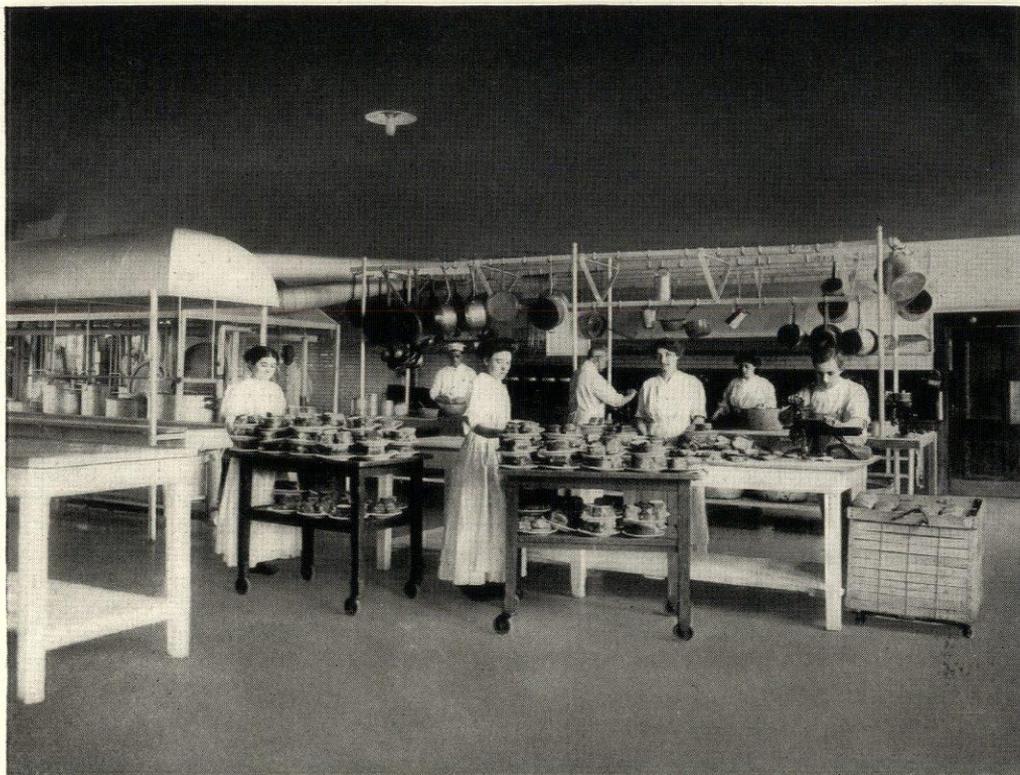
After workmen have married and settled down in their homes with their families, the question of providing in some way for their families in case of accident, sickness and death becomes of paramount importance. Although the state compensation laws provide now very generally for some of these emergencies, still a great many concerns in this country and very generally in Europe maintain systems for the payment of benefits, pensions and insurance to employees.

The payment of premiums or dues by employees for such purposes are sometimes made compulsory and the required amounts are deducted from the wages, while in other instances they are voluntary. Some concerns pay a proportion of such benefits and other firms have

large sums set aside, the income of which is used exclusively for the payment of old age pensions and benefits of various kinds.

HOUSING.

There is no feature of industry that received more consideration or caused more action to be taken during the war than housing for employees. This came about from the example set by the British Government in providing housing for the ammunition and war supply workers in England. At the beginning of the war the British Government was obliged to enlarge its war supply industries materially, and also to supply whole new villages or communities in which the workers could live. The experience in England with labor had already clearly demonstrated before the war that homes for workers could not possibly be handled by the speculative builder and at the same time assure the things vital and essential for peace and



KITCHEN AT THE MAIN PLANT OF THE PIERCE-ARROW MOTOR CAR COMPANY,
DETROIT, MICHIGAN.

contentment among the workers. Mere shelters or poorly planned, unattractive houses, crowded together in a subdivision with nothing more than streets and sidewalks giving access to them, with high prices for the land and buildings, had already proven to the satisfaction of the British Government, from investigations formerly made, that such things were the real causes back of discontent, strikes, excessive labor turnover and fatal epidemics. In other words, proper workmen's villages could no longer be money-making propositions for any private interests, but on the contrary must have help from the Government in the form of long-time loans at low interest and low prices for the land. They must also above all include not only the strictly utilitary things, but the attractive and wholesome features commonly ascribed in this country only to model villages, such as well planned sunny

houses, parks, playgrounds, amusement, entertainment, educational buildings, and all such things which were found to be really essential in making the worker and his entire family happy and contented.

