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NOTES FROM EUROPE

BY FRANCIS S. SWALES, ARCHITECT, LONDON

CIVIC design is a much-discussed subject just at present. In England especially; but in France and Germany, and—as Messrs. Burnham and Bennett's magnificent work upon the plan of Chicago has now been completed—evidently in America, to no slight extent. The subject has been pretty thoroughly threshed out in the periodical press during the past two or three years, though many of the articles have so determinedly instructed us from the amateur's point of view that many of us must lapse into a mood of boredom or disgust whenever the subject is mooted.

There have been rifts in the cloud, as, such studies as those of Monsieur Hénard for the improvement of Paris and some of the finer monumental studies made by various prominent architects in the United States. What architect is not glad to have in his library such books as the Reports of the Senate Commission on the Park System of the District of Columbia, or of Mr. Burnham on the plan of San Francisco? Such works are, however, of very secondary importance when compared with the latter's elaborate studies for Chicago done into the monumental volume which is at once a remarkable monograph of a work of American architecture and the highest mechanical art of book making.

Beside this, though on perhaps not quite the same level, must be placed two other new works upon the subject, just published in England—one entitled "Town

Planning, Past, Present and Possible," by Mr. H. Inigo Triggs; the other, "Town Planning in Practice," by Mr. Raymond Unwin. The publication of these two latter books at almost the same time must indicate the interest

which is being taken in the subject in England; and the good attendances at the numerous lectures upon the subject further demonstrate this interest, while proof positive is found in the establishment in the University of Liverpool of a Department of Civic Design.

It is not possible, even if it were desirable, to include book reviews in these notes, and the significance of the work itself rather than the work is all that can well be alluded to. Nobody can doubt that such gigantic tasks as the plans of Washington and Chicago ought to be performed by somebody; but the fact is evident that it must be extremely difficult to obtain the necessary appropriations from the public funds for work from which the public of the present day cannot obtain the full, if, indeed, any, benefit.

Whether these fine studies are carried out in all respects, or in any, they are still worth the doing, on patriotic grounds, provided they are finally put in such form as to have a beneficent influence upon

the plans of cities yet unfounded; or if they only draw the attention of the intelligent citizen to the fact that though he cannot be expected to do everything for posterity, he might do a little for himself and his own times that will



HOUSE IN THE RUE LÉOPOLD COUROUBLE, SCHAEERBEK
FIRST PRIZE, COMPETITION OF FAÇADES OF HOUSES, 1908
M. J. DIONGRE, ARCHITECT, BRUSSELS



HIGH STREET

OXFORD

not harm posterity, which, if it owes him nothing, he has no cause to owe a grudge—if it leads him to do a little more for himself than he would have done otherwise. It is exactly that influence the Burnham plan must have on the citizens of Chicago. The new books published here (in London) show nothing in "Town Planning"—"Possible" that will compare with the American plan; what they show in "present" plans is mostly the beautiful—and mostly what is beautiful belongs, as regards one of the schools of planning—the informal kind—to the "past." In Mr. Triggs' book—a thoughtful, scholarly study of the city, in the sense of a large and busy town—one observes the influence of his many years' residence in France and Italy and his cultivated sympathy with the continental common-sense nicely balancing his native English love of the romantic and picturesque and also his well-known studies of formal gardening. It is interesting to see on the same page illustrations of the Rue de Rivoli in Paris and the High Street, Oxford; the Ringstrasse, Vienna, and the Thames Embankment, London; the Grand Canal, Venice, and the Strada Dell' Abbondanza, Pompeii; and the Maximilian Strasse in Munich, and the Avenue Breteuil, Paris—to mention a few of the many illustrations. His chapters on the "Circulation of Traffic," "The Planning of Streets" and "Squares and Open Spaces" are very well studied and put in convenient form a vast amount of information; parts of which are always carried back in note books by every American architect who visits Europe. What may prove of benefit to the architects in the circulation of Mr. Triggs' book is the recommendation to public bodies to seek expert assistance when purchasing sites for public build-



RUE DE RIVOLI

PARIS

ings or acquiring land for the widening of streets. Such a new field for the architect should not be ignored. If "city architects" could be transferred to the performance of such advisory work and made in reality "city architects" and the work they are now expected to take care of placed in the hands of private architects, much good to the communities would result. Mr. Unwin's book is larger, more expensive and following much the same lines, but written from a somewhat different standpoint. Mr. Unwin's leaning is to the romantic and his taste runs to the sort of thing which we like to see in sketches and photographs, and to visit when on our holidays. Could Mr. Unwin himself be entrusted with the design of all such suburbs we know, from the examples he has produced at Hampstead and Letchworth, that the spirit of the old towns would be kept. His complaints against modern conditions, such as the facts that slate roofs are seen in towns where only tile is made and tiles where only stone slabs are quarried, can hardly be taken seriously. His idea that informal planning can be recommended quite as much as formal planning be-



A STREET IN ROTHENBERG

trays a familiarity with the village rather than the town. One cannot believe that one obtains a fair insight into Mr. Unwin's ideas as to art by reading some of his "criticisms"—much of his comment is rather uncritical and undiplomatic opinion, of which the following is an illustration:

"Civic art is too often understood to consist in filling our streets with marble fountains, dotting our squares with groups of statuary, twining our lamp-posts with wriggling acanthus leaves or dolphins' tails, and our buildings with meaningless bunches of fruit and flowers tied up with impossible stone ribbons."

It is questionable whether anybody ever understands art to consist of anything of the sort; and it is plain, too, that Mr. Unwin has feeling against certain kinds of ornaments which can probably neither harm nor help very much in matters of "Civic art" nor the "Practice" of "Town Planning" no great good can come, however, of leading the public to infer that "groups of statuary," etc., are objectionable. On the other hand, his chapters on "The City Survey" and "Centers and Enclosed Places," if, and though, somewhat rustic in places, are in general, very good, and full of practical suggestions



COLDICOTE, WARWICKSHIRE

E. GUY DAWBER, ARCHITECT

such as the designer dealing with a large group of buildings is forever wanting. Together, these two books by Messrs. Triggs and Unwin cover the whole subject pretty thoroughly both from the formal and scientific and the informal and sentimental sides; and also contain a great amount of useful technical information upon matters which, hitherto, have received but little attention on the part of authoritative writers. They are interesting books on a subject of growing importance and one could wish that they—certainly the former, and perhaps also the latter, the useful side of which balances its opinionative—might find their way into the hands of all of our "city fathers."

As a school designed to give instruction and stimulate research exclusively in the problems of civic design, Liverpool University's new School of Civic Design is probably unique throughout the world. As mentioned in previous notes it will be in charge of Professor Stanley D. Adshead, whose ability as an architect and whose enthusiasm in the subject exceptionally qualify him for the peculiar task of organizing and building up this department. The prospectus outlines two courses, one called the Certificate Course and the other the Diploma Course, which requires study and work during two and four terms, respectively; the first will depend upon knowledge acquired during attendance at the Lecture Courses. The diploma will be granted to students who have worked out town-planning "incidents and

schemes" in the studio of the University during the Second Session. The Department of Civic Design is under the Faculty of Architecture which, according to the prospectus, "is based upon that of the Ecole des Beaux-Arts of Paris and the Architectural Schools of America." On the staff of instructors and lecturers the school has obtained the services of the present Lord Mayor of Liverpool, Mr. H. C. Dowdall, Barrister-at-Law, as Lecturer in Civic Law; Professor E. W. Hope, M.D., Medical Officer of Health for Liverpool, lecturer in Civic Hygiene; Mr. J. A. Brodie, City Engineer for Liverpool, as Associate Professor in Civic Engineering, and Mr. T. H. Mawson as lecturer in Landscape Design. The prospectus illustrates two of Professor Adshead's excellent studies for improvements in London, his Marble Arch (Fig. 4) and British Museum (Figs. 5 and 6) designs, both of which would be wonderful improvements and fully justify the necessary expenditure. The slight changes required at the Marble Arch would cost

CHAPEL FOR THE COMMUNITY OF
THE RESURRECTION, MIRFIELDWALTER TAPPER
ARCHITECT

ARGYLL'S LODGING, STIRLING

A. D. 1632

practically nothing and would be a most material benefit to this important point of interest in London's plan.

Perhaps the cleverest idea in this new department is that of interesting the city officials by making them professors and lecturers—thus almost compelling them to study the subject—an idea doubtless to be attributed to Mr. W. H. Lever, M.P., of Port Sunlight fame, the founder of the Chair in Civic Design.

It is anticipated that the new Town Planning Act recently passed by Parliament will create positions for all of the graduates of this school for some years to come; also that the diploma of the school will be a qualification for the position.

FRANCE.

Ecole des Beaux-Arts—The Prix Chaudesaigues has been awarded to M. Castel, a pupil of M. Louis Bernier, mentions being given the designs by Arnal, Atelier Ber-



HOUSE AT HALIFAX, N. B.

WALSH & NICHOLAS, ARCHITECTS

nier; Camuzat, Atelier Pascal; Le Guen, Atelier Laloux, and Japy Atelier Pascal.

The *Prix Jean Leclaire* has been divided equally between M.M. Henri Pacon, a pupil of M. Paulin, and Louis Clerc, pupil of M. Lemaresquier.

The prolongation of the Rue de Rennes from the Place St. Germain to the Quai Malaquais is about to be commenced. It will cut through a district very familiar to all old students at the Ecole. Several houses in the Rues Bonaparte, Jacob, Visconti, des Beaux-Arts and de Seine will be demolished and among them some of the old haunts of the American architectural students. It is proposed at the same time to widen the Rue de Seine from the Rue de Buci to the Quai Malaquais, changing its direction so as to bring the end at one side instead of stopping at the back of the Palais de l'Institut. Among the houses to be demolished will be one which was built in the sixteenth century and on the site of the *Petit Pré-aux-Clercs* it is of not much interest architecturally, but it was there that Jean Racine died on April 22, 1699. Adrienne Lecouvreur lived in the same house at a later date, and Mlle. Clairion, who also died there.

It is now announced that the old Hôtel de Rohan, in which has been housed, for many years, the *Imprimerie Nationale*—now being removed to its new buildings, designed by the late M. Scellier-de-Gisors—is to be restored and put in order to receive a part of the Archives Nationales, which are housed in the old Hôtel de Soubise, and its extensions by the late M. Albert Thomas, which adjoin the former garden of the old House of the Rohans. It is expected that the garden will be restored and a gallery constructed between the wing of the Archives and the Hôtel de Rohan. The latter has a fine façade overlooking the mass of printing rooms which occupy the site of the old gardens, the roofs and skylights of the latter intersect the order of the façade about half-way up so that all of the lower portion of the building is obscured; but the upper part—which may be seen from some of the small rooms at the back of the printing house—is very beautiful, especially in its sculptured details.

In the Rue St. Jacques, a couple of blocks above the Rue Soufflot, the new Oceanographic

Institute, of which M. Henri Nénot is architect, is approaching completion. A portion of the excessive scaffolding is in course of removal and a palatial structure is being revealed. In style it is reminiscent of the sixteenth century Italian palaces, but possesses a marked originality. The ornamental detail is especially interesting, and clever—as all French ornament is—and also refined, which is a quality more rare even in France.

BELGIUM

The new Royal Palace of the "King of the Builders" is now practically completed, and it is rumored will be occupied some time

next year. The high board fence still surrounds it, but all vestiges of scaffolding and other builder's plant have been removed.

It is a rather cold design which would not be harmed by the addition of some relieving ornament. The lines of the mansard roof are hard, and the even quality of the blue slate renders the whole effect somewhat depressing.

The Brussels exposition of 1910 marches apace. At the rate the building is proceeding all should be ready for opening well in advance of opening day. This will be the largest and most important exposition held in Europe since that of Paris in 1900.

The general excellence of the administration is in marked contrast to that of the other "International Exhibition," just closed, in London, which has been the most lamentable "frost" that the world has tolerated



SKETCH, RESTORATION OF THE FRONT OF S. PETER'S, ROME, BEFORE THE DESTRUCTION OF BERNINI'S CAMPANILE IN 1646.
BY J. TAVENOR-PERRY



COUNTRY HOUSE, NICKOLASSE

ALFRED GRENNANDER, ARCHITECT

since "expositions" came into existence.

