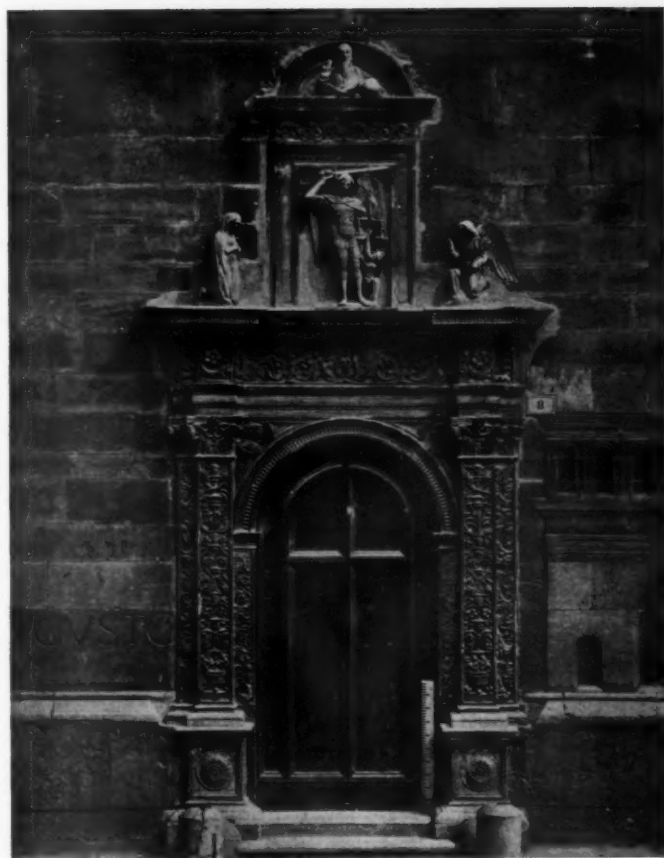


The AMERICAN ARCHITECT

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DETAIL OF DOORWAY OF A CHURCH AT FANO, ITALY

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The Practice of Architecture

MANY things give indications of changes in the making. Through conversation, correspondence or reading these signs are constantly recurring testimonies, and a tabulation is unconsciously made of them until the ideas become insistent in their presence. To verify the general impression, a systematic collation of all the evidence is in order.

In arriving at a conclusion by this mental process, it will be found that among the diverse problems demanding attention at this time, one of manifest importance is that of the attitude of the public toward the architect and of the architect in his relations to himself and others.

The practice of architecture is probably today, more than ever before, a matter of barter and trade. The monies invested in building structures demand a return service which represents full value. This value is measured in the adaptability of the structure to its use, its durability and its appearance. These three factors are the fundamentals of correct planning and to render adequate service it appears to be essential that the architect should fully qualify himself to meet these basic requirements.

An analysis has been made of a great amount of data pertaining to this subject and the majority opinion has been condensed into the following five paragraphs which embrace the most common of the points developed. This brief consensus of opinion is not intended to cover the multitude of conditions that exist in such relations, but it is thought that possibly it comprises the basic factors.

1. The business of architecture is inseparable from the profession of architecture. Together they comprehend the originating, promoting, designing, planning, directing and controlling the construction of buildings and their appurtenances.

2. To develop a general demand for architectural service—without which only limited opportunities for practice will be presented—the architect must, as an individual and collectively, employ proper and effective means to create a universal appreciation of its intrinsic value.

3. To fully perform his function, the architect must organize, equip and operate his business so as to render complete service in the production of plans and specifications for everything embraced in the construction, equipment and furnishing of buildings.

4. He must furnish complete and detailed supervision of construction and be closely identified with it. He must be responsible financially, as well as morally, for all of his acts, including the correctness of design, the completeness and accuracy of plans, specifications and details, and the construction of the building in accordance therewith; his responsibility to be contingent only on his being accorded freedom in deciding all matters of structural design, mechanical equipment and the selection of materials and workmen.

5. He must control and regulate the business affairs of the building operation so as to safeguard all interests. He must be just and impartial in deciding all controversies within his jurisdiction, but where his own interests are involved he must submit the controversy to arbitration.

(Reprinted from issue of November 27, 1918)



BALCONY—PALAZZO FRANCHINI, VERONA, ITALY

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VOL. CXV

WEDNESDAY, APRIL 16, 1919

NUMBER 2260

Development of Ornamental Plasterwork

By MAXIMILIAN F. FRIEDERANG

WHEN Belshazzar, over 2500 years ago, saw the handwriting which foretold the doom of Babylon, it was upon the plaster of the wall. That the use of plaster has an even older history is revealed by its existence in the masonry of the pyramids, where it was constantly incorporated both to fill joints as a bedding and to level up hollows. The flaws and defects in the faces of stones were freely filled with plaster, which was then colored to match its setting. In some of the rock tombs in Egypt, plaster was also utilized in filling cracks, and examples of these exist today where the surrounding rock has decayed while the plaster has remained in perfect condition.

Evidence on the earliest dwellings of primitive man indicates that plastering is one of the oldest of handicrafts exercised in building construction. At that remote period he builded with sticks in simple fashion and plastered them with mud. In the course of time a more durable material superseded the mud, and excellence in producing plastering materials was approached early in the history of construction. This statement is supported by the fact that some of the earliest plastering which has remained undisturbed through the centuries equals in its chemical composition that which is made at the present time.

Just now, mortars and plasters are among the most familiar materials employed by the builder. These consist of three general classes which, however, merge into each other when mixed in different proportions: lime plasters, used for exterior and interior plastering; gypsum or plaster of Paris, so called from its extensive manufacture in Paris, used where perfection of detail is demanded, or where the walls are to be covered with tapestries or wall paper, or decorated with colors, for interior



ORNAMENTAL PLASTERWORK IN DRAWING-ROOM AT EASTON, NESTON, NORTHAMPSHIRE, ENGLAND

work; and cement plasters or stucco, for exteriors where strength and durability are required. Lime plaster is produced by heating very pure limestone to such a temperature as will drive off the carbonic acid gas and leave a residue called calcium oxide or "quick lime," lumps of which, after being removed from the kiln, are called lime shells. When water is added to lime shells they swell, crackle, and fall into a powdery mass. This process is called "slaking," and the resulting substance is "slaked

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lime." When more water is added, the slaked lime becomes a paste, and this paste is mixed with sand to form a mortar.

Mortar for plaster work is usually composed of slaked lime mixed with sand and hair. The sand should be hard, sharp, gritty and free from all organic matter. Hair is used as a binder to increase cohesion and tenacity. For this purpose it should be long, strong, and free from grease or

particulars the tools of plasterers in the early history of the craft were identical in design and aim with those now employed. The method of the Egyptians of plastering on reeds closely resembles our use of lath. The tools of today were used in Egypt 3000 years ago and in Pompeii in the day of Julius Cæsar. The technique of Greece and Brittany, of Rome and Gaul was the same. The material of the classic workers at Athens 800 years before Christ



PLASTER CEILING IN DIRECTORS' ROOM IN BUILDING OF TRAVELERS INSURANCE CO., HARTFORD, CONN.

DONN BARBER, ARCHITECT

other impurities. Ox hair is generally used, although sometimes adulterated with the short hair of horses. Substitutes for hair include manila fiber and sawdust.

Plaster of Paris is obtained from gypsum by gentle calcination. It is very soluble in water, and this fact renders it unfit for external use. It is, however, valuable for decorative details, for cornice, molds, and other enrichments, and is also used in several plastic mixtures. Plaster of Paris sets rapidly, acquiring full strength in a few hours.

Research has disclosed the fact that in essential

differs in no particular from that in use at the present.

Archeologists reveal that stucco of various kinds, natural and in color, was known in very ancient days for covering of walls. As long as five centuries before Christ its use had advanced to a high artistic standard when it covered temples both outside and in, even in cases where the building was of marble. There it formed a fine foundation for decorative painting which at this period of Greek history had reached a high degree of beauty. The extent of its use was very wide. In early times it was not un-

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usual to use inferior materials, mud bricks, or rough stone, and cover their surface with a coat of stucco which might be ornamented with frescoes or decorations of other kinds. The quality of early Greek stucco is wonderfully fine.

The rough stone used by the Greeks was like the Roman Travertin, very porous and not capable of taking a fine surface, so they stuccoed it over, polished it and sometimes decorated it with frescoes. Traces of this are still to be found. The Byzantine

plaster on which the painter drew what he liked. It is curious that sculptors should have continued to produce fine detail of work where it would immediately be disregarded. It would seem to indicate very little in the way of interdependence of the arts at that period of Egyptian history.

Among these people, stucco was also used for independent modelling, as in Italy. It was laid on a flat canvas base, stretched over wood, and the whole relief was in the stucco. The chariot of



PLASTER CEILING, CONNECTICUT STATE LIBRARY, HARTFORD

DONN BARBER, ARCHITECT

Greeks used stucco very generally in the cornices and enrichment of their churches, and their mosaics were embedded in a plaster-putty composition of similar nature.

In Egypt a strange use of stucco was as a thin coat over sculpture as a basis for whitewashing. At all occasions of its use in this way it concealed in some measure the full detail of the sculptor's work in reliefs. In the 12th dynasty the finest lines were hidden by it, and on coming down to less remote times the plasterer ignored all the sculpture below, filling the figures with a smooth layer of

Tahutmas III is an important example of such work. The relief is low and smooth and full of detail. There is none of the sketchy, rough tooling seen in Roman stucco reliefs. Minute details of dress and hair are all tooled in and supply some of the best studies of Syrian robes. The varying patterns in shields of the different branches of Syrians, the feathering of arrows, the shape of the flowers of the papyrus and lotus of north and south are all accurately rendered. Plaster was also used for casting in molds.

The Romans knew plaster and stucco intimately

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and used it lavishly for interior work. They molded delicate patterns in relief in the wet plaster or painted them with pictures or ornaments in fresco, tempera or encaustic pigments. It is unnecessary to quote the numerous examples of the use of stucco in Italy in ancient times. Its use has passed down to the Celts, the Gauls, the Teutons and the Slavs, and there is hardly a Celtic or Gallic-Roman build-

time have never been surpassed. It was an art demanding the quintessence of skill on the part of the worker. The work had to be done rapidly while the plaster was wet, so that upon hardening, the decoration became an integral part of the actual material. The colors were mixed to allow for a subtle change in their drying on the wet plaster, and once a mark was made it could not be done over.

Among the relief work done on plaster, sgraffito was conspicuous. This was also executed while the plaster was in process of hardening. It consisted, essentially, of laying a dark coat of plaster and upon it applying a coat of stucco. On this the worker executed his design, cutting and scraping it to reveal the dark subsurface. This also required expeditious handling before the stucco might have time to dry and harden.

In the 17th century the English began to use plaster extensively, too often as a substitute for solid masonry construction. The practice led to much trivial architecture and sham construction, and, it is regretted, became very general in the United



PLASTERWORK IN ST. JAMES CHURCH, NEW YORK CITY

LUDLOW & PEABODY, ARCHITECTS

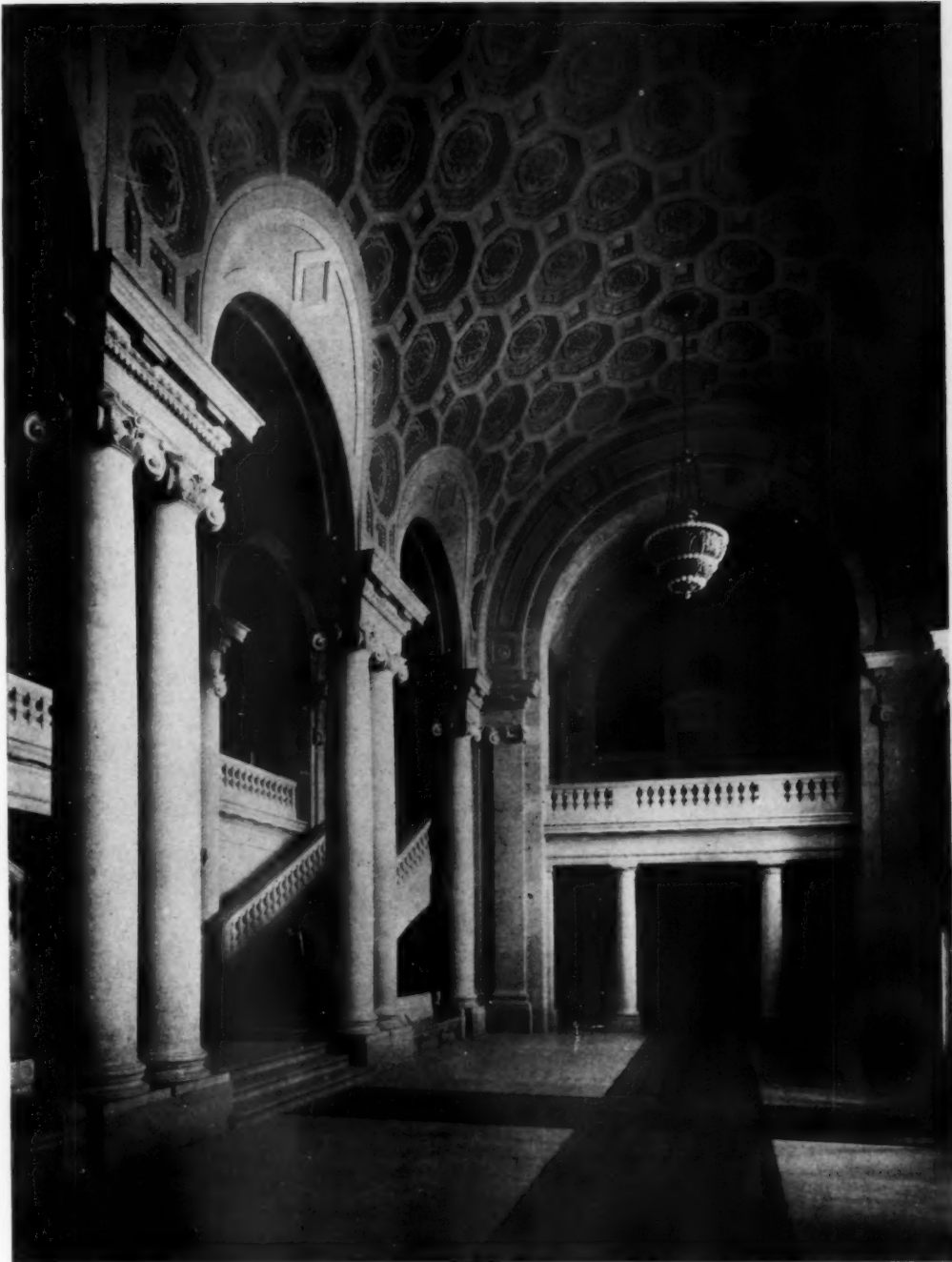
ing in which the remains of stucco-coating polished and with decorative designs are not found either with or without color.

During the Middle Ages building methods suffered the same fate as the arts, and the rare fragments of monuments of the early centuries show us nothing but coarse coatings and stucco members made of very inferior materials, badly dressed and covered with rude paintings. They no longer presented the beautiful polish or the solidity that mark the stucco of Greek antiquity and the best periods of the Roman epoch.

The Renaissance revived the use of plaster and greatly extended its decorative application both by fresco painting and by relief ornaments and sculpture. The frescoes of Italian masters done at that



DINING ROOM CEILING, FORDE ABBEY, DORSETSHIRE, ENGLAND



ORNAMENTAL PLASTERWORK IN CONNECTICUT STATE LIBRARY
DONN BARBER, ARCHITECT

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States with the adoption of wood as a building material. But considerable fine and delicate work was done both here and in England in the 18th century. In the days of Henry VIII the walls of large houses and mansions were plastered above



CEILING IN HALL, BARNSLEY PARK, GLOUCESTERSHIRE, ENGLAND

the wainscoting and colored, and some of the ornamental ceilings of that period are still admired by disciples of the art. Still earlier examples of the plasterer's skill are extant in the pargeted and ornamented fronts of half-timbered houses.

Plaster, we see, was once worthy of the best efforts of many of the world's most successful artists. The present day Renaissance of the great art of building, the use of more perfect material, and the new awakening of the crafts related to building, should stimulate further effort in art and decoration. Plaster may again become the medium of a decorative expression in the hands of men of art sentiment and education, men of refinement and ability to use it from its simplest to its most elaborate form. Plaster has been for the last century degraded as a medium of art, but the broader education of the architect today along these lines has given this decorative material value as a medium of natural expression and feeling, vitalized by the energy behind the tool.

The opening of the Centennial Exhibition held at

Philadelphia in 1876, the Chicago, Buffalo, St. Louis and Panama Expositions may be said to have marked an artistic quickening and awakening to a higher and broader plane of art than this country had ever before experienced. The progress in architecture, sculpture and other decoration since they took place has been rapid. The great courageous works of decorative ornamental sculpture and mural painting were great public educators and will be important guiding influences for our art of the future.

The impulse to plastic decorative art was slight, but none the less assertive, and was probably first felt in this country at the outbreak of the great war. It has reached an effective culmination in many serious monumental buildings and it has asserted itself in our artistic development in the most consistent manner.

The selection of illustrations is to show that the



THE DRAWING ROOM CEILING IN DORFORD HALL, CHESHIRE, ENGLAND

decoration should always be subservient to the purpose of the thing decorated. It should never be carried to such an excess as to hide or injure that purpose. In beautifying our dwellings and public buildings let us, above all, be sincere. "That which

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Above: PLASTERWORK IN THE "QUEEN
ELIZABETH ROOM." PLAS MAWR,
CARNARVONSHIRE, WALES.



At right: RAINHAM HALL, NORFOLK,
ENGLAND

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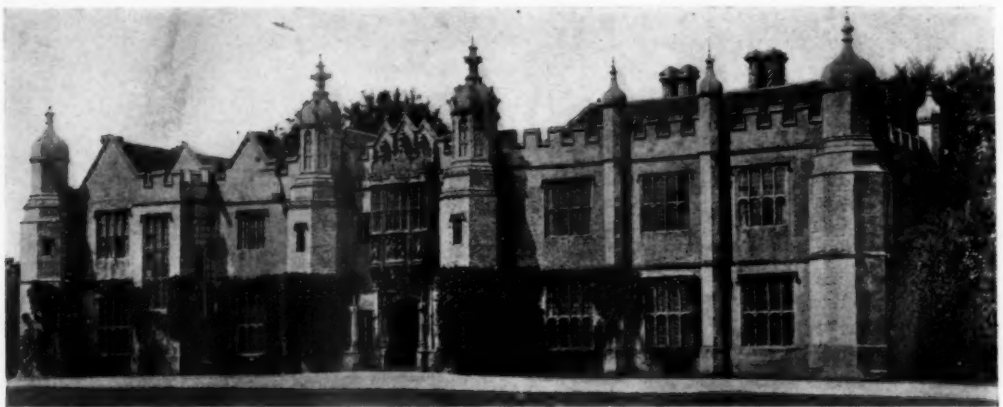
LIBRARY CEILING, RUSHTON HALL, NORTH-AMPTONSHIRE, ENGLAND

is beautiful is true; that which is true must be beautiful."