What was remarkable about the whole undertaking at that time was the fact that England, at war, bombarded by zeppelins and airplanes, threatened with foreign invasion, was yet at such a time ready and able to bother about model villages. Any one would naturally suppose that this was no time even to consider anything but mere shelters with the bare necessities of life. And yet the British Government was so convinced of the futility of getting proper production of ammunition with the workers housed in shacks and tenement-like dwellings, that it did not hesitate at all to adopt and carry out the policy of model workmen's villages, with the conviction of thereby getting maximum relief from the

excessive turnover of labor, strikes, and all the other labor difficulties which were imminent at that time.

In spite of the most unfavorable conditions of the time, the model villages quickly erected in England set a new and higher standard for workmen's homes than any which had existed before.

In October, 1917, Mr. Frederick L. Ackerman, Architect, visited England, inspected and studied these new villages and came back to this country with illustrations, drawings and complete information of what had been done in this respect. A full report of this visit with illustrations was published in the *Journal of the American Institute of Architects*. The publication of this report stirred up a lively interest in the subject all over this country and undoubtedly influenced our own Government in deciding soon after to follow England's lead in building model villages for our own workers, who were greatly in need of housing accommodations. One hundred million dollars were appropriated, a very competent organization was formed under the control of the United States Housing Corporation of the Department of Labor, and over ninety different housing projects, ranging in size from villages of one hundred to two thousand houses, were begun, and sixty of them put under contract for construction before the armistice was signed. After this, fifty-six of the projects were canceled, twenty-two were allowed to go ahead, and fifteen were diminished in size, thus leaving thirty-seven of these villages, which it is hoped will all be completed as planned.

The Senate passed a sweeping resolution requiring that the work on all projects not seventy-five per cent. complete should cease, notwithstanding the fact that great numbers of the houses were caught in a condition partly done, where they will go to rack and ruin rapidly. The attitude of the Senate when the matter came up seemed to be most unfriendly, as severe criticisms of the whole undertaking were made. Resolutions were also offered at the Atlantic City convention of the Association of Commerce favoring abandonment by the Government of the whole housing project.

Why the Senate or any one else could fail to profit by England's experience, and why, if these model villages were good for the workers in war times, they should not be all the better in peace times is hard to understand, particularly when one of the most perplexing, if not the most serious, of problems now in this country is the labor problem.

Unquestionably the Government should go on with these villages (especially the ones already partly constructed), complete them and then develop and assist such undertakings, form proper laws as England has done to control and protect them, for the sake of the great masses of industrial workers in this country, and in this way help to build up a precedent of this standard for housing workers, that is in itself the strongest known influence at this time for stabilizing labor and winning its loyalty and support.

In a general way the outstanding features that may be of particular interest concerning these new model villages are as follows:

There is no preconceived set plan for the arrangement of any of them; that is entirely determined in each case, first by the character of the site, and then the various other requirements growing out of the particular industry in question. The communicating streets or avenues may be straight or curved according to whichever kind would be the most practical, cause the least grade and fill, and accomplish their purpose in the best and most interesting manner. The lots are laid out so as to give the greatest number of houses consistent with good light and air. The houses are mostly grouped together, double, triple or even up to six or eight in a row, and there may be occasional single houses. Houses at the corners may be set at an angle to widen the view and road at the turns, or the houses may be placed in any one of many arrangements that might utilize the ground to the best of advantage, preserve trees or other landscape effects that already exist or open up some view of particular attractiveness. The planning, arrangement of the rooms, and the design of these houses are as a rule the

best that have ever been made, as they are the result of the highest talent among the architects of this country and England. Among other things, they are not built with all the different kinds of brick and building materials in the market, nor is each one in a different style of architecture, clashing and detracting from one another as they do in the typical old subdivision; but they are all harmonious with each other in design and material, every one possessing its own individuality and contributing and adding to the effect of the whole. No money is spent on useless ornament, but beauty and charm of effect is secured by proportions, balancing of the parts of different groups, pleasing variations in the design of the buildings and their materials, the attractions of the different kinds of porches, the home-like, restful appearance everywhere and the telling effects of the simple landscape treatment.

One of the most important features of such villages is that the shops and markets are made just as attractive in their way as the houses. The community centers, with their schools, churches, places for entertainment and amusement, are all planned and treated in such a way that, no matter where you go, you are confronted with the same harmonious, simple, practical and pleasing handling of the problem.

These housing projects, therefore, should be comprehended not as overdone, extravagant places, where money has been wasted by striving to make them beautiful, but, on the contrary, as places made beautiful by applying art in a simple, inexpensive way to the working out of the absolutely essential and practical needs of those workers who are to occupy them.