The *Concours Godecharle*—a kind of Belgian "*Chenavard*"—resulted in the first prize going to M. H. Berger for his design for a Commercial and Industrial Museum, and second, to M. H. Van Monfort for his "Foyer Intellectuel."

At Bruges the painted plaster front on the Palais de Justice on the Bourg is being demolished and will be rebuilt upon the model of the charming Palais des Comptes de Flanders which overlooks the canal at the rear. It will be a notable improvement to that side of the Bourg, which is at present a disfigurement to the fine old city of Bruges—in many respects the most interesting town in Europe.

THE PRESS

The "*Architectural Review*" for October, in its pages devoted to "Current Architecture," reproduces a country house by Mr. E. Guy Dawber, with a notice of the life and works of the late Charles Follen McKim; several works by Messrs. McKim, Mead & White, under its serial "The Practical Exemplar of Architecture"; the old Argylls' Lodging at Stirling, erected in 1632, showing the courtyard façade with its agreeable fenestration and towers.

"*The Builder*," during the month of September, devotes most of its plates to reproductions of characteristic competitive designs for the Town Hall for Grimsby and County Council Offices for Reading. The first premiated design for the former is in the English vernacular, both as to plan and elevation; but the latter is compactly—almost stingily—planned, and its back elevation is not at all bad. It also reproduces Mr. R. Stephen Ayling's design for a proposed London Goods Clearing House—a colossal affair with a motif for the repeating bays curiously reminiscent of a certain club house in New York. By far the best illustration is a painstaking drawing of Lavenham Parish Church tower by Mr. Alan G. Brace. The same for October 2d illustrates the second and third-prize designs for the public buildings at Grimsby and Reading, respectively. The latter is very well planned, but violated the conditions as regards windows along the sides. In the same issue is Mr. Walter Tapper's design for a church at Mirfield.

The number for October 9th might be passed over were it not for the double-page plate given up to the drawing showing the contemptible front of St. Peter's at Rome, which has been rendered less atrocious at present than it must have been had Bernini's Campanile been

added—one of which was actually constructed and afterward demolished. The more one sees of work with which one knows Bernini was connected and at least partly to blame the less one is inclined to believe that he could have been the principal author of the colonnade surrounding the Piazza of St. Peter's. It is the one really fine thing ascribed to him; but is as unlike the rest of his work as the handwriting of Poe is unlike that of Horace Greeley. Perhaps some day a searcher through the archives of Rome will discover some document which will prove that this colonnade was really designed perhaps, and preliminary sketch made, by one of Bernini's predecessors—possibly Vignola—which would account for the singular difference between this and other works attributed to him, especially his later works, including many of his monuments and his miserable design for the front of the Louvre, the latter so suggestive of the influence of Maderna's front of St. Peter's.

A most interesting piece of archiological architecture is the new nave to Hexham Abbey designed by Mr. Temple Moore. Externally and internally it possesses something of the element of grandeur of the old Gothic work which is seldom found in the new.

"*The Builder's Journal*," September 8th, has as the fourth of its series of "Architects of the Day," Mr. George B. Post, of New York, and illustrates several of Mr. Post's works. Same for September 15th deals with the Stoke-upon-Trent Municipal Buildings competition; for September 22d with the Berkshire County Council Offices at Reading, also a pleasant design for a country house by Mr. Edward Warren. The obituary notices upon the late Charles F. McKim and Auguste Choisy occupy most of the issue for September 29th.

The same for October 6th has Mr. D. H. Burnham as



DESIGN FOR A COUNTRY HOUSE

OTTO BERLICH, ARCHITECT

the fifth subject (and the second American) of its "Architects of the Day," the architects whose work has previously been reviewed being: 1, Messrs. Mewès and Davis of Paris and London; 2, Mr. Ernest Newton, 3, Mr. Mervyn Macartney, both of London; 4, Mr. Post of New York. It is interesting and instructive to have gathered in this form a number of the best works of a given architect. Mr. Burnham's work is shown in eleven illustrations, among the best being the fine design for the People's Gas Company Building in Chi-

cago; the First National Bank, Pittsburgh; Gimbel's store, New York, and Mr. Burnham's final study for the Selfridge Building in London. The plate in this issue illustrates Mr. Edward Cratney's pleasing design for the Newburn Council Offices. The latest number, October 13th, has an excellent design for a stone house at Halifax, N. B., by Messrs. Walsh and Nicholas.

"*L'Architecture*" has two interesting subjects, in two of the four numbers appearing during the month of September; the monument to Lamarck in the Jardin des Plantes, by M. Blavette in the issue of September 4th, and the little Chapelle de Catéchisme added to the church at L'Isle-Adam by M.M. Roguet and Boileau, September 11th. The sketch designs for the buildings for the International Exhibition at Buenos Aires are as clever, novel and bad as possible, and we have quite enough of them in the very small illustrations in "*L'Architecture*" for October 2d. The same for October 9th reproduces the *Grand Prix* design by M. Boutterin and the Second, Second Grand Prix by M. Lauzanne.

"*La Construction Moderne*" has reproduced two things that were worth the trouble. M. Thiers' restoration of the Church of S.S. Sergius and Bacchus at Constantinople, September 4th, and some charming details of sculptured ornament on the courtyard façade

of an eighteenth century house in the Rue de l'Université.

The French country house seen by itself does not charm the Anglo-Saxon. A French seaside resort seen from a slight distance is gay, happy and altogether attractive if seen as a whole—as a water-colorist must see it; and in this respect differs from the gloomy, monotonous towns of England, but with the individual buildings it is quite another matter, and it is with illustrations of some of these buildings that this paper has principally illuminated its pages.

"*L'Emulation*" contains a very good city front which won the first prize in the Competition of façades of houses constructed in 1908. M. J. Diongre is the architect and to him was also awarded the second prize in the same competition.

"*Berliner Architekturwelt*," 7 Heft, is a good number, containing several well-designed small houses, those reproduced from drawings being more agreeable than the hard facts represented by the photographs. The country house, Nickolassee, by Alfred Grenander, is very suggestive of certain American work. The "Beethovenhaus," by H. P. Berlage, of Amsterdam, has about it something of the weird imagination displayed in the tales of Eugene Sue.

CONSIDERATION IN SCHOOL HOUSE DESIGN

By A. D. F. HAMLIN, Professor of Architecture, Columbia University

PART II

ASSEMBLY HALLS. Not all public schools require these, and where they are required, specially in high schools, they serve very varied functions in different places. They are usually planned to accommodate considerably more than the maximum number of enrolled pupils, and are often in demand for meetings or entertainments outside of the school program. Allow $6\frac{1}{2}$ to 7 square feet per seat for the total area of the floor exclusive of stage or platform, but including aisles, and arrange these so that the center of no seat is further than 11 feet from an aisle.

The Assembly Hall should have natural light from one or both sides, in addition to overhead lighting, if any; but there should be no windows facing either audience or speakers, especially the former.

The Assembly Hall is best placed on the ground floor or on the first or main floor. It is highly undesirable to place it on the third or top floor, as is sometimes done; not merely because of the additional danger from fire or panic (and panic has cost more lives than the flame itself, in schools and places of assembly), but because of the increase of otherwise unnecessary stair climbing that results. From this point of view the second floor is the most convenient, as being midway in height; but if general exercises are held daily at the opening or closing of the session, the first floor or ground floor is still more convenient because of its nearness to the level of the entrance and exit of the school.

The hall should have ample doorways and plenty of them, and these be arranged for most convenient access to and from the stairs.

OTHER ROOMS. No rules can be laid down for the arrangement of the other rooms required, such as lunch-rooms, laboratories, studios, manual-training rooms, teachers' and reception rooms, and the like, as each school building presents in respect to these a new problem, and the size, position and arrangement of each must be determined with reference to particular conditions and requirements. The more particular and special the use and requirements of a given room, the more important is it for the architect to acquaint himself with those who are to use it or who have had experience in the use of such rooms, to seek for suggestions from them, and to endeavor to meet their views and experience as far as possible.

SANITARY PROVISIONS. These relate to light, heat and ventilation, and to the plumbing installation, gymnasium and baths.

LIGHTING. It is universally agreed that class-rooms should be lighted from one side only, unless of exceptional width. A partial exception is sometimes made for corner rooms, which may have windows in the end at the rear of the desks, opposite the teacher's platform. The best practice, however, discountenances this and favors a blank wall opposite the teacher, so as to avoid the glare in his or her eyes from windows behind the

pupils. Moreover the pupils in the two or three rear-most rows sit in their own light from such windows, which is unpleasant and often injurious to sensitive eyes. The best light for a class-room is that which comes from the left side and from slightly in front of the pupil. Light from "over the left shoulder" is often advised as the best for reading; but it is bad for writing and drawing, as it casts the shadow of the body across the work on the desk. The total window area should equal from 40 to 50 per cent. of the total wall area of the long side of the room, and in general, one-quarter the floor area of the class-room. The windows should extend up to within 6 inches of the ceiling; the window stools should be from 3 to $3\frac{1}{2}$ feet from the floor. Light from below that level is useless; it is the height of the top of the window that determines its lighting efficiency. The sill should, however, not be higher than $3\frac{1}{2}$ feet from the floor, as it is desirable that the pupils should be able to rest their eyes at times by looking out at more or less distant objects, which is impossible for many with a sill $4\frac{1}{2}$ or even 4 feet high. It is considered good practice in this country to allow double the height of the window-head for the width of the class-room. This gives 25 feet of width for a ceiling-height of 13 feet, the window-head being $12\frac{1}{2}$ feet from the floor. Increasing the horizontal dimensions of the windows only partially makes up for lack of height, and with a 13-foot ceiling a class-room should not exceed 25 feet in width; or if wider than this, it should have only as many desks as a 25-foot room, and the excess of width be wholly put into the broad aisle next the corridor-wall. The French rule is much more severe, the official standard requiring the width to be limited to one and a half times the height of the room. This rule might well be applied to city schools on narrow streets or sites opposite tall buildings; otherwise for conditions in any part of the United States the French requirement is too narrow. If end windows are required in corner class-rooms, they should be set far apart, so as to present a broad wall-surface directly opposite the teacher instead of the glare of windows. Class-room windows may be arranged, if desired, with hinged transoms, but in that case the transom bars should be of wood or metal, relatively narrow, and never of stone or terra-cotta. Massive architectural transom-bars cast unpleasant shadows and impede much light. Whether the windows should be massed with narrow mullions, as in a studio, or evenly distributed, is a matter of some controversy. The question is probably not of great importance, though the general tendency is towards massing or grouping them. Studios require a north light, and are best placed in the roof-story, where the sash can be extended up into a skylight. Manual-training rooms should be well lighted, and it is a mistake to place them in a mezzanine or low basement, because a nearly horizontal light is very trying on a work-bench. They require high-level lighting as much as do the class-rooms.

Corridors should receive natural direct light and ventilation from outside windows. A long corridor lighted wholly by borrowed light, no matter how abundant, invariably produces an effect of confinement which is depressing. Windows on stair-landings are very serviceable, as they shed their light far into the corridors. Win-

dows at the ends of corridors are better than none, and interior courts, if open to the sky and still more if enclosed only on three sides, serve admirably for the lighting and airing of corridors. There is, of course, no objection to borrowed light as an accessory to direct window-lighting; but it must be remembered that glass transoms and glazed doors, though they afford light, give no air to the corridors, and cannot take the place of windows opening to the outer air.

Skylighting is all that is needed for picture galleries, but it does not suffice for assembly halls or even gymnasiums, since it fades early in the afternoon, does not permit of the entrance of sunlight, and affords very scanty, if any, natural ventilation. Windows on either side of such a hall admit the sunshine and permit of a complete freshening of the air both before and after every gathering in the hall.