Decoration must be simple. There must be no overelaboration, no obvious straining after effect. It is always preferable to err on the side of simplicity, for a plainly decorated room, for instance, if in good taste, will always please, while excessive decoration defeats its own object and produces a sense of weariness. An occasional plain surface is a relief to the eye and gives repose. Good decoration is as much characterized by what it leaves undone as by what it does.

Finally, decoration must be suitable. It must be adapted to the position of the object decorated, the use to which it is applied, and the material of which it is composed.

The use of stucco or Portland cement as a building material has had such prodigious extension in recent years as to make comment superfluous. A stone which may be produced artificially from natural sources practically inexhaustible, which becomes harder as the years go by, which does not deteriorate, is waterproof and fire-resisting, moderate in cost and easily worked has already everything to commend it. But its decorative value as set forth in these pages is but one further instance of the marvellous ways of nature and the ingenuity of man. For what was at first the mere groping of an untaught instinct, destitute of message or appeal, has gradually assumed character, a fundamental sincerity and remarkable gifts of utterance.



HENGRAVE HALL, ENGLAND

The Architect and the Builder

By THOMAS T. HOPPER

THE crucible of war has produced a new relationship between the architect and the builder, due largely to the experience many architects have gained in Government service. This experience has created in their minds an appreciation of the necessity for an efficient system and organization in building construction. The result has been that the misunderstandings formerly existing are now past, and a closer and more intimate relationship exists today than ever before. Today the architect realizes that to execute modern high-class work properly, to get the exact effect that he desires, he must have the co-operation of the right builder, whose good will is essential in executing fittingly and interpreting broadly the architect's plans and specifications.

The builder realizes that he himself is only the hand which the architect shall guide. The architect realizes that the days of the hand-to-mouth contractor are over, and he wants to see his work carried out by firms who have at their head men of individuality, who give their attention and that of a well organized force in order to put into actuality the lines shown on their plans.

What, then, is a modern builder? Builders may be classified in many degrees, but three grades cover them all. Those who are not competent; those who subcontract everything; and those who, through their own organization are efficient and thorough. A good builder is one who has had both education and experience, who has an appreciation of texture, can point to well executed work, knows how to interpret plans and specifications, and is efficient in his calling. To be efficient, he must be responsible with a capable organization and established credit and capital. There are misfit builders as well as misfits in other professions, and there is a wide difference between the builder and the contractor. The builder constructs and creates. The contractor simply follows old and often obsolete forms of hiring himself out to follow as nearly as may be, certain instructions shown on a set of blue prints. A contractor is just what the word implies, but a builder, to be efficient and thorough, must be a master craftsman whose every thought and determination is to excel in his chosen vocation. In the builder's case, he is one who has a proper appreciation of the architect's point of view and who can give expression to ideas and feeling in the handling of materials.

To the architect of ability, the master craftsman

is his *alter ego*. The man who can take the cheapest of common brick and lay them in such a way as to give an interesting effect; the man who knows how to finish stucco and plastering so as to get the old-world effects in texture and color; the man who knows how to blend the colors in a slate roof, who knows how much irregularity to use in the laying of their courses to get the old time hand-hewn effect; the man who knows how to adze timber for exterior work—he is the master craftsman.

Just what service is required from such a craftsman? It is his duty to create from the architect's plans certain structures, to create them economically, thoroughly and quickly, to produce the result desired through system and efficiency in a manner satisfactory to the architect and according to his plans. In short, by his creation to produce a result which can be a measure of joy to all concerned. To do this, an organization is necessary.

Of what, then, should a builder's organization consist? Simply a group of a few men experienced in their different lines, who devote their time and experience to carrying out the ideas set forth above. It should be the duties of this organization to assist within reasonable limits in solving the problems constantly arising during building construction. To make, if called upon to do so, the necessary estimates; to find in the different localities the most suitable materials that can be used without long haulage; to see in all cases regardless of conditions or circumstances that the work is done substantially.

The builder should know the varying costs in the several localities where he operates. He should be sufficiently informed to know, for instance, that the costs at this writing are only 30 per cent more than in 1914, an abnormally low year. He should know that in 1918, an abnormally high year, the costs were 50 per cent over 1914, and that so far this year, there has been a decrease of 20 per cent with a further possible decrease of 10 per cent in prospect, with the result that today, April, 1919, building costs are not abnormally high, and with every indication that by summer they will be normal (say 20 per cent over 1914), at which they should remain for some time, depending of course on general conditions, but they will probably not get any lower in the future than the average of 1919.

For anything so intricate as a building project, system must be used to take care of expenditures, to time the completion of

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the various parts, and to make what might be termed a time-table for the arrival and installation of a great number of different items that go to make up the whole structure. This is most important. The following system has been found to be of great assistance and when a contract is undertaken it may with advantage be at once blocked out somewhat as follows:

Progress Schedule. Made out when contract is signed showing twice monthly the expected condition of the work, delivery of materials and subcontractors work at building; also in adjoining column when drawings are required.

Time Chart of all Branches of the Work. Showing on left hand side when details are required; in adjoining column when subcontracts or orders must be given; in center is printed column of branches of work, in right hand columns, when each part of the work begins at the building and when it is to be finished. This is a great help to the architect as he has in his draughting room this constant reminder of what is required and when. His men work on what is wanted first and do not waste time on details that are not required for weeks or months.

Statement of Progress Monthly from Superintendent on Building. Showing actual conditions with materials needed and subcontractors required during the following weeks or months, with statement of details and information desired on the work from the architect.

Bulletin Issued Monthly. Giving conditions at building, stating delays, if any, of subcontracts behind, material deliveries behind or delays in obtaining same, etc., with a notice of what is expected of those interested in the following month. Details required, decisions needed, estimates for changes required, and other items of interest.

Daily Job Time Report. Subdividing payroll under items worked each day by foreman on the job.

Financial Statement. Showing monthly all expenditures which are charged to subdivided items, giving at a glance the cost of each item to date, and per cent done, in comparison with amount estimated. This is for cost plus jobs only. It is a copy of the builder's ledger and makes his organization part of the owner's force. This prevents inflation of cost. Step by step the financial condition is apparent at a glance.

Order Blank. Covering Changes. Kept on job and made out for every change, alteration and extra item. Sent to architect with duplicate on file in builder's office. Keeps actual cost up to date. Makes additional orders appear promptly and estimates for same given at once.

Follow-Up System. All material orders and sub-

contracts inspected in shop and reported on weekly or monthly as conditions require.

Subcontractors. Only the best subcontractors and material men are to be employed. Service and quality only count. Disputes and extras are to be settled in the builder's offices and not in the architect's. No more work should be undertaken than can be properly handled.

It is to be hoped that the better relationship now being established between architects and builders will eliminate every laxity of genuine interest and co-operation. That the architect will feel confidence in the builder, and that the builder upon assuming a contract will feel that the architect will make his detail drawings without elaboration on the scale drawings on which the builder estimated. That the architect will realize he is only helping himself when he helps the builder get results by giving quick decisions, by making his details promptly, by issuing his certificates as soon as possible, and in case of disputes which are likely to arise, he will not hesitate to protect the builder's interest as well as the owner's, in the most equitable way. When a builder feels that these conditions exist, it uplifts the morale on the job. He will go to any length to help and satisfy the architect who gives him the right assistance and co-operation.

The better relationship as indicated above is going to mark efficiency throughout the building trade. The day of wild competition is past. The time of taking twenty or twenty-five estimates for an operation and awarding it to one who makes the biggest mistake (the lowest bidder) is past. The architect realizes that a competent builder under present conditions cannot make an estimate of cost as accurately as he could several years ago. The unsettled conditions throughout the country prevent this. The result is that the architect can with confidence recommend a competent builder with a good organization, on the ground that he is honest, has had the right experience and will do the work with the right spirit at cost plus a fixed sum and further, will do it in such a way, through his system which he places in your hands and which becomes part of the owner's own organization, that he could not even if he wanted, charge you more than the work cost. And solely by this method, the only method fair to both parties, can modern work be done satisfactorily. The wide-awake architect realizes now as never before the necessity of having the right builder. He knows that the owner gets only what he pays for, and for the sake of his reputation, he should and does select the best master craftsman he can get.

Why treat this business differently from any other profession? Why put a premium on dishonesty by encouraging needless competition? Why not select

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the best man? Let him give a guarantee of price to safeguard the owner and pay him an agreed sum for his services.

The architect is judged by the results he produces. The house may be artistic and well planned, but when the cellar is wet and the casement windows leak, because the details were not followed, the owner's wife will quietly tell all her friends that "our architect was artistic, but—" For his own pro-

tection the architect must select the best builder he can get to carry out his conception, for his reputation as a good architect rests on the builder more than some architects will admit.

The owner is a business man. He selects his architect because of his confidence in him, and in nine cases out of ten he will acquiesce in the architect's expert selection of the builder on precisely the same ground.

Recent Legal Decisions

PARTY TO CONTRACT MAY BE APPOINTED ARBITER

In an action on a building contract, one of the parties to which was a drainage district, the trial court refused to give effect to the following contract provision: "In the interpretation of these specifications and the contract and upon all questions concerning the execution of the work the decision of the commissioners shall be final." On appeal this was reversed for the following reasons:

This provision differs from the ordinary provision of like tenor found in nearly every building or construction contract only in the personnel of the arbitrators or umpires appointed to decide upon the contract, specifications, and work. If the word "architects" be substituted for the word "commissioners," it would be a provision usual and customary in construction contracts. It is well settled that where matters are thus left to the decision of an architect, his decision is final, unless impeached for fraud, accident, or mistake. It is therefore error to hold that such powers cannot be conferred upon one of the parties to the contract. Given the premise, the court says, that one may lawfully contract to perform certain work according to plans and specifications to the satisfaction of a third party, and that contracts to be executed to the satisfaction of one of the contracting parties will be enforced, it is difficult to appreciate the logic which condemns a contract to be performed according to plans and specifications to the satisfaction of the other contracting party. Certainly no consideration of public policy calls for the condemnation of one that does not always condemn the other. The powers and duties of the one appointed as arbiter are not materially different in the one case than in the other. In neither case can the arbiter act arbitrarily or capriciously. There must be the exercise of honest judgment, and the person performing the contract is not to be denied the fruits thereof by a fraudulent, arbitrary, or capricious action on the part of

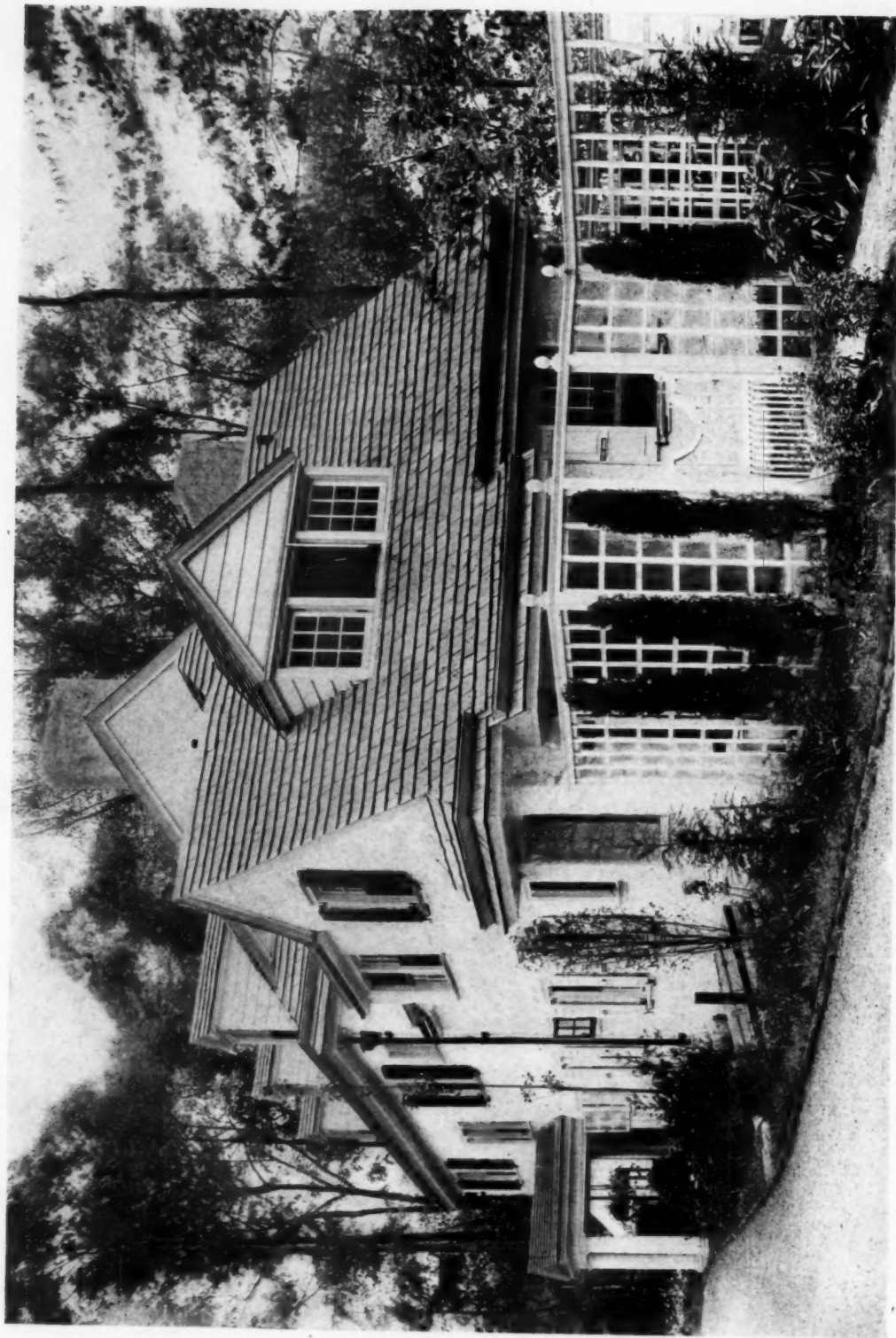
the other.—*Keachie v. Starkweather Drainage Dist.*, Wisconsin Supreme Court, 170 N. W. 236.

PERIOD FOR FILING LIEN STATEMENT

Under a statute providing that a lien statement shall be filed within four months after the date upon which the material was last furnished or the labor was performed under the contract, testimony to the effect that the building was completed on March 14, 1914, the record showing that the contractor filed his lien statement on 8th July, 1914, was held to show that the statement was filed well within the statutory period.—*Roper v. King (Okla.)*, 176 Pac. 926.

MECHANICS' LIENS—RECORDING OF LOAN CONTRACTS

New York Mechanics' Lien Law, Sec. 22, relating to the filing of building loan contracts, is penal in character, and intended to furnish additional security to materialmen. Its effect is that if the owner is not in fact furnishing the money, if the constantly increasing equity in the property, as the improvement progresses, is not in fact to inure to the owner's benefit, but is to be subsequently absorbed by mortgages, in favor of one who actually furnishes the money, then the result so contemplated can only be effected in law by complying with the provisions of the section, i. e., the contract creating the situation described must be in writing, acknowledged and filed as therein described. It is therefore held that under this section a contract for the lending of funds to enable a constructing company to build several buildings should be construed as a building loan; and so, where the contract was not recorded, the liens of laborers and materialmen were superior to that of the lender under the building loan contract.—*Y. T. McDermott v. Arden Const. Co.*, 173 N. Y. Supp. 597.



HOUSE OF CHARLES E. MCINNES, RYDAL, PA.
DUHRING, OKIE & ZIEGLER, ARCHITECTS

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APRIL 16, 1919

No. 2260

Building Work Reviving

A FEELING of optimism, especially noticeable during the last two weeks, backed by convincing statistics, justifies the conclusion that general business conditions are improving. That building and construction works are reviving is certain. While they lag somewhat below pre-war levels, they are showing a gratifying increase from week to week.

It is well understood that on the signing of the armistice three determined obstacles confronted the building industry, which suffered approximately complete suspension during the war period. These obstacles were (1) finance, (2) prices of building materials, and (3) uncertainty as to the labor market.

The financial obstacle, especially in the East, today is the most embarrassing obstacle to a general revival of building and construction work and probably, it will be the last to arrive at a satisfactory status.

Economists, investigating financial conditions for the United States Employment Service, Department of Labor, recently gave their approval to the statement made by Walter Stabler, comptroller of the Metropolitan Life, in which he said the small investor must now, more than ever before, be an important factor in financing business and building. In a recent issue of the bulletin of the American

Bankers' Association emphasis was placed on the recognition of the fact that investment capital must be gathered from these lesser sources and that the capital so gathered must be made accessible to builders on long time loans with the amortization feature.

Another significant development in this field is the movement for the organization of a Federal Home Loan bank system, patterned after the Federal Farm Loan banks. This project is being urged by the building and loan associations, which are behind a bill to be introduced in the next Congress. By this machinery it will be possible, the building and loan interests assert, to make liquid their assets to the extent of almost two billion dollars, making this sum available for further loans on home buildings.

These and other developments indicate a realization on the part of our sources of building and construction capital that some changes in methods of financing are essential before there will be adequate finance for the unprecedented volume of building necessary to make up the deficiency incident to the war and, at the same time, take care of the current year's normal requirements. The aggregate of homes needed now because of curtailment during the war approximates 2,000,000.

Contractors and builders have been less disposed to complain of high prices of material than of the uncertainty in these prices. The question has been "Are prices going to fall and if so, how much of a reduction may we expect?"

This question has been answered in several quarters quite convincingly and those who speak most authoritatively appear to be agreed that pre-war prices have joined the buffalo and the ox-cart, never to return. It is agreed there may be slight reductions here and there but the main level of prices will not recede for several years, if ever.

Again accepting the Department of Labor's economists as authority we find that at the close of the war the index number of building materials, not including steel, had risen only 61 per cent over the pre-war prices of 1913, while the index number for commodities, exclusive of building materials, had risen 113 per cent. We find also that construction costs, in such buildings as do not require steel, have advanced only about 48 per cent, the figure for steel construction being approximately an 87 per cent increase.

While there are many that believe the present wage level will remain for all time as a minimum, there is unanimity of opinion that if it does yield, labor costs will be the last and will follow material and living cost, in their downward trend very reluctantly.

The wages of labor did not advance in proportion

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to the cost of living and those who have vision in the industrial world are slow to assert that it is imprudent to maintain the standards of living which have been reached during the past five years. And while the supply of labor and demand as shown by weekly "weather reports" of the United States Employment Service is steadily increasing it has not influenced wages. That an over-surplus of labor will not affect wages is scarcely to be denied, but whether this affluence will be sufficient to make any perceptible effect and the extent of same is, at the present time, a matter of conjecture. The report of the Employment Service shows, however, that labor is plentiful in most sections and this is favorable to the building industry. It assures adequate labor and enables builders and contractors to get efficient labor.

