

THE AMERICAN ARCHITECT

VOL. CX

WEDNESDAY, NOVEMBER 22, 1916

NUMBER 2135

HOW TO GET LOW COST HOUSES*

THE REAL HOUSING PROBLEM AND THE ART OF CONSTRUCTION

By GROSVENOR ATTERBURY, F.A.I.A.

THOSE who have studied the Housing Problem carefully will not be surprised at my answer to the question of how to obtain low-cost houses and tenements for the workingman. But the ordinary citizen is likely to be puzzled particularly at the two requisites, which, in my judgment, are most fundamental.

The first is: Honest and efficient government. Very few people have any idea of the enormous sums that are uselessly added to the cost of building in practically all of the cities of this country in order to protect the public against dishonest construction. Architects and engineers speak of it as the "factor of safety." From a broader point of view it were better called "the factor of dishonesty."

The second requisite consists in scientific building regulation, by which I mean a National basic building code based on standard engineering co-efficients and government tests. Here, again, the layman has no conception of the extent to which careful design and structural work is penalized through the inconsistencies and, in many cases, grossly erroneous principles upon which building regulations are draughted. Here, also, the waste is often euphoniously termed "a factor of safety." It would come nearer the mark to call it the "factor of stupidity." Could you call it anything else where but recently the same mixture of concrete, in accordance with the ordinances of Manhattan and Queens, was decreed to gain some 30 per cent in

strength by crossing the East River and locating in the suburbs? Do you realize what this means practically? Time does not permit me to go into detail but it may help to point my moral when I tell you that whereas the building law requires us to use 12 and 16 inch foundations and basement walls at Forest Hills Gardens, I am to-day building houses of a similar type in Tennessee with walls only 4 or 5 inches thick and I have not the slightest doubt but that they are amply sufficient for their purpose.

Now, I have touched very briefly on the two preceding points, partly because a great many of you are thoroughly familiar with the situation in these respects and partly because the next step in my program for obtaining the most economic solution of the workingman's home is one that is likely to appear more novel and will, perhaps, be more interesting, if not more instructive.

The third requisite, then, for obtaining low-cost houses is organized scientific research work in economic construction. It would be difficult to find a practical art which throughout all the centuries of man's civilization has made slower progress than the art of home-building. Notice that I do not say "building construction," although if we were to except the past ten or fifteen years my stricture would apply to that class of work equally well. Until the discovery and development of steel truss construction and the rediscovery of the use of concrete, we have been practically following, generation after generation and century after century, methods of construction substantially perfected by the Mound Builders.

*An address delivered before the Fifth National Housing Conference at Providence, R. I.

THE AMERICAN ARCHITECT

Now that we are awake, the progress in certain types of buildings has been nothing short of marvelous. The great commercial structures that are going up to-day represent the high-water mark of executive, technical, mechanical and manual skill. It would be hard to find, except possibly in the field of military operations abroad, finer examples of co-operation and co-ordination than on the 30-story steel skeleton structure that rises almost complete as fast as the derricks can climb skyward.

Now you might think that these results in the commercial building are obtained by reason of the fact that such buildings represent in the aggregate by far the greatest capital investment. Quite the contrary: In the aggregate by far the greatest sum spent in this country to-day is in domestic work and principally in the workingman's home—either cottage or tenement.

Roughly speaking, in New York City alone one hundred million dollars is annually spent on tenements and small houses out of a total of one hundred and fifty million for the entire building construction of the city. An even higher proportion for home construction would hold true of the entire country. Why, then, is it that, where we can build fireproof, stone encased structures containing every convenience and a good many extravagant luxuries for 40 cents per cubic foot, within the same city limits, small non-fireproof houses, built of brick and wood in the simplest way, honestly meeting the requirements of the building law, will cost between 25 or 30 cents? The disproportion between cost and type of structure is out of all reason. The explanation lies, of course, in the fact that the individual house is a product of disorganized, individual effort, whereas the great building is sufficiently important to justify careful organization and concentration of all the co-ordinate activities necessary for its production. It is organized construction against disorganized construction; co-operation against disjointed individual effort; to a growing extent, standardization against constructional chaos.

It comes, then, to the question of

whether there is any vital reason why the great housing problem should not avail itself of just such modern methods of combination, co-operation and concentration, as have produced such astonishing results in almost every other commercial activity in this country. You may say that the little house does not involve enough capital to make it worth while, but you must not forget that it is the cheapest type of watch that has "made the dollar famous," and that you can buy about ten perfectly good "stream-line Fords" for the cost of a single workingman's home.

Now it is a curious fact that scientific and co-operative principles have been practically applied to the production of almost every other item in the poor man's living account but the second largest single one—that of his housing. His bread, his clothing, and his watch are factory products, largely guaranteed—sometimes by government. His house is usually "custom-made" and bought at the mercy of a speculative builder.

A proposal to clothe the destitute with custom-made garments would be laughed to scorn. Of stock patterns and sizes clothing can be turned out in quantities at a fraction of the cost of individual manufacture. Yet we are enthusiastically trying to house our poor in "custom-made" tenements and are puzzled and worried when we find that, in spite of most model planning, the cost of the model tenement fails to go down so as to bring its rentals within the means of the poorer laboring classes whom we wish to reach. In fact, in this respect we find it difficult to compete successfully against the ordinary tenement.

Now, the obvious solution appears to me to lie in the standardization, not necessarily of the general plan, but of its various component units and structural elements. Carried to its logical conclusion, as I believe it should be, this principle would result in a system of "standard dwellings" manufacture, in a "ready-made" system, if you please, of wholesale fabrication like that which has already given the poor man his two-dollar shoes, and his ten-dollar suit of clothes.

THE AMERICAN ARCHITECT

This, then, is the third step in the program I suggest to obtain truly economical construction for the housing of our great masses of working people and the questions which it opens up may be stated as follows:

First: Assuming the possibility of economy in building methods and more especially in certain types of structures where standardization may be feasible and considering the problem of building erection, regardless of any precedent, or present system of construction, either as to material, apparatus or design; assuming, in other words, a clean sheet, and considering only modern requirements, materials, processes and mechanical devices, what is the theoretic solution to-day of the problem of economic building?

Second: Can this theoretic solution when found be made practical?

Now it seems to me that the answer to the first of these questions must lie in:—

(a) The maximum possible adaptation of design to the most economic methods of building construction.

(b) The adaptation of materials and methods of construction to the latest and most efficient mechanical devices, meaning the minimizing of hand labor.

And to this end that the solution consequently involved:—

(c) The readjustment of the building unit with the object of reducing the number to the minimum and increasing their size to the maximum compatible with economic duplication and handling.

(d) The adaptation of a system of shop manufacture with its possibilities of standard economic conditions of all kinds.

(e) The maximum consolidation of processes in manufacture, meaning the further elimination of waste—time, labor and material.

(f) The maximum of standardization in design compatible with certain practical and esthetic standards—meaning still further economy in cost of plant and mechanism required for the manufacture and erection of the units.

In other words, that the theoretic solution of the problem, as a result of considerations such as the foregoing, must consist in the employment of a more or less standardized, shop-made, and com-

pletely finished building section or unit, of the maximum economic size, as determined equally by the type of structure into which it enters, and by the latest mechanical devices available for its manufacture, transportation, handling and erection.

The answer to the second question must be found in actual experiment and demonstration.

In this study of the possibilities of standardized dwellings we have borne in mind not only the matter of first cost, but the very important element of upkeep, deterioration and fire loss. While in the nature of collateral economies the savings that would accrue from the substitution of a homogeneous, absolutely fireproof house for the tinder boxes that now make our national per capita fire losses two or three times greater than those of any other civilized country, as well as the consequent reduction in the upkeep and deterioration charges, would both serve materially to increase the savings in housing cost which we are striving to effect.

It has been upon this premise that we have been working on the idea of standardized dwellings. What we are trying to produce is not only obvious economy in material structure, but also in skilled expert service—such as is available now only to the rich man in the building of his home. The scheme, of course, is to do for the laboring man's house what Ford has done for the automobile, with certain additional conceptions relative to educational, hygienic and esthetic purposes. We set out without any prejudice in favor of any system or material, but with a program based on the theory of standardization, replication, shop manufacture and elimination and combination of processes, the substitution of power and machinery for hand labor and, by no means least, the mutual co-ordination of design and construction.

While in one sense we have only scratched the surface of the problem, in another sense we have passed the experimental stage and I think are ready for commercial development.

For several years I have not taken a very active part in conferences of

THE AMERICAN ARCHITECT

this kind. As one of the first to begin talking about the practical solution of the housing problem, model tenements and model towns, some fifteen years ago, it was quite proper that I should be among the first to stop talking about it and devote myself to an effort to find some practical constructive solution, or at least make some small contribution toward it. The truth is, I became tired of being a sandwich man. For like a troop of sandwich men we have been crying down the wares of the speculative builder, the badly planned and poorly constructed tenement house and dwelling, and extolling the virtues of model housing. All of this has been very useful. We have stirred up the public and created a demand. But we have neglected to put on our signboard the address of the place where such goods are delivered.

And so it has seemed to me highly desirable to find out whether there was any such place. Now, while I would not have you think that in showing the progress we have made thus far I mean to claim that we have found it, I do believe that we have chosen the right road. Nor does this mean that it necessarily lies through this particular constructional system we have developed or, indeed, through any one of a number of others designed for the same purpose. But I believe that the principles we have laid down and the methods by which the problem has been approached are essentially sound and promising and go to complete a practical program for a real constructive contribution to the art of economic construction as applied to the housing of the working classes. For I believe that most of us realize by now that this constructive factor is the real crux of the housing problem.

Now my program so far, you will remember, is: First, a campaign for honest and efficient government; second, standard scientific building regulations; and third, organized scientific research work in economic construction. To these as an enacting clause I would now add, the formation of some research body or corporation whose function should be the carrying out—the practical execution—of the program. This applies naturally

more particularly to the study and demonstration of the constructional problem. The work of our own Housing Association as well as various other organizations already covers to a certain extent the balance of the program.

While present day contributions to the art of building, due to commercial competition, are indeed prolific, their value in the case of the workingman's home is largely lost, as I have already explained, by reason of lack of co-ordination, standardization and co-operative application. In the very nature of the case the countless individuals interested will obtain these advantages to the fullest extent only through some non-commercial agency devoted to the sole purpose of discovering, combining and demonstrating for the public benefit everything in the nature of a real contribution to the work of reducing to a minimum the cost of housing.

We have such agencies in other arts and sciences. The Rockefeller Institute for Medical Research, for example—or, in a somewhat closer field, the American Society for Testing Materials. And it seems to me that in default of its foundation by some farseeing philanthropist it remains for the National Housing Association to undertake this work.

To an audience that is only too well aware of the difficulties we have in meeting our present expenses while engaged in the comparatively cheap process of criticizing present conditions, I realize that this is a startling proposal. It calls for large financial backing. It asks for serious sacrifice and contributions from those experts who might contribute their services for its guidance. But unless the National Housing Association takes this logical step and assumes the leadership in a constructive program I can see little future for it after it has accomplished its present campaign of publicity and education.

Nor do I think that the difficulty of financing such a constructional research laboratory would be anything like the difficulties inherent in raising money for the kind of work we have been doing. For the work I have in mind would demonstrate these tangible, practical results

THE AMERICAN ARCHITECT

that appeal most strongly to contributors even in philanthropic fields.

Again, I believe that such an organization might in large measure become self-supporting, if not entirely so. There are doubtless a good many who are as desirous as I am to make their contribution, however small, to the housing problem, not in money but in their personal services along lines in which they are technically proficient. There is already a Research Corporation which devotes the profits accruing from certain inventions which have been put into its hands as trustee to the further study of certain commercial processes for the ultimate good of the community. Similarly, a research laboratory in the arts of construction as applied to the homes for the working classes might be the recipient of inventions whose earnings would be in turn applied to its support and the further study of the problem. And here, in order to avoid any possible misunderstanding, let me say that in the work financed by the Russell Sage Foundation my compensation consists only in the satisfaction of contributing whatever of value may result to the housing problem. And I stand ready to dedicate my rights in all such plans and inventions in their application to workingmen's homes and tenements to any association or agency that is of such a character as will properly guarantee the prosecution and development of this work on lines of public benefit and education. Such patents, I might add, as have issued from this work were taken out largely with the idea that they might possibly be a means of continuing this research work along just such lines as I am now proposing.

I have a definite plan with respect to this matter which will be submitted to our Board of Directors at its next meeting. But it seems wise to make this preliminary suggestion in open meeting so that it may have general consideration. It may not prove a practical proposition, but you have asked me to answer the question of how to get low cost houses for the working classes and I have been at some pains to give you a well considered answer. In return I would ask your serious consideration of my proposals.

The Passing of Two More Notable Painters

Following close upon the death of William M. Chase is the death of two other equally notable men in the field of the painter's art—William Gidney Bunce and Henry W. Ranger. Bunce met his death by being run over by an automobile while crossing a street in Hartford, Conn., and Ranger died suddenly from cardiac trouble in his studio in New York.

The passing of these three men marks the close of lives that set very decided standards in American art, and while there are among the younger generation of artists many men who will ultimately rise to equally high places, their methods of expression will not, perhaps, be so thoroughly individual and representative. Chase's superb portraits and still-life, Bunce's wonderful pictures of Venice and Ranger's New England landscapes all represent vigorous interpretations of good art that will stamp their authors as of the front rank of American painters.

Le Brun Traveling Scholarship

The Le Brun Traveling Scholarship Committee of the New York Chapter of the American Institute of Architects announces that the scholarship for the year 1916 has been awarded to Austin Cruver Whittlesey of New York.

Honorable mentions were given in the order named to Burnham Hoyt of New York, Ernest E. Weihe of San Francisco and Robert Pallesen of New York.

The program was one of unusual interest.

Discovery was assumed of a large gold and silver mine in the Southwest. A makeshift settlement of the "shanty" type is already located at the mines, and to arrest this undesirable development and create the nucleus of an industrial center, a tract fifteen miles square is assumed to be available. The program goes into considerable detail and suggestion for this development and afforded an opportunity of considerable interest in the working out of a scheme.

HOUSING AS A PART OF THE WORK OF THE LOCAL HEALTH DEPARTMENT*

By JOHN MOLITOR, *Architect*

Chief, Bureau of Housing, Pennsylvania Department of Health

LACK of knowledge of fundamental building principles is a serious menace when we consider the question of housing in relation to health work. Local health boards as a rule do not seem to understand the connection between the housing evils and the spread of disease, as, for example, surface drainage, unsanitary cesspools, lack of light and ventilation, dark, windowless bedrooms and cellar living. Nor, when these conditions are pointed out, do they realize the necessity for their prompt correction, although they have allowed such conditions to become the rule in a community rather than the exception.