There are probably few people in the world who have had so exceptional an opportunity to observe the need for such villages, to analyze their effect upon the workman, and to judge of their real value, as David Lloyd George, Prime Minister of England. In speaking of the introduction of welfare work for employees into industrial plants, he said: "I cannot insist too strongly on the

importance of the movement. It helps to secure a larger and speedier output of munitions; it preserves the health and happiness of the workers, and it relieves the harassed employer of needless strain. It is a strange irony, but no small compensation, that the making of weapons of destruction should afford the occasion to humanize industry. Yet such is the case. Old prejudices have vanished, new ideas are abroad; employers and workers, the public and the state, are all favorable to new methods. It may well be that, when the tumult of the war is a distant echo, and the making of munitions a nightmare of the past, the effort now being made to soften asperities, to secure the welfare of the workers, and to build a bridge of sympathy and understanding between employer and employed, will have left results of permanent and enduring value to the workers, to the nation and to mankind at large."

In conclusion, it seems important to call attention again to the fact that one of the most important and promising agencies in reducing the present excessive and ruinous turnover of labor is to continue and develop the entire field of welfare work, which has been already so well started and carried on by some of the industrial plants of the country.

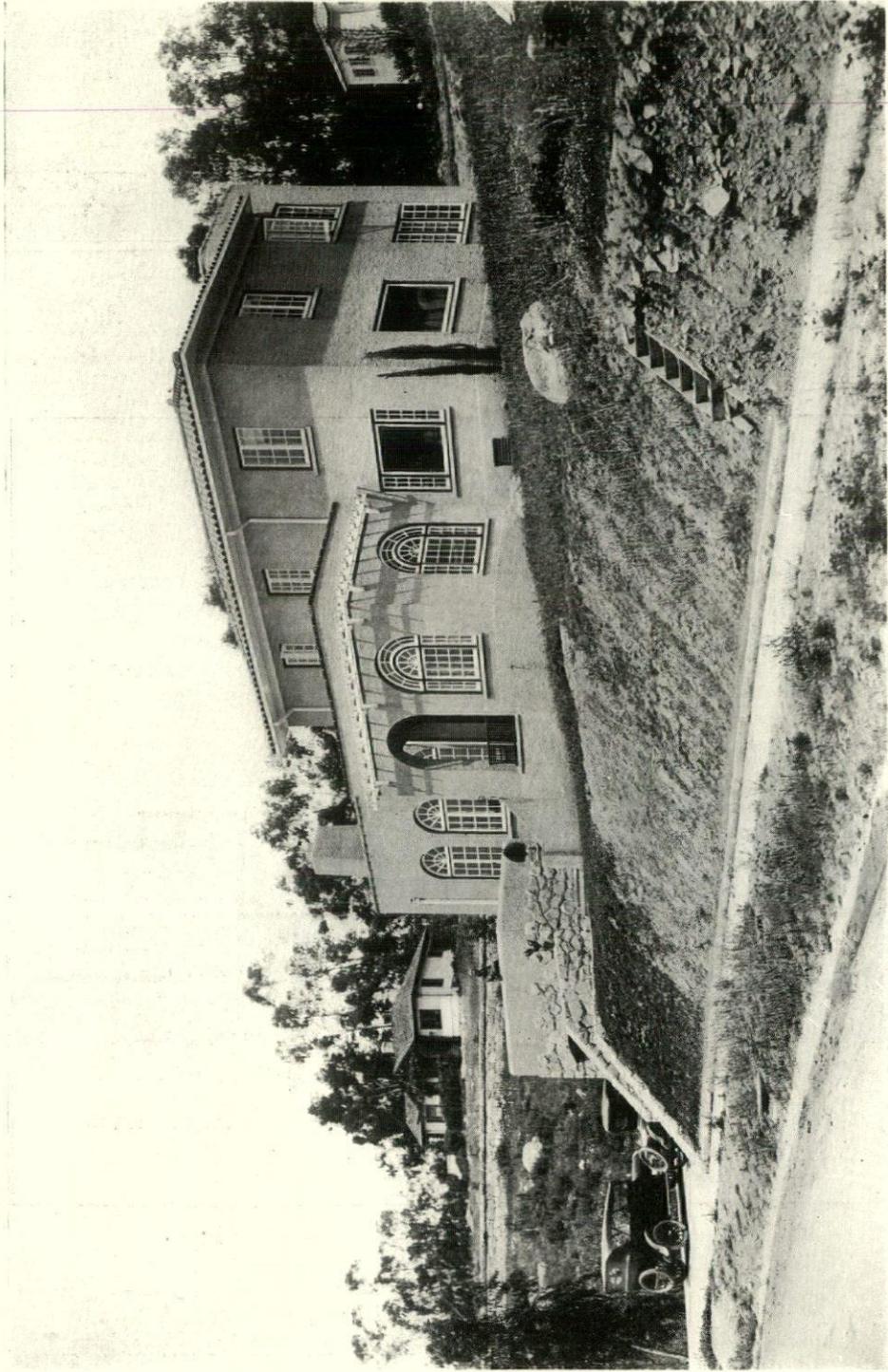
Welfare work is unique in its ultimate effect and benefits, as compared with the improvements and betterments adopted in the past by different concerns in industry to get ahead of their competitors. Whenever improved machinery or new processes adopted by enterprising plants became generally or universally used, which was nearly always the case, then the competitive value of such improvements entirely disappeared; while with welfare work the ultimate effect is entirely different.