Whatever are the handicaps to building and construction work there is a gratifying acceleration of activities. Building permits in November were six per cent of normal, in December 10 per cent, in January 20 per cent and in February 35 to 40 per cent. Allowing for the difference in money value the contracts awarded in February are 97 per cent of the five year average for the same month. Of these February contracts 91 per cent were for private projects, 9 per cent public, and of the private contracts 55 per cent were residential property, 25 per cent mercantile and 20 per cent industrial. In view of these facts the conclusion that building and construction works are reviving and may presently approximate normal, is inescapable.

Farm Improvements

THAT farm products have a greater purchasing power now than they have had in any earlier period of our history may in part account for the reason why rural districts of the country are actively undertaking building and construction work. Since building has such an important part to play in stimulating general business at this time, the farmer may serve both his own and the national interest by immediately making needed improvements on his property. Particularly is this true in the case of road construction, which assures him of early and permanent benefits and is the forerunner of further improvements to be expected in a locality easily accessible by good roads.

As in many other instances, farmers have largely been unable recently to get materials and labor for their needs. Barns, silos, houses and the pursuit of other improvements were necessarily neglected during the war. The farmer who at once utilizes

his share of the labor supply and gets his improvement under way, may ultimately, despite present prices, prove himself the prudent business man, for there is reason to believe that farmers who delay in the hope of materially reduced construction costs will have been deprived of the use of these improvements when they might have been of immediate value, and in the end be forced to pay approximately the building prices now prevailing. Campaigns for farm improvements are on in Nebraska, Kansas, Minnesota, South Dakota, Kentucky, Ohio and in localities in Texas and Iowa. In several states, among them Missouri, Oregon and Colorado, silo building campaigns are being carried on by the agricultural colleges. In Wisconsin there is a milk-house campaign being vigorously prosecuted in the dairy districts, while in Illinois farmers are being urged to build feeding floors. Much of this work is being conducted by building interests, but the Division of Public Works and Construction Development of the U. S. Department of Labor is also interested in seeing it successfully carried out because it is realized that such activities on the farms are bound to have a beneficial effect on general business conditions.

The Trans-Mississippi Readjustment Congress, held in Omaha, Neb., late in February, in summarizing the situation, said in part:

"We believe also that the promoters of private construction and business enlargement should take heart of courage and should believe in the immediate resumption of business prosperity in the United States. There is no place in the American scheme of things for the pessimist or the doubter. Our country to-day leads the world in prosperity. It can lose its leadership only by its own faint-heartedness. We especially deprecate any concerted holding back of construction and business resumption, for the purpose of forcing a reduction in wages or cost of material.

"Both as a means of stimulating the resumption of industry and removing the shadow of unemployment from the working people and also by serving the broader and more permanent purpose of supplementing the railroad lines and to develop the inland and farm commerce of the country, the work of constructing goods roads should be promptly carried on by co-operation of the Federal and State Governors and local communities."

In the recent Conference of Governors and Mayors in Washington, it was apparent that these executives were disposed to go in for extensive road and public improvement campaigns in their respective districts. These can be made a success only when they are supported by the citizens. For this reason, the farmer, as well as the city dweller, who understands how greatly building and construction work now affects general business conditions, will back up his local officials in every reasonable campaign for road building and public works of a necessary sort.

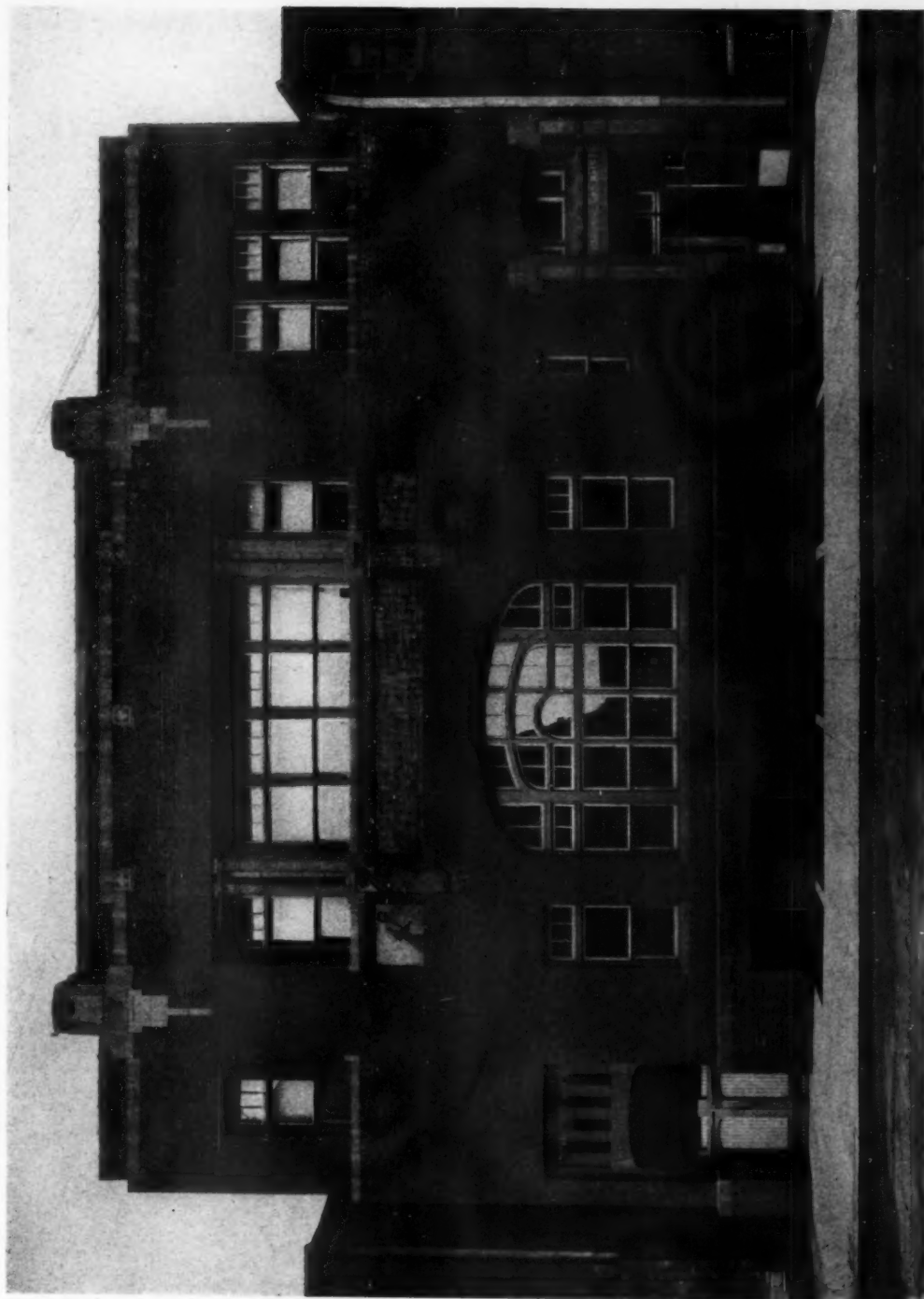


PLATE 123

MAIN ELEVATION

MUSICAL ARTS CLUB, WALNUT STREET, PHILADELPHIA, PA.

PRICE & McLANAHAN, ARCHITECTS



PLATE 124

MAIN ENTRANCE DETAIL

MUSICAL ARTS CLUB, WALNUT STREET, PHILADELPHIA, PA.

PRICE & McLANAHAN, ARCHITECTS





STAIR HALL



ENTRANCE LOBBY

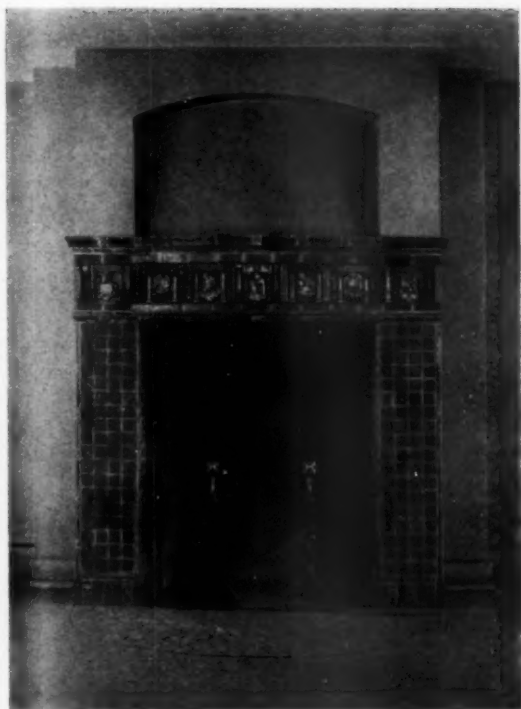


PLATE 125

GAME ROOM FIREPLACE



GRILL ROOM FIREPLACE

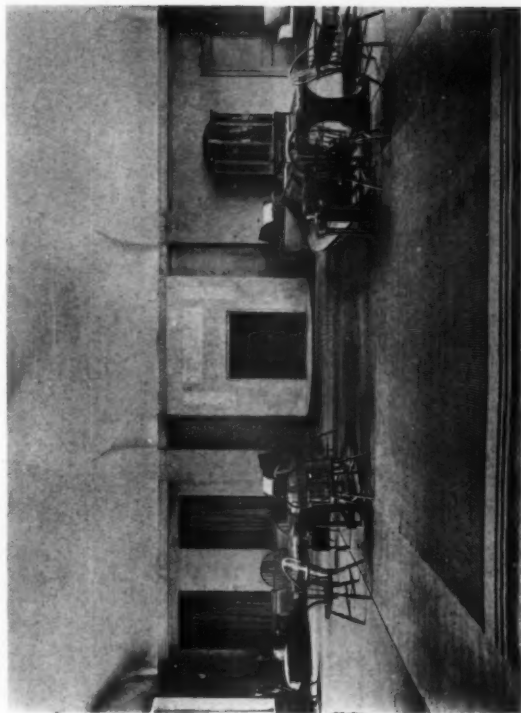
MUSICAL ARTS CLUB, WALNUT STREET, PHILADELPHIA, PA.

PRICE & McLANAHAN, ARCHITECTS

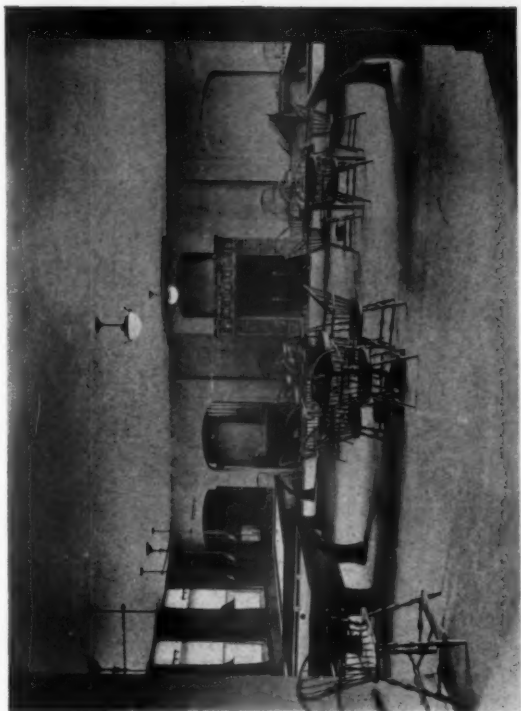
APRIL 16, 1919

THE AMERICAN ARCHITECT

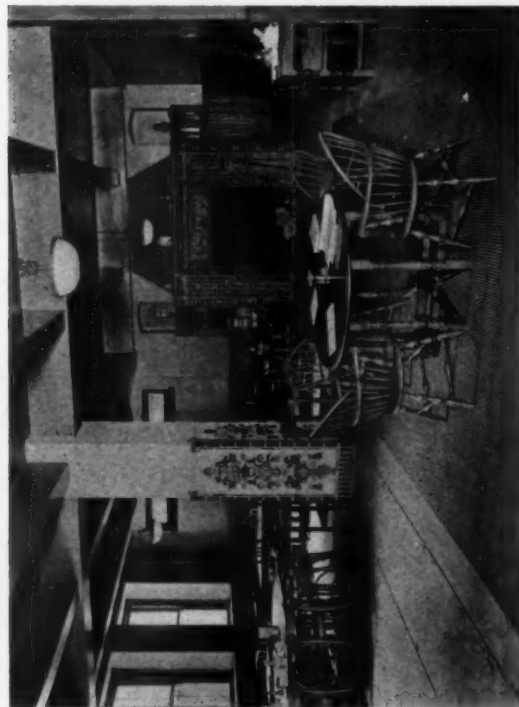
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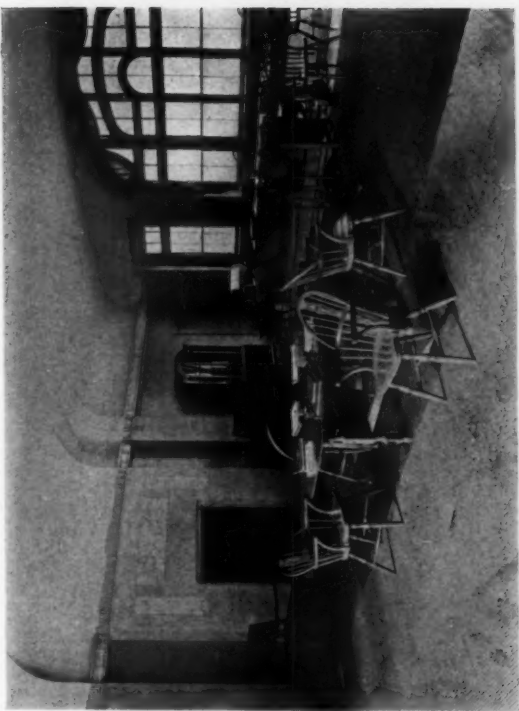
LOUNGE



GAME ROOM



MUSIC ROOM



LOUNGE

MUSICAL ARTS CLUB, WALNUT STREET, PHILADELPHIA, PA.
PRICE & McLANAHAN, ARCHITECTS



LOUNGE FIREPLACE

MUSICAL ARTS CLUB,
WALNUT STREET,
PHILADELPHIA, PA.

PRICE & McLANAHAN, ARCHITECTS

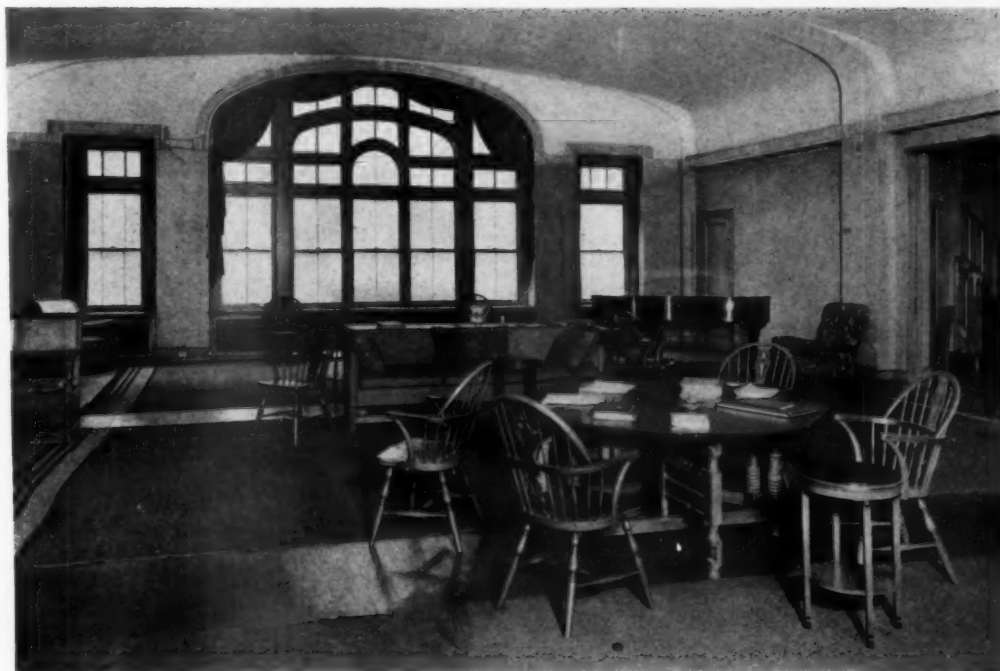


PLATE 127

LOUNGE OR MUSIC ROOM



PLATE 128

OFFICE BUILDING ON CADILLAC SQUARE, DETROIT, MICH.

