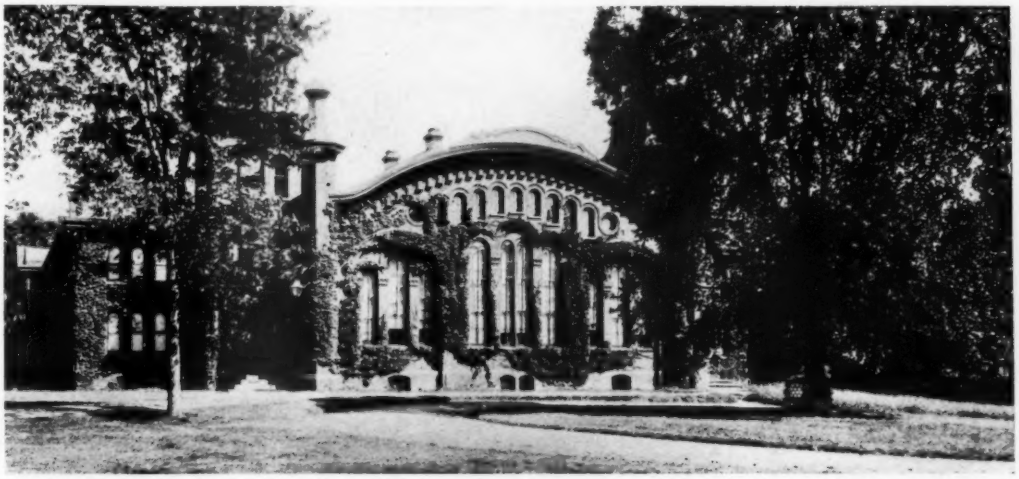
THE AMERICAN ARCHITECT
The ARCHITECTURAL REVIEW