A firm which maintains the most complete system of welfare work may be closed by a sympathetic strike which really originated from causes growing out of the lack of welfare work at the plant of one or more of its competitors. Likewise the discontent of employees at plants where they are treated badly may

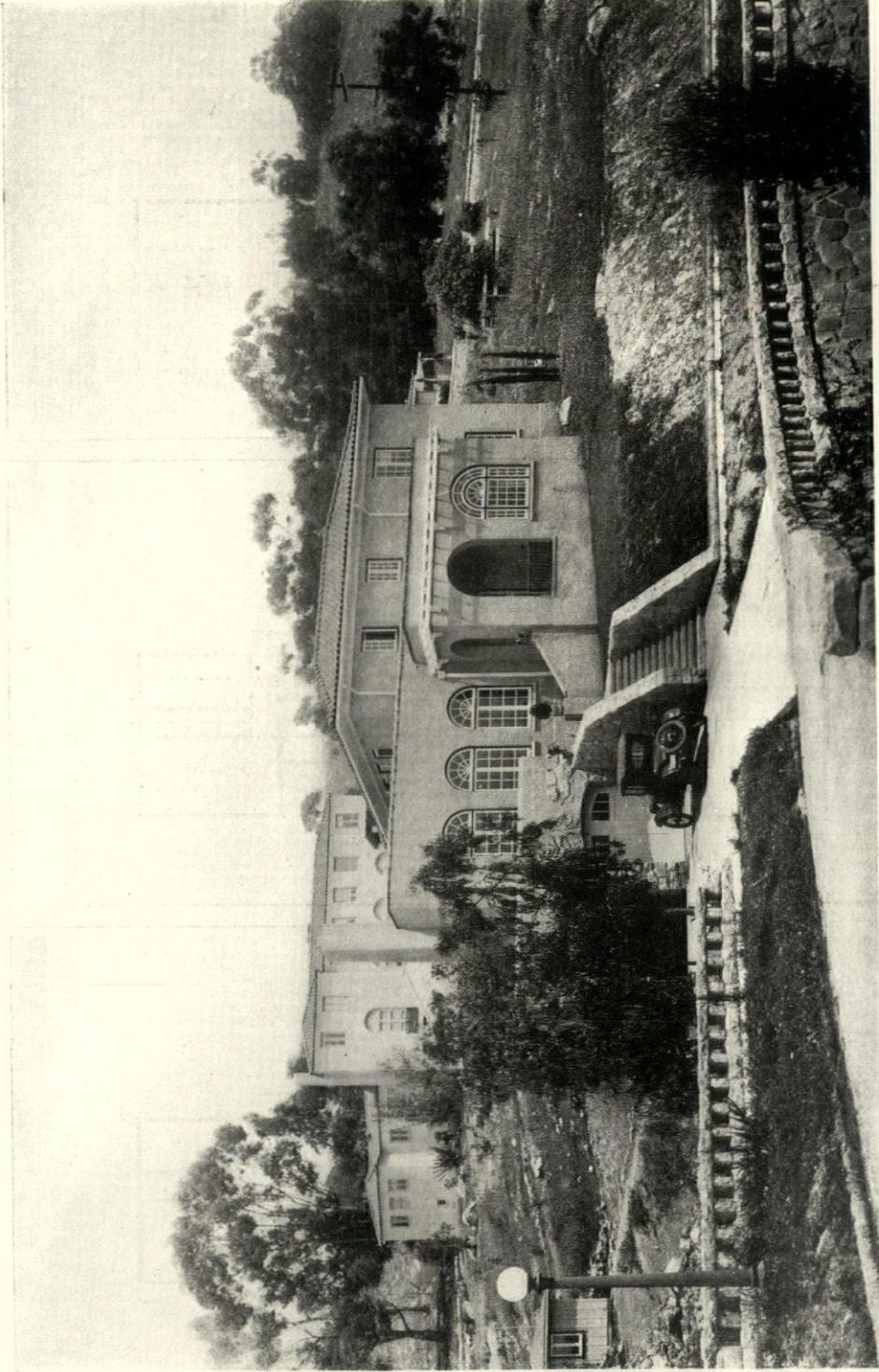
result in the adoption by the labor organizations of rules and regulations that will work hardships on the model industrial plant as well as upon the objectionable one, so that the complete benefits of welfare work cannot be gained until it is generally adopted. When it is generally adopted its competitive value would not change materially from what it is now, except in regard to reducing labor turnover at each plant where welfare work had been installed; but all the other benefits which result from a contented labor body cannot come to any great extent until welfare work has been generally adopted. So that welfare work universally adopted will tend to lift all indus-

tries out of a bad situation prevailing now with labor, into a new condition where labor will be more contented, more efficient, more reasonable and above all more loyal to the firms by whom the workers are employed.