Housing is a new thought, woven into our twentieth-century government along with many other ideas called into being through a new realization of community needs. Many towns are still without housing regulations, and where they have been thought of they have been considered part of the work of building inspection under the Public Safety Department and not of the Health Department—the old theory of safety being the protection of life from physical violence, while the new theory is not only this protection but also the protection of life from dangers of an insidious nature. In the famous argument between Herbert Spencer and Thomas Huxley at the time England was trying through parliamentary procedure to correct unsanitary conditions on private property, Spencer objected that “such legislation would amount to a social tax for the good of society, directly for the comfort and security of the rich.” Huxley replied: “If my neighbor chooses to have his drains in such a state as to create a poisonous atmosphere, which I breathe at risk, he restricts my freedom to live just as much as if he went about with a pistol threatening my life.”

A health department cannot properly protect the health of the people without control of the housing problems. In order, therefore, to effectively prevent the development of housing evils, the health department should have charge of building inspection and the approval of plans, and, further, should see that they conform to good housing and health laws.

Realizing the necessity for housing work as part of the work of a health department, we think it can best be done by the local health department under the direction of the State, in order to secure the benefit of a uniform State law.

Such a law would enable the State to step in when a local health board neglects to safeguard the health of the community. Local interests are too often powerful enough to cause this neglect, especially in regard to housing. A uniform law is of great value to architects and builders and it is their right to have some dependable legislation upon which they can rely in planning for new structures.

A uniform law will help develop housing and building inspection as a profession, something we now entirely lack. There is such a profession in most European countries and it is a much needed one here.

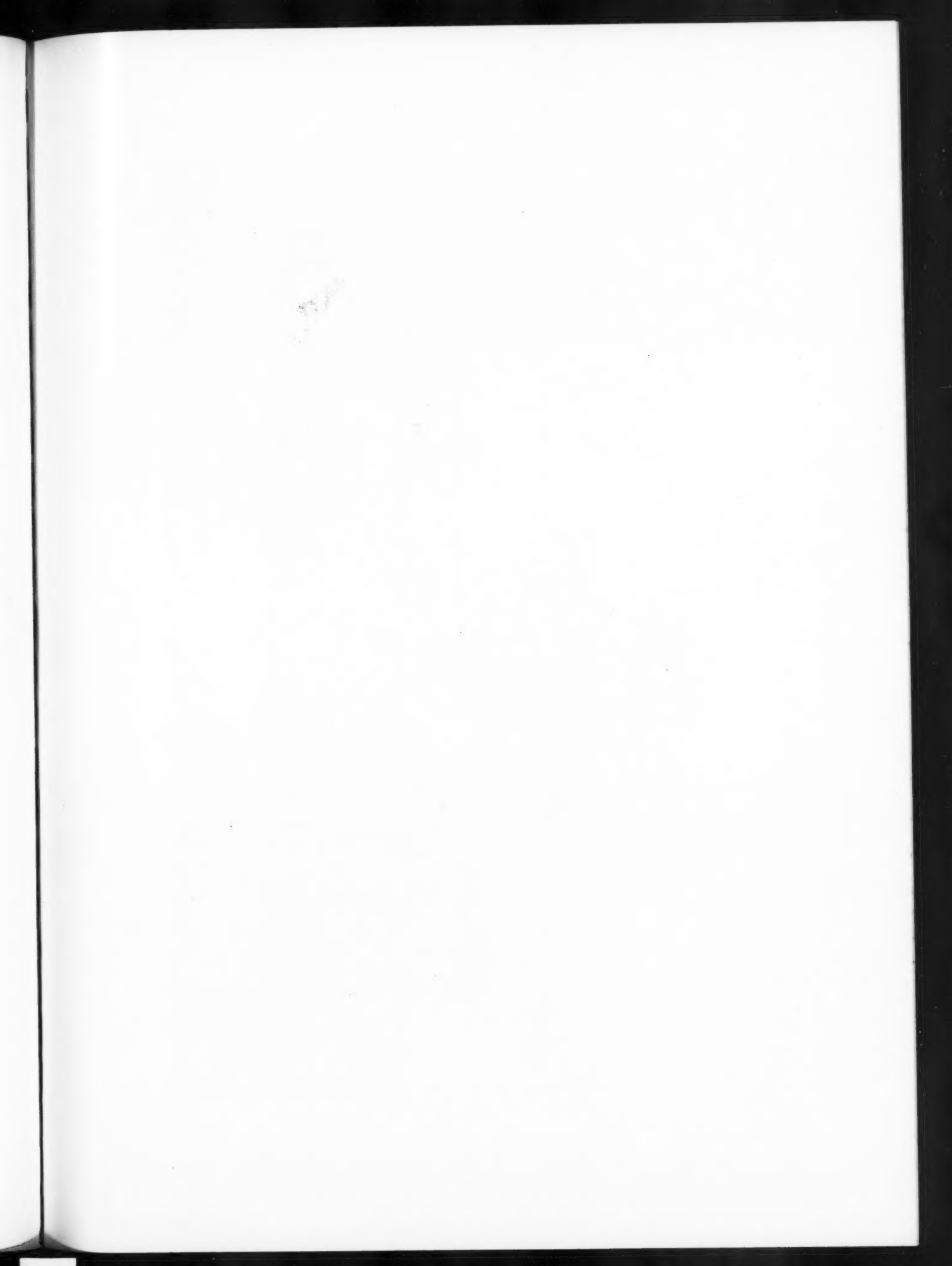
A uniform law will compel action on the part of indifferent municipalities; shall a progressive community suffer in an epidemic for the sins of carelessness in nearby towns?

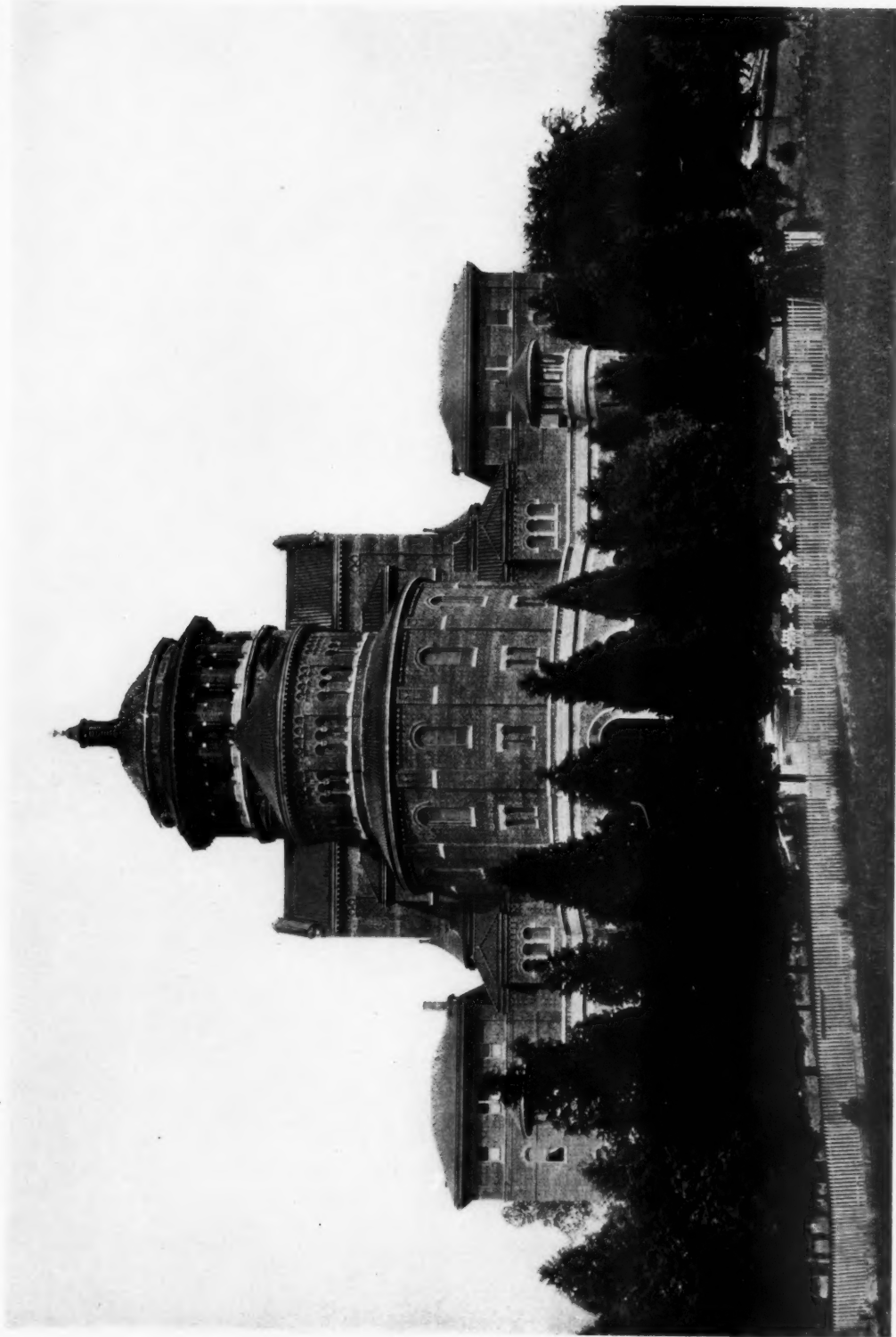
Let us study the situation of this summer in regard to the outbreak of infantile paralysis. Where did it originate in Brooklyn and New York? In the cleaner parts of town or in the overcrowded and unsanitary sections?

I can speak from my own experience of one Pennsylvania town where, out of the first thirteen cases of paralysis, all occurred in homes which had full cess-

*Address given before the Fifth National Conference on Housing in America, at Providence, R. I.

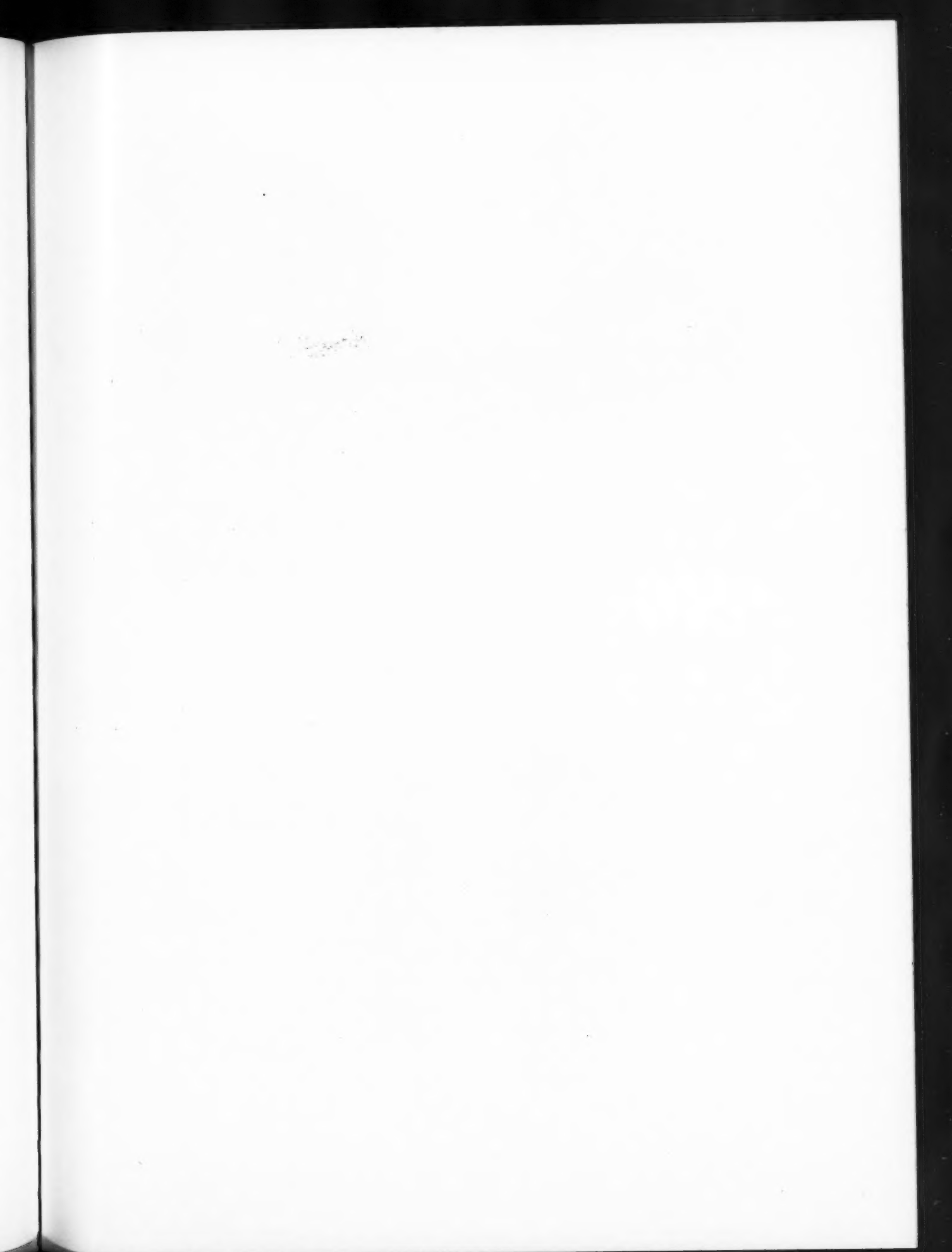
(Continued on page 325)