VENTILATION. The importance of adequate artificial ventilation cannot be exaggerated, and modern school-houses are, as a rule, much better equipped in this respect than was formerly thought necessary. But it must be remembered that thorough artificial ventilation is always an expensive luxury, both in first cost and in operation and maintenance. Moreover it is in practice inseparably connected with the problem of heating, although the two functions are in theory wholly distinct and independent. While the fundamental principles are simple enough, their application involves many technical complications, and for any considerable building a competent and independent consulting engineer should be engaged to plan or to assist in planning, the heating and ventilating installation. Unfortunately a considerable proportion of the professional heating and ventilating engineers are directly interested in the particular systems of particular companies manufacturing various types of apparatus. The young architect should, therefore, be on his guard to secure, if possible, the services of a really independent expert. It is universally agreed that the fundamental requirement for the ventilation of all class-rooms and assembly rooms is the supply of 30 cubic feet (or a trifle under one metre cube) of fresh air per minute for each pupil up to the maximum number allowed for the room in question; while the heating plant should be adequate to raise the temperature to 70° Fahrenheit in zero weather. All the textbooks and handbooks on heating and ventilation contain formulæ for calculating the square feet of radiating surface required to accomplish this under varying conditions, for hot water, steam and hot air respectively; and also formulæ for horse-power of boilers, area of furnace grate-surface, and size of chimney-stacks for given areas of radiation. These enable the architect to figure the data for the required plant himself, if he choose; or to go over and check the figures of bidders who may offer their various systems in competition. In any case the architect who has thus figured out independently the requirements of his building will be in a better position to discuss matters with his engineering expert, as well as with competing heating companies, than one who has to rely implicitly on the figures they supply.

But, however perfect the heating and ventilating plant, and however faultless its operation, let it be clearly understood and always remembered that no artificial

heating and ventilation can ever take the place of fresh, outdoor air and sunshine. Every room that is ever occupied for any length of time by human beings should, if possible, be so placed as to receive at some time in the day the direct rays of the sun and the fresh breezes of the outer world, and no matter how abundantly ventilated by artificial means, it should have its windows thrown wide open for a while every day, when not occupied, to allow free access to the outside air. This is not always possible with theatres in crowded cities, and they are consequently obliged to devote an otherwise quite disproportionate expense to their ventilating equipment. But no school-room, class-room or gymnasium or assembly room should be so placed—if it can possibly be avoided—as to be deprived of these important adjuncts to the mechanical supply of heat and fresh air. Whatever the scientists may say, it is indisputable that there is a sweetness and life in the air of a room that has been sunned and aired from the outside that can be obtained by no other means. Air blown by fans over coils of heating pipes can, at best, only prevent the undue exhaustion of the oxygen in the room, and is often powerless to remove the odors and stuffiness produced by a crowd of human beings, though these odors will entirely disappear after all the windows have been opened for five or ten minutes. The placing of the auditorium in the centre of a solid block of buildings, surrounded by corridors on all sides, lighted only from overhead and ventilated solely by artificial means, is to be avoided, though it is often the easiest solution of the problem. If courts, even of moderate size, can be interposed to flank such an assembly room, the plan is vastly improved. Both the corridors and the auditorium by this means receive direct outside light and air. In a large high school in New Jersey, which has been the object of some notice in the northern part of that State, the auditorium, seating over 1000, is wholly enclosed by corridors with windows opening directly into it, so that any vitiation of the air in one is shared by the other, and neither it nor the corridors ever receive the direct light of day or a breath of air directly from out of doors. The arrangement is to be condemned from every point of view, and if not positively unsanitary is, at least, unsatisfactory, inartistic and it is lacking in cheerfulness.

WINDOW-LIGHTING. The width of the area effectively lighted by windows opening upon open spaces or wide streets not lined with excessively tall buildings, is in our brilliant North American climate about twice the height of the window-heads from the floor for class rooms, as has already been remarked. In other words, the section of adequate lighting is a right-triangle having a base equal to twice its altitude—that is, with an acute angle of $28^{\circ} 15'$ —and the desks should be so placed that the furthest from the window should have its top at least partly within this triangle. Where the windows open upon a court of moderate size, upon a narrow street, or upon a street of fair width but lined with very high buildings, this is too large an allowance; the rooms should be reduced from 10 to 20 per cent. in width. The ideal solution would be one in which a ray at $28^{\circ} 15'$ coming over the roofs of average height on the opposite side of the street would just touch the win-

dow-sills of the lowest class-room in the school. In populous cities this cannot always be realized, but on the more open sites available in suburban towns it is always practicable. Theoretically a line drawn through the window-head, parallel to one connecting the window stool with the shadow-casting edge of the wall or roof opposite, will, if the inclination be steeper than the conventional angle of $28^{\circ} 32'$, determine by its intersection with the floor the width of the efficiently lighted area of the class-room. When the angle is equal to, or less than $28^{\circ} 32'$, the case enters the normal category and falls under the general rule. Of course, when the resulting diagram reduces the width very greatly—*e. g.* when the inclination of the tangent ray from roof to sill is steeper than, say 35° , one must compromise. The rooms will have to be made wider than the diagram would allow and the windows increased in width to make up for part of their inadequate height, or the story must be made higher; or, better still, the building set further back from the street. In any building in which the inefficient lighting on the lower floor cannot be remedied, as few class-rooms as possible, or none at all, should be placed on that floor. That a hundred pupils should have a flight of stairs to climb is a far less evil than that twenty of them should have their eyesight injured.

Bilateral lighting is permissible only in wide study-rooms and laboratories, when 35 or more feet in width, and in auditoriums. Avoid placing windows opposite the teacher's desk in corner class-rooms and opposite the seated audience in an assembly-room. Avoid also any great expanse of windows opposite the speakers on the platform. The ideal audience room has light from the two sides, with additional light from overhead if necessary.

TOILET-ROOMS AND CLOAK-ROOMS. These are the subjects of more controversy than any other feature of school design. Toilet-rooms are sometimes grouped in the basement, sometimes placed on all the different floors, sometimes grouped on each floor, sometimes scattered so as to connect one with each class-room or pair of class-rooms, sometimes two systems are combined. Every system thus far tried has its drawbacks. To require every pupil to go to the basement in order to use a lavatory or W. C. is not only unkind and unsanitary (seriously so in cases of sudden and severe illness), but resort to the basement easily becomes a means for gatherings of pupils during class-hours for mischief, play, or other purposes not legitimate to the place and time. The basement toilet-rooms are, however, less expensive to install and maintain than scattered toilets. In any case a fair allowance of toilet-rooms for boys and for girls should be assigned to the basement for use during recess and at the times of entering and leaving the building, as well as in connection with the gymnasium and baths, if such be provided.

When toilets are also provided on each floor, as they ought to be, the problem is one of distribution. Those for the two sexes should, of course, be as completely and widely separated as possible. Economy suggests their arrangement in stacks or towers, or at least in vertical superposition throughout. When the stories are not less than 14 feet high in the clear the toilets for boys

may be placed to be reached from the half-way landings of the stairs, and for girls at the ends of the corridors on the floor-levels over those for the boys, the toilet-rooms being 7 feet high in the clear. This completely separates the sexes and is economical of cubic contents, but requires special planning of the corridors to give access to the girls' toilets, and moreover it generally cuts off light from the stairways. It is not, therefore, ordinarily practicable. When they are grouped in two towers or stacks, one for each sex, projecting outwardly to the rear or into a court, it is possible to separate them from the corridors by short intermediate entries provided with cross-drafts from opposite windows; this gives absolute protection against any intrusion of odors or foul air into the corridors. Moreover, it places the entire system of piping outside the main structure, where leaks cannot injure other rooms and repairs need not disturb the school work. It is sometimes objected that this isolation of the plumbing is needless, as good plumbing and ventilation perfectly guarantee freedom from noisome odors, but this is not quite true. Fixtures and toilet-rooms used by considerable numbers of persons in a short space of time always give forth some odor for a while after such use; moreover, not all school plumbing and fixtures are always kept in perfect condition, and the school should be protected against the consequences alike of accident and misuse. This, together with the greatly increased cost, constitutes a serious objection to the general adoption of the plan followed in some Ohio schools, in which each cloak-room adjacent to a class-room has connected with it a W. C. for the use of the pupils in that class-room. This keeps the use of the toilet wholly under the teacher's control, but it compels the use of the cloak-room as a thoroughfare, which is a serious objection; makes the use of the toilet unpleasantly public and immensely increases the cost of the installation as well as the danger of annoyance from occasional accident or misuse.

No one solution is, therefore, ideal, and as the value of one of another system depends greatly on the discipline, character and traditions of the school and its pupils, these must be considered by the architect in conference with teachers and school officials in deciding which system to adopt.

It goes without saying that every toilet-room, even the small ones attached to teachers' rooms and principal's office, should have direct light and air from out of doors, and that specially careful provision should be made for mechanical ventilation of all the pupils' toilet-rooms.

CLOAK-ROOMS. Two chief systems are in use for the care of pupils' outer clothing; general cloak-rooms in the basement, and class cloak-rooms on every floor. The advantage of the first of the two systems is that pupils leave behind their outer clothing upon entering the building and take it again only on leaving. Thus muddy overshoes and damp coats and cloaks are not carried up into the corridors or class-rooms of the building. The disadvantages lie in the difficulty of supervising the crowds of pupils at the times of entering and leaving the building, and the danger of pilfering in the cloak-rooms. To obviate these difficulties individual lockers are provided in some schools, the pupil having

a key which opens only his own locker. But this provision of lockers requires a great amount of space, is costly, and subject to the annoyance of frequent loss of keys. It can only be applied where space and funds are generously ample.

The class cloak-room system provides a long and narrow cloak-room or closet next each class-room. This has the disadvantage of requiring pupils to come through the halls to their class-rooms before taking off or disposing of their outer clothing. On the other hand the wraps, hats and overshoes so disposed of are always under the teacher's supervision, and the congregating of several hundred boys or girls in the basement at the close of school is avoided. Class cloak-rooms should never jut into the hallways. They are best placed transversely, with an outer window at one end, and with two doors opening into the class-room. They should never be used as thoroughfares and hence should not open into the corridors. Whether they should be placed behind or opposite the teacher's desk is usually determined by circumstances. They should always be provided with forced ventilation, and especially strong aspiration, so that air may be drawn from the class-room through the cloak-closet, and not move in the reverse direction. One end may be divided off by a wire mesh or grill screen to form a teacher's coat-closet. The hooks should be spaced on each wall about 12 inches apart and alternately at a higher and lower level, so that in a given row they will be two feet apart. This makes for ease in finding one's own hook. The heights of the two rows should be adapted to the average size of the pupils of the grade using the class-room.

Whether the class cloak-room or the general basement cloak-room should be adopted in a given case depends largely upon the regulations prevailing for entering and leaving the building. The class system is more often used in grammar and primary schools, and the general cloak-room in high schools, with or without lockers. But there is no absolute rule in the matter.

CONSTRUCTION. A schoolhouse should represent the most thorough and careful construction possible, both as to materials and execution. Ornate finish is unnecessary, but good taste and refinement should appear in all the details. It is wise economy to make the floors, wainscoatings, stairs and hand-rails all of the most durable materials, even at considerably increased expense. Ceilings should be generally of white plaster to reflect and diffuse the light, but walls should be tinted of some quiet, restful and pleasing hue. Tile wainscoatings in corridors and stairways are sanitary, durable and indefaceable. Wooden wainscoatings should be avoided generally in such places.

The fundamental question is, however, not that of the finish, but of the framework or shell of the building. This ought to be always of fireproof materials. The time is coming when the use of inflammable materials in the construction of school houses (except small and poor rural district schools) will be considered little short of a crime. Unfortunately not every school board or community has as yet reached the point where it thinks it can afford really fireproof construction. Where this is then not possible, it should be absolutely insisted upon that all the corridors and stairways should be fireproof,

that is, built of non-combustible materials, all iron framing being protected; that all plastering should be upon wire lath, and that wooden furring should be prohibited; that the boilers and furnaces should be in a thoroughly fireproof room, and that the building should be equipped with one or more standpipes and hose in conspicuous and central locations on each floor. And since in even a fireproof building smoke from some trivial local fire not really at all dangerous may spread through the building and possibly create a panic, the stairs and corridors should always be so planned as to offer the most ample and direct exit from all parts of the building. The danger of panic furnishes a reason additional to those named earlier in this article for avoiding the placing of the assembly hall in the topmost story of the building, particularly if the hall is liable to be used for public purposes or audiences not wholly composed of pupils. For while the pupils may be trusted to make an orderly fire-drill exit in case of emergency when by themselves, a miscellaneous audience is easily thrown into panic and may communicate its disorderly fright even to the otherwise orderly and well-drilled pupils.