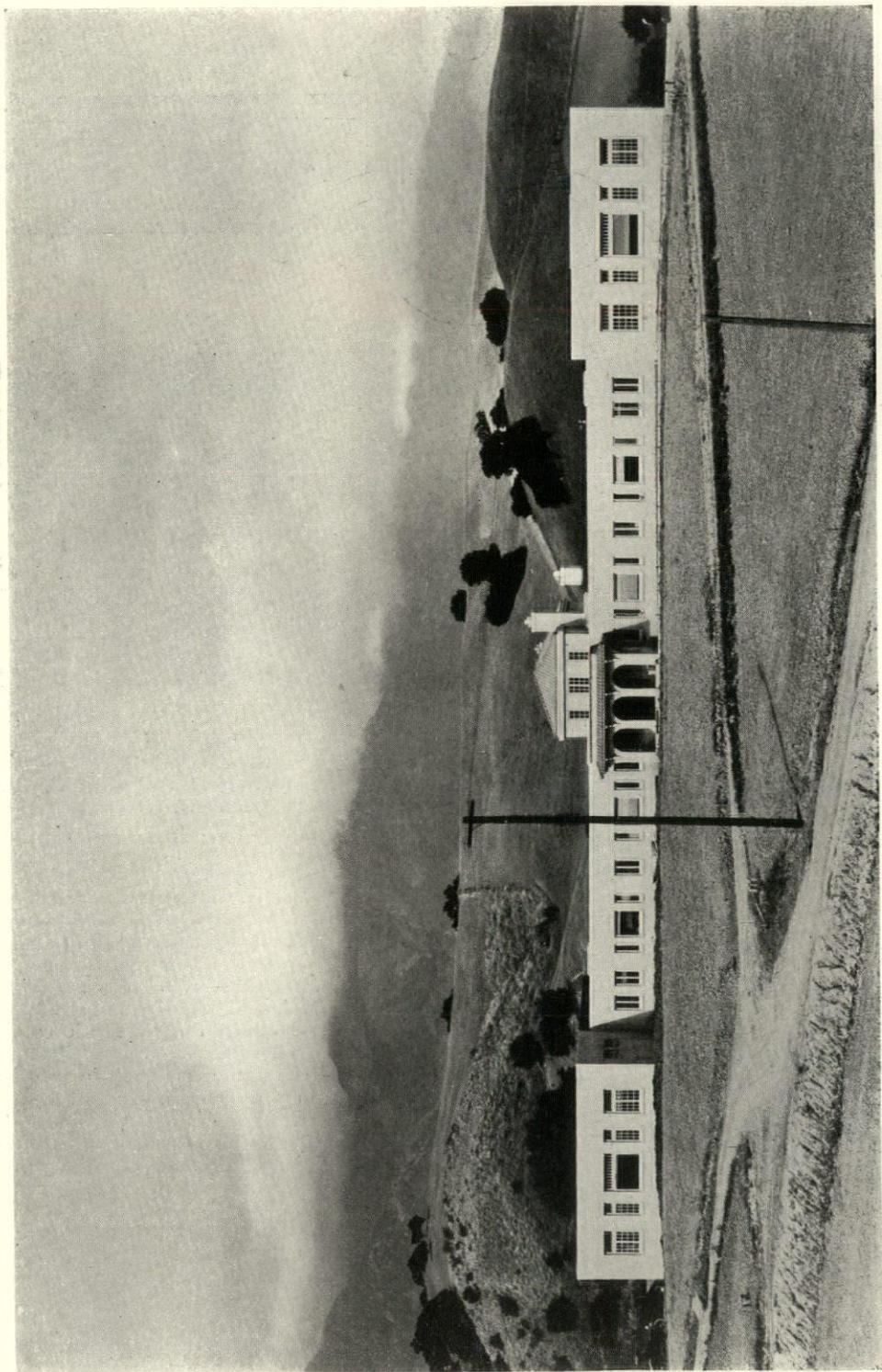
In addition to this the great benefits which come to every community and every city where the industries maintain complete welfare provisions for their employees are added reasons why it should grow and become universal. For after all in this country, where industry is the chief pursuit, it is only with contented, healthy, efficient, loyal and happy workmen that the nation can prosper and attain the high goal of its aims and ambition.