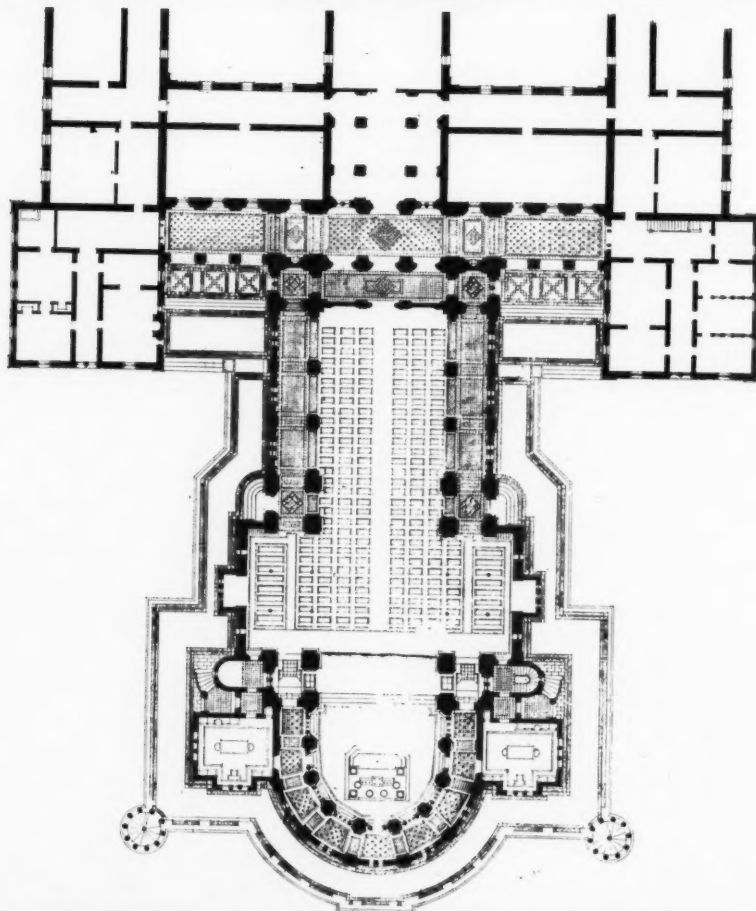
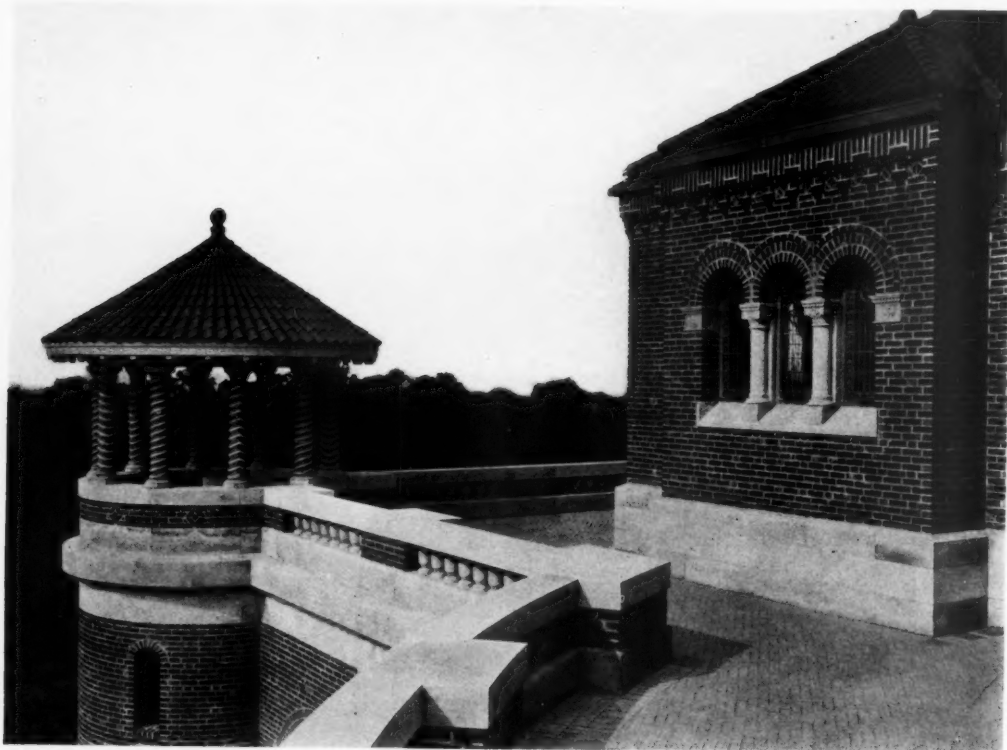




IMMACULATE CONCEPTION CONVENT AND CHAPEL, FERDINAND, IND.

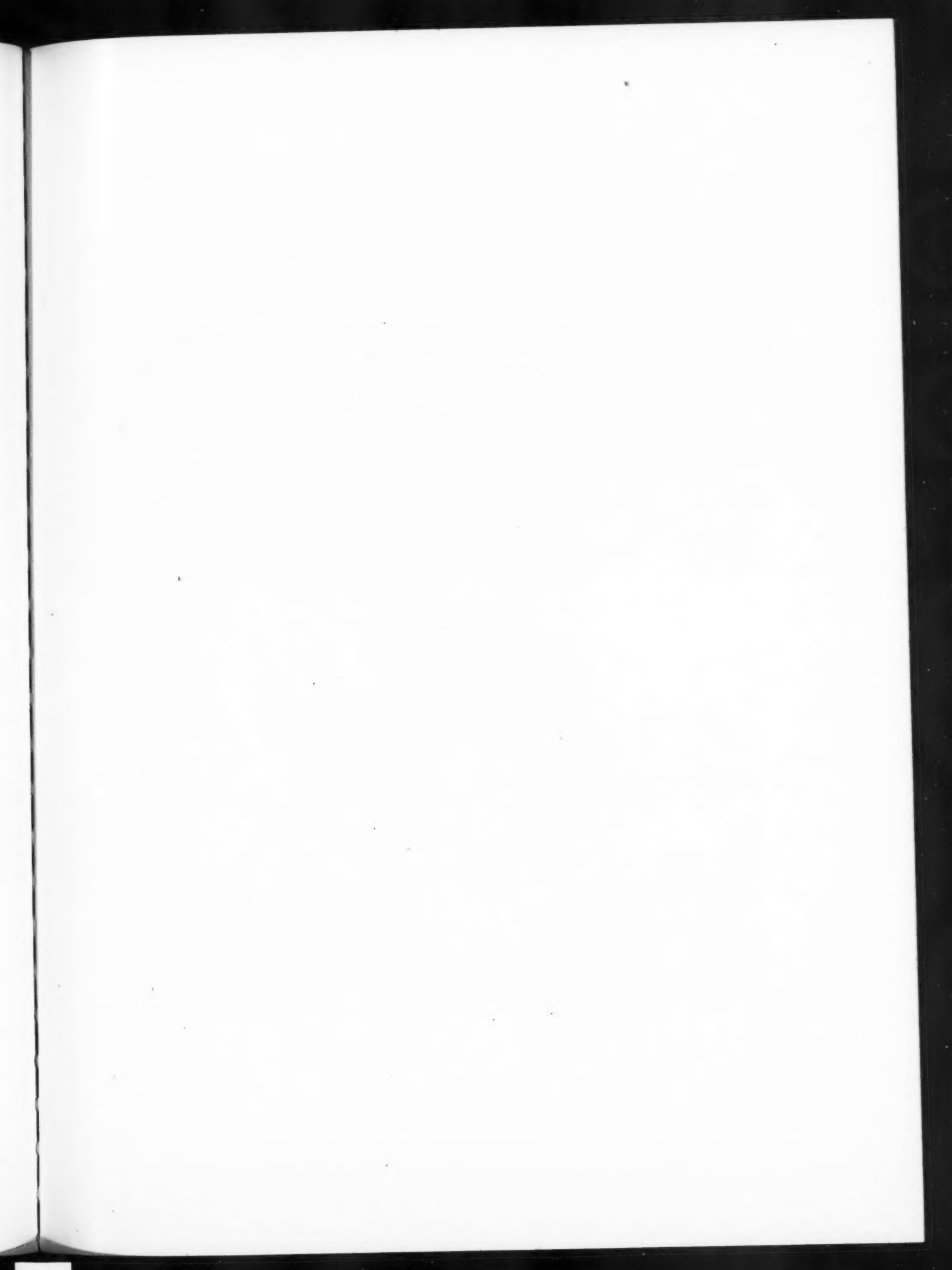
MR. VICTOR J. KLUTHO, ARCHITECT





IMMACULATE CONCEPTION CONVENT AND CHAPEL, FERDINAND, IND.

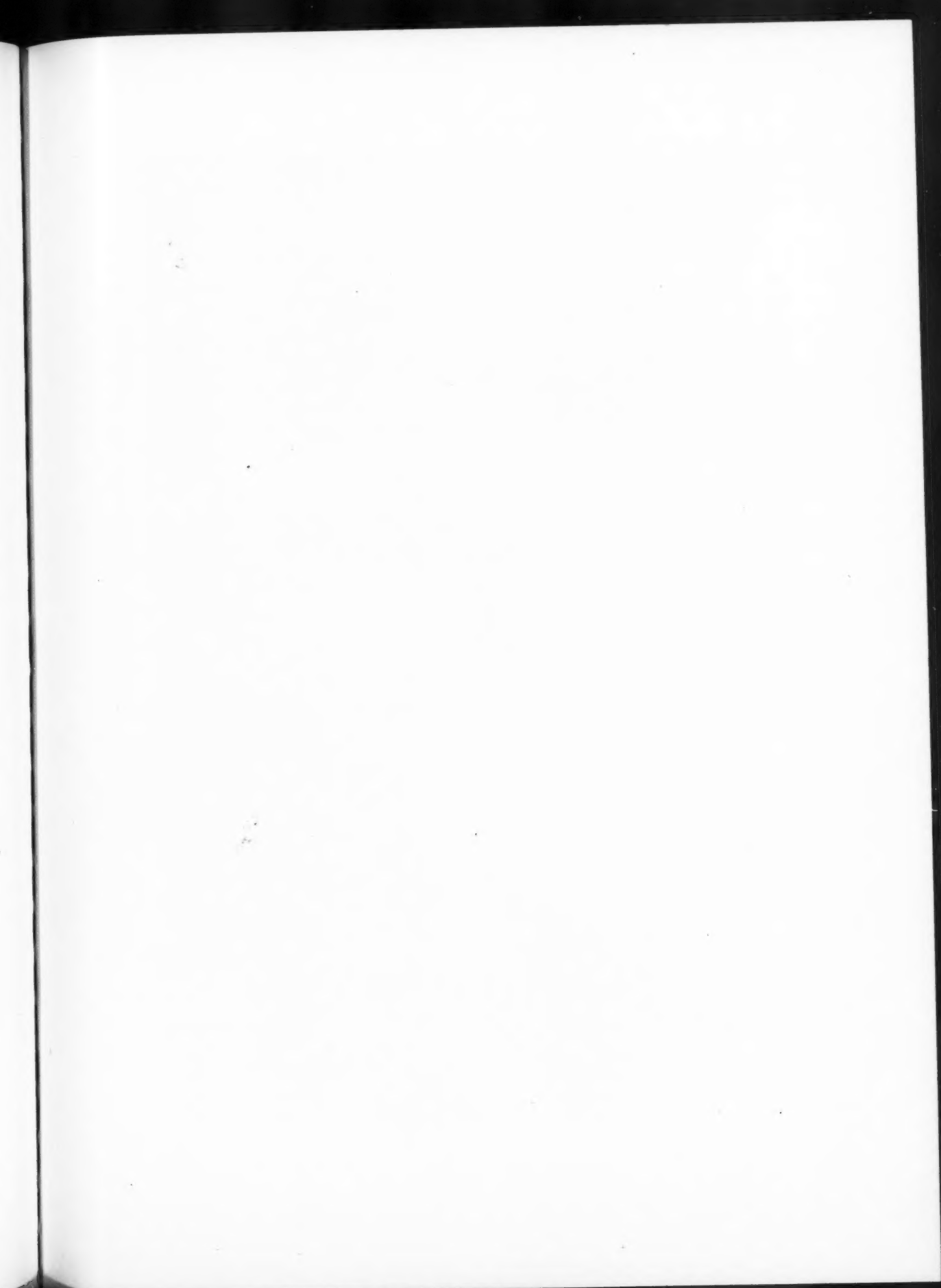
MR. VICTOR J. KLUTHO, ARCHITECT

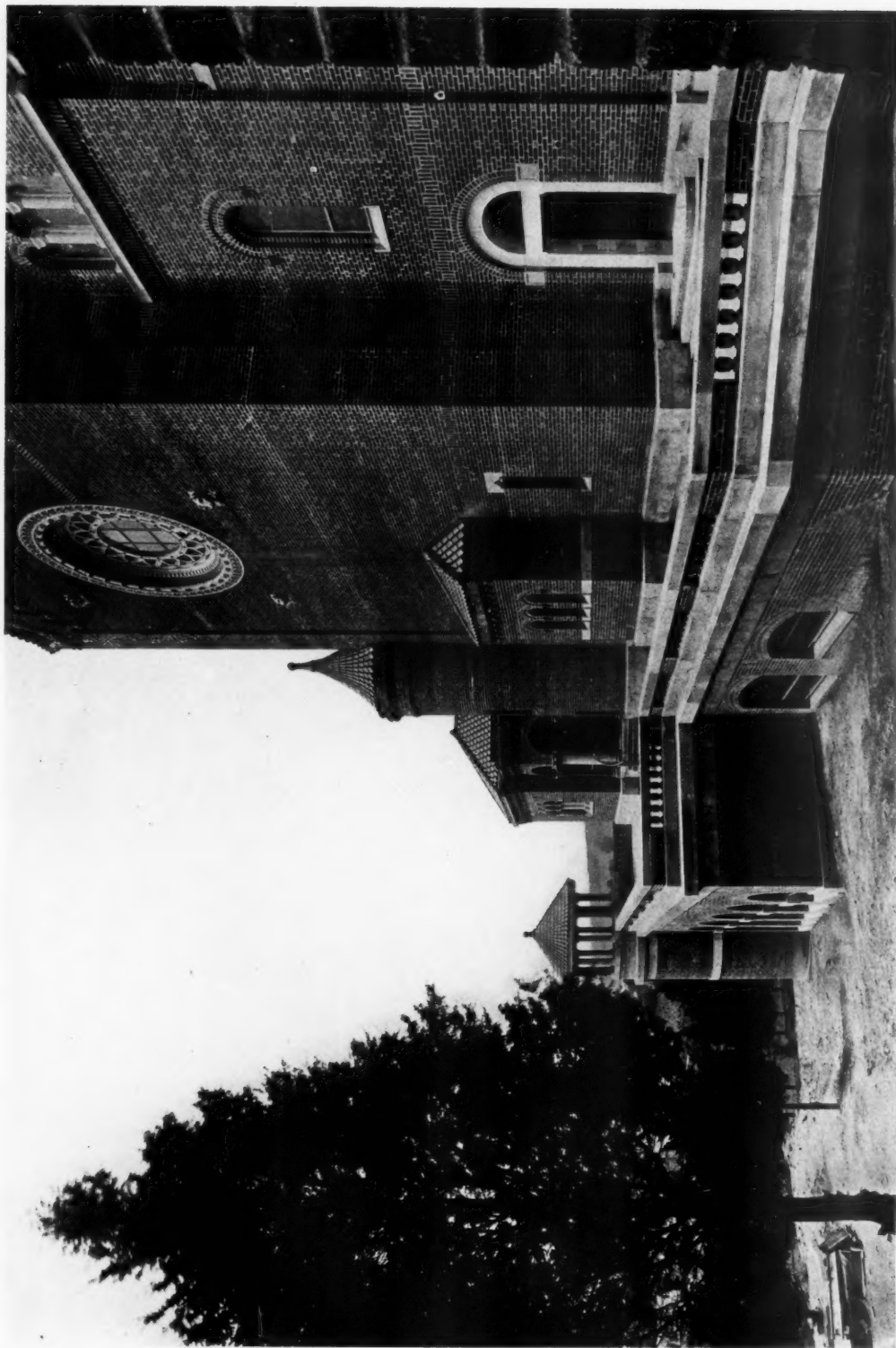




IMMACULATE CONCEPTION CONVENT AND CHAPEL, FERDINAND, IND.