Let the school building, then, be solidly constructed, thoroughly fireproof, abundantly lighted, with adequate, straight halls and ample stairways, having sunshine and access for the outer air in every room besides abundant forced ventilation; let it be cheerful and attractive without and within, well placed and supplied with adequate playgrounds and pleasant surroundings and it will be not only a source of pride, but a blessing to the community, as well as a credit to its designer.

A RECENT LEGAL DECISION

A building contract, sealed and delivered, stipulated for a satisfactory bond. The contractor, without delivering the bond, started on the work. Subsequently, on the contractor being requested to furnish a bond, he told the owner's manager that application had been made to a trust company in another State for a surety bond in the stipulated sum. To this statement the manager said, "All right." Two weeks later the owner gave the contractor three days' notice to present the bond or the work would be given to another contractor. Five days thereafter the bond was tendered, but the owner's manager stated that they intended to do the work themselves and did not wish to change again. The contractor was denied permission to proceed with the work. He thereupon brought suit for damages and recovered a verdict and judgment. It was held (1) that it was for the jury to say whether there was a reasonable compliance by the contractor with the owner's demand; (2) that it was not error to refuse consideration of the fact that the bond tendered was the bond of a foreign corporation, inasmuch as the owner did not put its refusal of acceptance on any such ground; and (3) that the damages were to be ascertained by taking the entire cost of the building to the contractor and deducting this sum from the contract price.—*Shallenberger v. Standard Sanitary Manufacturing Co.* (Pennsylvania Supreme Court), 223 Pennsylvania, 220.



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CLASS "B" ORDER PROBLEMS

The jury of the Society of Beaux Arts Architects wishes to draw the attention of the students to the fact that in addition to a proper study of the specific design required, the problems are intended to develop the student in drawing, arrangement of explicit and large scale details, correct casting of shadows as well as careful and simple rendering in wash of such shades and shadows as may be required to explain the architecture indicated. Students should keep these suggestions in mind in future order problems.

CLASS "B" PLAN PROBLEM

As is indicated by the number of first mentions given, the projects for an Open-Air Theater under consideration by this jury met with very favorable criticism. Although not quite within the programme, those designs showing the radiating seats constructed entirely in the ground were placed favorably because of their excellence of partie. A sufficient number of projects are selected for illustration as indicative of the different parties considered favorably.

Both class A and class B esquisse-esquisse problems were passed without awards. Students should train themselves to produce better results in this important branch of their work.

CLASS B. ORDER PROBLEM

AN ART MUSEUM

Judgment November 16, 1909

Name	Award	Atelier	City
S. F. Fish.....	M	Barber.....	New York City
H. I. Hellmuth.....	M	".....	"
C. E. Pierpont.....	M	Prevot.....	"
J. K. Morse.....	M	".....	"
C. M. Hoffman.....	M	Carnegie Tech.....	Pittsburg
L. A. Withers.....	M	".....	"
P. S. Uhrborn.....	M	".....	"
J. B. Hays.....	M	".....	"
R. Hodgdon.....	M	".....	"
M. C. Farren.....	M	".....	"
F. Kealley.....	M	".....	"
J. D. Bolton.....	M	".....	"
S. H. Seidener.....	H C	".....	"
S. E. Watson.....	M	".....	"
H. J. Thompson.....	M	".....	"
M. E. Williams.....	M	".....	"
H. W. Schwerin.....	M	".....	"
J. V. Wilson.....	M	".....	"
G. A. Ebeling.....	M	".....	"
W. M. Johnson.....	M	".....	"
O. B. Einstein.....	H C	".....	"
R. K. Fleming.....	M	".....	"
D. W. Wait.....	M	".....	"
W. B. Dunn.....	M Pl	".....	"

(Continued on 232)

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The development of efficiency increasing features— Concerning the conduct of competitions.	
ILLUSTRATIONS:	
School of Industrial Arts, Trenton, N. J.	
Catskill Savings Bank, Catskill, N. Y.	
York Harbor Club House, York Harbor, Me.	
Frontispiece:	
A XVII Century Fireplace and Overmantel.	

THE stupendous growth of American cities during recent years, involving as it has an entire readjustment of real estate values, amounting in some instances to an increase of several hundred per cent, has also had the very natural effect of adding to the value and importance of those features or departments of construction work which tend to increase what might be termed the efficiency of site. Among these features probably one of the most important is water-proofing. While building sites were plentiful and not high in price as compared with cost of construction, failure to develop all the possibilities of site by extending the structure well below the surface of the ground and utilize the space thus provided was not serious—was perhaps entirely justified. Moreover, the state of the art at the time some of our older buildings were erected rendered it difficult, if not impossible, to provide any considerable amount of dry, wholesome room below grade. In accordance with the theory that "necessity is the mother of invention," the change in economic conditions has been accompanied with a corresponding development and perfection of processes in building. It is now not only possible, but not particularly difficult to water-proof effectively and permanently those portions of a building which extend below grade and earth-water level, rendering basement, sub-basement and vault entirely available, as far as dampness is concerned, for almost any purpose. In this manner considerable value is added to a building site, and at the same time protection is afforded to the structure itself. As to the need for such protection there is some difference of opinion. Undoubtedly, apprehension has been felt in recent years concerning the effect of electrolysis on the steel framework of modern buildings and, from such investigations as have been made, it

seems not improbable that there is perhaps ground for some uneasiness under certain conditions of site and environment where the matter of protection has not received proper consideration. In any event, it would appear that a careful selection of materials for water-proofing the underground portions of a building as required by modern conditions and practice might also result in furnishing protection against the other and more subtly destructive agent. That the water-proofing might in effect be used also as an insulator of foundations or walls containing structural steel or iron. The subject is one of increasing importance in our larger cities, and would seem to merit the thoughtful attention of architects and engineers.

IT will probably be freely conceded by all that such an instrument as an ideal and hence universally satisfactory program providing for an architectural competition is impossible of production. There are, however, certain elementary principles of justice and equity, quite apart from the technical requirements of competition, which, if borne in mind by the projectors, would perhaps lessen the amount of irritation, disappointment and general dissatisfaction which sometimes ensues from the adoption of this mode of selecting an architect. A recent protest which has reached us concerns a not usual, but sometimes adopted expedient for overcoming some accidental error, unexpected delay in promulgation, or unanticipated objection, by extending the time for submission of plans beyond the date announced when the program was issued and competitors presumably began their studies. It has been argued that the date of closing the competition is just as much a condition of the program, which in effect constitutes a contract or agreement between the projectors and the contestants, as is the provision for the award. It has been suggested that if it is within the province of the committee, through its advisor, to vary this condition after its acceptance by certain of the contestants, if not all of them, they could, with equal right, vary any other, and make the competition undesirable from the contestant's point of view. If the time can be lengthened arbitrarily after contract is entered into, why might it not, ask these objectors, considered purely from a theoretical standpoint, with equal right be shortened? That there is a valid ground for objection to the modification of a program in any material detail after its issuance and acceptance by competitors is entirely apparent. Whether such modification as an extension of time is sufficiently serious to constitute a breach of contract and a cause for action, if the contestants are so minded, is perhaps not so clear. It would seem desirable, however, in every case where possible, to consider and decide all suggestions concerning the program, and determine absolutely all its provisions, including the date upon which competition closes, before it is issued. If it is then proceeded under without change or variation to the end, the architect who has made some sacrifices in the form of night work, or perhaps declined less important commissions in order to meet the condition of time originally imposed and participate, will not subsequently be depressed and irritated by a realization of the unpleasant fact that his sacrifices were called forth needlessly.

(Continued from page 230)

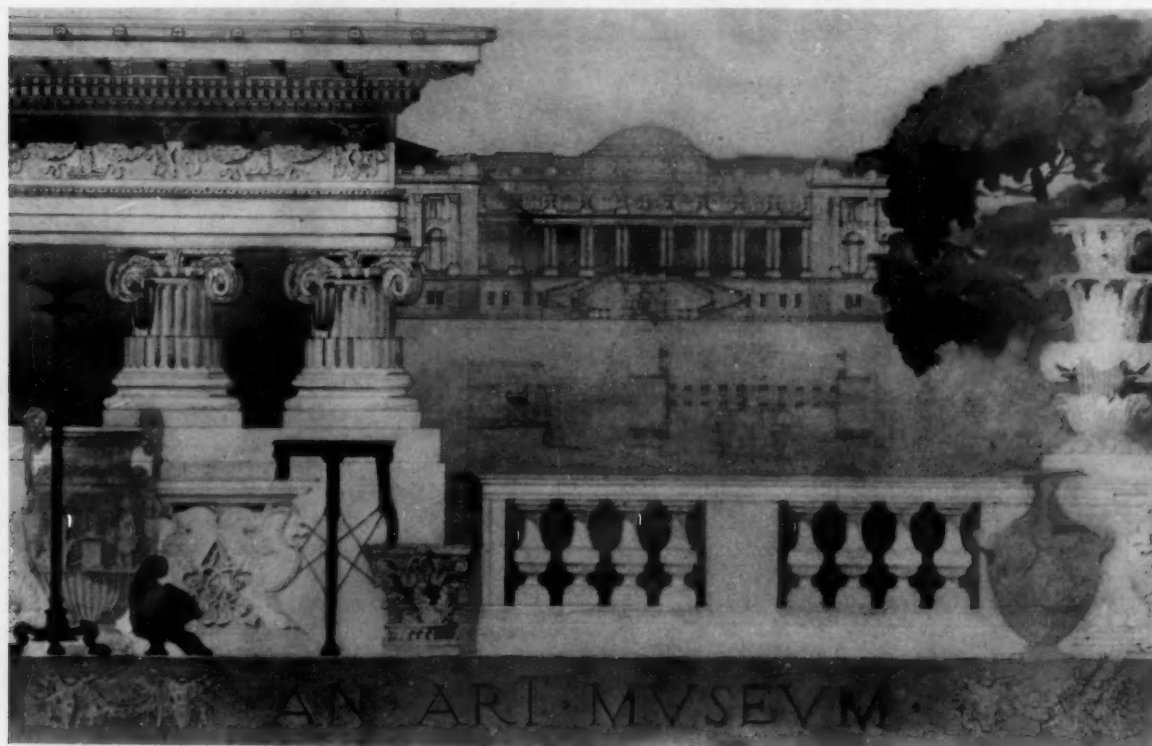
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W. W. Mathews.....	M	".....	"	Jack Sanger.....	1st M	".....	"
R. E. Ecclesias.....	M	".....	"	C. E. Hall.....	1st M	".....	"
C. L. Taylor.....	M	".....	"	J. J. Sheridan.....	1st M	".....	"
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N. L. Burk.....	M	".....	"	X. Grisez, Jr.....	M	".....	"
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H. L. Skidmore.....	M	".....	"	E. W. Boyer.....	1st M	".....	"
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				J. D. Thomlinson.....	M	Bosworth.....	"
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				A. R. Nadel.....	M	".....	"
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				Harvey Dakin.....	M	Wash. Arch. Club.....	Washington
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				P. L. Stevens.....	M	".....	"
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				F. D. Morgan.....	M	".....	Philadelphia
				J. P. Sweeney.....	M	".....	"
				J. W. Cope.....	M	".....	"