LOUIS KAMPER, ARCHITECT

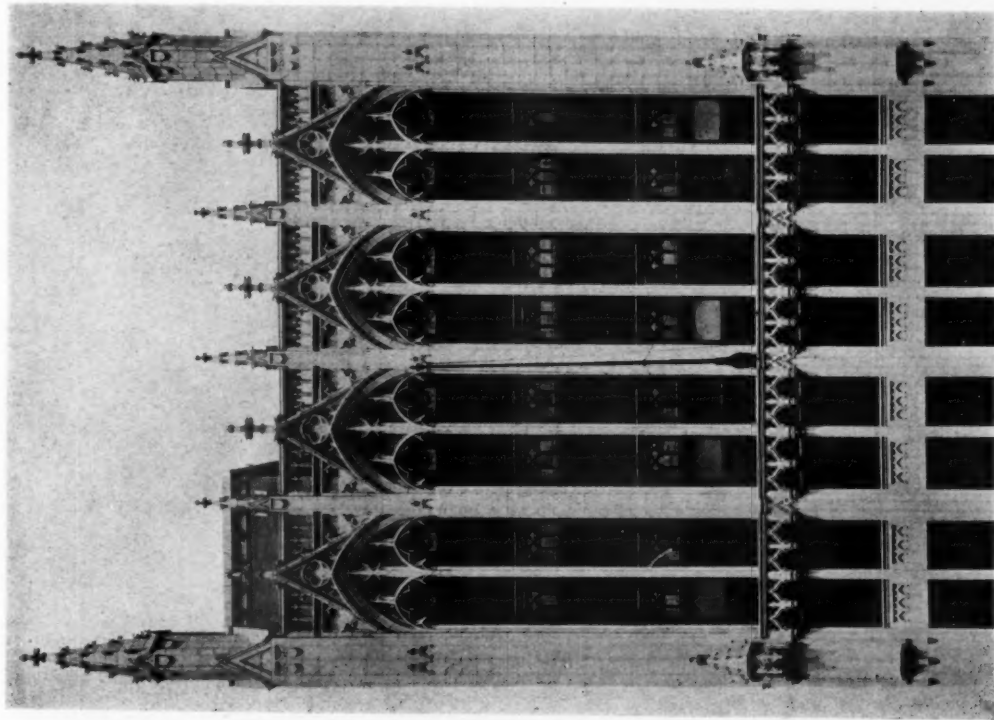
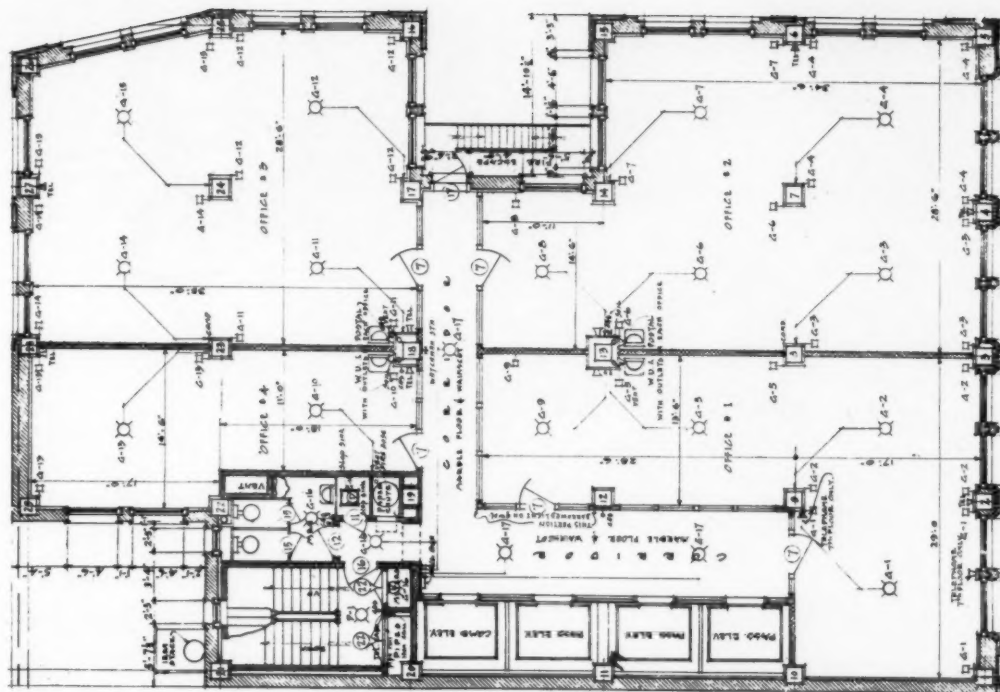


PLATE 129

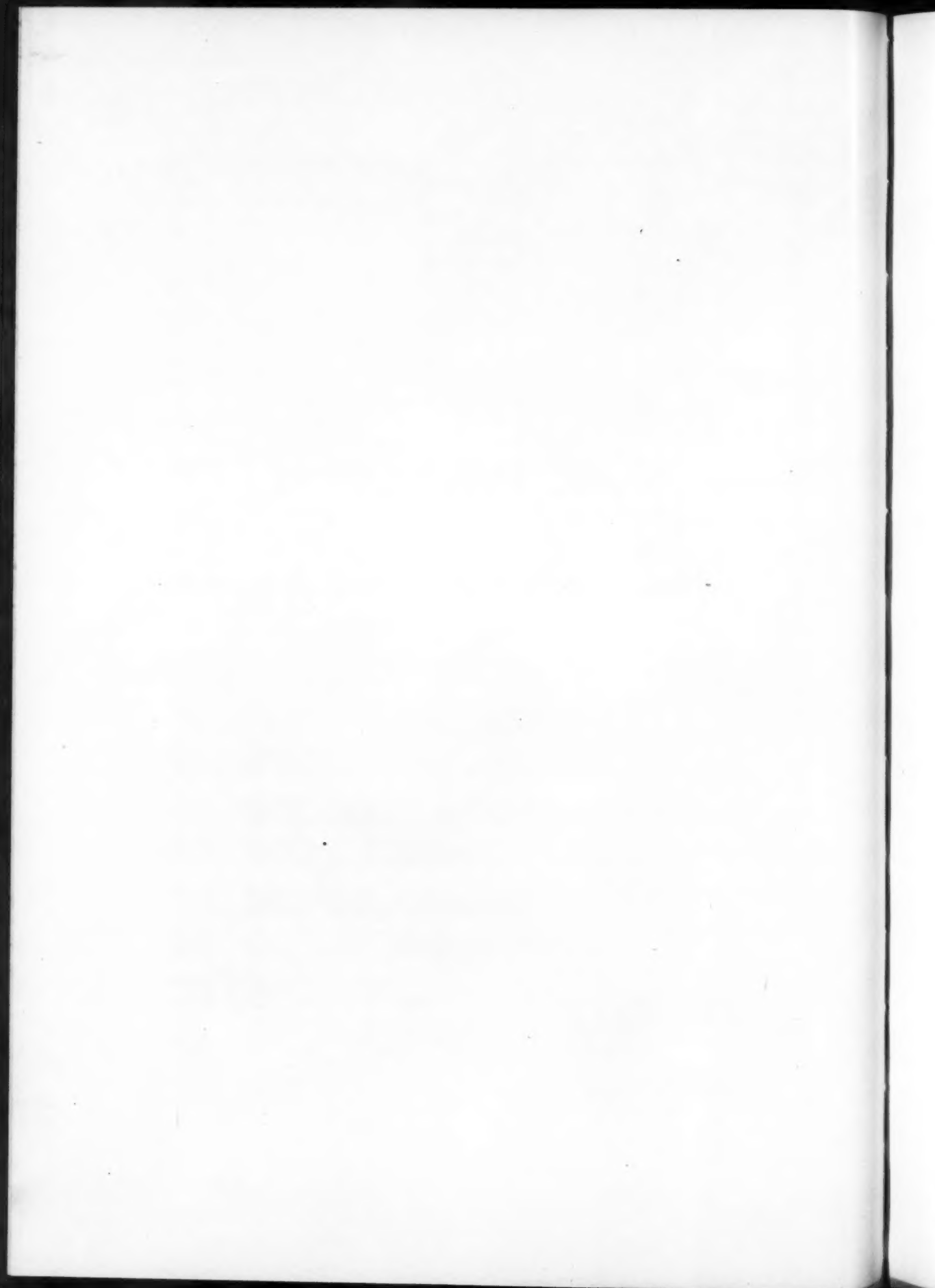
DETAIL OF UPPER STORIES

OFFICE BUILDING ON CADILLAC SQUARE, DETROIT, MICH.

LOUIS KAMPER, ARCHITECT



TYPICAL FLOOR WITH PARTITION LAY-OUT



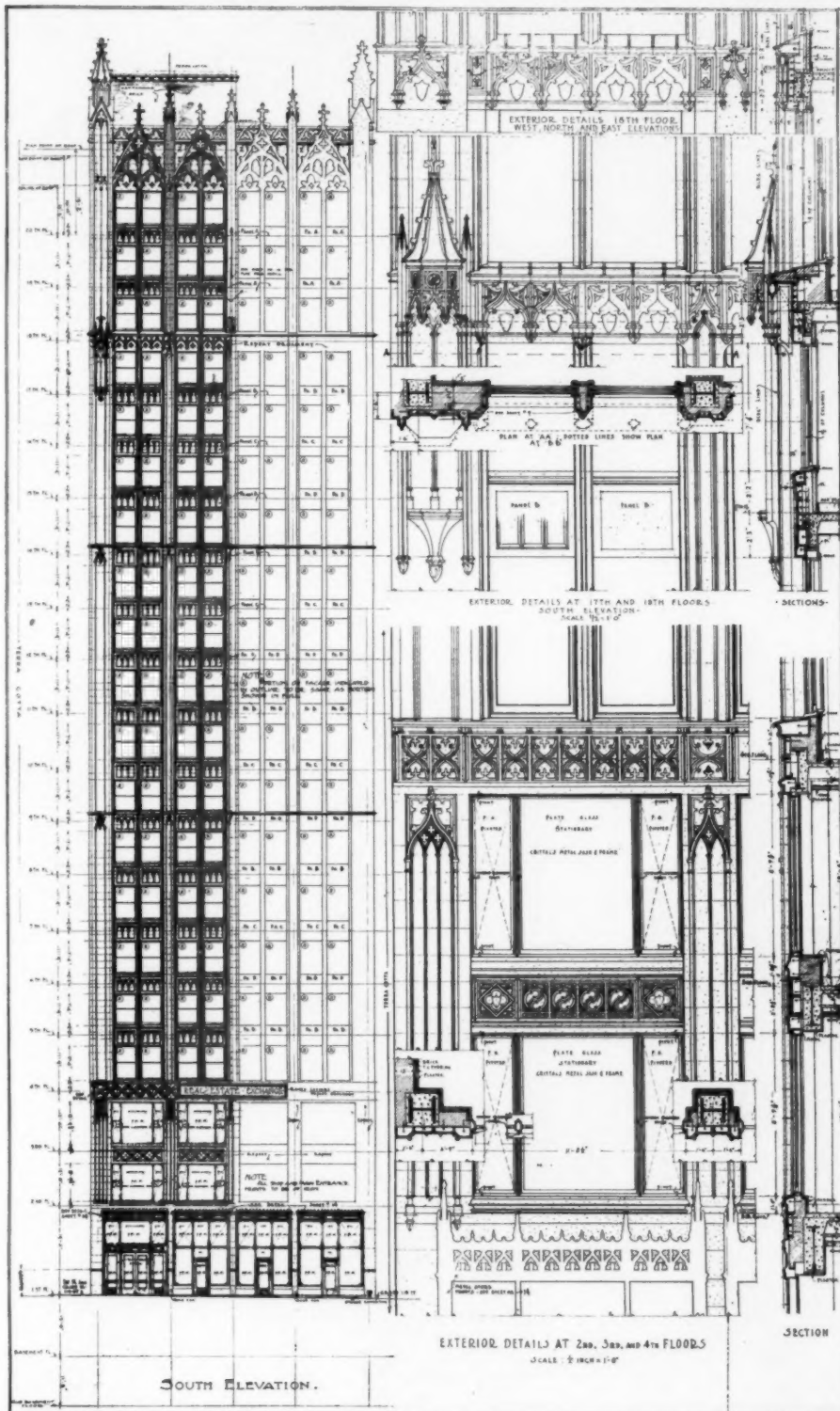
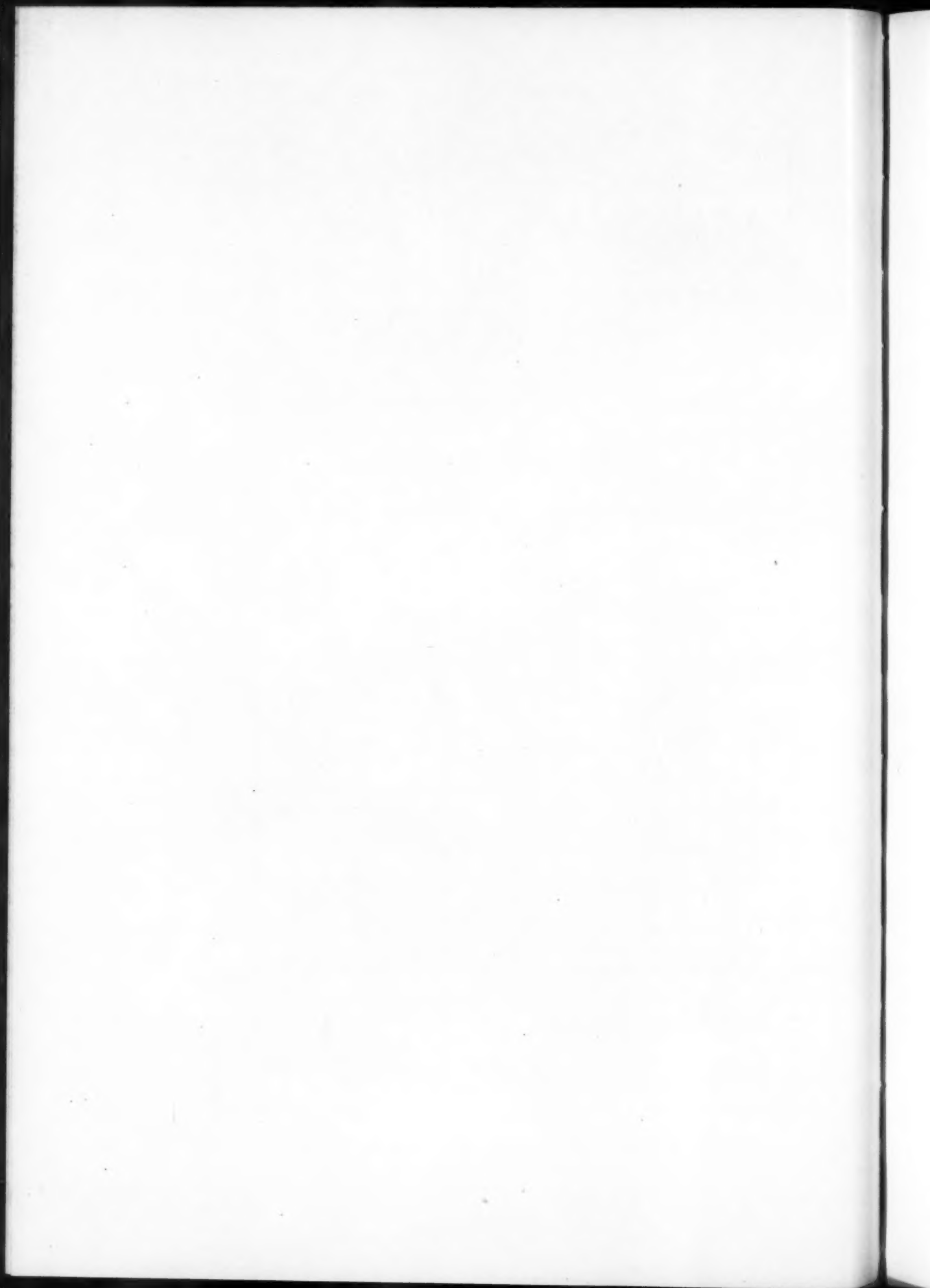


PLATE 130

OFFICE BUILDING ON CADILLAC SQUARE, DETROIT, MICH.

LOUIS KAMPER, ARCHITECT



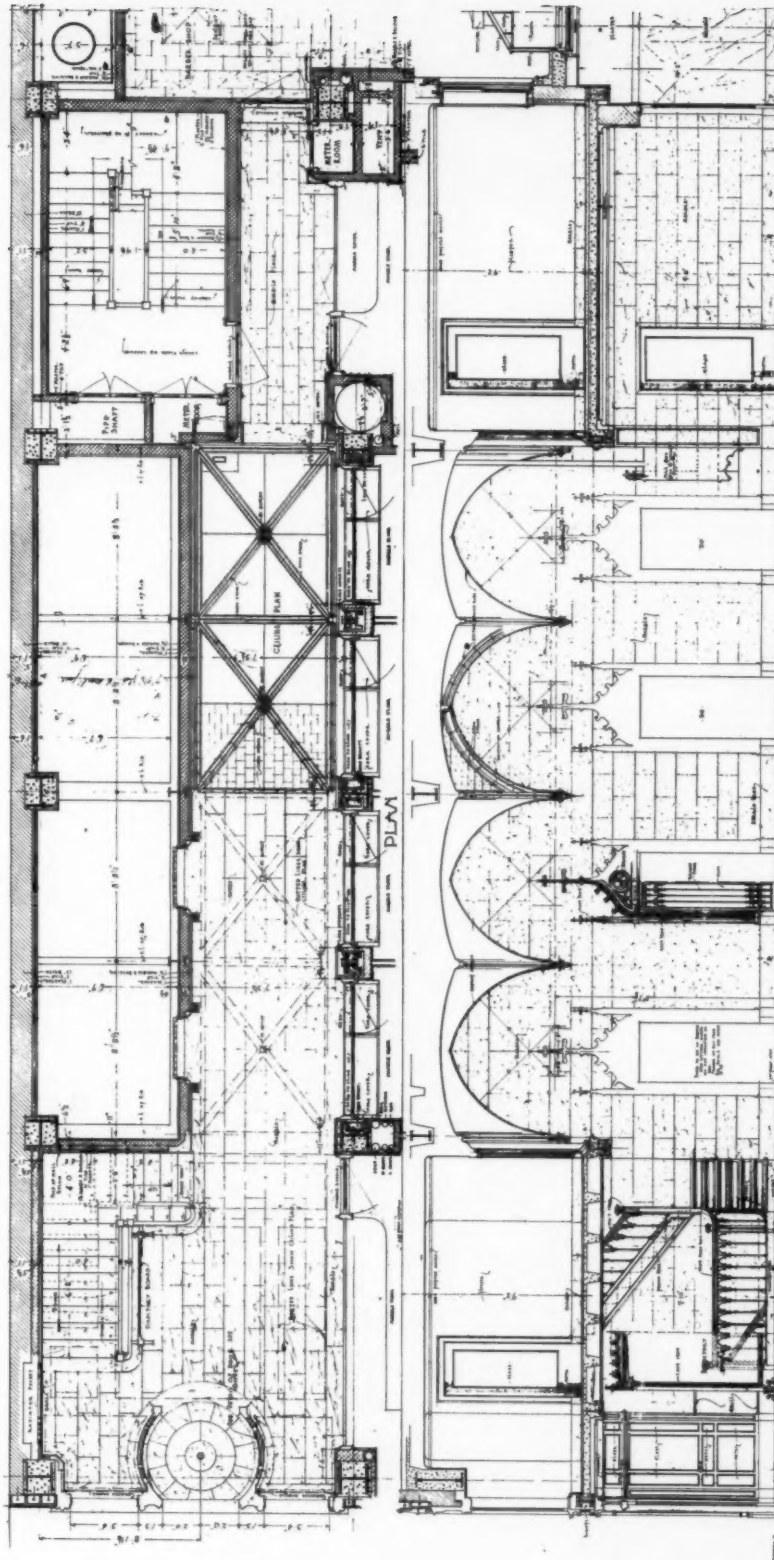
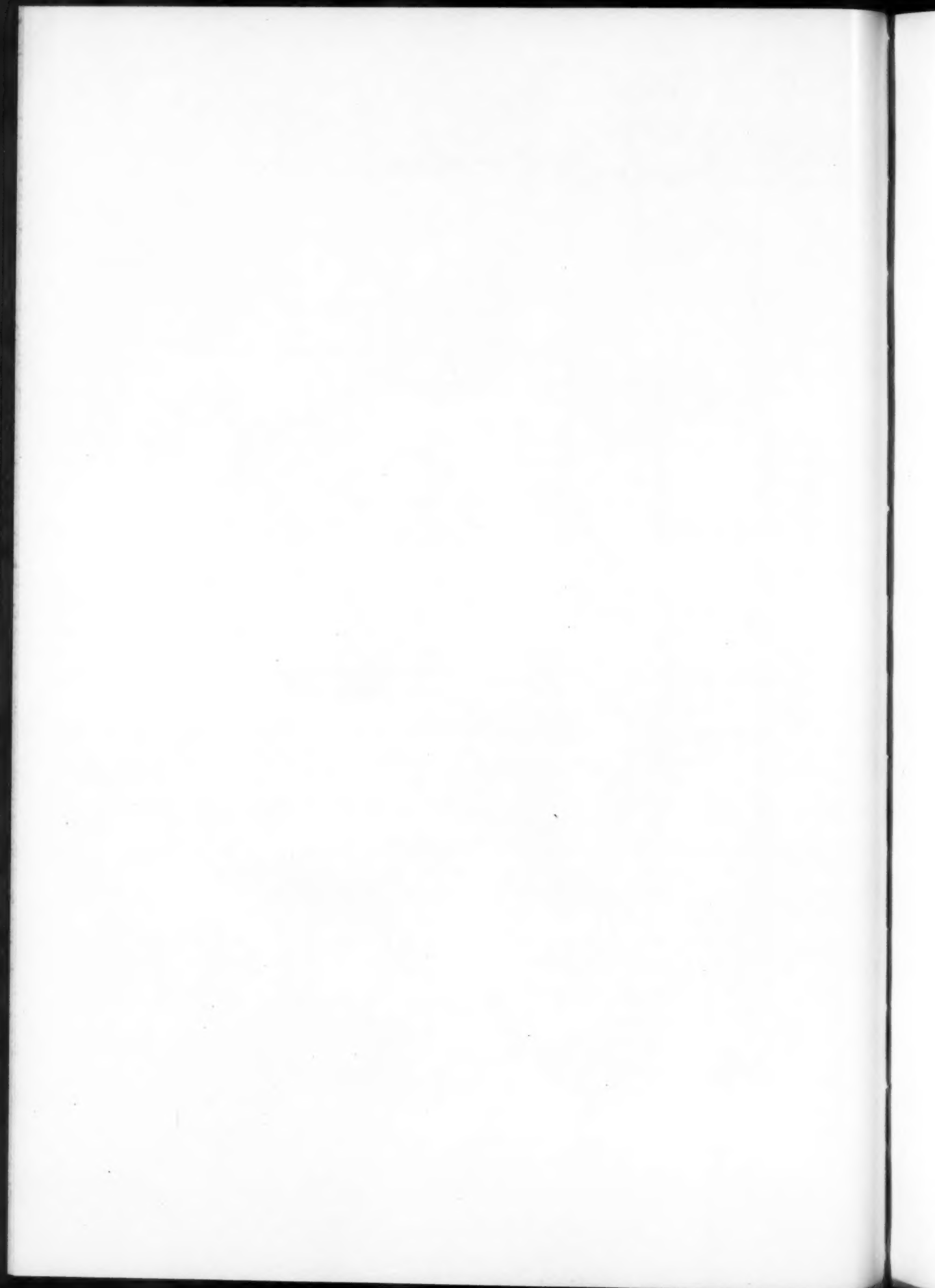