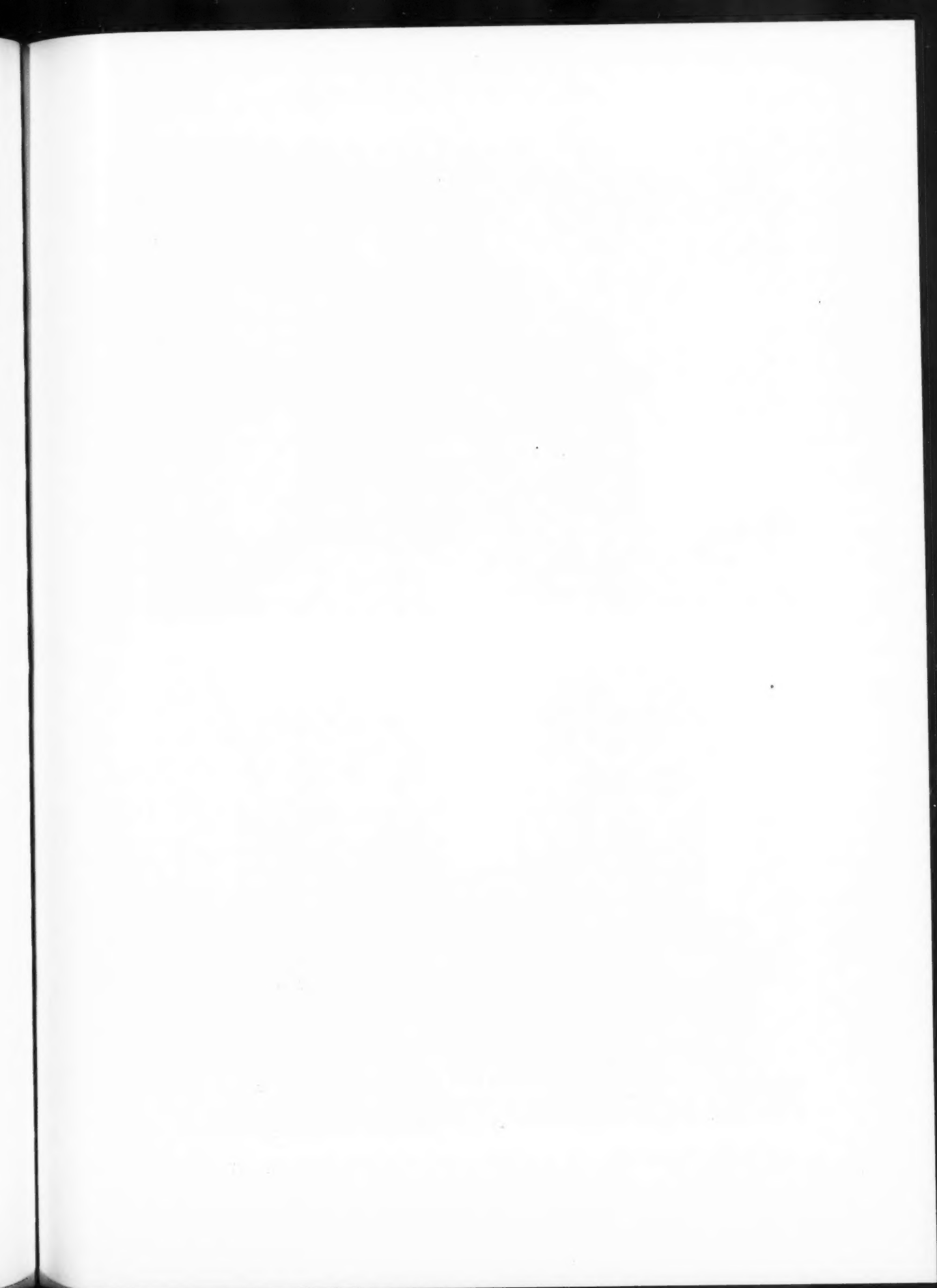
MR. VICTOR J. KLUTHO, ARCHITECT

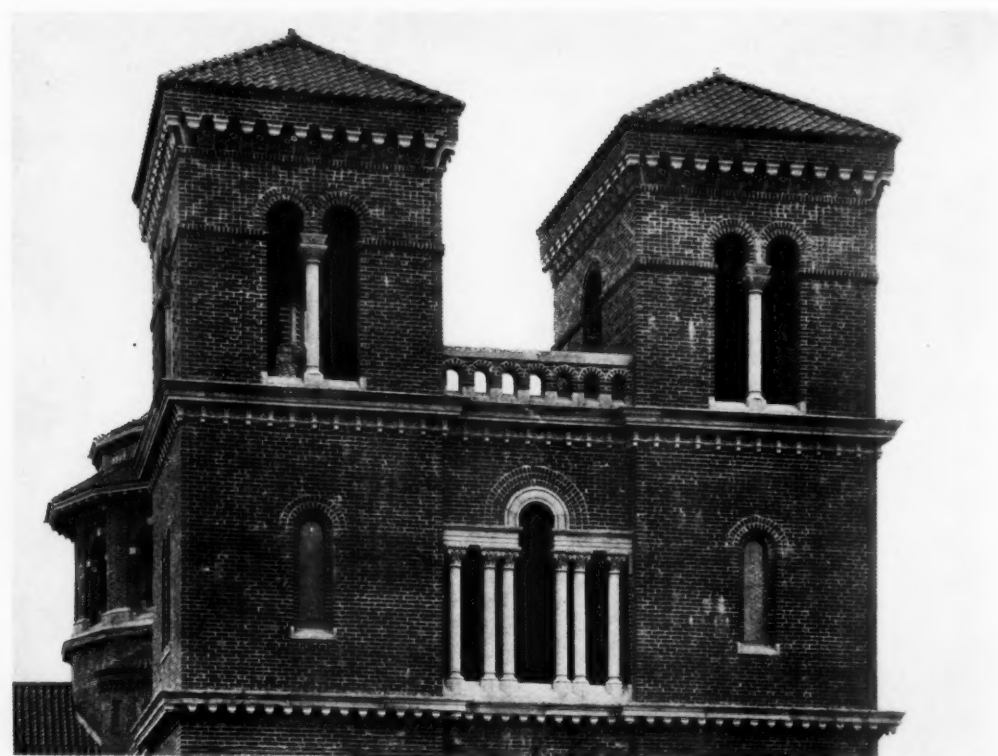




IMMACULATE CONCEPTION CONVENT AND CHAPEL, FERDINAND, IND.

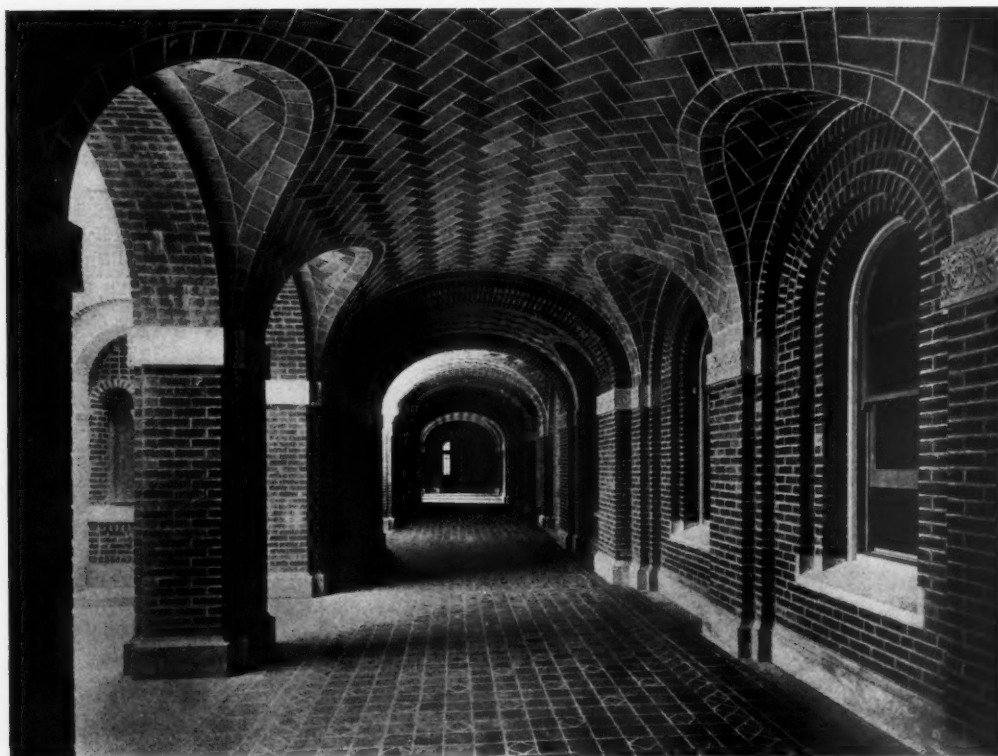
MR. VICTOR J. KLUTHO, ARCHITECT





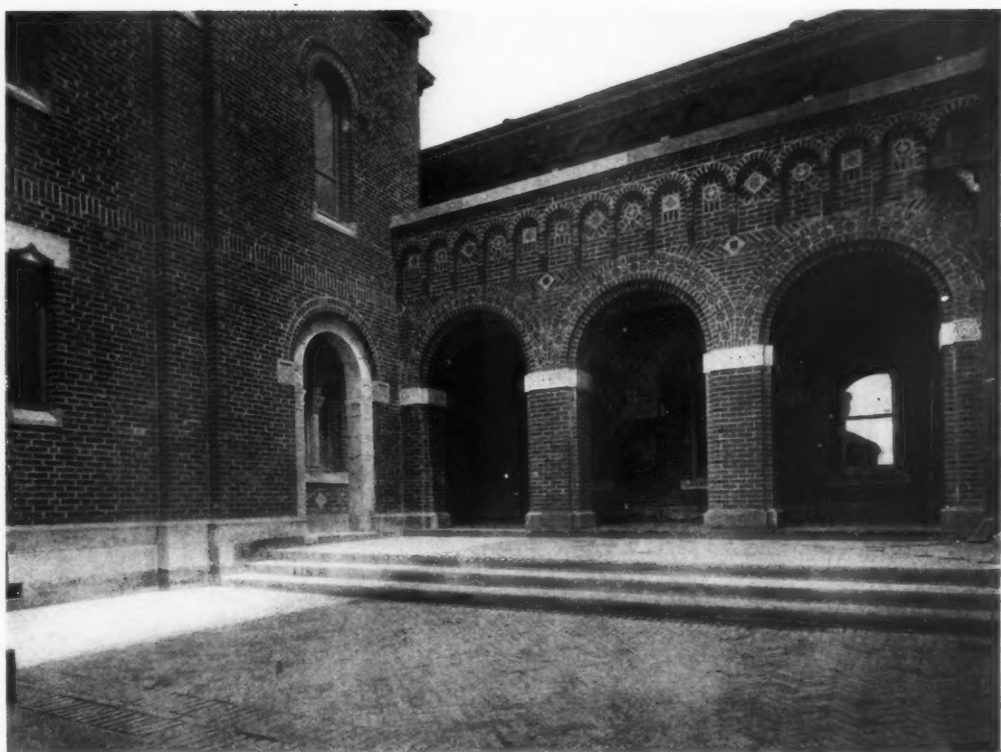
IMMACULATE CONCEPTION CONVENT AND CHAPEL, FERDINAND, IND.

MR. VICTOR J. KLUTHO, ARCHITECT



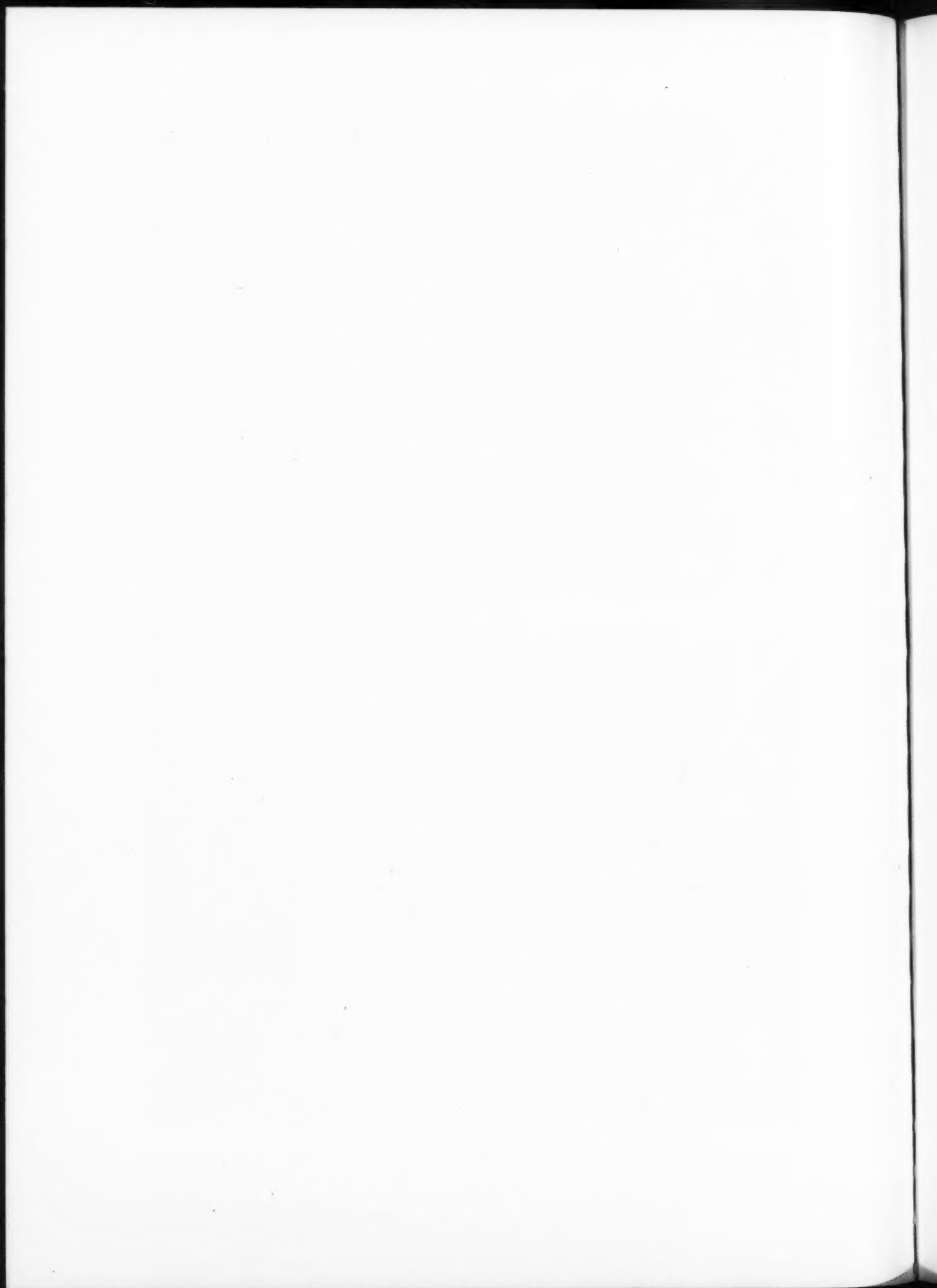
IMMACULATE CONCEPTION CONVENT AND CHAPEL, FERDINAND, IND.