CLASS B. PLAN PROBLEM

AN OPEN-AIR THEATRE

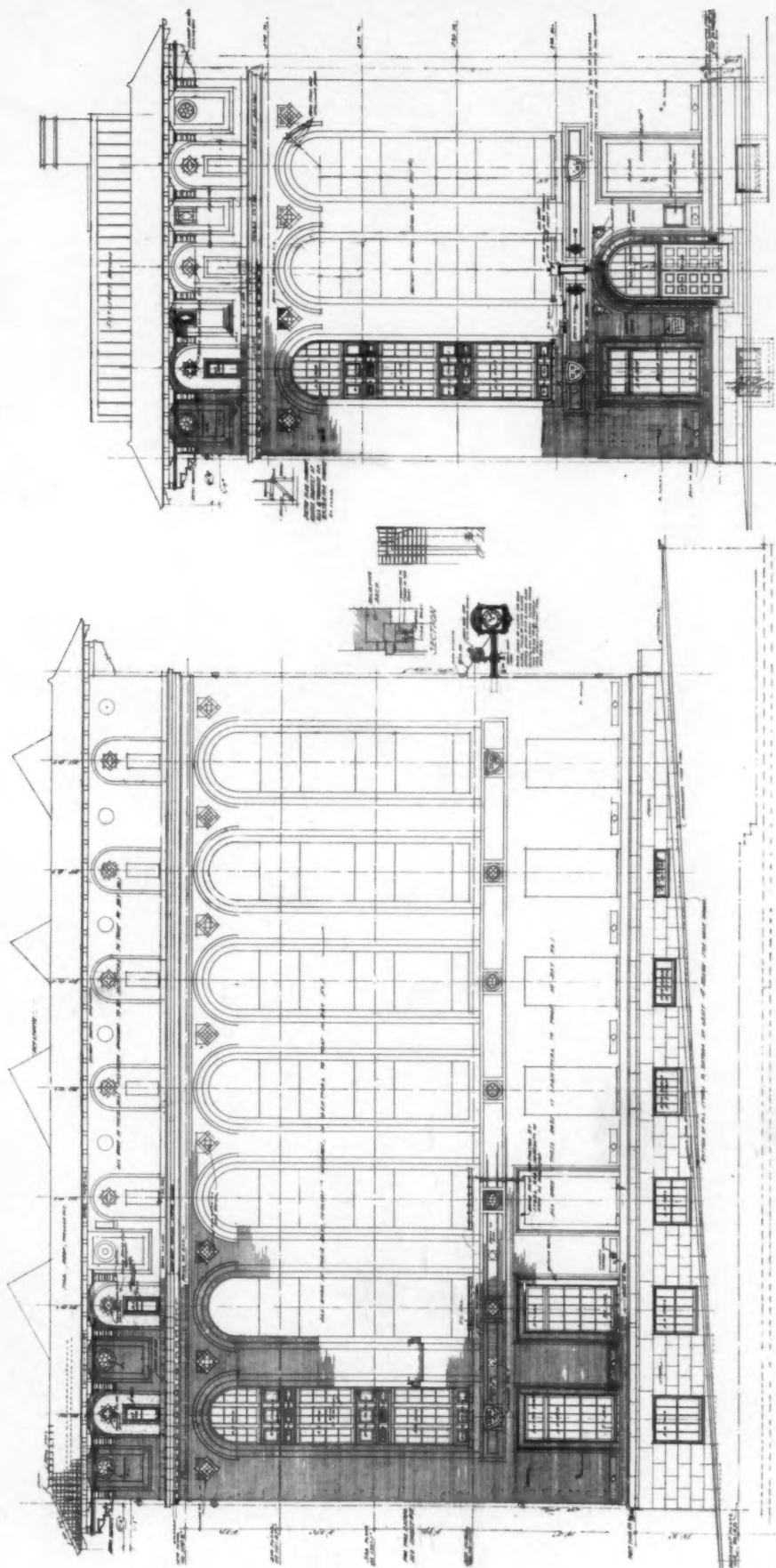
Judgment November 16, 1909

Name	Award	Atelier	City
A. S. Crapsey.....	M	Hornbostel.....	New York City
R. E. Sherlock.....	M	".....	"



CLASS B ORDER PROBLEM—AN ART MUSEUM

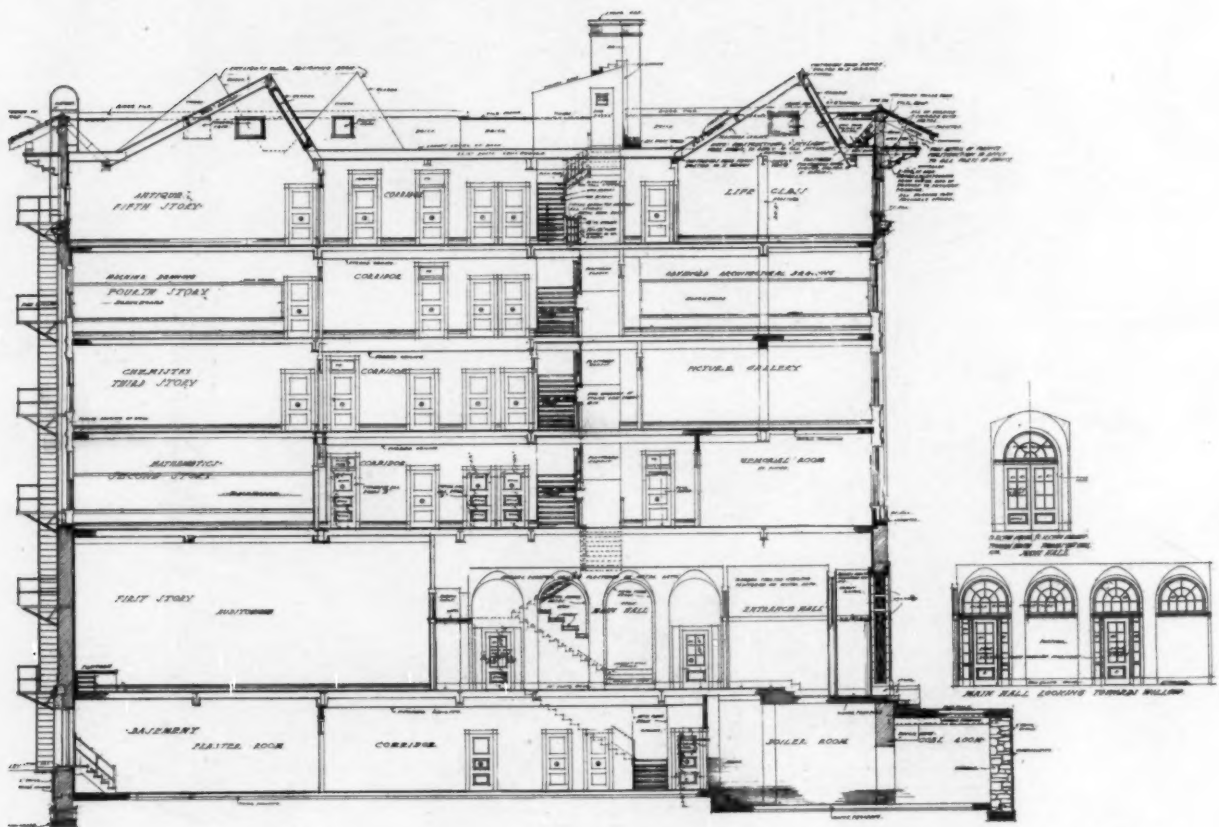
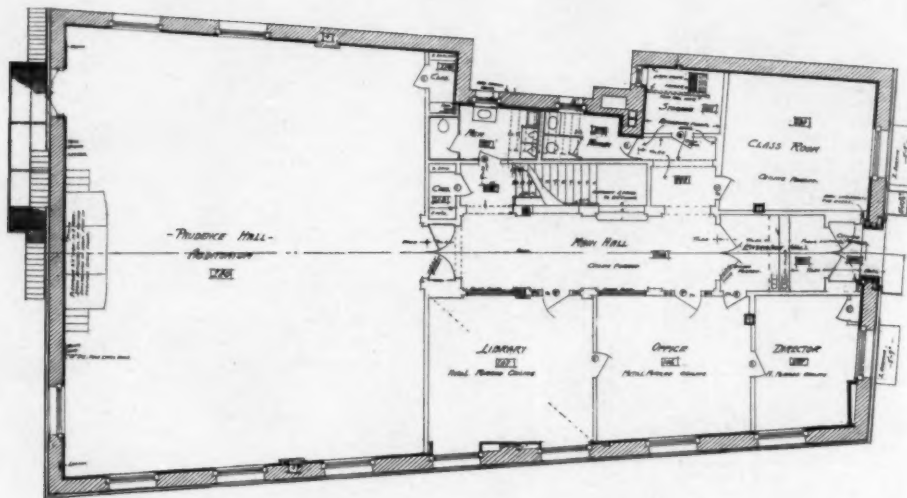
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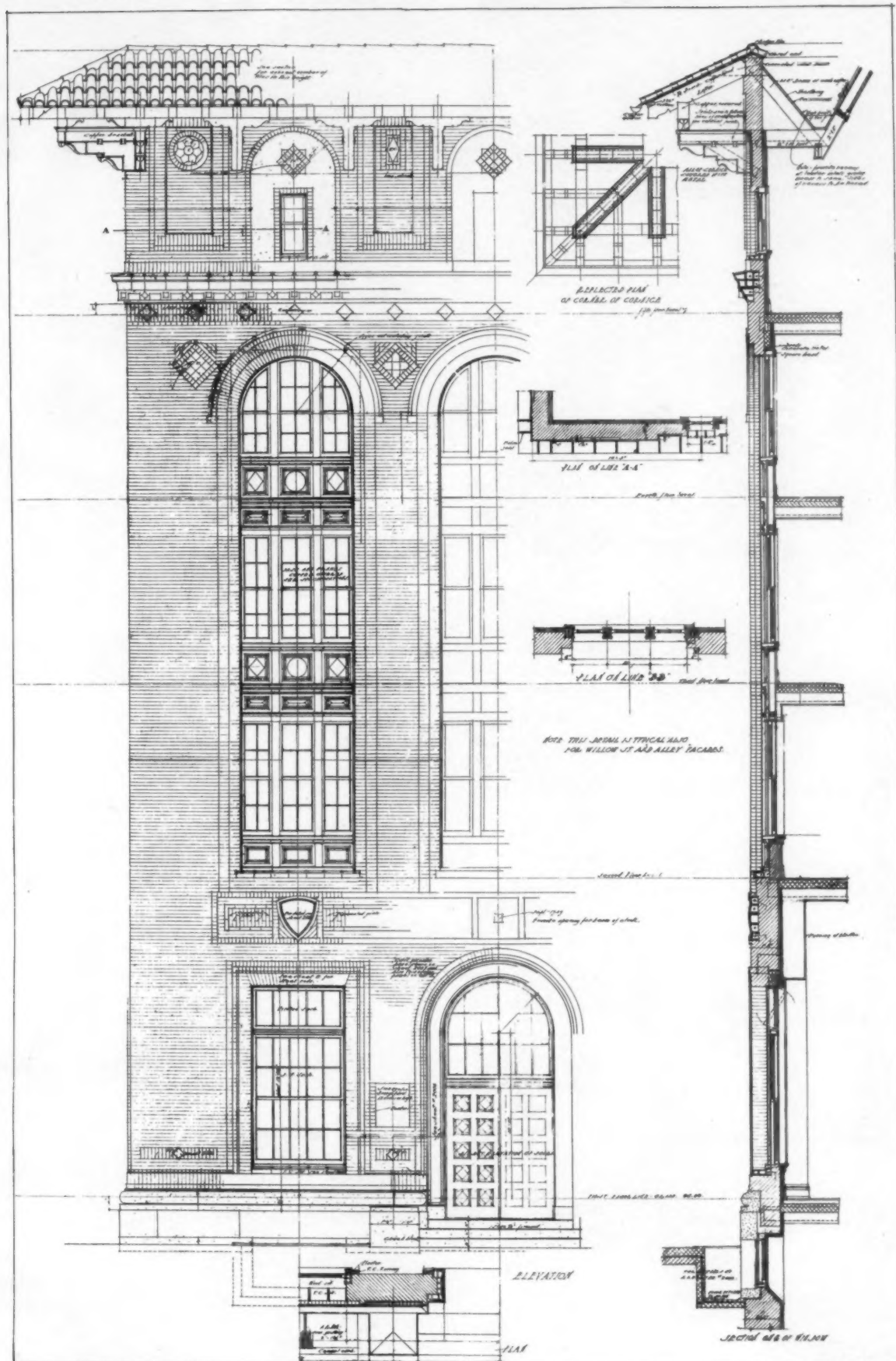
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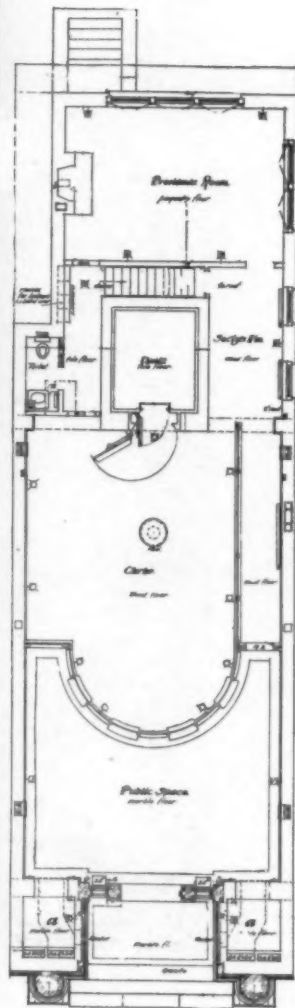
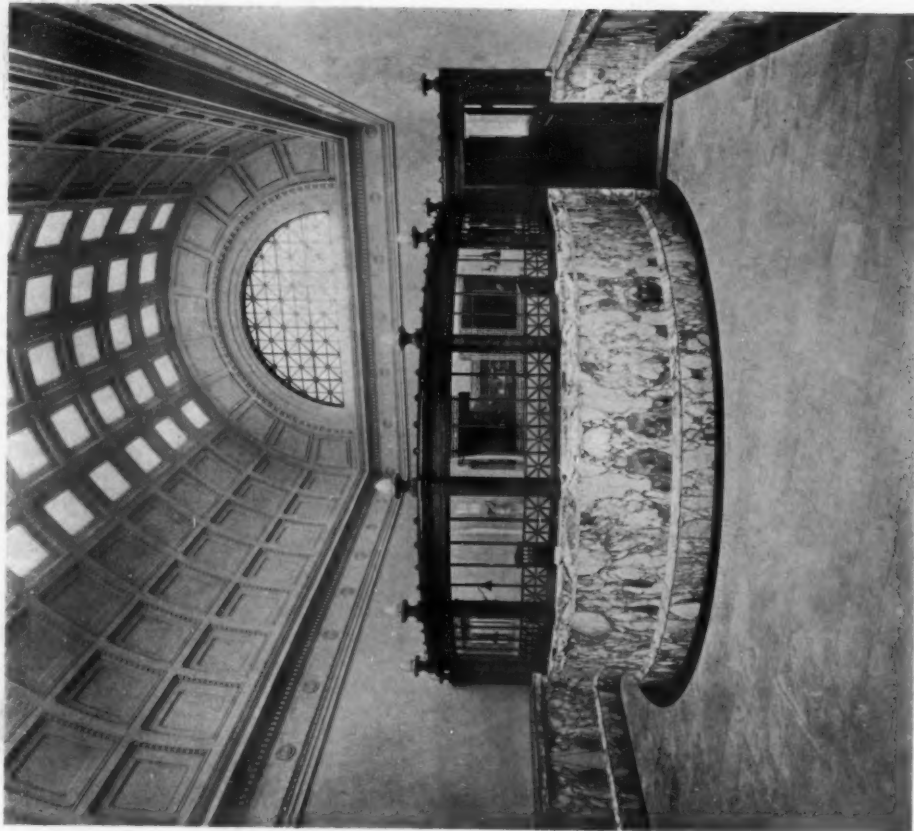
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THE CATSKILL SAVINGS BANK
CATSKILL, NEW YORK