VOL. CXXIII WEDNESDAY, JANUARY 17, 1923 NUMBER 2411



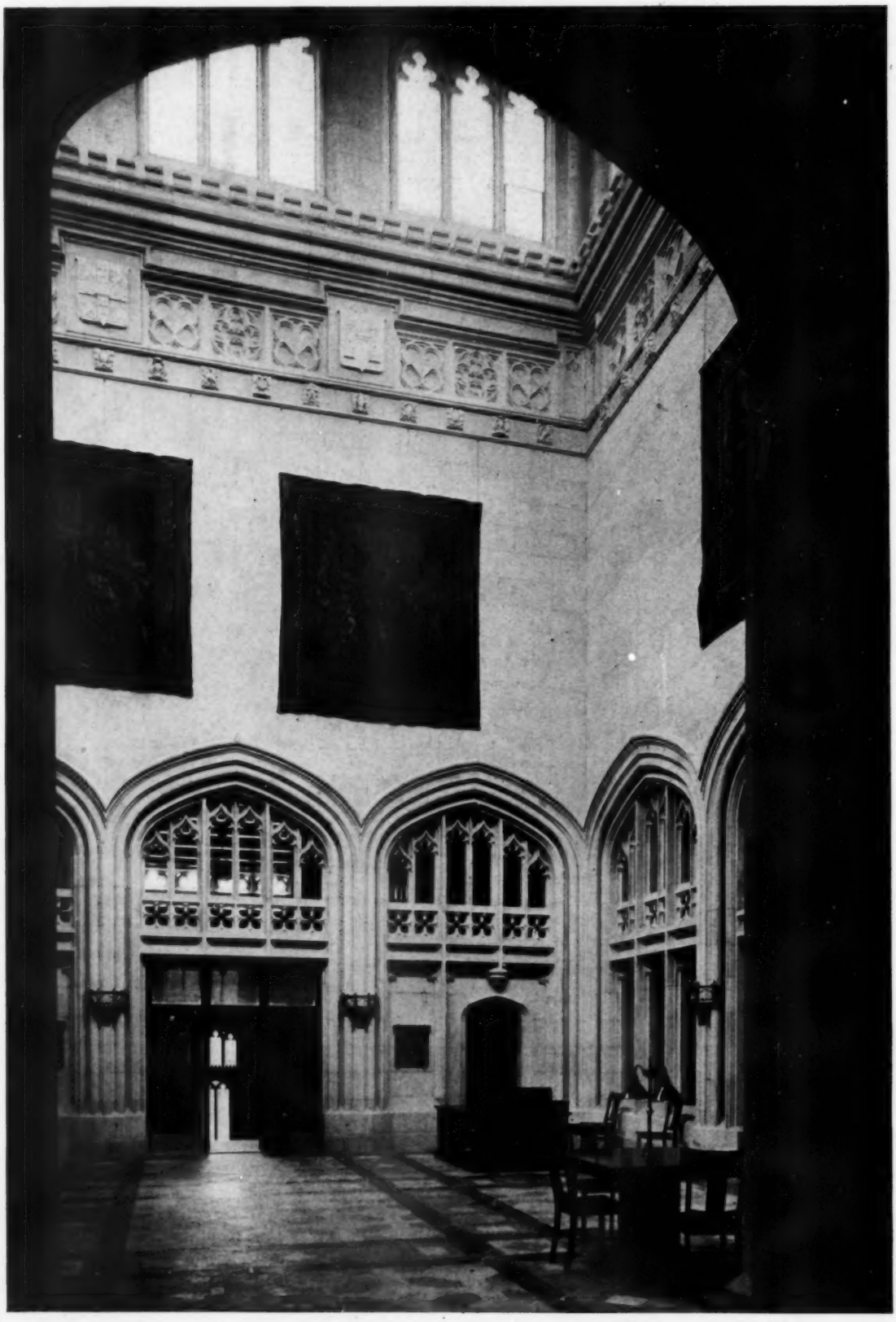
The Old Riding Academy, Vassar College

VASSAR COLLEGE

BY CHARLES COLLENS

IN these days with higher education for women as well established a principle as higher education for men, and with great Women's Colleges and co-educational institutions scattered over the country, it is somewhat hard to realize that only one hundred years have elapsed since the first female Seminaries in this country were founded, one at Troy, New York, and another in Maine. These were closely followed in 1822 by the founding of an institution at Hartford, Conn., but the most conspicuous today of these earlier Seminaries is the Mt. Holyoke Female Seminary which came into being in 1837. All of these institutions, however, failed to accord women anything like the educational opportunities which were to be had at the men's colleges, and it remained for Mathew Vassar, a man of no schooling, to realize the value of an education for women. In 1860 he determined to found a public institution of learning which would enable women to study Literature, Science and Art under conditions similar to those at Yale or Harvard. The beginnings of Vassar were coincident with the Civil War, and therefore beset with difficulties, but Mathew Vassar was a man of great energy and resource, and with the aid of his niece Miss Lydia Booth, and his friend Milo P. Jewett, carried his well considered plans to completion. In the fall of 1865 Vassar Female College, later known as Vassar College, opened its doors to 330 students of all ages and educational attainments.

The banks of the Hudson rise steeply from the river to the high table land on which is situated the town of Poughkeepsie, and about two miles further inland the grounds of Vassar College. For many years an ancient horse car stopped at the old brick Lodge which marked the entrance to the College grounds. Vistaed through the gateway down a long avenue stands the original College building where were located all of the early College activities. Mathew Vassar desired all of his students under one roof, forming one large family, and to that end he built Main Building, a huge brick pile four hundred and fifty feet long



Memorial Hall, Thompson Memorial Library, Vassar College
Allen & Collens, Architects

with a central motif five stories high and wings of four stories. This building is reminiscent of the architecture of the Louvre which Mathew Vassar probably visited during his three years' foreign travel just before developing his College idea. The central motif contained the College offices, Class Rooms, Chapel, the Dining Hall and service section, —the wings being used as dormitories.

Sanders Chemical Laboratory, Vassar College

Ewing & Chappell, Architects

Mr. Vassar had a curious idea in planning the Dormitory Wings. All of the Western windows open onto wide corridors, the Eastern windows onto the studies, the bed rooms occupying the middle of the building, with inside windows opening onto the corridors only. In those days the young girl did not put on her short skirt, sweater and snow boots and sally forth in all kinds of weather. Mathew Vassar thought that these wide corridors would form promenades during snowy and rainy periods where the girls could exercise without soiling their skirts and at night with the corridor windows open sufficient air would reach the inside bed rooms to make them comfortable sleeping quarters. In spite of this unusual arrangement Main Building is occupied largely by the Senior Class, and the modern dormitories by the lower classes. Plans have been made for altering these wings at some future time so that the present promenades will be converted into outside rooms and the

Thompson Memorial Library, Vassar College

Allen & Collens, Architects

corridors relegated to the center of the building.