PLATE 131

DETAILS OF ENTRANCE AND ELEVATOR LOBBY

OFFICE BUILDING ON CADILLAC SQUARE, DETROIT, MICH.

LOUIS KAMPER, ARCHITECT



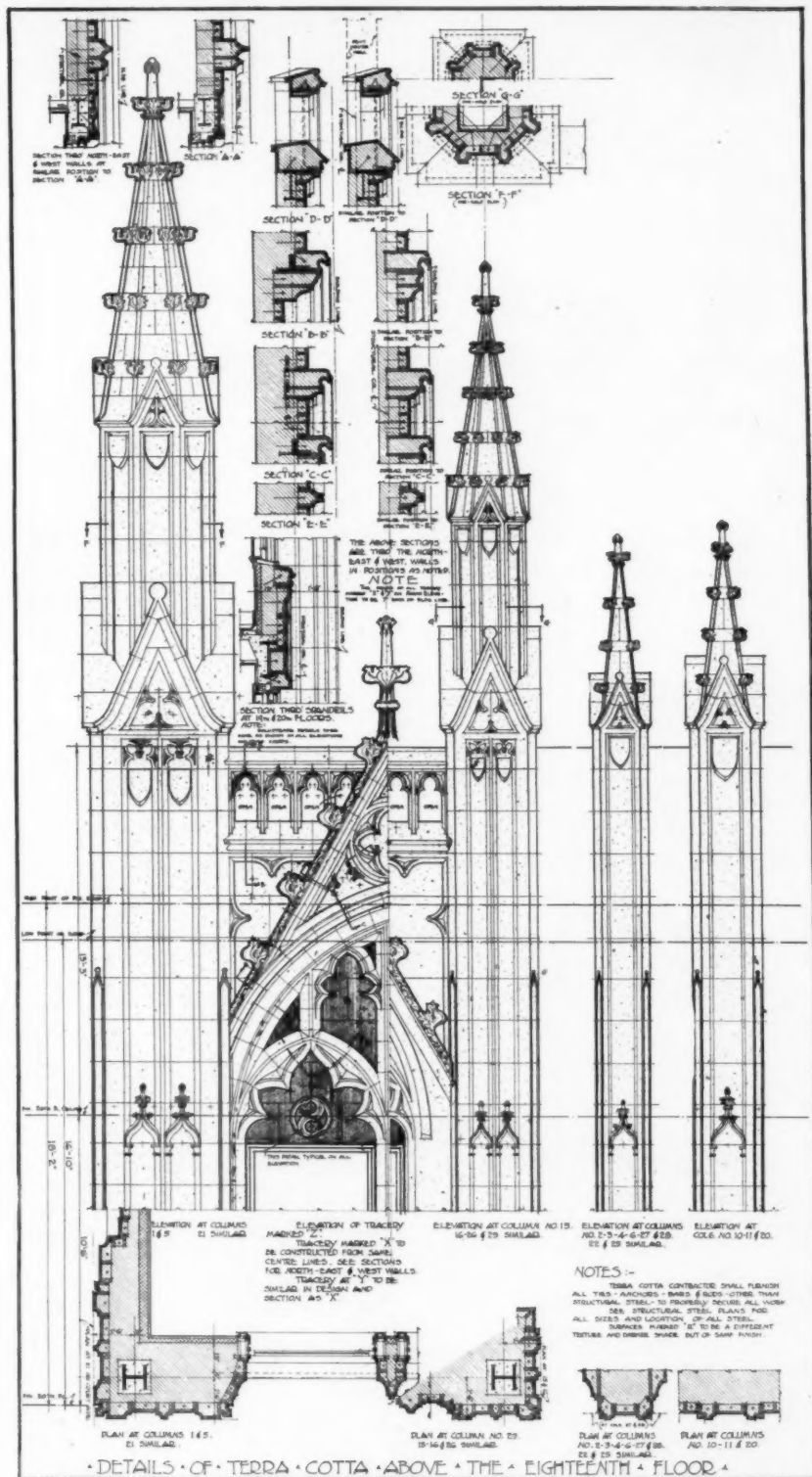
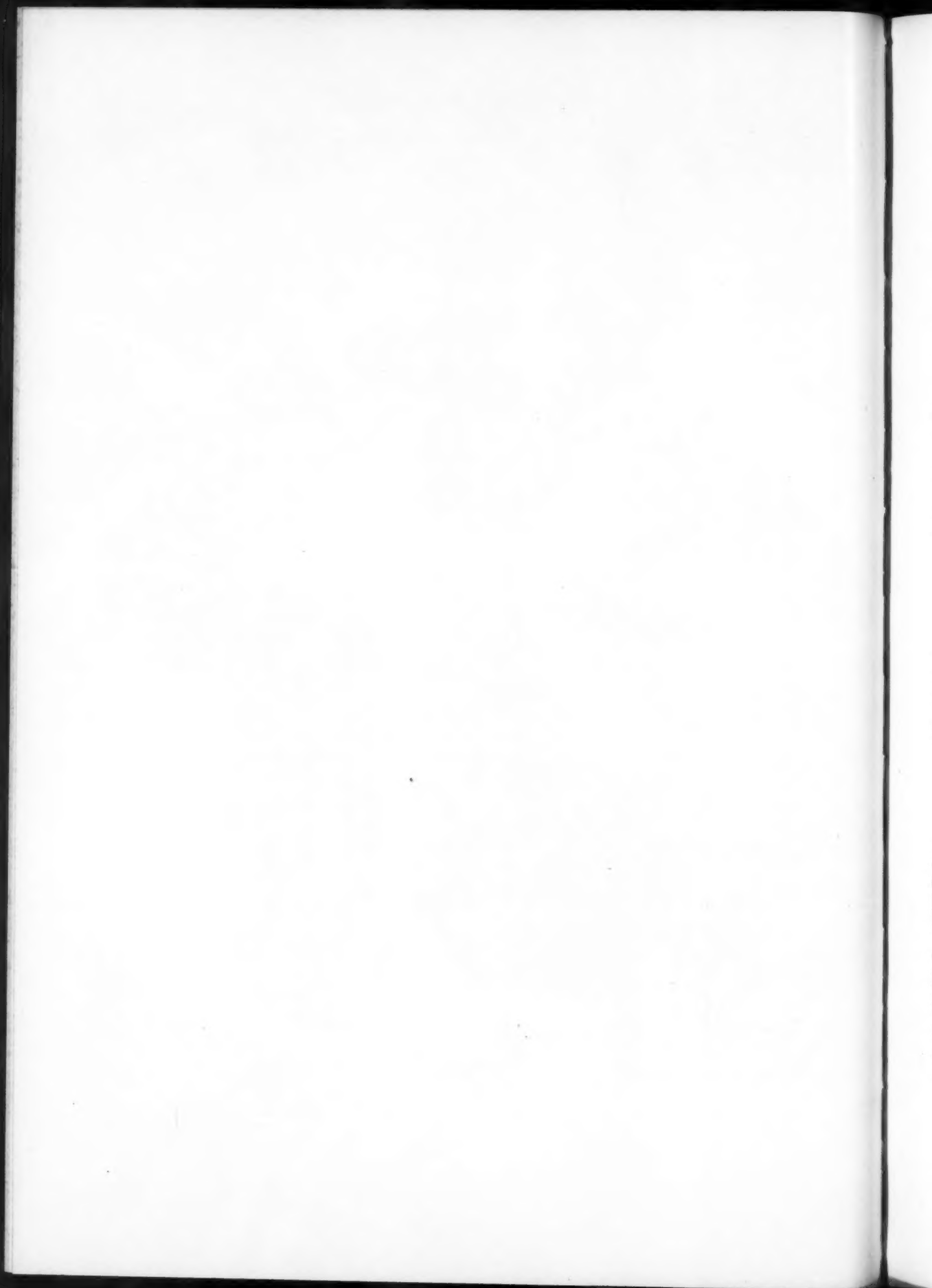


PLATE 132

OFFICE BUILDING ON CADILLAC SQUARE, DETROIT, MICH.

LOUIS KAMPER, ARCHITECT



Current News

Kansas City Chapter Meets

The Kansas City Chapter of the American Institute of Architects gave a dinner in honor of H. Van Buren Magonigle, architect, of New York, who went there to give suggestions to the Liberty Memorial Committee. Mr. Magonigle told of the plans of the Post-War Committee organized by the American Institute of Architects to begin its effort to get all the architects of the country together on common ground for the common good.

Following Mr. Magonigle's explanation of the committee's plans, there was a general discussion, and a resolution was adopted to co-operate and support the Post-War Committee in its efforts to improve its relations to the rest of the world so that those relations might grow better in every sense of the word.

Prize for Best Landscape

Edward W. Redfield of Center Bridge, Pa., was the winner of the Altman prize of \$1,000 for the best landscape painted by an American-born artist, at the 94th annual exhibition of the National Academy of Design. "The Old Mill" is the title of the winning canvas. The Altman prize of \$500 for a landscape was awarded to Gardner Symons of New York for his "Shimmering Shadows."

MacMonnies Statue at Princeton

The model for the statue of George Washington which was ordered by a committee of prominent citizens of Princeton, N. J., to be erected on the green in front of the Princeton Inn, has been completed by the sculptor, Frederick MacMonnies, and is now being done into stone at his New York studio.

He commenced his model in France just before the war and worked on it for two years. His statue was to represent Washington refusing defeat at the battle of Princeton. He put into it the same grim determination for victory which characterized the fighting of the French on the Marne. The face of Washington is represented as dignified and strong, his bearing infusing the courage into his weary men which led them from defeat to final victory.

The statue will stand twenty-six feet high and will be placed in relief against a fifty foot column which is being prepared by Thomas Hastings, architect. The figure of the woman represents young Liberty seizing the banner to lead on the despairing soldiers. Charles Dana Gibson was the model for the soldiers.

Pershing Stadium Will Be Erected

An enormous monument to the memory of the American support of France, to be known as "Pershing Stadium," is now in prospect of erection on the old French military training ground at Joinville-le-Pont. This structure will be the scene of the great Inter-Allied Olympic games to be held about the first of June. The ground was broken for the stadium a week or two ago and the contract under which it is being erected says that it must be completed within ninety days.

After the Olympic games are concluded, the stadium will be presented to the French Government as a memorial to the first invasion of Europe by American troops. It will, when completed, be able to accommodate 40,000 persons and is intended to be one of the finest buildings of its character in the world.

The structure will be of reinforced concrete and will completely surround the vast field, which will have a 200-meter (218 yard) straightaway, and a 500-meter (545 yard) elliptical running track. Within the track there will be room for an English Rugby playing field, which is about 30 yards longer than an American gridiron.

Famed Perseus is Uncovered

Florence, Italy, has just taken the sandbags away from the bronze statue Perseus, with the head of Medusa, executed by Benvenuto Cellini in 1445. It had been covered to protect it from German air raiders, along with other priceless statuary. Benvenuto's Perseus is a marvel of detail, but even more famous is his story, told in his biography of how it was cast. It made that very intimate recital a classic.

77th Division Plans Clubhouse

Warren & Wetmore have prepared preliminary plans for the proposed \$5,000,000 clubhouse of the 77th Division. The site of the old Astor Library at Lafayette and Eighth Streets, New York, has been tentatively selected as the location for the clubhouse. This piece of land and the building now occupying it have been leased for one year by the association to provide a temporary club for the men when they return to the United States this month. Carpenters and decorators have been put to work renovating the building. Keeping in mind the monumental character such an edifice should have, the architects have sought to design a building which will typify the spirit of Americanism that was developed in the division. The proposed clubhouse, as seen in the architects' drawings, resembles somewhat the Parthenon.

The building will contain a separate room for each regiment in the division, with a large drill hall capable of accommodating 6000 men. It is planned to install a gymnasium which will rank among the finest in the city.

Our Soldiers Studying French Art

In line with the feeling of THE AMERICAN ARCHITECT that soldier-architects in France should be given opportunity to study the Beaux Arts while abroad, the Y. M. C. A. has opened at Bellevue, near Paris, the American Expeditionary Forces Art Training Center, with an enrollment of five hundred students recruited from the American Army. This school is dedicated to the purpose of training American soldiers in painting, mural painting, sculpture, interior decoration, industrial and commercial art design, architecture and engineering, and work associated with art generally.

The school is founded on the workshop system and will be the basis of organization as regards architecture and various fields of painting and sculpture. Arrangements are being made to facilitate the instruction of specially qualified soldiers so far as to permit their early attendance at the Ecole des Beaux Arts and other well-known institutions.

The establishment of this school was made possible by the co-operation of Gaston Liebert, French Consul General in New York City; Lt. Col. Theodore Reinach, chief of the French mission of scholars to America; R. W. De Forest, president of the Metropolitan Museum of Art; Lloyd Warren, director of the Beaux Arts Institute of Design; McDougal Hawkes, president of the French Institute in the United States, and other people

prominent in cementing co-operation between France and America.

George S. Hellman of New York is supervising the work of the new art center, with the assistance of the army authorities.

The Y. M. C. A. workers will discuss with army chiefs the advisability of mustering out men abroad who may wish to continue study in France, for it is anticipated that this will result in the return to this country of trained groups of men who will bring to America an appreciation of French methods in art as a contribution to the cultural life in the United States.

Housing Problems in America

Volume VII, of the proceedings of the Seventh Annual Conference on Housing, held in Boston in November, 1918, has been published by the National Housing Association. It is entitled "Housing Problems in America," and is a substantial cloth bound book of more than 450 pages.

The book contains edited copies of the various papers read at this conference, with stenographic reports of the various debates.

At no time have problems of housing been more vital in the United States than now. The enormous shortage of low-cost houses and the necessity for quick building to meet an insistent demand will, unless proper care is exercised, result in many unfortunate and costly errors.

The series of important and authoritative articles that comprises this volume covers every essential aspect of the housing problem. The book is therefore a timely one and may be read with profit by every architect, engineer and builder.

Department of Labor Questions Building Trades

In order to apprise the building interests of the country with the present situation in related industries, the Division of Information and Education of the Department of Labor sent out nearly 20,000 questionnaires to builders, architects, manufacturers, banks and other institutions, and to Government officials throughout the country.

A preliminary report issued by this division states that 6,225 of these queries have been returned, reporting public and private projects approximating a total valuation of \$1,708,738,936.

Of these 6225 projects reported 3226 are public, such as street paving, road construction, water works, sewers, public buildings and water-

THE AMERICAN ARCHITECT

front work, the approximate valuation being \$1,249,548,825.

There were 2999 private projects reported of a total valuation of \$459,190,111. These consist of apartment houses, residences, hotels, business buildings, factories, places of amusement, churches, social halls and railroad work.

While these reports are still coming in and are now in process of sorting, the results so far have Illinois leading with 220 public projects aggregating in value \$130,877,476, and 141 private projects aggregating \$94,574,476; a total of \$225,574,476. One item that swells the Illinois private project total is the new Union Railroad station in Chicago, which is to cost \$60,000,000.

New York comes second with 275 public projects to cost \$120,574,485, and 405 private projects to cost \$43,738,356; a total of \$164,312,841.

Ohio is third in the list with 226 public projects to cost \$103,323,691, and 424 private projects to cost \$37,685,515; a total of \$140,918,216.

Michigan comes fourth with 149 public improvements to cost \$93,110,694, and 77 private projects to cost \$37,994,700; a total of \$131,105,394.

Furniture Market in South America

Largely because of the climate, the building laws of the West Coast countries of South America require that ceilings of all dwellings be much higher than is usual in homes in this country. For this reason, American consuls report, much furniture imported from the United States has not been acceptable, as it has appeared diminutive and out of proportion in houses with high ceilings. Certain European manufacturers have met this architectural difficulty by sending out representatives who, by their knowledge of interior decoration, were able to provide suitable wall decorations, coverings and arrangements of furniture so as to give pleasing effects.

Chile perhaps furnishes the best market of the west coast countries, its rich resources having attracted many wealthy foreigners who are able and desirous of buying imported furniture. There is generally a greater demand for the best grades of imported furniture because the cheaper grades are produced locally. The French manufacturers obtained a good share of Chile's trade in fine house furniture before the war, it being the custom of the wealthy Chilean families to travel in Europe and bring from France suites of furniture for their homes.