MR. VICTOR J. KLUTHO, ARCHITECT



IMMACULATE CONCEPTION CONVENT AND CHAPEL, FERDINAND, IND.

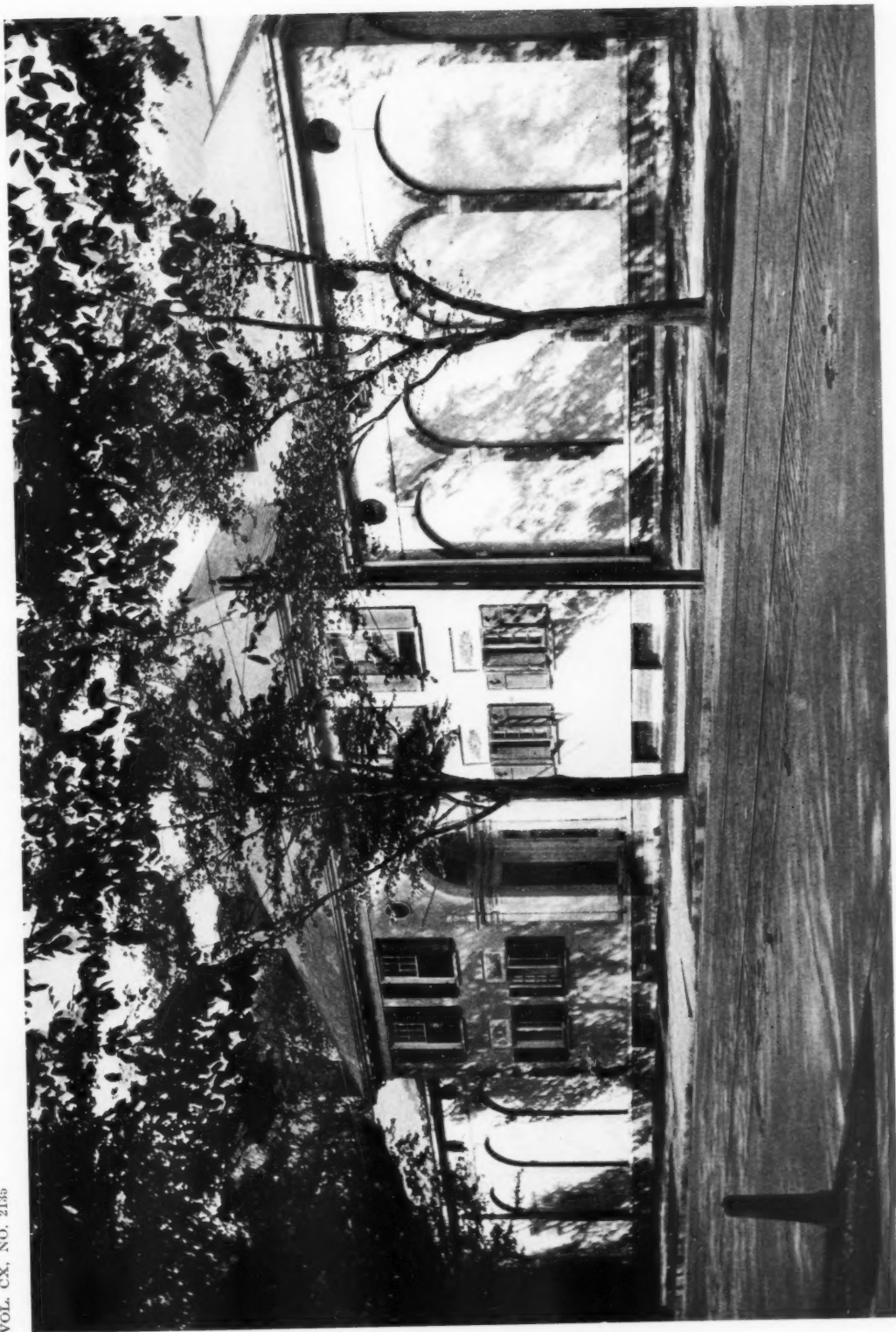
MR. VICTOR J. KLUTHO, ARCHITECT



THE AMERICAN ARCHITECT

VOL. CX, NO. 2135

NOVEMBER 22, 1916

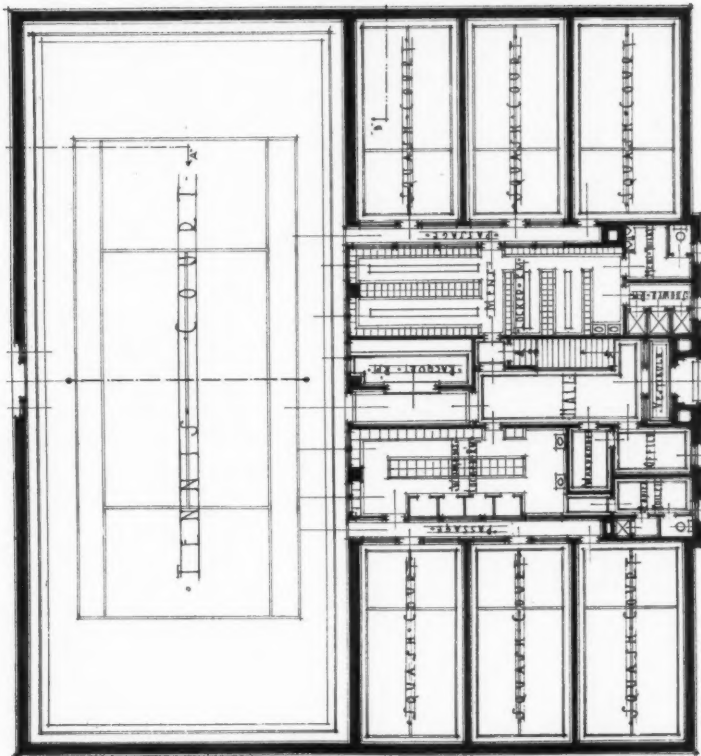
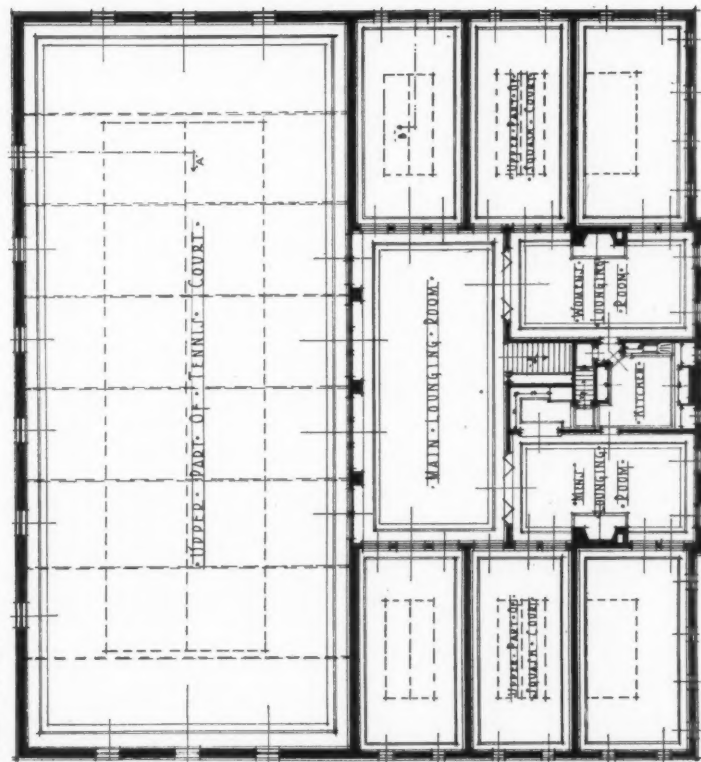