MR. MARCUS T. REYNOLDS
ARCHITECT



THE CATSKILL SAVINGS BANK, CATSKILL, NEW YORK

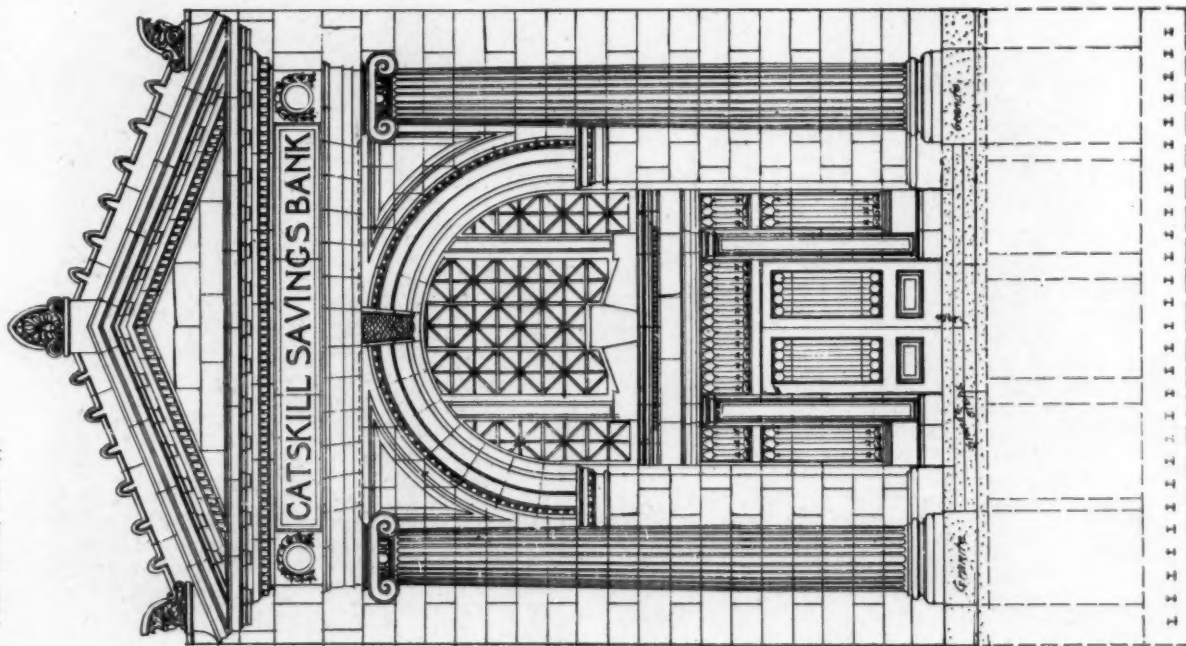
This building is constructed of Ohio sandstone, fireproof construction, steel skeleton, with rock concrete floor arches and terra-cotta tile partitions.

The roof is of reinforced concrete with a slag finish. Interior woodwork is of mahogany, varnish finish, floors are of marble with cork tile in enclosures.

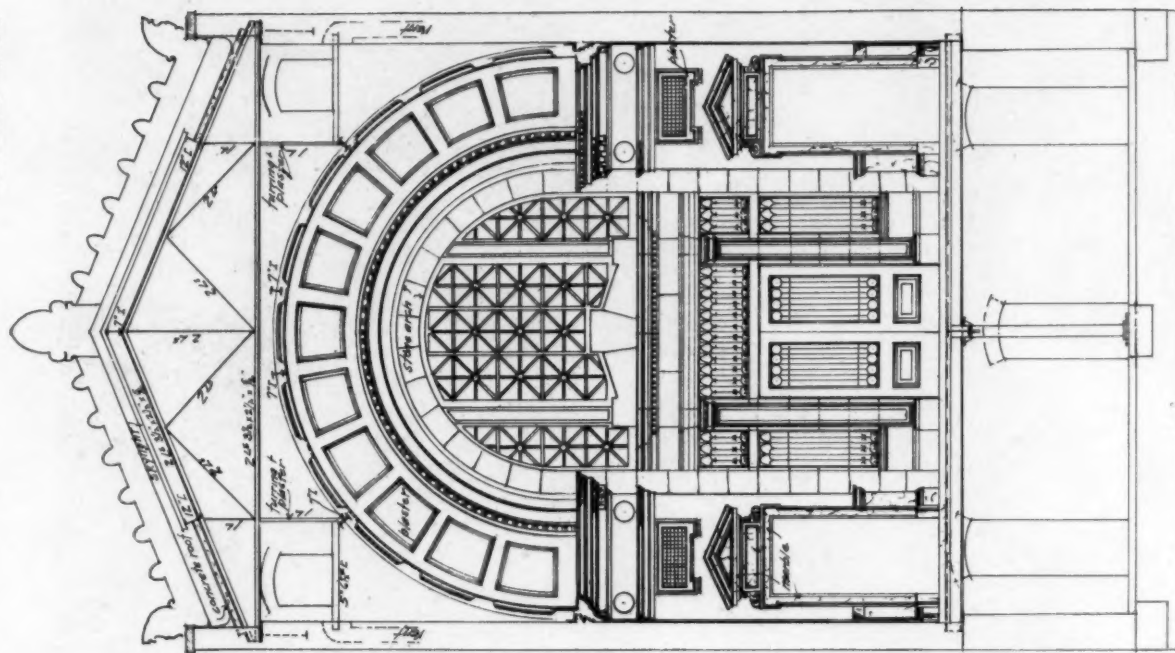
Building is heated by an indirect steam system, and lighted by electricity.

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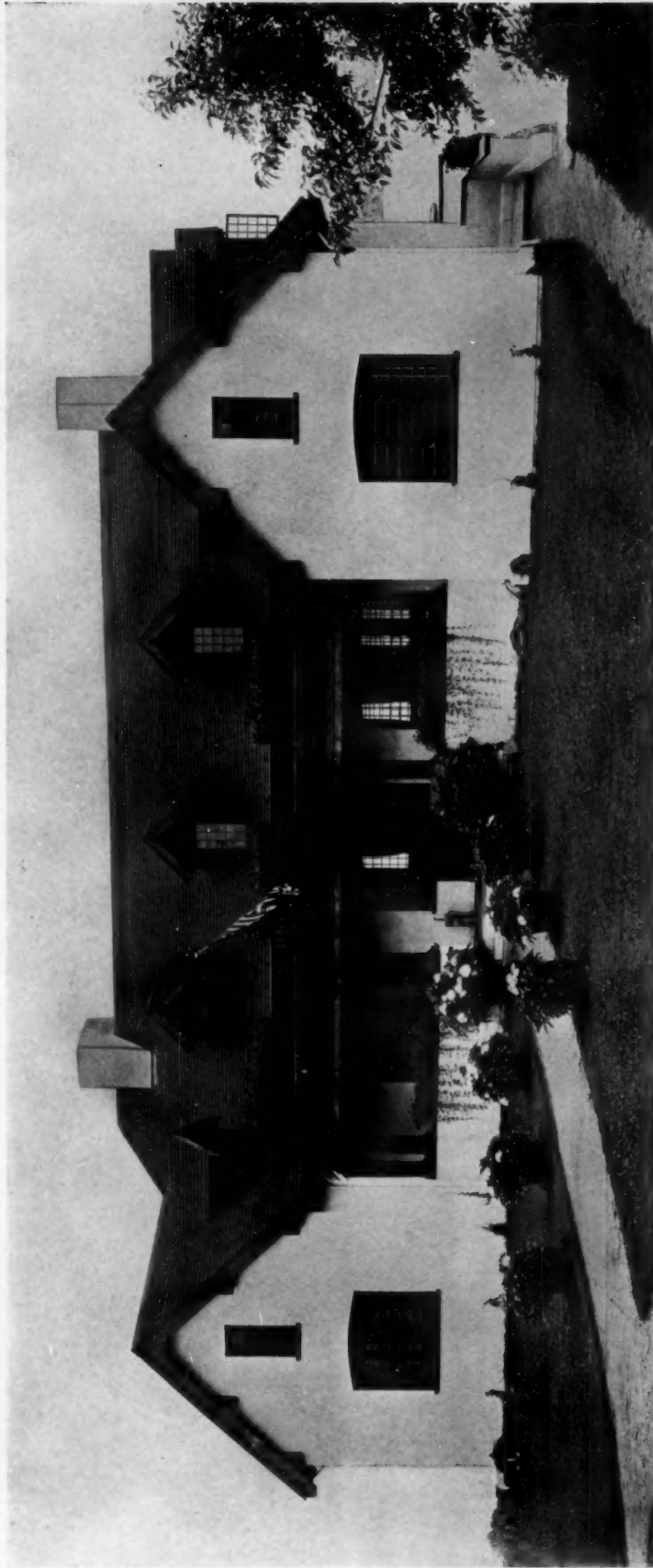
THE CATSKILL SAVINGS BANK
CATSKILL, NEW YORK





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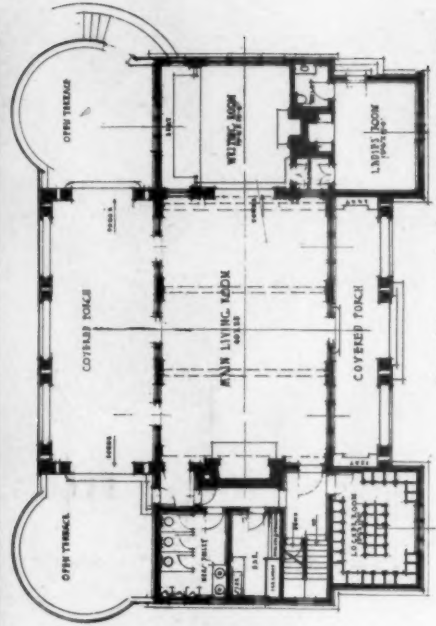
YORK HARBOR CLUB HOUSE
YORK HARBOR, MAINE