Main College was menaced by fire in 1918, the Chapel, Dining Hall and Service Quarters being completely gutted, and the whole building saved from destruction only by a fire wall, and the strenuous efforts of the entire College. Main College was originally built during the Civil War, and by a curious coincidence its burned section was rebuilt during the Great World War under circumstances that must have resembled somewhat the earlier construction, as labor and material were both costly and unsatisfactory. The Dining Hall, which was originally only one story high and re-echoed to the chatter of the student body, was

The Chapel

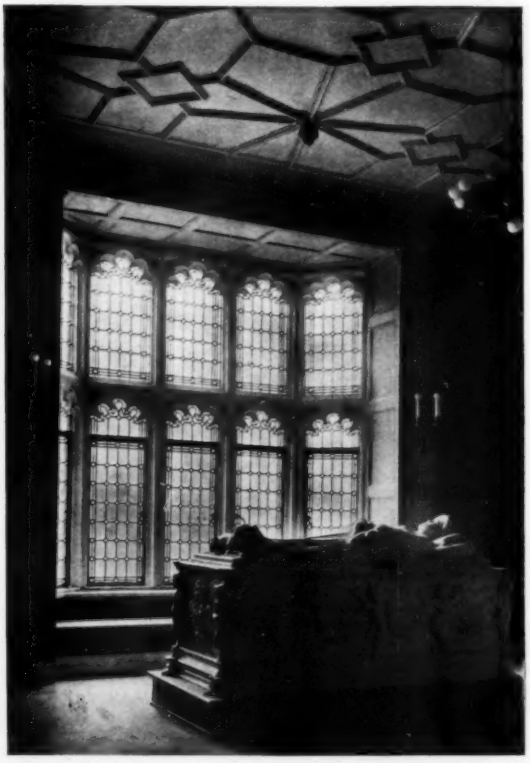
Shepley, Rutan & Coolidge, Architects

carried up through two stories with a wooden Gothic ceiling and carved choir gallery at the Western end. In addition to this the open stairways which constituted a fire menace were enclosed in smoke partitions and additional stairs and other services added to modernize to some extent this older structure.

Today the movement is general among our modern institutions to prepare a general plan and determine a type of architecture for future development. Although Vassar had no such plans, the earlier buildings, the Riding Academy, the Vassar Brothers' Laboratory and the Observatory all have the merit of resembling their prototype, Main College.

The old Riding Academy has been through many vicissitudes. When riding horseback became less a recreation for young ladies, this building was turned into a Museum and Art Gallery, with rooms for the musical department. Later when the Taylor Art Building was constructed the Museum changed again into an Auditorium with a stage completely equipped for theatrical performances. The wide arched cornice of the old front and the curious elliptical and round arcading of the windows reflect the unstudied character of the design of the "Hair Cloth Period."

Thus the original group of buildings with its wide lawns and gracious trees carried through a decided feeling of uniformity to type—a type, however, which could not withstand the rapidly changing architectural styles, Romanesque, Beaux-Arts, Nineteenth Century Gothic, Colonial and Collegiate Gothic, each of which has left its mark on the College Campus. And yet, setting aside those newer institutions which have lately grown up as the result of one controlling spirit both in plan and style, Vassar stands out as quite free from the very marked divergences which mar the beauty of Yale, Harvard, Williams, and, in fact, most of our older Universities.



Staircase Hall, Taylor Art Building, Vassar College

Allen & Collens, Architects

Many architects and many minds have been at work at Vassar, and the College has never adopted a definite plan for future growth or acquired a consulting architect. Each building as it came has been located and planned individually, and yet by strange good fortune the result as a whole, in spite of certain incongruities, is not unpleasing.