BUFFALO (N. Y.) TENNIS AND SQUASH CLUB

MESSRS. LANSING, BLEY & LYMAN, ARCHITECTS

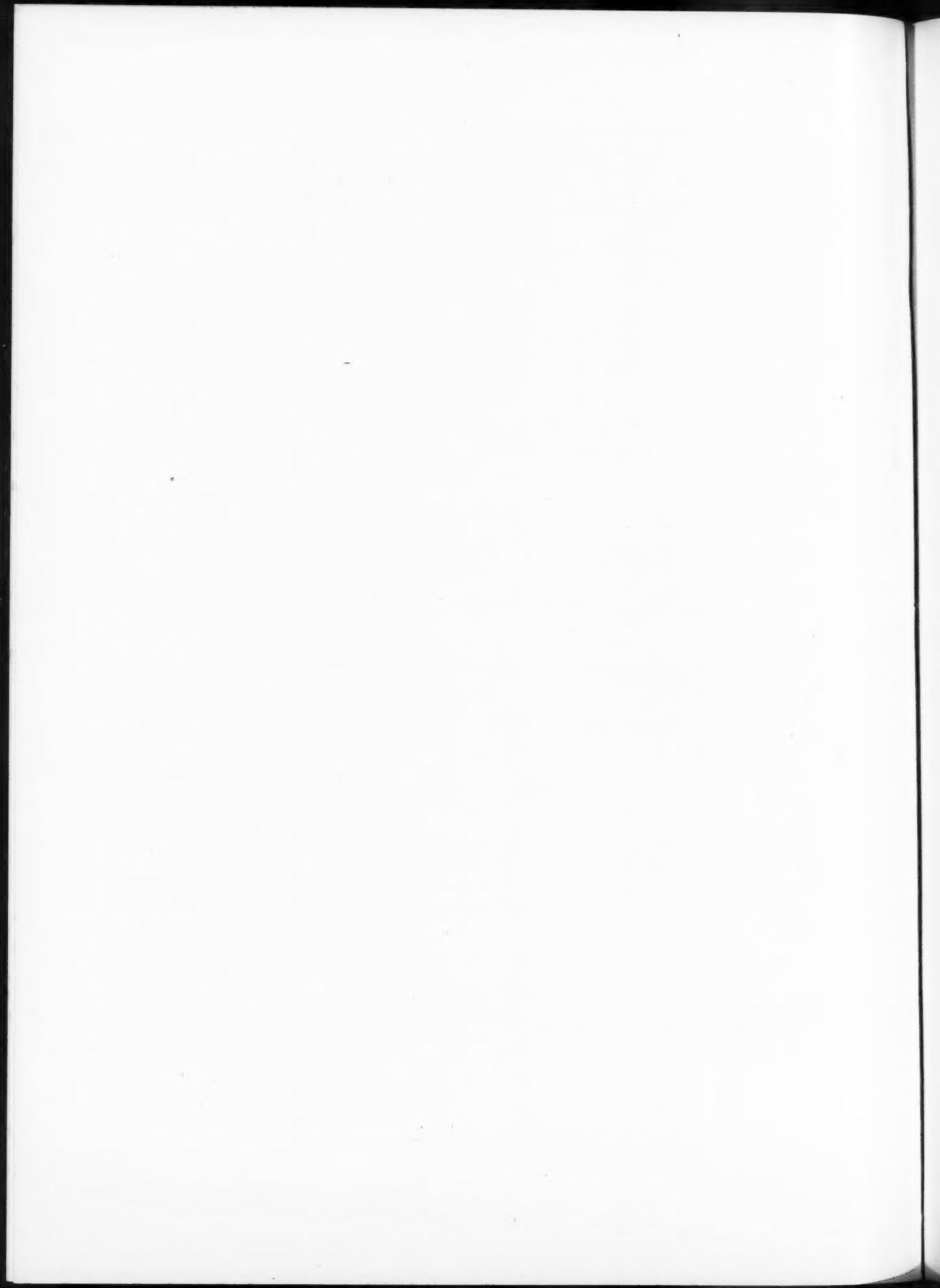
THE AMERICAN ARCHITECT

NOVEMBER 22, 1916



BUFFALO (N. Y.) TENNIS AND SQUASH CLUB

MESSRS. LANSING, BLEY & LYMAN, ARCHITECTS

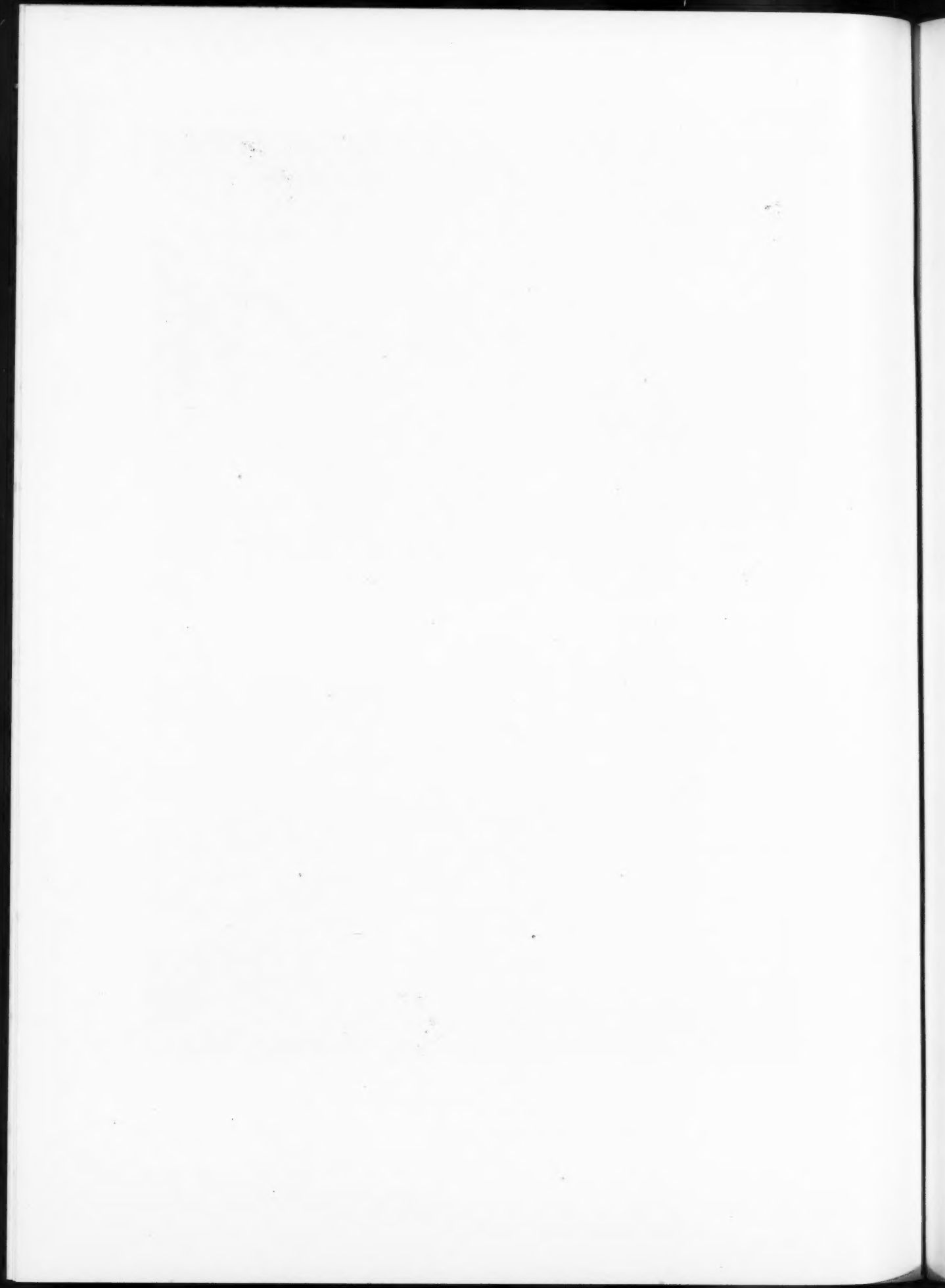




DETAIL OF STREET FRONT

BUFFALO (N. Y.) TENNIS AND SQUASH CLUB

MESSRS. LANSING, BLEY & LYMAN, ARCHITECTS





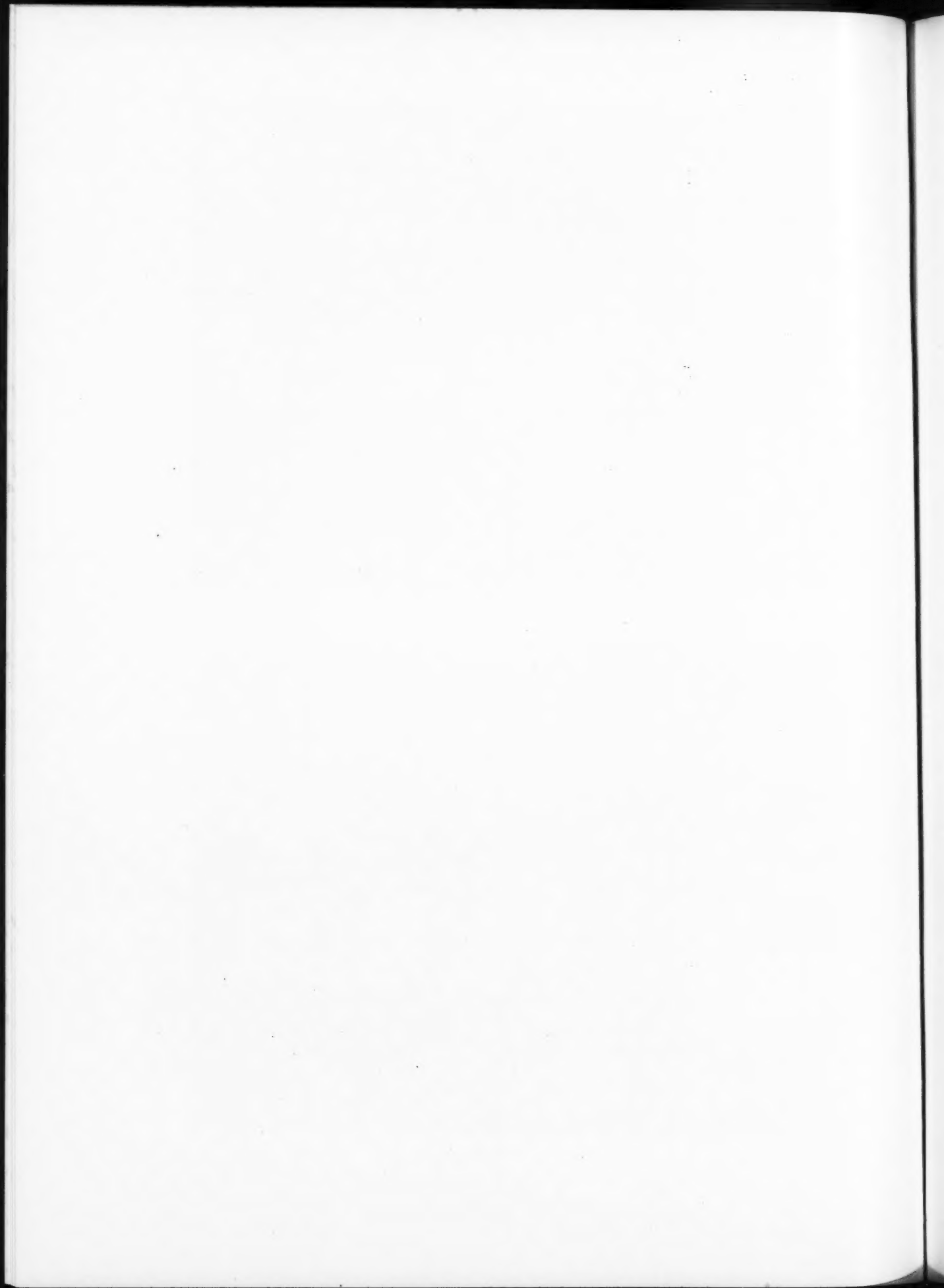
WOMEN'S LOUNGING ROOM

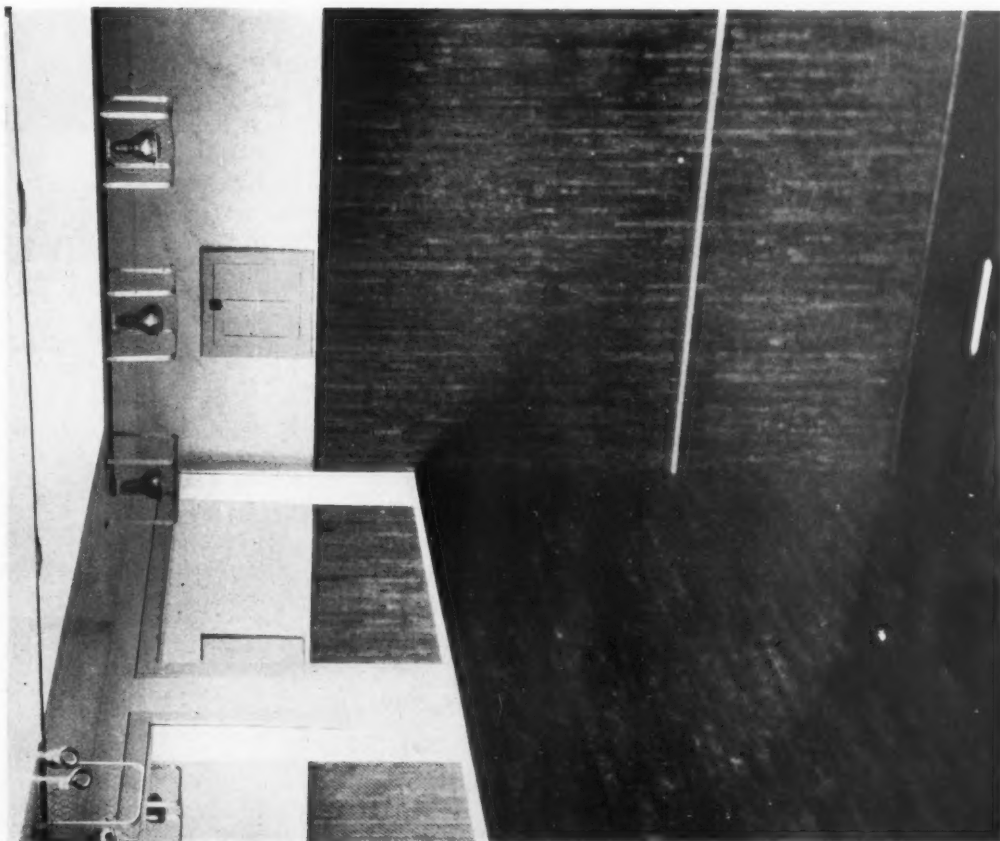


MAIN LOUNGING ROOM

BUFFALO (N. Y.) TENNIS AND SQUASH CLUB

MESSRS. LANSING, BLEY & LYMAN, ARCHITECTS





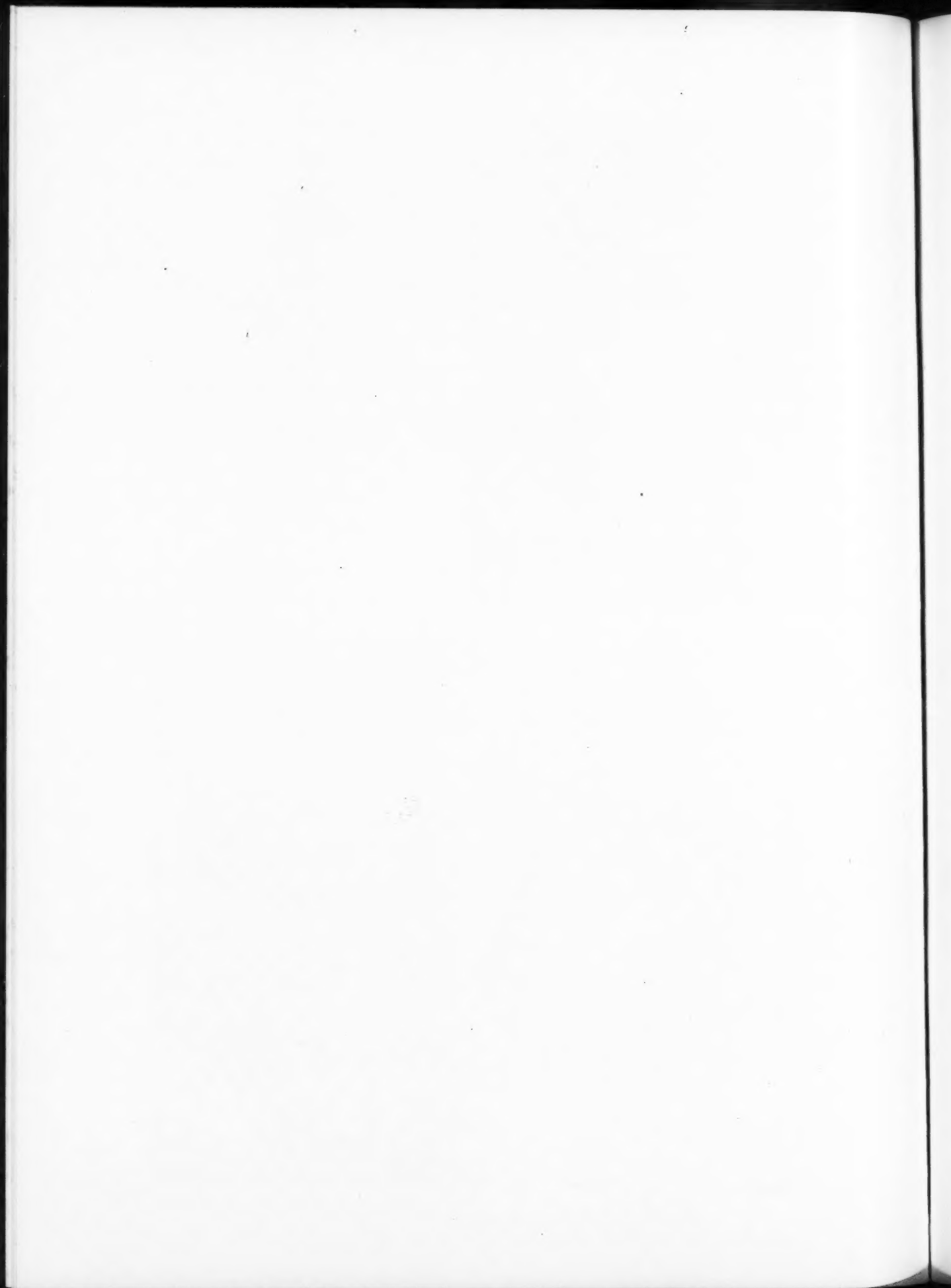
TYPICAL SQUASH COURT



INDOOR TENNIS COURT

BUFFALO (N. Y.) TENNIS AND SQUASH CLUB

MESSRS. LANSING, BLEY & LYMAN, ARCHITECTS



THE AMERICAN ARCHITECT

THE AMERICAN ARCHITECT

Founded 1876

PUBLISHED EVERY WEDNESDAY BY

THE AMERICAN ARCHITECT (INC.)