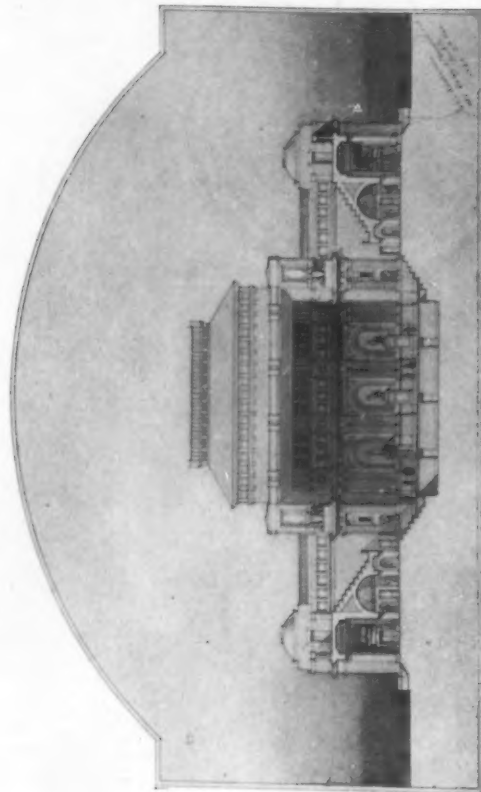
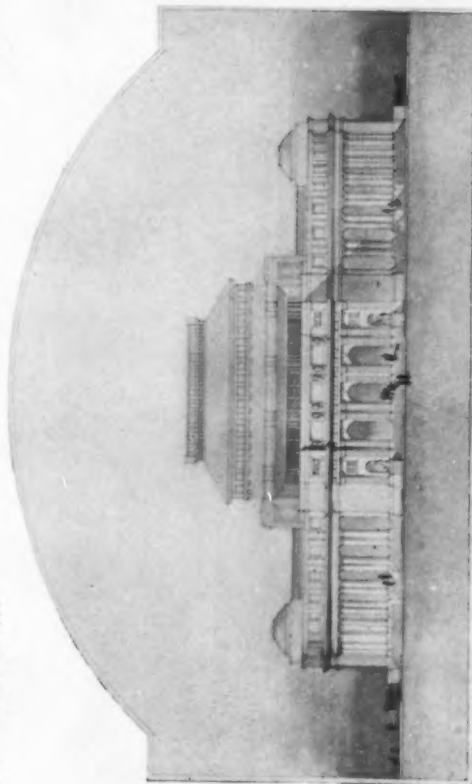
The club house at York Harbor, Maine, is a plaster-stucco building situated on the edge of a rocky bluff overhanging the sea. It is carried out in English cottage-type of architecture somewhat resembling the style of houses seen in Kent and Surrey. The outside finish is of pine, stained a soft brown, with moss-green shingled roof. The windows are all casements, giving the small-paned leaded glass window effects seen in the English cottages. The main living room as well as the rest of the building is finished in rough-sawn country-pine knotted boards, stained a soft weathered-silverish-gray, throwing the rich dark green of the hangings, curtains and rugs with which the rooms are furnished into effective relief. The large fireplace, of light cement-stone, measuring in its opening 6 feet high and 7 feet wide, is a feature of the end of the main living room, whose roof, supported by arched trusses and finished in the same silver-gray country-pine, rises to a height of 25 feet from the floor. At the opposite end of the living room and down two or three steps is located the writing room, with a brick fireplace on one side and a long window seat on the opposite side; and leading from this room is the ladies' room, with its fireplace and alcove seats on either side; and a side entrance from without. Opening off the living room and extending the whole length of the building is a broad piazza overlooking the sea. The usual arrangements for a small club house are provided at one end of the building; the kitchen and service departments being in the basement, and the bedrooms, card rooms, etc., being on the second floor.

YORK HARBOR CLUB HOUSE
YORK HARBOR, MAINE

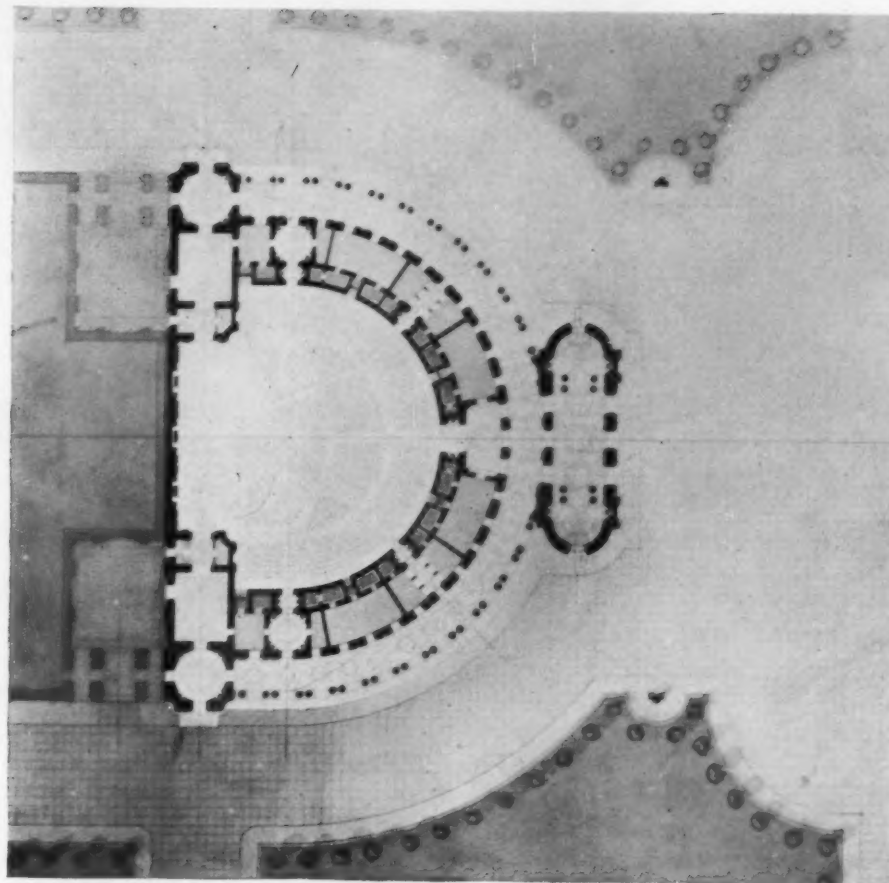
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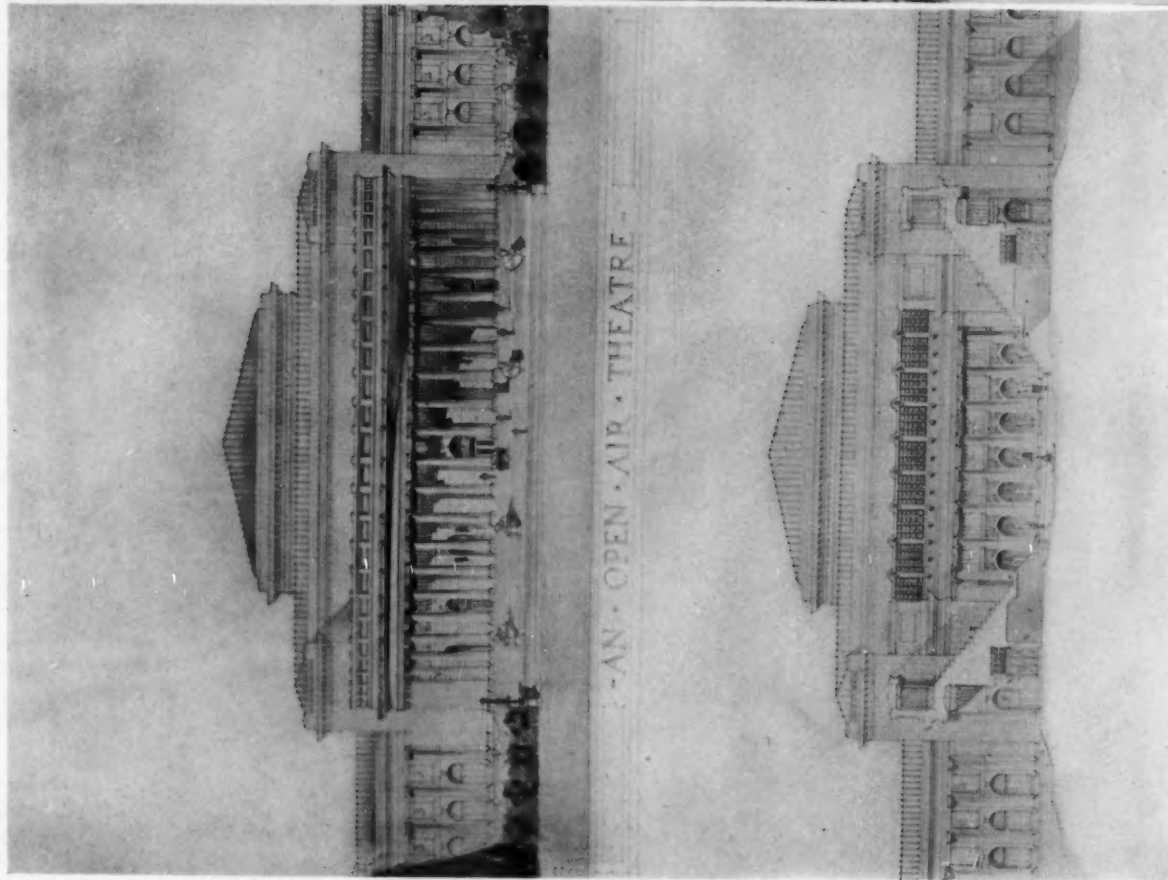
CLASS B PLAN PROBLEM
AN OPEN-AIR THEATER



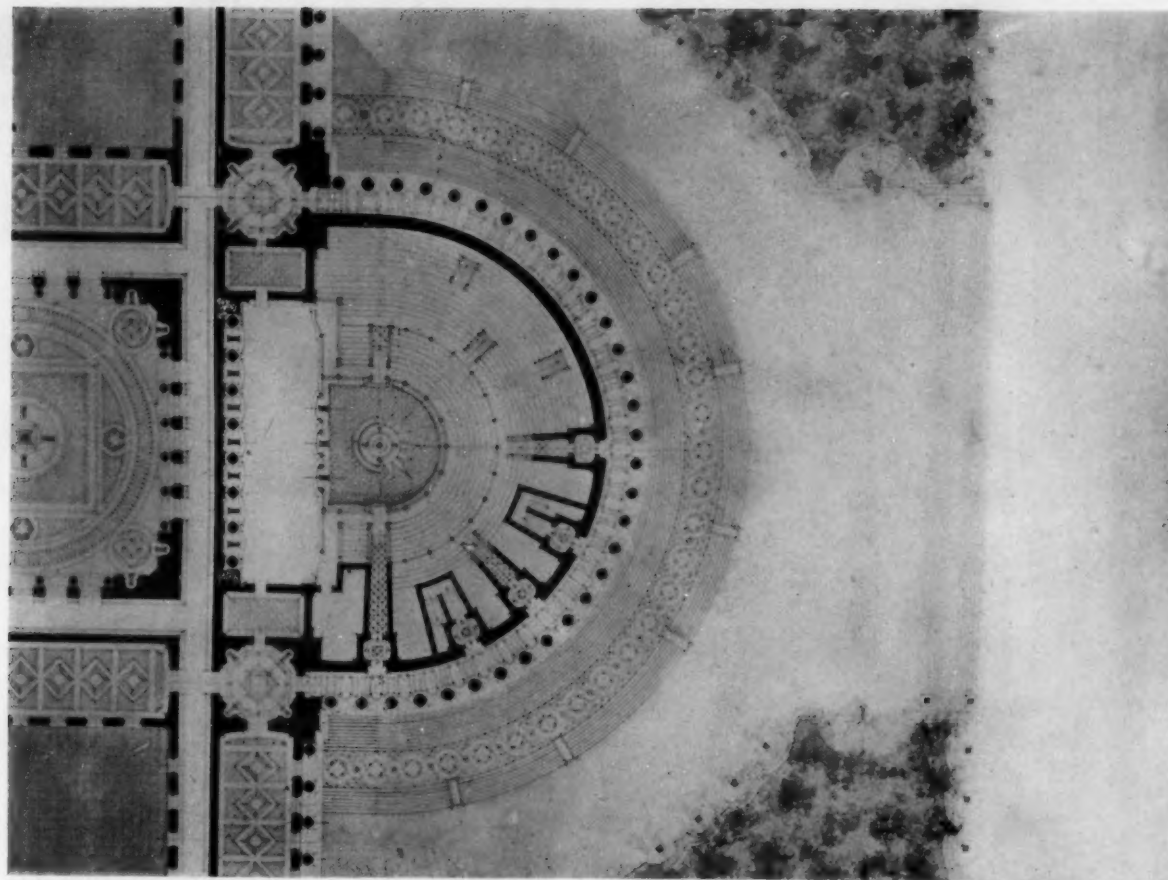
FIRST MENTION
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CLASS B PLAN PROBLEM
AN OPEN-AIR THEATER