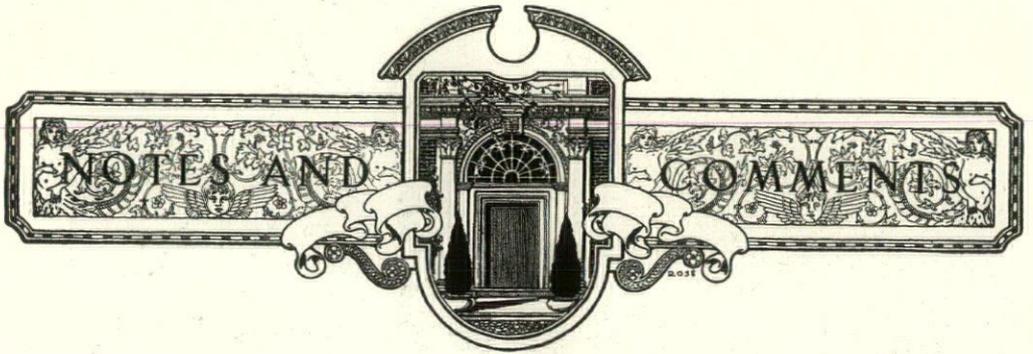
RESIDENCE OF HARRY A. SMITH, ESQ.,
THE RIVIERA, SANTA BARBARA, CALI-
FORNIA. ROLAND F. SAUTER, ARCHITECT.



RESIDENCE OF HARRY A. SMITH, ESQ.,
THE RIVIERA, SANTA BARBARA, CALI-
FORNIA. ROLAND F. SAUTER, ARCHITECT.



SANTA BARBARA COUNTY HOSPITAL, GOLETA,
CALIFORNIA. ROLAND F. SAUTER, ARCHITECT.



**Some Landmarks
of Dutchess
County.**

There were two reasons why I wished to look up the remains of early settlements in the Hudson Valley. I had made a special study of the early history of New York State, and there were such contradictory opinions as to the merits and importance of Dutch Colonial architecture that my curiosity concerning it was aroused.

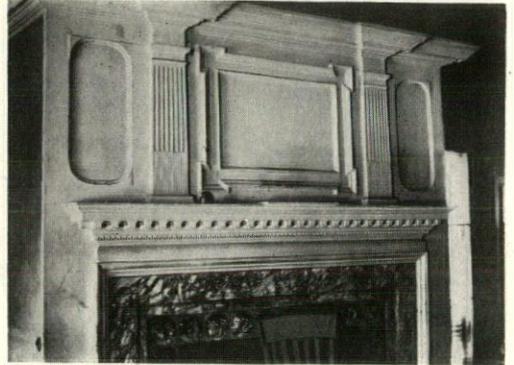
Planning my expedition with the aid of a map, I decided on Poughkeepsie as my first destination, for it is a central location, being about half way between New York and Albany.

Of course, I was anxious to be in or near the oldest section of the city, and luck guided me to Cannon street, which, as a history of Poughkeepsie obtained at the library informed me, was the first street of the town to be laid out. This local history also gave me the information that the Albany Post Road, disguised under the names of Market and Washington streets, was only two blocks away.

This all-important Albany Road had de-



END VIEW, SHOWING SMALL EARLIER HOUSE IN REAR—MESIER HOUSE, WAPPINGERS FALLS. BUILT ABOUT 1742.



OVERMANTEL WITH PICTURE PANELS IN MESIER HOUSE.

termined the location of the town almost two miles back from the river—perhaps, though, that is too much to assume for the first mill of the locality, always a grist mill (bread is the stall of life!), was east of the post road. And in every place along the Hudson that I visited, the water power of the many streams that flowed into it was back from the river, so that the early settlements were in pairs—the mill settlement on high ground and the landing at the water's edge. Modern Poughkeepsie comprises both.

"Pokipsie"—the name was spelt forty different ways in old records—spread itself east from the post road along Cannon and Church streets ("Church" was the second street laid out) to "Ragged Lane," afterwards Academy street. And in this quadrangular section the largest and so the most interesting fragment of old Poughkeepsie is to be found.

Old fashioned stone flagging with wide brick borders is the rule here and a brick sidewalk is easy on the feet as well as being restful to the eye. On either corner of Cannon street, where it begins at the post



OLD "BARNARD" HOUSE, CANNON STREET,
POUGHKEEPSIE, N. Y.

road (where the cannon were once planted), are two brick buildings in great contrast to each other, the one on the left claiming the attention first.