No. 50 Union Square, New York
(Fourth Avenue and 17th Street)

G. E. SLY, PRESIDENT

E. J. ROSENCRANS, SECRETARY AND TREASURER

Address all communications to "THE AMERICAN ARCHITECT"

SUBSCRIBERS' RATES

In the United States and Possessions (Porto Rico, Hawaii, Philippine Islands and Canal Zone), Mexico and Cuba

TEN DOLLARS PER YEAR, POSTAGE PAID
ALL OTHER COUNTRIES . . \$12.00 PER YEAR
SINGLE COPIES (Regular Issues), 25 CENTS

CHICAGO OFFICE, *Insurance Exchange*
Page A. Robinson, *Western Manager*

Entered at the Post-office, New York, as Second-class Matter

VOL. CX NOVEMBER 22, 1916 No. 2135

MR. ATTERBURY'S SOLUTION OF THE HOUSING PROBLEM

MR. GROSVENOR ATTERBURY'S address on "How to Get Low-Cost Houses," printed elsewhere in this issue, presents ideas that are based on wide experience and a large measure of performance. Further than that, it contains something definite in the nature of prerequisites to the accomplishment of the desired end, and in that respect appears in strong contrast with ordinary Housing Congress addresses devoted principally to criticism of present conditions. For these reasons we regard Mr. Atterbury's contribution as one of the most valuable that has thus far been made to this important subject.

The necessary preliminary steps are stated to be: First, "A campaign for honest and efficient government"; second, "The employment of a more or less standardized shop-made and completely finished building section or unit of the maximum economic size"; third, "Organized scientific research work in economic construction." To these are added: "The formation of some research body or corporation whose functions should be

the practical execution of the program."

As a first step to securing scientific building regulations, a campaign should obviously be inaugurated to secure the enactment of a National Basic Building Code, based on standard engineering practice, guided by authoritative tests of materials. THE AMERICAN ARCHITECT advocated the adoption of such a code some years ago, and the necessity for it is becoming more apparent as time goes on. There is no reason, scientific or practical, why such a code should not be put in force, and with honest and efficient government it would follow as a natural sequence. The strength of materials is not different in different localities, and good building practice is the same the country over. The entire difficulty seems to lie with the drafters of local building laws. Without a recognized standard to guide them they are frequently unable to produce a code of any merit, both by reason of ignorance and the influences brought to bear by interested parties. As a result we have the absurd provisions noted by Mr. Atterbury where allowable unit stresses of materials vary 30 per cent on the opposite banks of a river, and where footing courses but 5 inches thick in one locality replace those required to be 16 inches in another. If the same principle which is used in business, and in most professions, of selecting for any particular task men of wide experience and unquestioned ability in the line of work demanded, was also followed in the drafting of building codes, these unscientific, unnecessary, extravagant and indefensible provisions of law now governing building operations would be quickly eliminated. Unfortunately, however, it has heretofore generally been considered the function of petty politicians, constituting boards of aldermen, city councils, or chiefs of various city departments, to draft these laws, and in addition to their almost complete ignorance of the questions involved, they have frequently been influenced by the interests of their various constituents to an extent which does not permit them to use, even their best judgment. Clearly, it will be necessary to overcome this condition before any great progress in the matter of

THE AMERICAN ARCHITECT

drafting really efficient building codes can be made. If, however, a well-considered National Basic Building Code could be enacted there would at least be a proper standard before us by which to judge the acts of those charged with the detail work of adapting a code to local requirements in the event that they were not technically educated men of experience, and this fact alone would undoubtedly serve to prevent the absurdities which are now perpetrated more often in ignorance than they are with intent.

The arguments in favor of the employment of a more or less standardized, shop-made and completely finished building section or unit are probably irrefutable if greatest economy is to be secured. Moreover, such a process would not necessarily lead to monotony in design or plan, but would still allow for the free exercise of originality in adapting and disposing the various units supplied. Furthermore, standardized products are not of necessity inartistic. On the contrary, greater time and study and the employment of better talent is justified in the production of an article which it is proposed to reproduce numberless times than where the cost of this preliminary study including models, patterns and molds, must be carried as an overhead charge to be absorbed in the cost of a single operation.

Mr. Atterbury puts the task involving the study and administration of the construction problem squarely up to the National Housing Association. The work would consist essentially of gathering together and making widely available every item of information based on either ex-

periment or actual practice, that affects the workingman's home. By this means anyone who sets about the building of low-cost houses would be able to make use of every device and every labor-saving method that had been investigated and found of advantage. The standardization of the elements of construction and accessories that go into it, and all the small details of convenience that should characterize a house resulting from the study it is proposed to embody in its plan, would take it out of the class generally regarded as cheap, and insure a building affording every comfort possible for the amount of money expended.

The difficulties of financing such a structural research work, requiring equipment of various kinds, are considered by Mr. Atterbury, and in his opinion would not be as great as the raising of money for the kind of work the National Housing Association has heretofore been doing. The reason for this belief is stated to be that the work contemplated would demonstrate tangible, practical results that always appeal most strongly to contributors, even in philanthropic fields. Undoubtedly, his opinion is justified by the records.

The subject of housing the working classes is one that is of the greatest interest, not only to architects but to the public in general. Particularly is it of interest to the rapidly increasing number of citizens who recognize the importance of civic problems involving the comfort and well-being of that great mass of our population whose intelligent labor places this nation in the first rank among the nations of the world.

THE AMERICAN ARCHITECT

HOUSING

(Continued from page 322)

pools and surface drainage. This town had two years ago installed a good sewerage system, but the local health board had not enforced its use as the town councils had not empowered them so to do. A State law could have overcome this difficulty. Consider the cost alone. The town in its clean-up campaign has already spent about \$3,000. What is it going to cost to keep cleaned up? And what of the town's good name? This is a manufacturing town with large business interests. Anything which hurts its good name prevents the town's development.

The local health board should be the working medium of the State Department of Health in regulating housing from another point of view—that of expense to the State. If local conditions are such that they either cause or threaten the health of communities the State authorities have to step in. The State can better and more cheaply do this as a directing bureau in preventive health work. It is too costly to let conditions arise that require the State to prosecute offenders. Let us again illustrate with an actual case.

What should be the personnel of a local health board? As the whole community is vitally affected by its health conditions, so, to my thinking, the community should take not only an interest but an active part in the work of a local health board. Take, for instance, a business man, a professional man, a laboring man and a woman understanding the needs of working women, with the physician who ordinarily represents the health officer. Would not such a group, with the most economical use of the time at their command, cover intelligently the needs of a town? To do the actual work, however, they should have a paid inspector who should receive instruction in housing from the State authorities, the health board as well looking to the State authorities for advice and direction. This means practically the greatest benefit from State control at a minimum expense.

An efficient part of the housing work of a local health board is the employment

of a visiting trained nurse, as the control of occupancy is one of the essential features, and there is no greater force for sanitary homes among the poor than that of a sympathetic visiting nurse who will instruct housekeepers not only in the value of keeping a house clean, but also in the necessity for proper care of garbage and rubbish, fly screening, etc. A proper use of a house is as important as the proper planning. Many of our housing evils are due to people's ignorance, as they do not understand the importance of living in a hygienic way.

No community is free from housing evils or the possibility of their arising, and it is important to take preventive measures for this control. The following ordinance is suggested as covering the important points in a general way as applicable to all communities.

Where there exists a town-planning commission the local health board should be consulted by them in planning the location of parks, playgrounds and school houses, so that they are placed where most needed. In this planning an important point, too often overlooked, is that of insisting on one-family houses being planned for, so arranged that every home has an open space for garden as well as service. The building of multiple homes should be discouraged and, if possible, prohibited. In planning the location of manufacturing centers, space should be provided for the building of workingmen's homes, as they should live near their work.

Suggestion for State uniform law for housing regulations. To be incorporated with ordinances establishing local boards of health:

All buildings occupied for living purposes must comply with these housing regulations, and all new buildings must have their plans submitted to the Board of Health for their approval and must be made to conform to these regulations before the work is started.

The Board of Health shall employ a trained inspector who is also under the direction of the State authorities.

Multiple dwellings should, if possible, be prohibited, but where unavoidable they must provide separate entrances, porches,

THE AMERICAN ARCHITECT

halls, stairways, toilets, bathrooms and yards for each family.

No building shall occupy more than 65 per cent of the lot.

No cellar should be used for living or sleeping purposes. Basements, when more than 50 per cent out of the ground, may be used for kitchen and laundry purposes only.

Dark, windowless rooms should not be permitted.

Every living and sleeping room must have at least 700 cu. ft. of air space and with window space area of at least 18 sq. ft. with sash arranged to easily open top and bottom, providing for cross ventilation by the placing of windows in opposite walls or the use of transoms over doors.

No ceiling should be less than 8 ft. clear, except in attic rooms, where not more than one-half of the ceiling area shall be reduced, the room providing not less than 700 cu. ft. of air space.

All halls and stairways must be well lighted and ventilated by natural means.

All bathrooms and toilets must be well lighted and ventilated by natural means.

Houses should not be permitted on alleys less than 25 ft. in width, nor unless a definite ordinance is passed converting the alley into a street, with grading, paving and construction of sewer provided for.

Houses must not be built on rear lots.

All houses built without cellars must have the first floor built at least 2 ft. above the ground, and on sloping ground the lowest point must be 12 in. above the ground. This space under houses must provide openings for ventilation which must be screened to keep out animals and insects.

Stores, shops, etc., without cellars, must have floors of hard, damp-proof material laid upon the solid ground.

There shall be no keeping of live animals, poultry or fish in any store or part of the house. Where such articles are kept on sale they must have been previously killed, cleaned and kept in proper

ice boxes provided with glass covers. The only way they can be kept alive on the premises would be in properly constructed pens or coops in the yards, etc., clear of the house, with proper arrangements made for the killing and disposal of all waste in a sanitary and economical manner.

All groceries, bakeries, milk depots, candy stores, ice cream and soda water fountains, or any place where food of any description is sold, must have their products for sale kept under sanitary restrictions, especially fly screened.

The Board shall have power to declare buildings unfit for habitation and shall have power to enforce their being put in good repair or destroyed.

When there is a sewerage system, houses must be connected within a reasonable time and no houses shall be allowed to be built on streets not sewered. No surface drainage or stagnant water shall be permitted.

No lots shall be permitted to be enclosed with board fences—light iron, wire or hedges should be used instead.

The Board shall provide for the regular collection of garbage, rubbish and ashes with their proper disposal, preventing the forming of foul dumps on the vacant lots and unused land.

Rubbish, ashes and garbage must be placed in separate, tight receptacles provided with tight fitting covers.

Houses must be adequately fly-screened.

Houses in towns that have no sewerage system must have cesspools built of cement covered by a substantial outhouse or privy with tight-fitting door and hinged cover to seat. Ventilating openings to privy must be fly-screened.

The Board should adopt an approved type of privy and cesspool, and have a printed pamphlet illustrating it, for distribution.

All stables must have manure pits of cement, or tight bins with covers, which must be cleaned out at regular intervals, at least once a week.

At least once a year the Board should visit and inspect all parts of the town.

THE BUFFALO TENNIS AND SQUASH CLUB

MESSRS. LANSING, BLEY & LYMAN, *Architects*

AS RECENTLY as twenty years ago, the usual athletic club building was sufficiently large to house the devotees of all the sports and athletic recreations. The very marked tendency toward well directed forms of exercise, indoors and out, the realization that if we are to maintain in our daily lives the high speed that is now a necessary feature of almost every occupation, we must find recuperation in well undertaken exercise, has caused the organization in most cities of athletic clubs, many of them housed in buildings of unusual architectural excellence and the most complete and sumptuous appointment. We are coming to a specialization in our sports, as we have in our commercial and professional undertakings, and it very often happens that those who incline to certain forms of exercise are so numerous as to outgrow the conveniences of the athletic club. When this occurs they are organized as a sort of dependent body, clubs that follow and patronize certain lines of sport. There are golf clubs and riding clubs and, in the case illustrated in this issue, tennis and squash clubs.

The clubhouse of the Buffalo Tennis and Squash Club is a very interesting and instructive example of a house designed

and built for a specific athletic sport. We print below a technical description of the building, prepared in the offices of the architects. With this account and the accompanying illustrations the architectural features of the building and its adaptability to the purposes of its erection may be carefully studied.



MAIN ENTRANCE

corners and white window trim with green blinds at the windows, and has at the sides two wings. In the elevation of these wings the necessary absence of windows is made a feature by a series of brick arches and pilasters enclosing plain plastered panels.

The determining factor in the arrangement of the plan was the placing of the club rooms so that they would overlook

DESCRIPTION BY THE ARCHITECTS

The requirements of this club, which was organized about two years ago, are unusual, and call for a building the plan and construction of which show certain novel and interesting features.

The clubhouse is situated on a city lot 125 ft. front and 200 ft. deep, the building being 121 ft. in width, covering within four feet of the full frontage of the lot, and is 112 ft. in depth.

It is constructed entirely of hollow tile. The main building has stuccoed walls with brick quoins at the

THE AMERICAN ARCHITECT

both the tennis court and the squash courts and yet have them open on the street front. This result was achieved by planning the clubhouse with a central club building, in which are located the locker rooms and toilets on the first floor



DETAIL OF WOMAN'S LOUNGING ROOM

and the clubrooms on the second floor, with a wing on either side containing three squash courts. At the rear across the full width of the center building and its wings is the indoor tennis court.

Entering the broad hall through a white paneled vestibule, at one side stairs lead directly up to the main lounging room on the second floor, and at right and left respectively are the entrances to the men's and women's locker rooms, with attached toilet rooms and showers. At the left just inside the main entrance are the office and coatroom. Directly ahead is a passage to the tennis court and at the right an opening into the professional's rooms, used by him for racquet storage and repairs.

On the second floor are placed the main lounging room, with broad expanse of casements extending the full length of one side of the room and overlooking the ten-

nis court. At either side and between this room and the front of the building are the men's and women's lounging rooms, from which a view may be had into the squash courts as well as onto the street. These three rooms may all be used together for small entertainments or be separated by folding accordion doors. The main lounging room, while entirely an interior room, is brilliantly though indirectly lighted by the skylights over the squash and tennis courts. This room and the men's room are finished in dark woodwork and gray plastered walls, with floors of wide oak boards stained to harmonize with the woodwork. The women's room is finished in enameled white wood. The gray plastered walls are carried out in this room as well. Between the men's and women's rooms and at the front of the building are a small service kitchen and pantry, connected to the bedrooms and bath for the servants located on the floor above.