Much office equipment and some house furniture is imported from the United States but in

general manufacturers from this country have not been much interested in developing this market nor have they obtained able and energetic representatives to promote the sale of their goods. Accurate information concerning climate, customs and other peculiarities of this market are necessary to the growth of the American furniture trade on the South American west coast. In fact, technical knowledge and an ability to adapt products to South American needs is the secret of trade success on that continent—it is said to be of more real value than even a knowledge of the Spanish language.

Adopts Zone Ordinance

What is considered one of the most completely worked out and comprehensive ordinances so far adopted in the United States, was passed by the Alameda City Council on the recommendation of the city manager and advisory city planning commission in February, 1919. Alameda is a city of approximately 35,000 population.

Neighborhood meetings and conferences were held and from each of the principal districts and centers of the city, an agreement was obtained as to what protections would be for the best interest of property owners in each neighborhood. These neighborhood recommendations were then combined together in a general zoning plan and the whole put up for public hearing as the preliminary form for the zoning regulations. There were practically no objections to the ordinance, either at this time or at the later hearings after it was introduced before the city council.

The ordinance is expected to stabilize property values, prevent the deterioration of residence districts, help business by requiring it to be concentrated at established centers, and make a definite place for industries to locate and invest where they will be safe from protest and interference.

450,000 Buildings Destroyed

Bad sanitation and housing, especially in devastated regions, have made France's problems still more acute than they would ordinarily have been.

A report bearing on this phase of the problem has been announced by Andre Tardieu, who says French official investigators have learned that a total of 450,000 buildings, exclusive of all public structures, were destroyed in France during the war.

Exhibition of Industrial Art

The practical utility of what we call industrial art is one of its distinguishing features which should particularly appeal to the American mind. Everyone in every walk of life is in intimate contact with products of industrial activity. Extending the applications of industrial art therefore makes for a democratizing influence and eliminates for the plain man something of the feeling of aloofness which he assumes to be the attitude of those active in the "fine arts."

As a means to emphasizing its belief that art expression should be found in our homes, our clothes, our shops and intimate belongings as well as in our art galleries and museums, the Art Alliance of America has prepared an exhibition of the work of students in art and trade schools in New York City. Twenty-six institutions are included, and provide designs in graphic arts, comprising advertising, blockprinting, book covers, costume illustration, posters, wall paper, etc.; in hand-decorated textiles, jewelry, silverware and copper, pottery, architectural ornament, interior decoration, and stage craft, including both settings and costumes.

It may be noted that these works are executed by their designers, thus effecting the sort of co-ordination which *THE AMERICAN ARCHITECT* has already taken opportunity to commend.

The effect of interplay between these aspects of craftsmanship upon the practice and well-being of architecture will be apparent. The higher standards of art which the layman may attain to has a very direct bearing on the character of architecture which the profession may aspire to produce.

This exhibition, representative and far-reaching as it is, should receive the encouragement and support of every architect as a point of departure from which may result higher and better achievements in public taste than have been evolved in the past.

Rotch Traveling Scholarship

RESUMPTION IN 1920 OF ANNUAL AWARD

For two years on account of the war conditions, there has been no award made of the Rotch Traveling Scholarship. In the opinion of the committee, the conditions do not as yet justify study abroad. It is now announced that the examinations will be resumed as usual in 1920 and that the age limit which was heretofore set at 30 years, will be extended during 1920 and 1921 to 32 years, so that those who did not have an opportunity to compete during the past two years will not be deprived of the opportunity now.

A National Public Works Department

The Conference of Engineering Societies at Chicago, April 23-25, will be one of great importance to the architectural profession. As noted in *THE AMERICAN ARCHITECT* of April 2, the co-operation of the architectural organizations is desired by the Engineering Council, under whose auspices the conference is called.

The development of building construction has reached tremendous proportions, and the elemental problems are so diverse and complex that the co-operation of architecture and engineering is required. In fact the limits of either are impossible of definition. Recognition of this fact is freely accorded by the sponsors of this conference who consider that architectural organizations are, in a very large sense, engineering organizations. Invitations have been sent to all known architectural organizations, and if they have been overlooked inadvertently they should notify M. O. Leighton, Chairman National Service Committee, McLachen Building, Washington.

One year ago T. C. Young, in addressing the St. Louis Chapter, A. I. A., spoke of the necessity of co-ordinating the building construction activities of the Government under one head. In this way one standard of structural and mechanical requirements would be made common to such work rather than the four or five different requirements that now obtain to secure the identical result. The organized architects failed to act on Mr. Young's suggestion, and the engineer has proposed the same thing and will act. They ask the co-operation of architects and accord them every opportunity to become a potent factor in this undertaking.

Every organization of architects should take the necessary steps to take part in this conference having as its object the establishment of a National Department of Public Works.

Personal

Architects Whitworth and Johnson have moved to 413 Engineers' Building, Cleveland, Ohio. They desire catalogs.

Ernest Greene announces that his offices have been moved to 52 Vanderbilt Avenue, New York, where he will continue the practice of architecture.

R. Bruce Atkinson and Jarrett C. White announce that they have entered into a partnership for the general practice of architecture, with offices at 818 Connecticut Avenue, Washington, D. C.

Late News from Architectural Fields

Special Correspondence to THE AMERICAN ARCHITECT

Cost Probe Started by Legislators

CHICAGO, ILL., April 12.—Probably millions of dollars' worth of public and private improvements in Chicago will hinge to a great extent upon the information to be obtained through the efforts of a state legislative committee now in session at the Hotel La Salle. The committee, made up of state senators and representatives, was appointed to determine whether profiteering exists among dealers in building materials.

More than 300 subpoenas have been issued by the committee for the appearance before the legislators of men interested in the construction materials. Statements of investors and real estate men recently are that many improvements in Chicago are planned, but are being held up on account of the cost of building materials and the uncertainty of rentals.

"We are after the whole truth and nothing but the truth," said Senator John Dailey, chairman of the committee. "And we are in a position, legally and otherwise, to get just that—the truth," he added.

"We accuse no one as we begin the work, but we are going to dig up the facts. If there has been profiteering or attempted profiteering we want to know it, and the people of Illinois are entitled to know. If present quoted prices are justified the alleged 'trust' should welcome the inquiry."

The investigation is expected to take six weeks or two months.

Activity Credited to Builders' Show

DETROIT, MICH., April 11.—Nearly 65,000 people visited the Wayne Gardens during the nine days of this city's first Builders' Show. Those familiar with the building industry credit the exhibition with having engendered among those who are contemplating building a spirit of activity that will bring real results in helping to supply the 27,000 houses it is figured this city needs.

The exhibitors all report business transactions beyond their expectations and plans are being made by the Detroit Builders' Association to make the organization one whose influence will be felt in the city's building progress.

Disposal of British Surplus War Property

WASHINGTON, D. C., April 12.—The Disposal Board of the British Government, which controls the disposal of lumber and building materials, is organized on lines similar to that in our own country. Here a great proportion of all building materials owned by the War Department is held by the construction division of the army, and the inventory surplus material has been compiled into several main groups. In England the central authority which has been set up by the British Ministry of Munitions to supervise the disposal of all government surplus property consists of a Board directly responsible to the Minister of Munitions, which is called the Surplus Government Property Disposal Board, and under this there are seventeen sections to deal with the different classes of property.

These sections include lands, buildings, factories and furniture; huts, building materials and timber; plant and ma-

chinery; mechanical transport; aircraft equipment; watercraft and dock plant, and several other divisions. At the head of each section is a controller who, in carrying out the duties entrusted to him, will have the assistance of an honorary advisory committee of men whose special knowledge and experience will insure that the various classes of property are disposed of to the best advantage.

To Make Housing Plans Public

WASHINGTON, D. C., April 14.—Plans for dwellings, prepared by the U. S. Housing Corporation for various government projects during wartime, are to be made available for general public use by the "own-your-own-home" section of the Department of Labor.

Several types of houses have been selected as most artistic as well as most practicable, and the plans for these will be given to the committee in charge of these campaigns, which are now operating in forty different cities. It is explained that the purpose is not to interfere in any way with the work of the local architects, by thus providing government plans, but it is expected that when the estimates in widely separate states are compiled the information will be of value to prospective home builders, while it will afford comparisons of the varying costs of construction in many parts of the United States.

While the campaign was started primarily to furnish buffer employment to the men of the demobilizing army, the number of letters received by the Department of Labor from soldiers who ask advice about how to proceed in obtaining homes of their own proves that the campaign has for the boys in khaki more than a temporary interest, and contradicts the idea that military service breeds a distaste for settling down in a permanent abiding-place. The "own-your-own-home" campaign has seemed to show that war, instead of inspiring wanderlust, has made the Americans who served in it more anxious than ever before to live in houses that actually belong to them.

Pine Men Refuse Prices

NEW ORLEANS, LA., April 12.—More than 250 manufacturers of southern pine, at a meeting here, have adopted resolutions declining to enter into joint price agreement proposed by the Industrial Board of the United States Department of Agriculture as a means of stabilizing market conditions.

The manufacturers unanimously declared that such action would be "contrary to the best interests of the public and the lumber industry, from both a legal and economic point of view, violative of state and federal anti-trust laws and likely to subject those involved to prosecution."

The resolutions, which were forwarded to the Industrial Board at Washington, set forth that there are more than forty thousand units of lumber production in the United States, 17,000 of which are producing Southern pine, and each unit makes its own prices. It was stated that it would be impossible for all to agree on a price schedule and that those who did not agree could recover damages under the anti-trust statutes. The Industrial Board was also advised that "any reduction in the price of Southern pine lumber would have to be met with a reduction in cost, principally through a decrease in wage scale."

Gives Trend of Building Material Prices

HOMER HOYT, economist of the bureau of research and statistics of the War Trade Board, analyzes the building materials situation and the course of building in the last five years in the following excerpts of a bulletin which will be published soon by the price section of the War Trade Board as one of some 50 studies made by that department of as many groups of commodities, showing the causes and fluctuations of prices during the war.

"The course of building from 1913 to the end of 1918 was influenced by two sets of forces; the first being the business cycle, and the second the war. Building had reached a high level during 1913, but had declined somewhat during the slight business depression in 1914 and 1915. After the prices of building materials had reached a very low ebb by the fall of 1915, building was encouraged, at the same time a general era of prosperity began as the result of war business. The general business prosperity made necessary plant extensions, and the rising wages encouraged the building of homes. When this building activity was in full swing it continued regardless of the advancing prices of building materials. The war as well as rising prices brought the era of building activity to a close. Even in 1917 the higher cost of labor and materials, due to our entry into the war, caused a drastic curtailment of building. The order of the War Industries Board of March 21, 1918, discouraged building of homes, and other buildings not used for war purposes, and prevented any stimulation of the building activity by making it very difficult for builders to secure priorities as to cars, fuel, and labor, cutting off some demand for building that might

"The decline of building varied with respect to locality. It was greatest in the large cities of the East where the car shortage was particularly acute and where labor was difficult to secure on account of the competition of munitions plants. The decline was least in the South and on the Pacific coast, where lumber as a by-product of the military program was easily accessible and where, in the case of the South, the concentration of military camps caused the building of additional homes for the relatives of soldiers. Thus, while the decline in value of building between 1916 and 1918 was 72 per cent in the New England states, 58 per cent in the Middle Western states, 57 per cent in the Middle Atlantic states, it was only 46 per cent in the Southern cities, 25 per cent in the cities of the Pacific coast and 15 per cent in the leading cities of Texas and Oklahoma.

"The curtailment in building also varied according to the material used. The decline was greatest in the case of brick, steel, and stone, and hollow tile, and least in the case of lumber and cement. Lumber and cement were more adapted to quick construction than either brick or stone. Lumber had the additional value that the lumber mills used their own waste for fuel and hence required no coal. Cement, while requiring large amounts of fuel, was nevertheless necessary for a great many Government uses, such as armories, barracks, roads, bridges, fortifications, dry docks, reservoirs, munition factories and ships, and it was a durable and convenient material for these purposes. Brick and stone, on the other hand, were in small demand because they were adapted chiefly to perma-

PRODUCTION OF BUILDING MATERIALS IN U. S., 1913-1918, INCLUSIVE

Year	Lumber, M	Structural Steel, Long Tons	Portland Cement, Bbls., 380 Lbs.	Common Brick, M	Indiana Building Stone, Cubic Feet
1913	38,387,009	3,363,102	92,097,131	8,088,790	9,010,672
1914	37,346,023	2,274,859	88,230,170	7,146,571	7,929,006
1915	37,001,656	2,729,443	85,914,907	6,851,099	8,685,213
1916	39,807,251	3,393,560	91,521,198	7,394,202	8,545,534
1917	35,831,239		92,814,202	5,864,909	6,570,645
1918	32,700,000	2,051,056 Estimated	71,632,000	2,500,000 Estimated	3,000,000 Estimated

have persisted in spite of the war. By 1918 the value of building permits in 143 leading cities was only slightly above 40 per cent of the value of building permits in 1916. The Government building of cantonments and Government factories and warehouses, which required no permits, is not included in these figures, and this would, of course, partially offset the decline in private building. In view of the fact, however, that much of the building in 1918 consisted of additions to munitions factories, homes for war workers and repairs to existing buildings, and also in view of the fact that with the higher prices of building materials, the same value in 1918, represented considerably less physical volume of building than it did in 1917. It is probable that not much more than one-eighth as many private dwellings for normal purposes were constructed in 1918 as compared with 1916. The statistics as to the cost of building during these years from 1913 to 1918 are shown by the Geological Survey to be as follows:

Year	No. of cities reporting	No. of permits	Cost
1913	147	285,850	\$ 850,657,250
1914	147	281,174	785,525,746
1915	144	283,792	799,735,860
1916	146	339,017	1,024,211,675
1917	145	259,668	687,415,605
1918	143	210,538	430,014,365

nent construction. Brick was also undesirable because of the large amount of fuel which it required. Steel, of course, was of such vital importance to the war program that its use in building was eliminated wherever possible. As a result of these influences the production of brick and stone for building declined to 25 per cent of normal during 1918, while that of cement and lumber declined only to 75 per cent of normal.

"The decline in the production of various leading building materials in the United States during the war is shown by the following table. This table also shows how the production of building materials rises and falls with the swing of the business cycle, the production having dropped to a low point in 1914 and 1915 and having risen to a high level in 1916.

"The prices of all building materials, except steel, responded in the main to the same causes of rising wages and materials cost. Building materials, except steel, lagged slightly behind the prices of other commodities because of the abundance of common building materials and the competition between the numerous producers of building materials. Nevertheless, some prices of building materials advanced more rapidly than those of others. Common brick prices, despite the competitive character of the brick industry, advanced more rapidly than cement. This was due to the fact that the chief cost of producing common brick is labor, and that when the demand is not sufficient

to cover rising wages cost, the brick manufacturers will close their plants and thereby curtail production and prevent the overstocking of the market. Cement producers, on the other hand, with their high overhead costs are tempted to run their plants at full capacity even though they must lower their prices to sell their entire output.

"Stone prices exhibited several tendencies. Indiana limestone, as a result of combination, maintained a high level of prices, but building granite lagged far behind other build-

ing materials because of the competition with granite of stone, cement, brick and hollow tile. Structural steel prices, of course, far outstripped prices of all building materials.

"Lumber prices, on the whole, did not rise quite as fast as those of other building materials, but if yellow pine and Douglas fir, the chief building woods, be considered, the rise in the price of lumber, hollow building tile, and sanitary ware all advanced in proportion to the average rise in the cost of labor and other building materials.

Financial and Commercial Digest

As Affecting the Practice of Architecture

Are Costs Less Than Current Estimates?

BIDS just opened in the Bureau of Yards and Docks of the Navy Department, for the construction of the Seaman and Navigation Building in Annapolis, Md., indicate that building estimates now current may be too high. The Department's estimate for this granite building is \$800,000. Eighteen of the responsible general contractors of the country bid on the job and all but one submitted figures below the Department estimate.

It can not be stated at this time who was the successful bidder for the reason that alternates in the specifications may make enough changes in the bids to justify the awarding of the contract to someone other than the bidder whose lump sum figures now are the lowest. The lump sum figures, however, have challenged the attention of the Division of Public Works and Construction Development of the U. S. Department of Labor, because they appear to verify the opinion that prevalent estimates on construction and building works are too high, and when contractors have specifications and details of work before them, they can work out construction costs much lower than is popularly believed.

Where the Navy Department's estimate for this job was \$800,000, bids were had as low as \$658,927. Most of the bids were \$100,000 below the Department estimate.

For some time, it has been observed by the Division of Public Works and Construction Development that architects and prospective builders, asking for general estimates on work, without reducing the project to specifications, have been getting estimated costs which appeared to be out of proportion to actual market conditions. In the Navy Department project bids there is about 17 per cent difference between the estimate of the Department and the lowest bid—as the figures now stand and without considering the alternate features. This tends

to confirm the Division in the belief that where prospective builders call for actual bids on detailed specifications, so contractors may figure with certainty on the proposed projects, the actual bid may be from ten to fifteen per cent lower than the general estimates. It is certain that so many successful contractors, on a Government job where there is rigid inspection, would not put in bids lower than a sum necessary to do the work and provide a reasonable profit.

Building Material Market Prices

WITH the one object of putting the building cost factor within the reach of the investor, Federal pressure artificially lowering material prices to aid immediate construction, has resulted in a further drop in the price of Portland cement delivered in New York to \$3.25 per bbl., and at the same time forcing supplemental lines somewhat further downward.

More orders were placed for building material during the first ten days of April than during the entire months of January and February combined.

A noteworthy feature of the week's activity was the announcement of further reductions of from 10 to 15 per cent. by prominent manufacturers of radiators and boilers, making a total decline of from 33 to 36 per cent. since the first of the year. In view of the fact that during this period pig iron prices have declined but 20 per cent., that labor rates at the plants have not been reduced, and that production costs therefore do not warrant this readjustment of prices, manufacturers are deserving of great credit in the effort to do their part in assisting a general resumption of building activity.

In the steel market the opinion was expressed that active competition among producers might shortly begin regardless of the differences of views between the Director General of Railroads and the Industrial Board as to further reduction of prices. Less hope was expressed than at the end of last week that the matter would be compromised. The controversy between the Industrial Board and the Director General of Railroads only serves to complicate matters. This from the view of the man who believes that a period of stabilized prices is the only way in which building movement can be converted from a dull to active state. However, there are many close students of the markets who do not favor the muzzling of

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the law of supply and demand. They prefer to have the present controversy develop into a complete abandonment of effort to control commodity prices.

The entire Redfield plan has been weakened, at any rate, by the admission that price schedules may be revised, presumably downward, if necessary, for its primary purpose was to assure industry that prices would not go lower this year in order that business men might buy more freely with this understanding in mind.

The building industry is awaiting with great interest the report which the Attorney General will render as to

the legality of the price-fixing agreement, which, many contend, conflicts with the letter of the anti-trust laws. There is no question but that much will depend on the report. Some credence is given the belief that the entire plan will be abandoned.