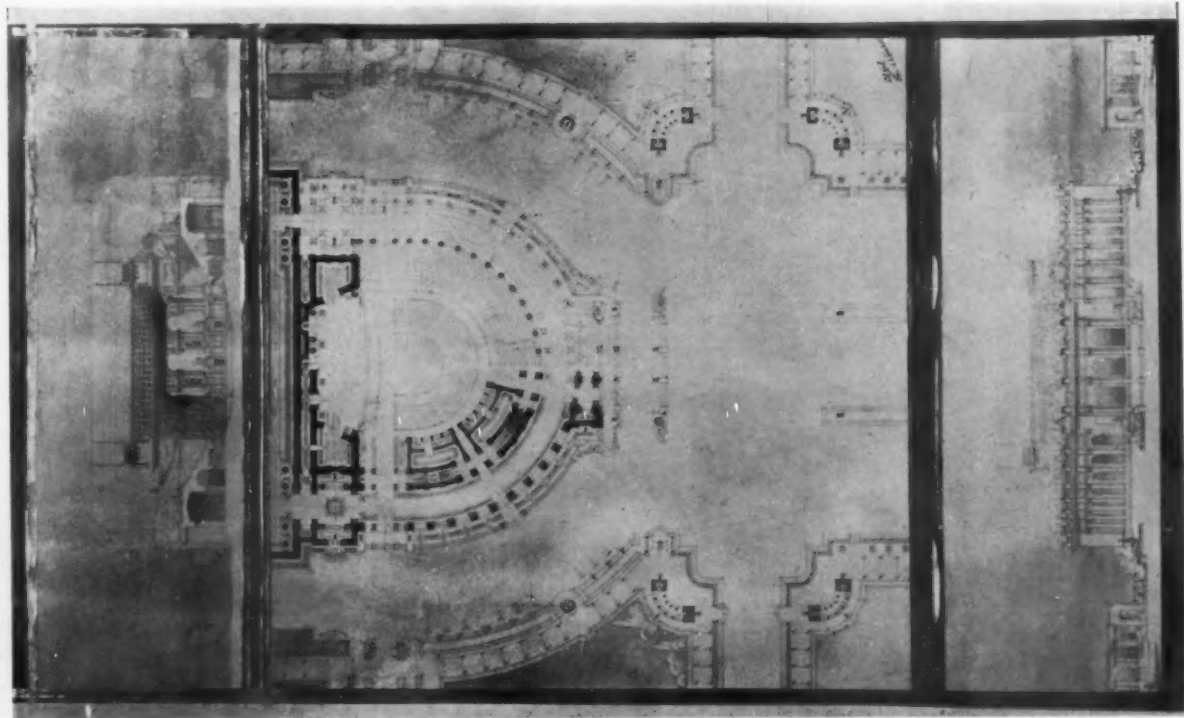


FIRST MENTION

J. J. GANDER—ATELIER PREVOT

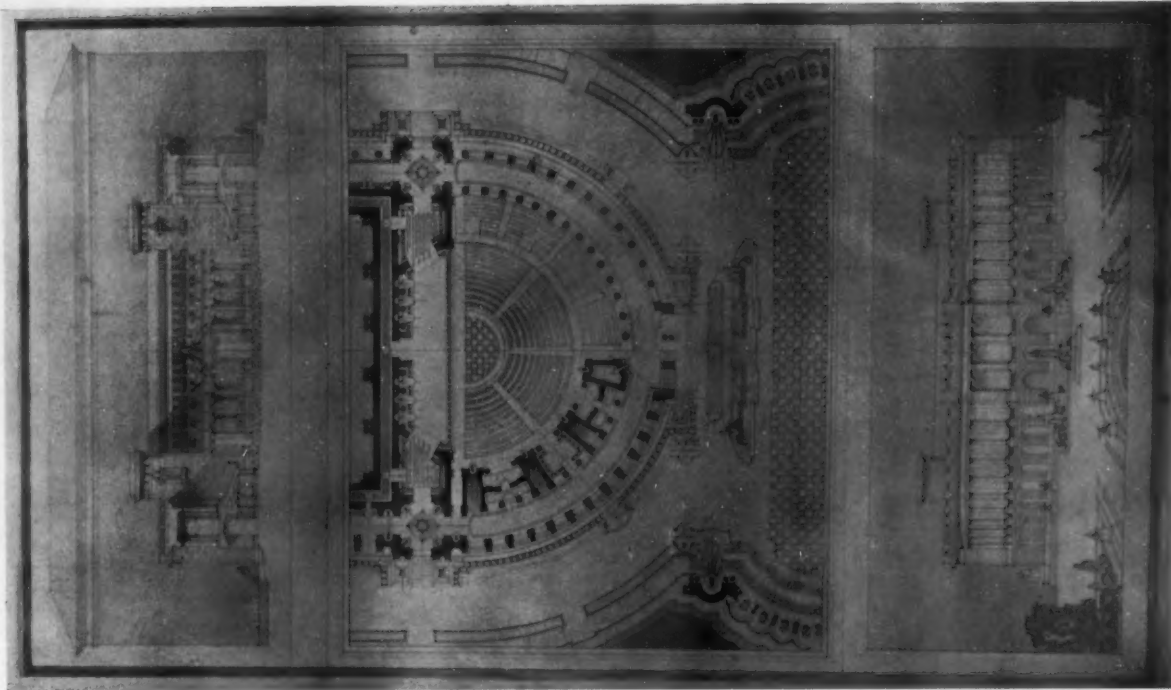
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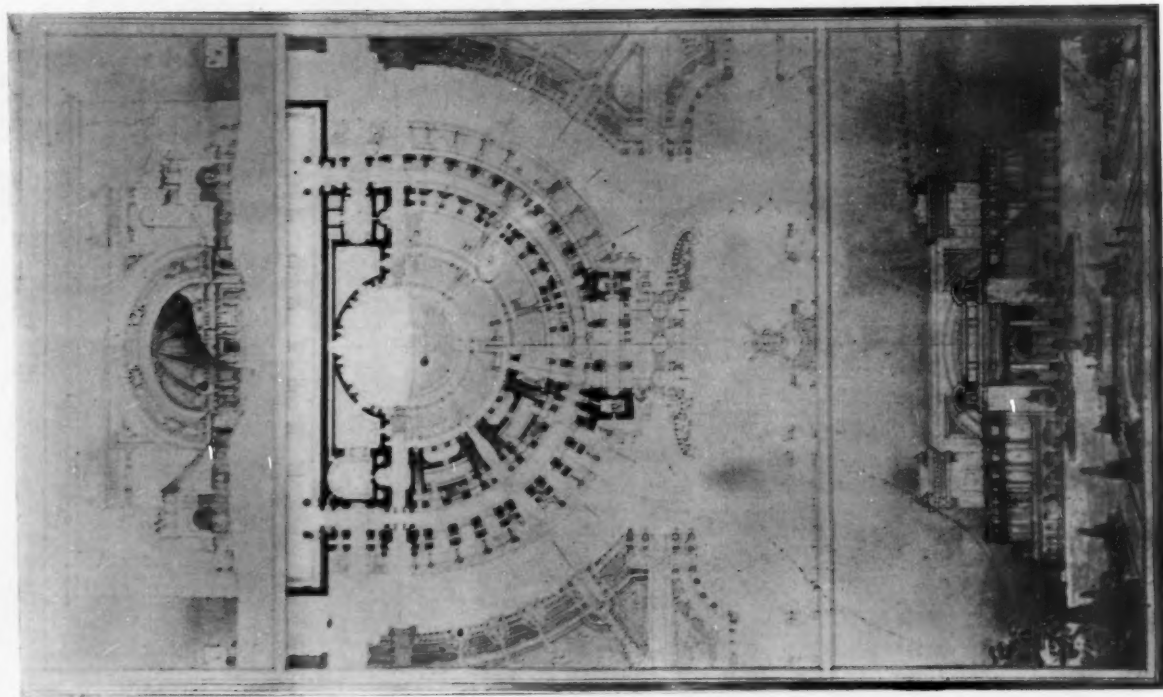
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ATELIER HORNOSTEL



J. J. SHERIDAN

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CLASS B PLAN PROBLEM
AN OPEN-AIR THEATER

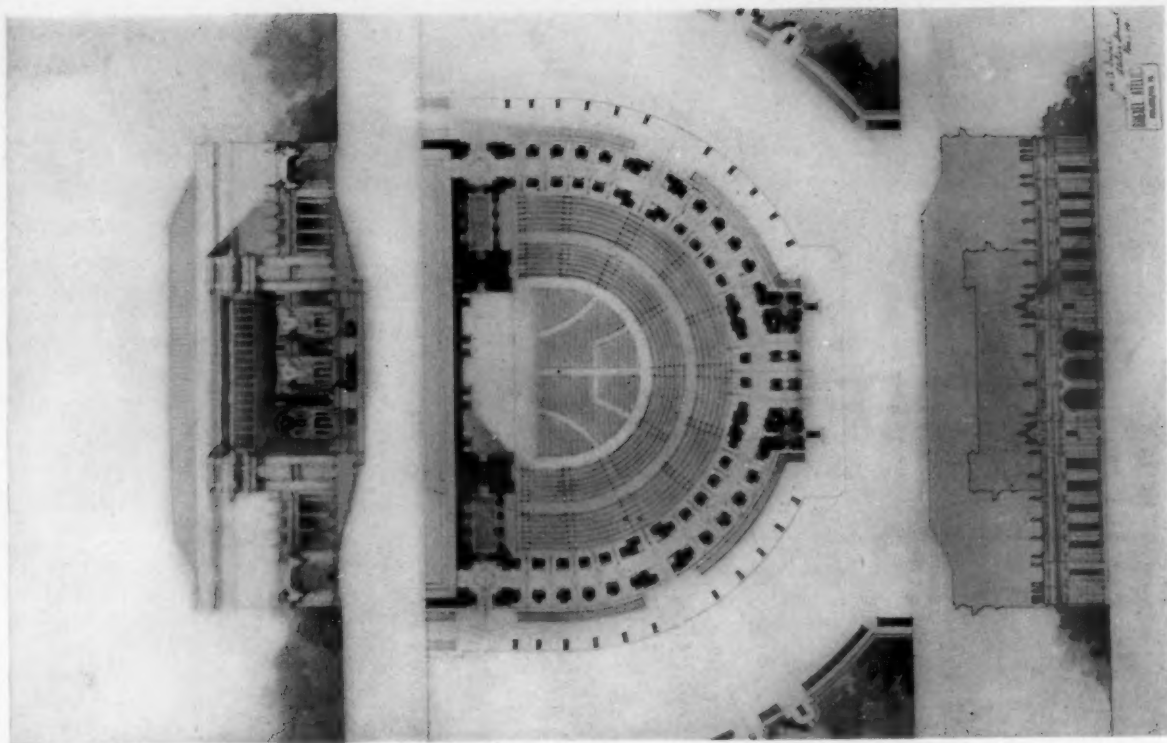


FIRST MENTION

JACK SANGER

CLASS B PLAN PROBLEM
AN OPEN-AIR THEATER

ATELIER HORNBOSTEL



FIRST MENTION

J. A. SEIPEL

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