The edifice, used as a bank ever since 1811, was before that time a residence, date of erection not known. It has marble entrances and string course on which laurel wreaths are carved in low relief. Surmounting its roof is one of those well designed Colonial cupolas almost hidden in this case by a balustrade of wood; and below the balustrade is a wide frieze pierced by many windows covered by grilles which appear to be of iron, but with the rest of the frieze and balustrade they are painted white and so are most effective as ornamentation.

The office building on the right, a once famous hostelry (the Duchess Hotel), is severely plain with its Cannon street entrance unchanged—but what distinction it has when compared with the modern business block with the tin cornice which has intruded on Cannon street just the other side of it!

There are other modern intrusions; but the old work of this old section of the street has so much variety that its unity of effect is surprising, and of course its variety enhances its interest.

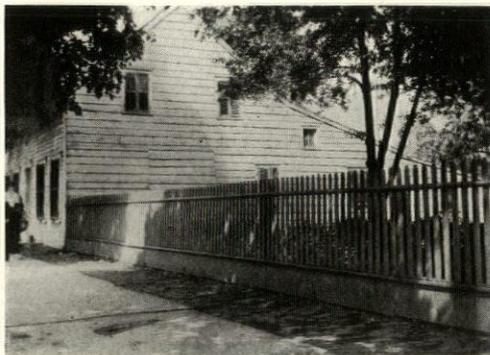
There are the Masonic Temple, for-

merly a church, built in 1845; and the W. C. T. U. Building, one time Miss Arabella Bosworth's "Female Academy," of ten years earlier, showing different phases of classic revival; a gambrel roofed dwelling, owned, though perhaps never lived in, by Governor Clinton; the old "Barnard-house," that seems, perhaps, more typical of New England; and the two buildings flanking the entrance of picturesque Wood Lane, one older and smaller than the other, but both having that family resemblance which leads one to call them Dutch. The older of the two needs to be viewed from the rear and then its ancient looking dormers can be seen. It is claimed that dormers were not a feature of the earliest work, yet the Kip house of old Manhattan, built in the 17th century had them, and those sliding-down-the-roofs windows were its most conspicuous feature.* The other building also needs to be looked at from a point toward the rear, on Liberty street; it has very decorative and very "Dutch" gable ends.

And there are two relatively large buildings of recent erection on the street, which were expected, perhaps, after their stereotyped details were added, to harmonize with their surroundings. It might seem strange that local examples (in this case right at hand) are so seldom studied when people wish to build in the Colonial style; but unfortunately, in these days when the builder orders from stock, the studying of catalogues is all that seems to be necessary.

Perhaps one reason Cannon street retains its old-time atmosphere is the gardens behind the houses. They have a great amount of brick paving in them—

*See Harper's Encyclopaedia of United States History, new edition, Vol. VI; reproduction of old print under "New York City."



OLD HOUSE, CORNER ACADEMY AND CHURCH
STREETS, POUGHKEEPSIE, N. Y.

walks and dooryards; but some of it has been allowed to vanish in the grass. There are two-story rear porches too, which show that the early residents of the street liked living out-of-doors.

Around the corner, on Academy and Church streets, is more of the quaintness of by-gone days, but of an informal sort, with clothes lines slung about. However, there is one very fine doorway on Church street (No. 196), and this part could be made just as effective by judicious restoration as the more dignified Cannon street might be made.

The importance of keeping a group of old buildings wherever possible has not been often recognized. But instead of making a cardboard model of a Colonial settlement for school children to examine, why not preserve the real thing whenever it can be done?

The Thompson Memorial Library on the Vassar campus would satisfy everyone's conception of architecture, but there is an old structure in the center of Poughkeepsie which only a miracle, so it seems, could have spared; this is the old village hall. It still serves its purpose as municipal building for the city, and this has been made possible by an inconspicuous addition on the rear. So situated on Main street that it faces the post road, it still bears aloft the same bell that once summoned the villagers to town meetings. Its old open bell tower is its striking feature.

The Clinton House, undoubtedly much older than this interesting town hall, is also on Main street, the old "Filkentown road," but in what appears to have been an isolated situation, some distance east of the original settlement. It is built of stone with massive walls. Since it was occupied by Governor Clinton, when the legislature



NO. 196 CHURCH STREET, POUGHKEEPSIE, N. Y.

The owner has taken liberties with the carved entablature of the doorway.

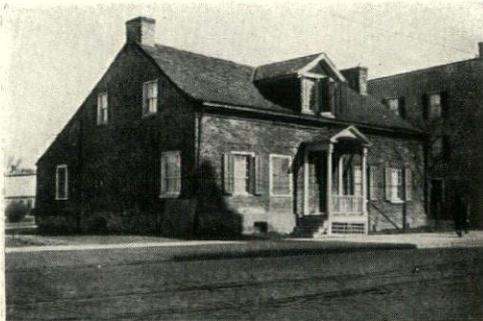
met at Poughkeepsie, and is known to have been used for important purposes, it has been purchased by the state and is now in the care of the Daughters of the American Revolution.