The Navy Department neither admitted nor denied the principle of uniform prices, but bids received for its 20,000 tons of structural steel were at the new minimum prices. It will be decided shortly whether business will be artificially stimulated by this plan or left to work out its own salvation.

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

BRICK —	
Common (for Borough of Manhattan only), per thousand..\$17.85	
CEMENT —	
Per bbl. in 15 cent bags.....\$3.25	
COOPER SHEETS —	
At the mill, hot rolled, 16 oz. base-price, per lb.....22½c.	
(From jobber's warehouse add 2 to 3 cents.)	
GALVANIZED SHEETS —	
Nos. 18 and 20 gauge, per lb.....\$6.40*	
No. 26.....6.70*	
No. 27.....6.85*	
GLASS —	
(Discounts from manufacturer's price lists.)	
Single strength, A quality, first three Brackets.....80%	
Single strength, B quality.....79%	
Double strength, A quality.....80%	
Double strength, B quality.....82%	
Plate—up to 5 sq. ft.....82%	
Plate—over 5 sq. ft.....84%	
GRAVEL —	
1½ in. (Borough of Manhattan only) per cu. yd.....\$3.25	
¾ in. (Borough of Manhattan only) per cu. yd.....3.25	
GYPSUM —	
Plaster Board:	
(Delivered in Boroughs of Manhattan or Bronx)	
27 x 28 x 1.....35 cents	
27 x 48 x ½.....32 "	
32 x 36 x ¾.....21 "	
32 x 36 x ¾.....21 "	
32 x 36 x ½.....23½ "	
Plaster Blocks:	
(Delivered in Borough of Manhattan or Bronx)	
2 in. solid per sq. ft.....7½ cents	
3 in. solid 12 x 30 per sq. ft.....10½ "	
3 in. hollow.....10½ "	
4 in. hollow.....12½ "	
6 in. hollow.....17½ "	
HOLLOW TILE —	
(The New York Harbor strike makes a slight additional charge for cartage necessary.)	
Interior, 2 x 8 x 12 split furring per 1,000 sq. ft.....\$70.00	
and 15 cents thousand pieces.	
Interior, 3 x 12 x 12 split furring per 1,000 sq. ft.....102.00	
Interior, 4 x 12 x 12 split furring per 1,000 sq. ft.....114.75	
Interior, 6 x 12 x 12 split furring per 1,000 sq. ft.....153.00	
LATH —	
Eastern spruce, per thousand.....\$6.50	
LIME —	
Common, 300 lb. bbls., per bbl.....\$3.50	
Finishing, 300 lb. bbls., per bbl.....3.70	
Hydrated, in paper bags, per ton.....17.25	
LUMBER (All Prices, Wholesale, F.O.B. New York)—	
Yellow pine, flooring, No. 1, common, per thousand, flat grain.....\$42.00	
Yellow pine, 3 x 4 to 14 x 14, 10 to 20 ft.....43.00	
N. C. pine, flooring, Norfolk, Va., 13/16 x 2½.....36.00	
Hemlock, base price.....38.00	
Spruce, random 2 in. cargoes.....52.00	
Spruce, wide cargoes.....59.00	
Cypress, by car, factory selects 5/4.....10.00	
Cypress shingles, 6 x 18 (Heart).....96.00	
Oak, quartered (Red).....72.00	
Oak, plain, flooring (Red).....72.00	
Oak, plain, flooring (White).....72.00	
Maple, No. 1, 13/16 x 2 in.....\$7.50	
PIPE —	
Cast iron:	
6 in. and heavier.....\$57.70	
4 in.....60.70	
3 in.....67.70	
(and \$1 additional for Class A and gas pipe.)	
Wrought:	
(Discounts to jobbers for carload lots on the Pittsburgh basing	

card; freight rates from Pittsburgh to New York, in carloads, per 100 lbs., are 27c.)	
Butt Weld	
Steel:	
Black, ½ to 3 in.....50½ to 57½%	
Galv., ½ to 3 in.....24 to 44 "	
Iron:	
Black, ½ to 1½.....29½ to 39 %*	
Galv., ½ to 1½.....2½ to 23½%	
Lap Weld	
Steel:	
Black, 2½ to 6.....53½%	
Galv., 2½ to 6.....41 "	
Iron:	
Black, 2½ to 6.....34½%	
Galv., 2½ to 6.....21½%	
PLASTER —	
Neat wall cement in 15 cent bags, per ton.....\$20.30	
Finishing plaster.....24.00	
RADIATION —	
(A further reduction, effective April 4, of 15% on direct radiators, 12½% on wall radiators, and 10% on steam and hot water boilers is announced. This approximates a drop of 36% on radiators and 33% on boilers from prices in effect before the 1st of January, 1919.)	
REGISTERS —	
(Discounts from manufacturer's price list.)	
Cast iron semi-steel or steel, in black or white japan or electro plate and small faces and borders.....40%	
Wall frames.....40%	
Large faced, 14 x 14 in. and larger.....60%	
Base board registers.....40%	
Base board intakes.....40%	
White enameled goods.....15%	
Solid brass or bronze goods, except grilles.....net	
Grilles in black and white japan or electroplate in cast iron plain lattice design, smaller than 14 x 14 in.....40%	
Less than 14 x 14 in.....60%	
SLATE ROOFING —	
F. O. B. cars, Quarry Station.	
Per Square According to Size.	
Pennsylvania:	
Best Bangor.....\$6.50 to \$9.00	
No. 1 Bangor Ribbon.....6.75 to 7.25	
Pen Argyl.....7.25 to 8.00	
Peach Bottom.....10.00 to 12.00	
No. 1 Chapman.....7.25 to 8.25	
Vermont:	
No. 1 Sea Green.....\$3.50 to \$6.75	
Unfading Green.....5.50 to 9.00	
Red.....13.00 to 16.00	
Maine:	
Brownsville, Unfading Black, No. 1.....\$10.00 to \$12.50	
Slaters felt, 30 lb. roll.....\$1.75	
Slaters felt, 40 lb. roll.....2.25	
ROOFING MATERIAL —	
1-Ply Tarred Paper, per ton, per roll, 108 sq. ft..\$63.00 to \$65.00	
2-Ply Tarred Paper......95c.	
3-Ply Tarred Paper.....\$1.23 to \$1.30	
Rosin Sized Sheathing.....\$60 per ton	
Corrugated Roofing, galvanized, 2½ in. corrugation, over flat sheets, 30c. per 100 lbs.	
STRUCTURAL STEEL —	
Beams and channels up to 15 in., per lb.....2.45c.	
Beams and channels, over 15 in., per lb.....2.45c.	
Angles, 3 to 6 in.....2.45c.	
Zees and tees.....2.45c.	
Steel bars, half extras, from mill.....2.35c.	
REINFORCING BARS —	
High carbon steel from mill.....\$48.50	
Medium steel from mill.....48.50	
SAND —	
Per cu. yd. (Borough of Manhattan only).....\$2.25	

Department of Architectural Engineering

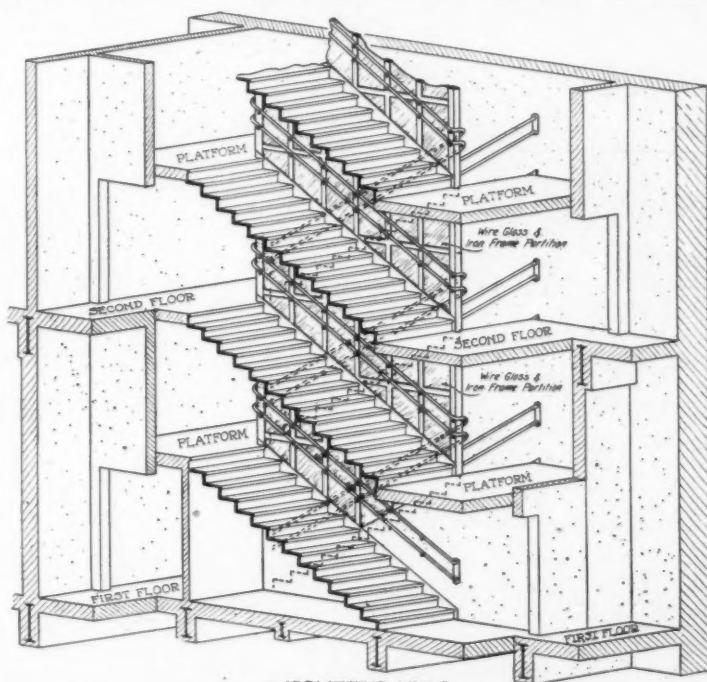
The Double Stairway, Its Design and Construction

THE function of a stairway is to afford a means by the use of which persons may travel from one floor level to another. The efficiency of a stairway is measured by its ability to accommodate the passage of the greatest number of persons, with safety, in a given period of time. The width of the stairs is the factor which controls the volume of traffic. The safety of the persons is dependent on the proportions of the rise and run of the steps, absence of winders, kind and disposition of hand rails and the shape of the platforms and landings. These affect the safety of the person in transit, but another protection must be provided against the hazards of fire, smoke and life-destroying gases. This protection is afforded by the enclosing of the stair hall. It is apparent that two factors must be considered in the designing of a satisfactory stairway; the proportion and arrangement of the detailed parts; the enclosing walls, the entrance to and exit from the stair hall.

The volume of traffic is measured in terms of the effective width of the stairs. The width should be such as to accommodate a number of persons abreast. The width allotted per person varies from 18 to 22 in., the later practice favoring 21 or 22 in. It follows that the effective width should be a multiple of the unit width and that the width increments of 6 in., as required by some building codes, is wrong in principle, ineffective and possibly dangerous in practice. The age and size of the persons using the stairs has its effect on determining the unit width.

The ordinary stair, which reverses its direction of travel at an intermediate platform, accommo-

dates but one stream of persons. This movement of people is obstructed by a movement of persons in an opposite direction. This condition of traffic in opposite directions generally occurs at times when congestion is not probable. Stairways that accommodate large numbers of persons are generally in buildings of such a kind that the maximum traffic occurs at fixed times and in one direc-

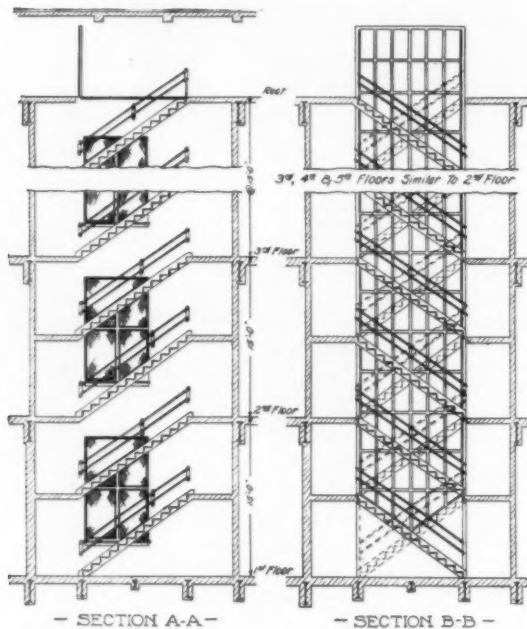


Isometric view of the "double stairway" type of construction with two means of ascending or descending at each floor level, doubling the capacity of the ordinary "single stairway" without adding to the floor area required for the stair hall.

tion only. This is the case in school houses, factories and public institutions such as asylums and prisons.

The capacity of this type of stairway can be doubled by a construction known as the "double stairway" type. In this type of stairs a landing

platform is provided at each end of the stair hall, with intermediate platforms under each landing. From each landing the persons can either ascend or descend the stairs. This permits of two streams of persons to descend or ascend from each floor level without having any contact with each other. To effect this scheme of operation, it is necessary to have a sufficient height from top to top of floors to permit of head room under the platforms and landings. In the ordinary stairs this height is equal to the story height less the thickness of the floor or platform construction. In the "double stairway" this height is one-half the story height

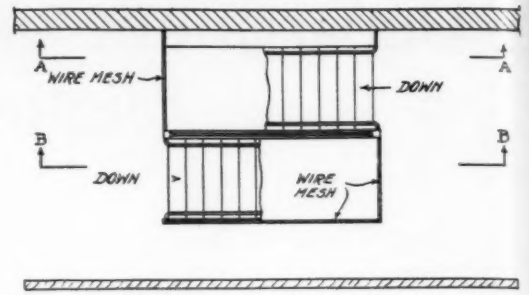


Longitudinal sections showing wall stringers and window guards, also face stringers with wire glass partitions and continuous newel struts or columns.

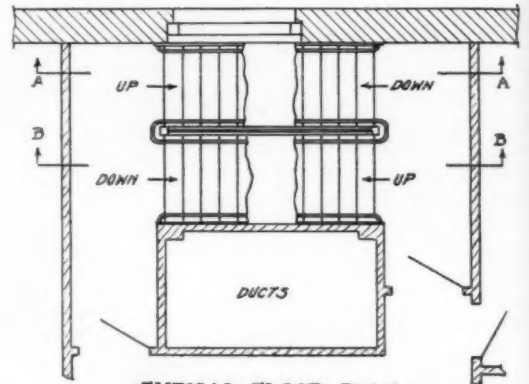
less the thickness of the platform and landing construction. The problem is to reduce the thickness of the landings and platforms in order to reduce the story height to a minimum.

It will be seen that this type of stairs will require greater story heights than are usual in many factories and residential buildings, and will not become in common use for that reason. Story heights that exceed the requirements of the occupancy are a source of expense in the excess heating and artificial lighting required.

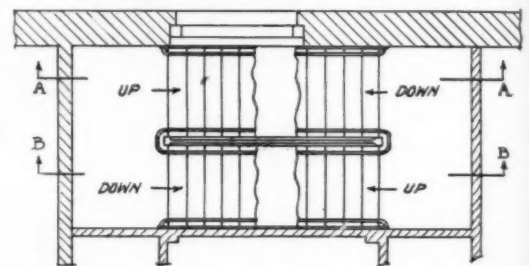
In the design of schools and some types of institutional buildings this objection is not important, as the requirements of natural light, ventilation and



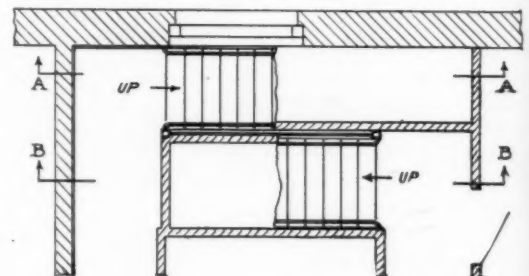
- PLAN AT ROOF -



- TYPICAL FLOOR PLAN -
- PLAN AT 2nd, 3rd, 4th & 5th FLOORS -



- TYPICAL PLAN AT HALF STORIES -



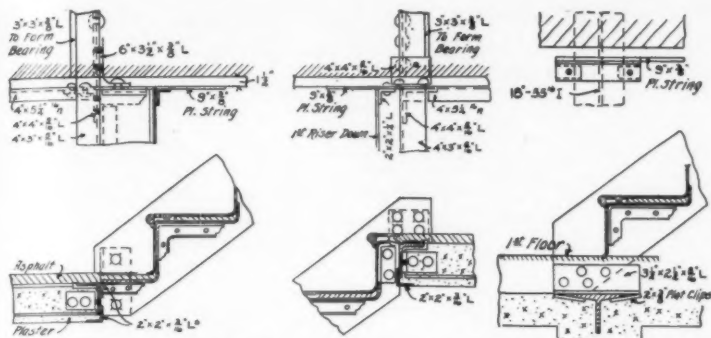
- PLAN AT FIRST FLOOR -

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safety to the occupants are the most important elements of influence.

The double stairway has been in use in the New

of stairs in stories of 15 ft. from top to top of floors. It will be readily seen that this effects a substantial reduction in the cubature of the building.

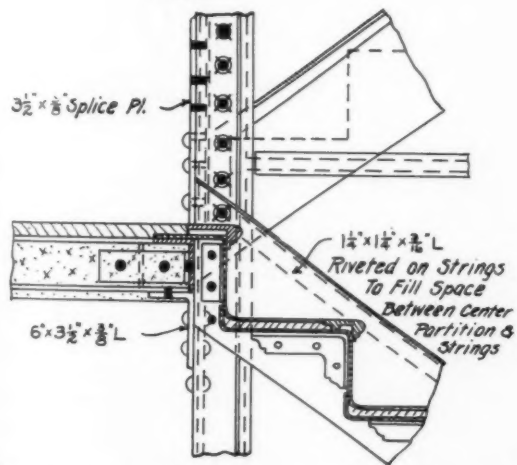
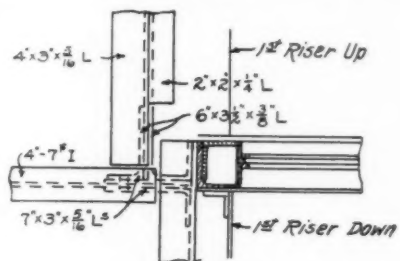


Detail of stair tread and riser, with face and wall stringer sections, safety tread and nosing, tread wearing surface and supporting brackets.

York City schools for several years, and the usual story height was 15 ft. 7 in. from top to top of floors. C. B. J. Snyder, Architect and Superin-

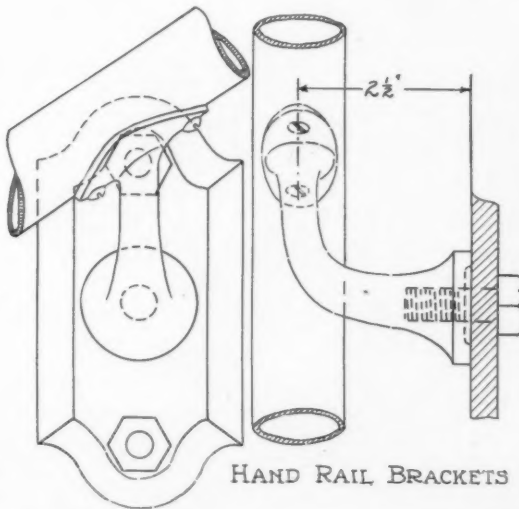
stringers and their proportion of the platform and landing load.

As shown in the details, this newel strut or column is made by nesting two structural angle shapes into the form of a channel. The faces of the newel are $3\frac{1}{2}$ in. wide. The face strings and hand rails are attached to the opposite sides, which



Details of face stringer and platform connections to the newel strut or column.

tendent of School Buildings, has developed such details as will permit the construction of this type



HAND RAIL BRACKETS

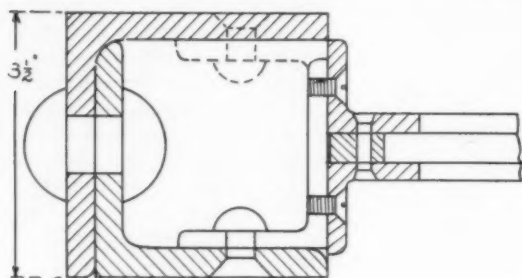
might be termed the flanges of the combined section. The wire glass partition or grille work which separates the adjacent flights of stairs is attached to a plate which closes the open face of the section. The platform supports are attached to the face, which may be termed the web of the combined section. The thickness of the angles composing

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the struts are proportioned to the loads supported at the various levels.