The tennis court is 52 ft. wide and 118



DETAIL OF MEN'S LOUNGING ROOM

ft. long, giving a clear space beyond the doubles court of 8 ft. at the sides and 21 ft. at the ends, with a clear height to the under side of the trusses of 30 ft. This court is lighted by a skylight approximately the size of the shingles court, providing ample light for play on any ordinary day without eye strain. At night the court is lighted with satisfactory results by fourteen ceiling and the same number of side lights, each equipped with

THE AMERICAN ARCHITECT

special reflectors and lamps having a capacity of 500 watts in the ceiling and 300 watts in the side lights. The total current consumption under the present arrangement with all lights turned on is 11 kilowatts per hour. Under these conditions the lighting has been declared unusually good. The walls of the court are painted dark green to a height of about 10 ft. above the floor; above this line the walls and the underside of the roof are painted white. The floor of the court consists of heavy battleship linoleum cemented to a pine floor laid on wood joist. The court is ventilated by means of direct ventilation through louvres and skylight, and heated only slightly with direct radiation.

The six squash courts, alike in every particular, are accessible through small halls at the sides of the locker rooms. They are 17 ft. wide and $32\frac{1}{2}$ ft. long, with a clear height of 18 ft., and are lighted by skylights with an area about half that of the court. These courts have walls and floor constructed very substantially, all voids being filled with sawdust. There are two thicknesses of flooring on both walls and floors, the front and rear walls of the court having a finish flooring of maple $2\frac{1}{4}$ in. thick, so as to make an absolutely solid wall. The lighting is similar to the tennis court, five 100- and seven 200-watt lamps being used, the total current consumption being one and nine-tenths kilowatts per hour. These courts are kept thoroughly ventilated at all times and are not heated in any way.

The entire building has worked out at a cost that makes the carrying charges reasonable.

Demolishing the P. P. I. E.

The Architects and Builders Journal of London, commenting in a recent issue on the methods, typically American, employed in the demolition of the buildings at the Panama-Pacific International Exposition, states:

"It is the delight of children, when they have piled up some card structure to a gloriously unstable height, to knock the whole thing down with a crash, and then to survey the wreckage with complete satisfaction. Some larger children, in

the persons of American contractors, are now playing just the same game at San Francisco. The Pan-American Exposition is finished with, and the place is given over to the wreckers. They are men with a keen sense of business and a love for a sporting chance, and having come to the conclusion that it would pay them better to demolish the structures wholesale rather than to take them down piecemeal, they are now having the time of their lives. The buildings of the Exposition are for the most part of timber and 'staff,' heavy columns and trusses being made up of a number of unit members bolted together. The method of wrecking them is simply to bore holes in the main supports about 6 ft. from the base, then to insert sticks of dynamite, and retire to a safe distance.

"It is, of course, essentially necessary, this wrecking business, because the site has to be cleared and restored for San Francisco's everyday needs. But one may suppose that those who spent their time and labor in designing and erecting these structures must experience a pang at the sight of their being thus thrown to the ground. The architects, however, may recall with some degree of satisfaction the fees they received, and then, musing o'er the ruins, can mutter, sentimentally, *Sic transit gloria mundi*."

BOOK NOTES

A GUIDE TO THE WORKS OF ART IN NEW YORK CITY. Edited and published by Florence N. Levy, American Fine Arts Building, New York. Full cloth; 60 pp.; $5 \times 7\frac{1}{2}$ inches; price, 50 cents.

It very often happens that the dweller in New York will have less intimate knowledge with its places of interest than the casual visitor. The man from out of town will feel it a duty to avail of a present opportunity to visit all places of interest. The native New Yorker is always promising himself that he will also see these things, but frequently he will not take the time or the trouble to do so.

Miss Levy's Guide will therefore be as valuable a help to many New York dwellers as it will to those visiting the city. It will be surprising to many to

learn how large is the field of art to be covered in Greater New York, and owing to the valuable labors of our art commission, how very much worth while it is.

There are four art pilgrimages set forth, in as many chapters. The saunterer will find himself well repaid who takes them, and that he may look with intelligent eyes, just enough descriptive matter has been given to impart a good knowledge of the places visited.

INDUSTRIAL INFORMATION

Pecky Cypress

The Southern Cypress Manufacturers' Association, New Orleans, La., and Jacksonville, Fla., has issued the second number of the Cypress Pocket Library, in the form of a small volume on "Pecky" cypress.

"Pecky" cypress is all "heart" in a technical sense, being essentially the heart or innermost part of some of the oldest cypress trees that were one time affected by the "Pecky" disease. "Pecky" cypress is unquestionably the result of a rot disease that failed and the cypress wood having the "pock marks" seems to be totally immune to rot, according to statements made in this book. Most wood-rot diseases start at the root of a tree and work upward. "Peck" begins at the top of a cypress tree and works down. A board from a "Pecky" log is more or less speckled with long holes averaging about the diameter of a lead pencil, and of varying length. Such boards are necessarily all heart-wood, as "Peck" is never found in the sap wood. In the very nature of things a "Pecky" cypress board can seldom be used for those purposes where good appearance is an essential feature. For fence posts, irrigation work, rice-farming, sheet piling, greenhouses, dams and innumerable other uses where immunity to rot is essential "Pecky" cypress is particularly adapted.

There are many interesting features of this wood described and a number of illustrations are furnished. Copy of the book, which contains some fifty odd pages, 3 by 5½ inches, may be had upon application.

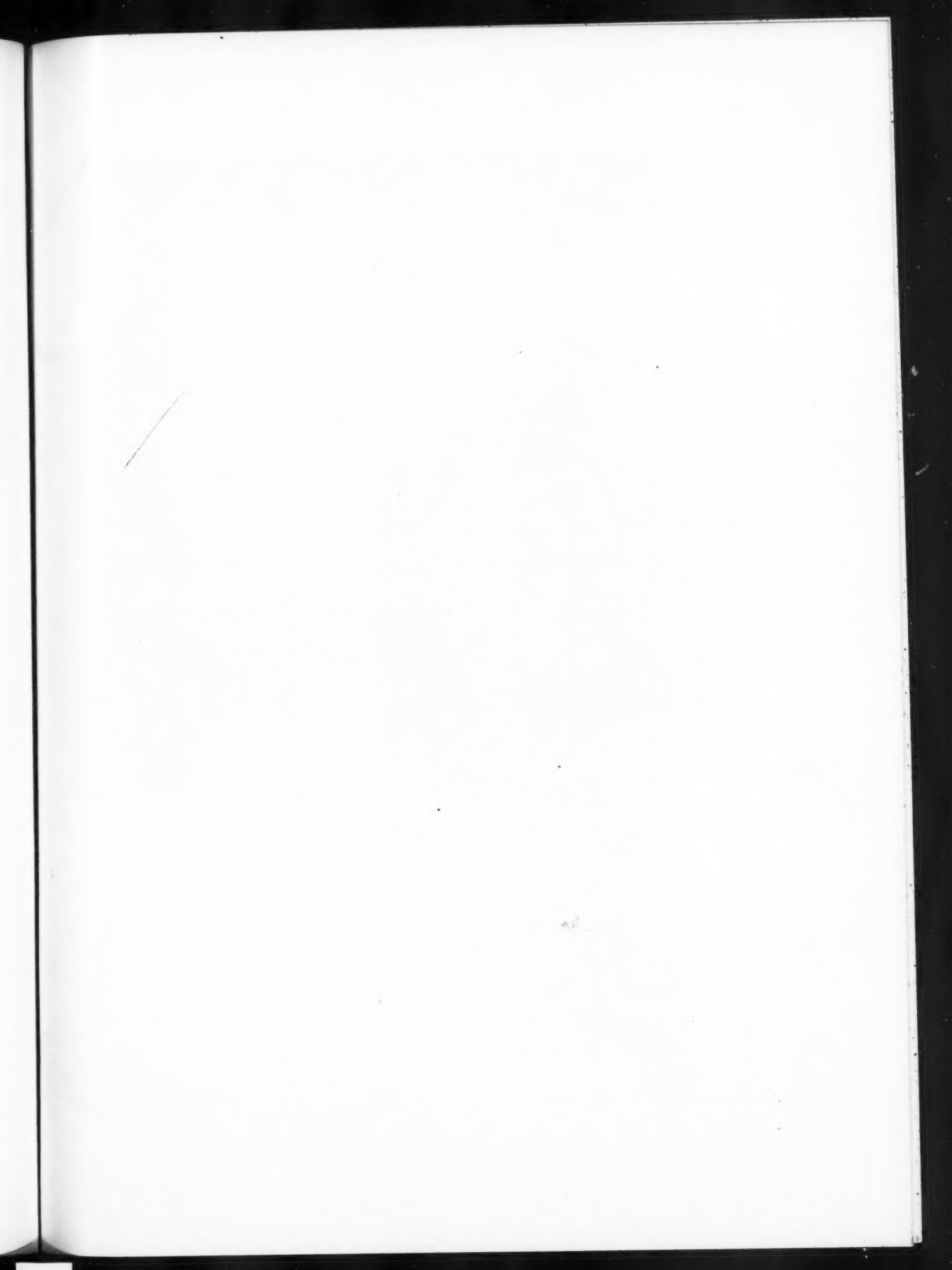
Water Purification

The American Steel & Wire Company, with offices in principal cities of this country, has issued a manual setting forth their system of water purification. This is presented in briefest form consistent, in the opinion of the company, with a fair treatment of the essential features of water purification, and because of the emergency which has suddenly arisen in the chemical world on account of prevailing foreign conditions.

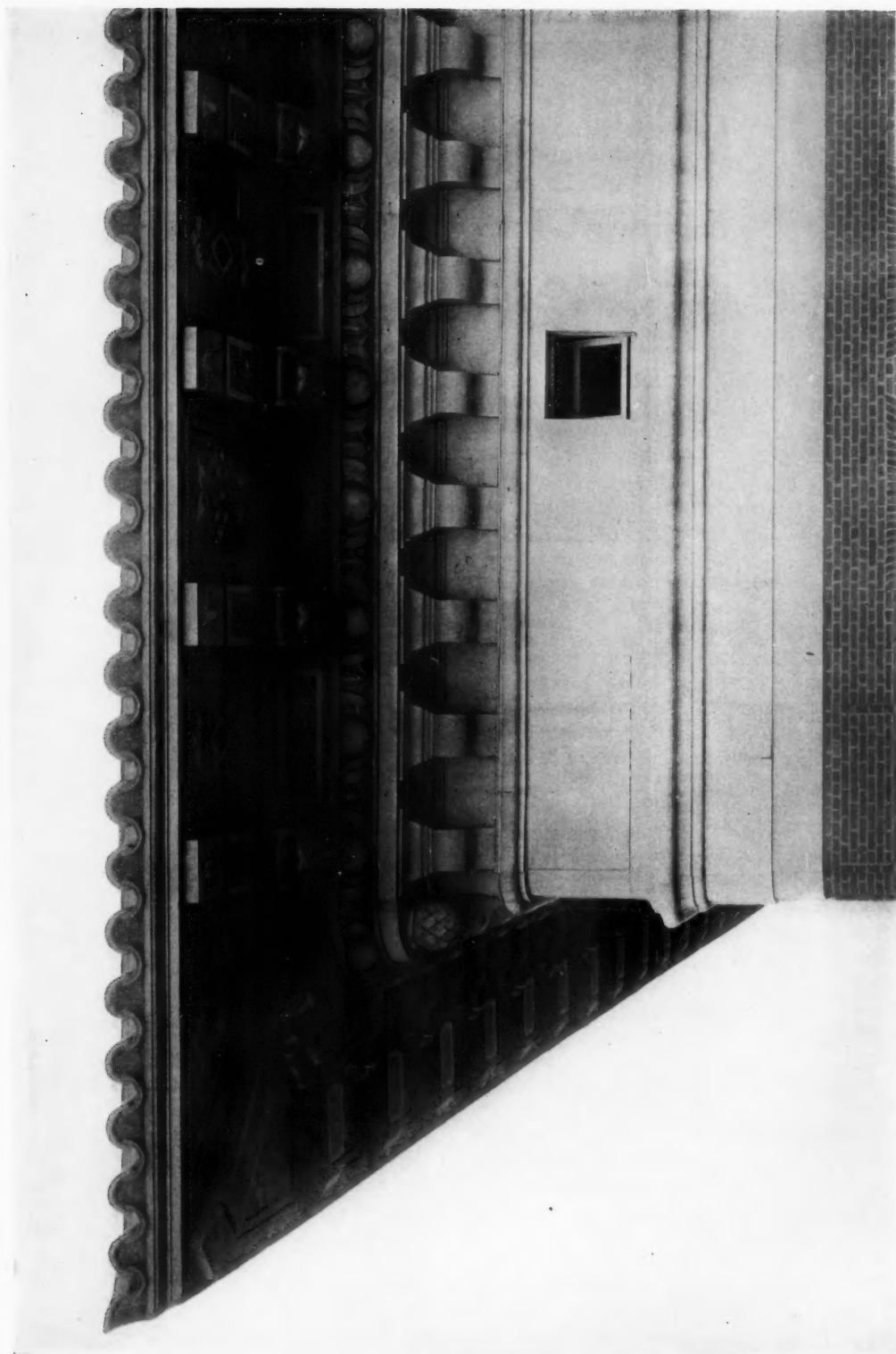
The process described consists of purification with sulphate of iron. Water purification operations employing other chemicals are said to be seriously affected on account of the conditions of foreign markets.

Every public official is more or less personally responsible for the public health, and it is well known that impure water is one of the chief causes of disease. Perhaps the most imperative needs of mankind are pure air, pure water and pure food. Few water supplies in this country are pure enough to be used in their natural state. Various methods have been used at different times to purify public water supplies, but it is doubtful whether any real or practical solution of the problem for American cities was reached until the chemical system of filtration was developed. From 1897 to 1903 the method of coagulating water most generally employed required the use of alum. In 1903 the American Steel & Wire Company's process was first employed at Quincy, Ill. It is stated that at the present time nearly 100 cities use it to purify water supplies.

All chemical methods for water purification by mechanical filtration are based upon a relatively simple principle. These are explained in the manual, which illustrates various features of water supply systems, gives tables of water heads, equivalent pressures, theoretical velocities and discharges, and much other data in connection with hydraulics of interest to the technical man. The manual is of special importance and interest to the architect who is engaged in country work, where the subject of water supply must be considered separately for each development. Copy will be sent upon request.



THE AMERICAN ARCHITECT



DETAIL OF CORNICE

ASTOR COURT APARTMENTS, NEW YORK

MR. CHARLES A. FLATT, ARCHITECT