A few blocks farther on is the little "glebe house" or Church of England rectory, built in 1767, which has escaped the usual coat of red paint with which brick houses are disfigured, and other unfortunate alterations.

Dutchess County, which included Putnam then, was originally settled only by the Dutch and some French. It was not until about 1740 that a steady emigration of settlers from Long Island began, and most of them were English.

Near the upper end of the county, between Rhinebeck and its landing, now called Rhinecliff, is the old Beekman place, noted for the political and social gatherings which were held there in pre-Revolutionary days. The original part of it, built in 1700, looks more like a European farmhouse, with its hipped gable and varying wall heights, than anything American.

"Historic old Rhinebeck" disappointed me, for there was not very much of it left, and the remaining fragments did not show to advantage. To go along a street and see beautiful old work rotting away from



OLD "GLEBE" HOUSE, POUGHKEEPSIE, N. Y.
BUILT ABOUT 1767.



BANK BUILDING, CORNER OF MARKET AND CANNON STREETS, POUGHKEEPSIE, N. Y., AS IT STANDS NOW.

The first floor has been lowered nearly to ground level, and this necessitated the taking away of the short flight of stone steps from the front and side entrances.

neglect, while houses of the Victorian and packing-box types are all glistening in fresh coats of yellow and white, is, to say the least, trying to one's optimism.

There is something more than indifference; there is still contempt for the old, lurking beneath this neglect of our Colonial heritage.

Fishkill Landing, in the lower part of the county, was an important place during the War of Independence, now it is the city of Beacon and proud of its modernity. But, if there had been modern business blocks in the background of the artistic public fountain there, instead of a glimpse of the old picture-building of Fishkill Landing, the good effect of this little monument would be lacking.

Fishkill Village, a few miles back from the river, was a depot of military supplies for the Continental army, and its ancient churches, the Dutch and old Trinity, were both used as meeting places for the provincial congress of the state. On opposite sides of the quiet street with their graveyards adjoining them, they claim the traveler's first attention, but there are other important architectural relics near-by worth looking up.

The old Wharton and Brinckerhoff houses have been changed but little since Revolutionary days. And then there is

another old homestead which history connects with the first mill of Dutchess County.

Both house and mill were built in 1709 on land bought from the red men, and Madam Brett's mill was known far and wide. Her home, afterwards known as the Teller house and still lived in by her descendants, is a good example of the country house built by the early Dutch settlers.

A succeeding type is that of the Verplanck house beside the Hudson, two miles north of Beacon, where the Society of the Cincinnati was organized, and Baron Steuben had his headquarters. This has the gambrel roof which the Dutch builders made a thing of beauty. It was built in 1740.

Another type, spoken of in an old Connecticut County history as a "lean-to mansion," is the Peter Mesier homestead of about the same period, in the picturesque village of Wappingers Falls.

The name Wappingers comes from the tribe of Indians who were the inhabitants of the region when the whites first came to it. This was about 1714, and the original part of the Mesier house, complete in itself, but connected with the main portion, may date back as far as that.

The Mesier family were Huguenots who came from France to New Amsterdam in the seventeenth century to escape religious persecution. They became wealthy merchants and ardent Tories, and when a century later, the American army recaptured the city of New York, most of their property there was confiscated.

But they had just beforehand purchased through an intermediary a large tract of land "in the Wappins," containing the old dwelling house which now bears their name.



CLINTON HOUSE, POUGHKEEPSIE, N. Y.



"TELLER" HOUSE, FISHKILL, N. Y.

The "Teller" house illustrates the old dormer windows referred to in text.

Nicholas Brewer, the former owner, obtained possession of the property in 1741, so the house was probably built soon after that date.

Its interior, although papered and furnished in the worst possible taste, is of

great interest. There are four entirely different types of old fireplaces there, and two of them have scripture tiles in Delft blue and mulberry.

The chimney breast in the "Magistrate's room," where local justice was administered and delinquent negro slaves were sentenced to be flogged, is almost eight feet across, and surrounded by paneling painted buff color with cupboards behind it, which covers the entire side of the room. The old house, perhaps because of long-surviving political prejudices, seems to have been somewhat neglected by antiquarians—or it may be that its Victorian Gothic decorations have caused them to pass it by.

It now contains the village hall and polling place, the headquarters of the visiting nurse, and, until recently, the firemen's headquarters too. Its long porch with the octagon columns, probably an early 19th century addition, and the little park with fine trees which surrounds it, belong to the public. Such is its present-day career of usefulness.

HELEN M. HASTINGS.