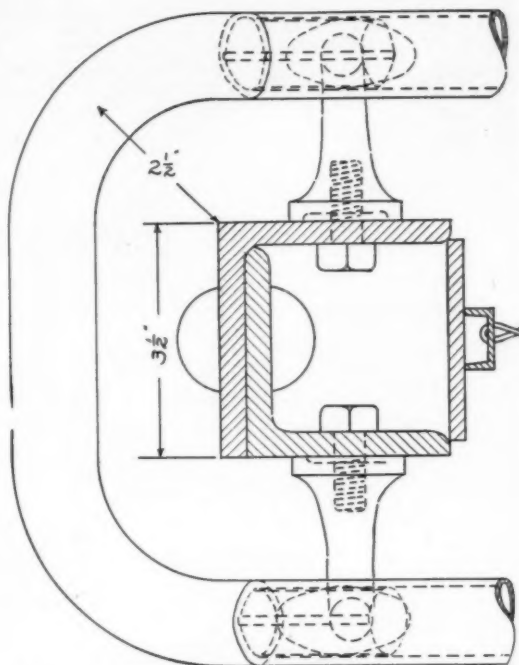
A wire glass and iron frame partition is constructed between the inner faces of the newel struts, extending from the level of the tops of the face stringers leading from the first floor to the

from the brick wall. Deducting for the plastering and the projection of the hand rails the effective width is 3 ft. 6½ in.

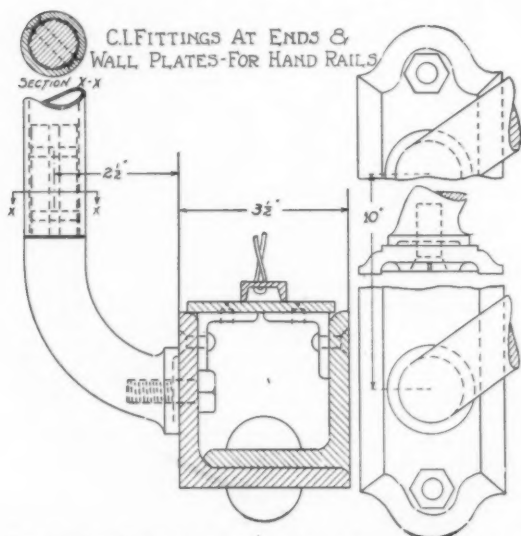


DETAIL OF STRUT & WIRE GLASS
CENTER PARTITION FRAME

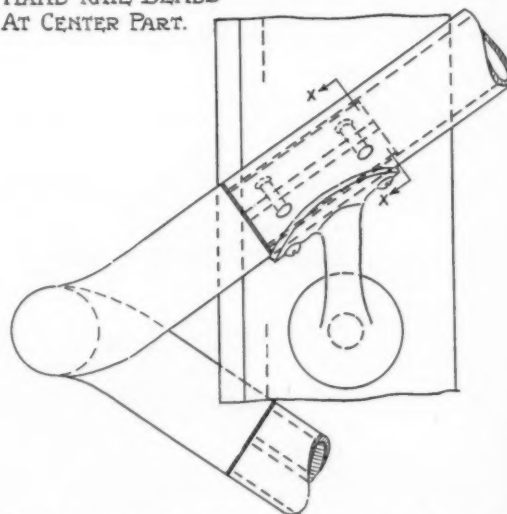
intermediate platforms up to the ceiling of the pent house on the roof. The purpose of this screen is to prevent any kind of contact between the persons passing on either side of the partition. The



HAND RAIL BENDS
AT CENTER PART.



Detail of wall plate for hand rails, hand rail connection to newel strut at first floor and roof level and connection for wire screen partition.



Detail of hand rails at the face stringers and about the newel strut.

wire glass does not obstruct the daylight from reaching all parts of the stairway. The partitions on single stairs are made of wire mesh.

In these stairs the distance from the face of the newel to the outer face of the wall stringer is 4 ft., this outer face of the wall stringer being 1½ in.

The stringers are 9 x ¾ in. steel plates. The face stringers have an 1¼ x 1¼ in. angle riveted along the top edge on the outer face, which closes

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the space between the stringers and the wire glass and iron frame partition. An angle of the same size is riveted to the outer face of the wall stringer as a seat for the cement plaster cove base above the stringer. These coves, both above and below

cast brackets which are bolted to the stringers. The treads are finished with a $\frac{5}{8}$ -in. wearing surface of asphalt. The platforms and landings are made of reinforced concrete finished with asphalt, as specified for the treads. The hand rails are

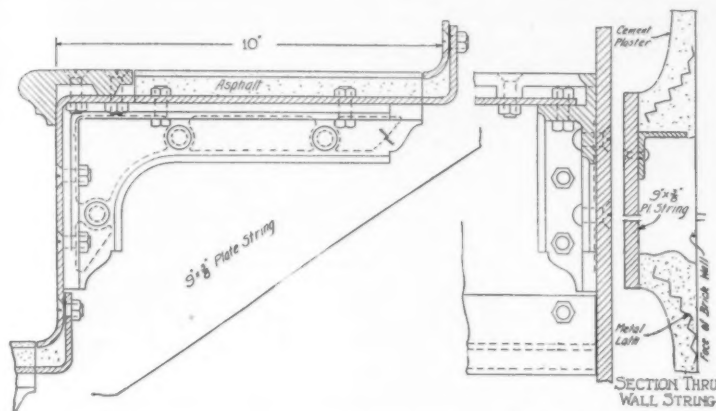
made of 1 in. nominal diameter wrought iron pipe.

This type of construction is used in the pupils' stairs. The main stairs are made in the usual manner, with marble treads, cast iron risers, balustrades, fascias and the other usual parts.

It is readily seen that the double stairway will accommodate twice the amount of traffic that the single stairway is capable of handling and ultimately decreases the number of stairways. A double stairway, however, could not be used to the exclusion of other stairways, even if two stairways would accommodate the number of persons using them. At least

two means of exit should be provided in any building, and the distance between these should be as great as possible. The use of the double stairway does effect a large economy in floor space and in construction cost and is eminently fitted to fulfill stairway requirements in many kinds of buildings.

Acknowledgment is made to C. B. J. Snyder, Architect and Superintendent of School Buildings, New York City, for the use of plans, specifications and details used in illustrating this article, and aid in its preparation.



Details of wall stringer connections at floor landings, intermediate platforms and at first floor level.

the wall stringers, are reinforced with a strip of metal lath.

The windows opening into the stair hall are screened, as indicated on the section.

As shown in the details, the tread and riser is made of steel plate in one piece, the lower edge of the riser being bent to form a cove joining with the asphalt finish of the treads. A 3 in. wide approved cast safety tread with molded nosing is securely fastened to the steel tread. The top of the safety tread is $\frac{5}{8}$ in. above the steel tread. The tread and riser is supported at each end by

A Test of the Conductivity of Window Shades

By JOHN R. ALLEN, Minneapolis, Minn.

THIS test was made for the purpose of determining the relative amounts of heat transmission through a single strength glass window, close fitting with stops on both sides, first without window shades and second with window shades pulled down in front of the window.

APPARATUS

For the purposes of the test, a specially prepared cubical box, 5 ft. inside dimensions, open on one side, was used. The walls of the box, laminated and

insulated, were $8\frac{1}{2}$ in. in thickness, and inside 1600 lb. of ice were placed in a galvanized iron pan from which a drip pipe led to the outside. In the open end of the box, two window sash were tightly fitted with stops on both sides. The adjacent sides of the box projected about 6 in. beyond the window, and in the recess thus formed, a window shade, fitting it, was hung. When pulled down, there was a clearance between the roller and the top of the recess of about $\frac{7}{8}$ in. and a clearance on the sides of the curtain of from $\frac{1}{8}$ to $\frac{1}{4}$ in. The bottom of the curtain was held off the bottom of the recess by the drip pipe,

Presented at the Annual Meeting of The American Society of Heating and Ventilating Engineers, New York, January, 1919.

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and between the curtain and the window stop there was a clearance of from $\frac{1}{4}$ to $\frac{3}{8}$ in. This testing box is similar to that described in my paper on Heat Transmission Through Building Materials (Transactions, Vol. XXII, 1916, see page 509).

Another curtain was hung on the top of the box at the edge immediately above the window and when pulled down hung closely on all sides of the opening or recess.

METHOD OF TEST

Temperatures were observed 8 ft. away from the box to determine the outside temperature, at two points immediately in front of the window and at seven points immediately inside the window.

The main criterion of the test was the rate at which the ice was melted under four different conditions which were as follows:

- (1) Both curtains rolled up;
- (2) Inner curtain only pulled down;
- (3) Both curtains pulled down;
- (4) Outer curtain only pulled down.

Measurements of the water running out were made in 100 c.c. and 1000 c.c. amounts to determine the time necessary for the melting to reach a uniform rate and also to check the longer time tests which ran from 3 hours to 20 hours in length.

Corrections were made for the difference in temperatures between the inside and outside temperatures which varied from 21.6 deg. to 29.3 deg. Fahr.

RESULTS

The results from these tests show that the saving in heat transmitted by the use of the single inside curtain was 19.2 per cent, by the outside curtain, 28.7 per cent and by both curtains 42.7 per cent.

TABLE 1.—RESULTS OF WINDOW SHADE HEAT TRANSMISSION TESTS

Test No.	Time Elapsed during accu- mulation of 1000 c.c. of melted water, minutes	Difference of temperature between inside and outside air, deg. Fahr.	Values of heat transmission factor "K" as calculated from first column	Corrected percentages of saving of heat over test No. 1, with glass covered glass
1. Both shades up.....	35.55	21.6	1.01	
2. Inner shade down...	36.58	26.0	0.817	19.2
3. Both shades down...	45.93	29.3	0.578	42.7
4. Outer shade down...	40.38	28.5	0.720	28.7

The marked difference in heat transmission between the tests of the inner curtain and the outer curtain, was without doubt due to the fact that the inner curtain did not fit its opening tightly. This allowed currents of warm air to enter at the top and being cooled between the curtain and the window, to

fall and go out through the clearances at the sides and bottom. The outer curtain fitted over the smooth sides of the box about $1\frac{1}{2}$ in. and permitted very little movement of air between it and the window.

The author desires to here render acknowledgment to Prof. Frederick Bass for his assistance in conducting these tests.

Engineering Unity

AN engineers' symposium was held at the Engineering Societies Building in New York City on March 26. Fifteen national and three local engineering organizations participated. The meeting was in charge of Gano Dun, President J. G. White Engineering Corporation, and the five speakers were Philip N. Moore of St. Louis, Past President A. I. M. E.; Calvert Townley, Past V. P., A. I. E. E.; Nelson P. Lewis, Chief Engineer Board of Estimate and Apportionment, New York City; Spencer Miller, Chief Engineer Lidgerwood Manufacturing Company; Comfort A. Adams, Dean of the Engineering Department, Harvard University.

The civic responsibility of the engineer and his relation to legislation, to administration, to public opinion and to production and distribution were the topics of the addresses. A spirited discussion in which many took part followed the addresses.

The underlying feeling and object of the meeting was eventually to consolidate all engineering activities into one central organization which could speak as a *unit* for the engineer in a national way, regardless of individual special lines of activity. This is already the case in the instance of the American Bar Association, the American Medical Society and the Bankers' Association.

There are approximately four thousand organizations or units engaged in the practice of architecture in this country, in which about seven thousand qualified persons are engaged, either as members of organizations or as independent practitioners. In this estimate architectural draftsmen are not considered. The largest architectural organization has a membership of about one thousand persons. Possibly three thousand architects are members of architectural organizations, leaving a balance of four thousand architects who have no means of organized expression.

That the engineer, as a strongly organized unit of about one hundred thousand men, will soon be able to speak definitely on all subjects that interest him as a citizen and professional man is certain. That the general contractor will soon be able to

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speak through a truly national organization is also certain. How can architects preserve their proper standing in civic and professional activities unless so organized that *all* of them can speak as one?

An Unusual Concrete Construction

FITNESS for use is the essential requisite quality for all buildings, and more especially for industrial plants. This is apparent for the reason that industrial plants are operated for profit, a condition that demands utility in the greatest degree. Operating for profit does not necessarily eliminate those features that make for the better conditions of the operative—such as light, ventilation, heat, sanitation and safety.

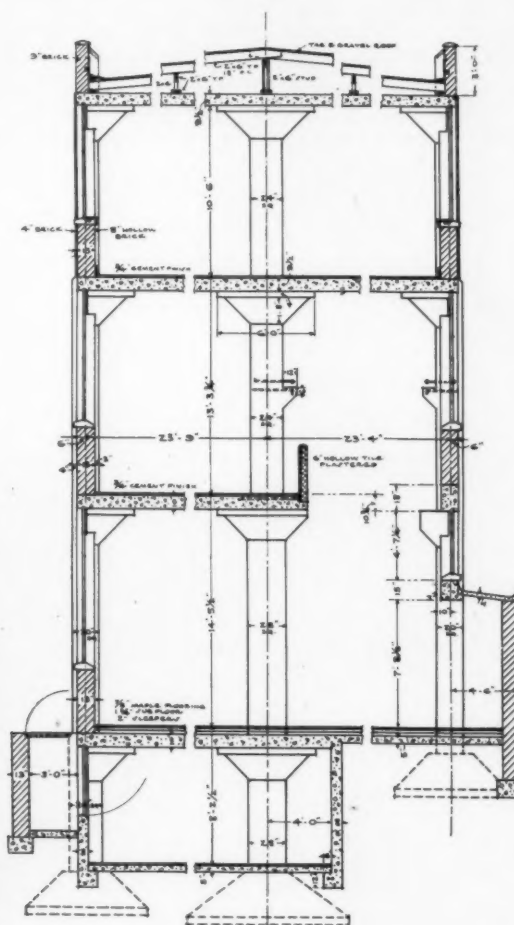
An addition to an existing industrial plant in Cleveland, designed by Christian, Schwarzenberg & Gaede, Engineers, has some interesting structural features in addition to the others above mentioned. This extension covers a ground area of 52 by 128 ft. Along the lot line the columns are centered 4 ft. 6 in. inside of that line. This permits the first floor to cover the entire area, with ample light and ventilation on both sides of the

area if future requirements demand. The supporting brackets for this extension are shown in the illustrations.

The building is divided into five panels longitudinally, the floor panels being 25 ft. by 23 ft. 6 in., center to center of columns. The floor construction is a flat-slab two-way system of reinforced concrete, designed for a live load of 125 lb.



Interior view



Transverse section

building. This is shown in the transverse section of the building. A basement extends under a portion of the building.

The building is designed to have several added stories, the future fourth floor serving to support a temporary roof construction. The second floor is constructed one panel wide, allowing for a crane-way the entire length of the building. Provision is made for the extension of this floor over the entire

per sq. ft. The drop panels are 6 ft. square and 4 in. deep. The column heads are 5 ft. 4 in. square, splayed with an angle of 45 deg., the columns and heads are square. The end panel of the second floor was tested with an applied load consisting of sand 3 ft. deep over the entire panel. The maximum deflection at the panel center was $1/7$ of an inch. This was an unusual test, as the panel was practically free on two sides, there being

no spandrel girders, one side wall bearing and the remaining side connected to the only adjoining floor construction. The correctness of the theory of the design and the quality of the construction were demonstrated.

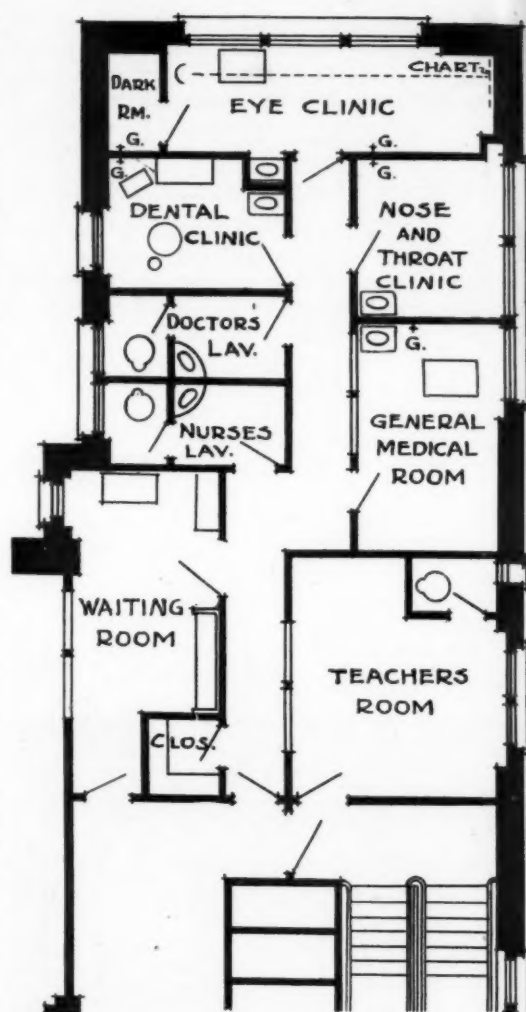
The first floor is finished with 7/8-in. maple and 1 3/4-in. sub-floor on 2-in. sleepers. All other floors have 3/4 in. cement finish. The walls are faced with brick and backed with 8 in. of hollow brick or hollow tile, according to the uses of the rooms. It will be noted that the usual spandrel girders are omitted, permitting the metal windows to extend to the ceiling. This permits of the most advantageous daylighting. A steam-heating plant and automatic sprinkler system complete the equipment.

The Standard Elementary School Medical Clinic

IN THE AMERICAN ARCHITECT of Nov. 6, 13 and 20, 1918, was published certain standards of school house planning. A standard plan for the medical clinic has been approved by the Board of Education of New York City, and acknowledgment is made to C. B. J. Snyder, Architect and Superintendent of School Buildings for the plan here presented.

Entrance to the clinic is made through the waiting room, which is in charge of an attendant, who is provided with a desk. The room contains a cabinet and settee for the waiting pupils. It will be noted that the door leading to the clinic rooms is so hung that the corridor and the persons therein are not visible to those in the waiting room. After the pupils have been treated in the clinics they pass out from the unit without going through the waiting room. This is desirable for very apparent reasons. Clinics are provided for dental, eye, nose and throat and general medical work. The arrangement of the rooms is very compact and affording all necessary requirements for the work in hand. A lavatory and wash room is provided for the doctors and one for the nurses.

The rapid increase in the incorporating of medical clinics in public schools is very noticeable, and



Plan of standard medical clinic approved by the Board of Education, New York City. "G" indicates gas outlets in baseboard.

it will probably be universally adopted in the larger cities and towns of this country. THE AMERICAN ARCHITECT appreciates the opportunity to present this excellent example of such a clinic to its readers.