Olivia Josselyn Hall, Vassar College

Allen & Collens, Architects

Self-expression and individuality may, under certain circumstances, be an excellent quality, but when applied to a group of buildings is decidedly vicious. The remark which a well known architect is said to have made in designing a new building to fit into a large public group is symbolical of the spirit which animated architectural design in the heyday of Beaux-Arts influence. "I'm going to make those other buildings look like thirty cents." American architects owe a deep debt of gratitude to the Beaux-Arts for the teaching of theoretical design, but many, if not all, who came under the influence of the Paris School, returned with the theory of axial design and French detail so firmly embedded in their characters as to require years of practice to eradicate. This influence showed itself not only in the production of pure French designs, but was also marked in the formal treatment of Gothic and in the ponderous manipulation of Classical and Colonial detail, an influence which is felt in several of the new buildings at Vassar.

The original College soon began to experience the need of expansion. In the early 90's a group of four dormitories were built, Strong, Raymond, Lathrop and Eliza Davidson Hall, placed about a new quadrangle to the Northwest of Main College. These buildings departed from the style

Rockefeller Hall, Vassar College

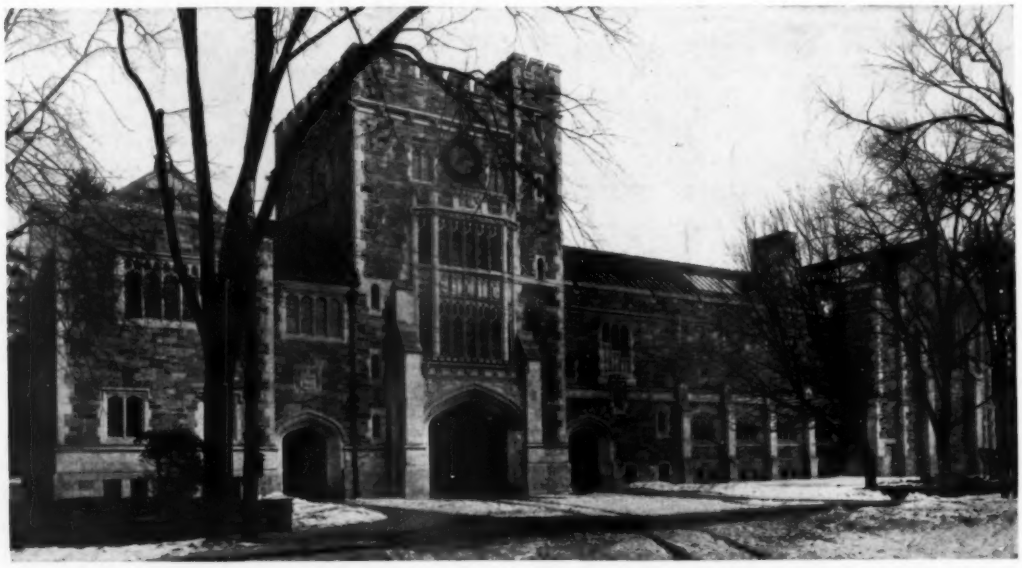
York & Sawyer, Architects

of the original group since the French Mansard type had no roots in this country and it was inconceivable that a large College should continue through its entire growth a type reminiscent only of what is worst in our American architecture.

The four new dormitories were planned in a manner which, while departing from the original style, did not contrast too strongly with it. A very simple type of Elizabethan, as it was understood at that period, was used, the rain-struck brickwork and brownstone trim toning in with the color of Main College. The design, however, is marred by the window treatment which is too uninteresting and lacks the irregularities and the scale which would characterize the fenestration of similar facades designed under present day influence. However, this large group struck a new note and formed the basis for future buildings at Vassar, all of which have adhered to the English type, with the exception of Sanders, the New England Building, the Infirmary and the Students' Building. The Chapel Building, although Norman, fits into the picture, and the Romanesque Gymnasium is so out of the picture that it does not have to fit.

Outside of Main College, and a few scattered buildings the Campus has three different groups, the Dormitory group; the group made up of the Library, Chapel and Taylor Art Building; and last, the Science Group.

The first of these groups has been augmented by three buildings, Rockefeller Hall, North Hall and Olivia Josselyn Hall. Rockefeller Hall, a recitation building closing the Dormitory Campus to the South, follows the general type established by the Dormitories and in proportion, fenestration and use of material is most successful. North Hall, however, which occupies the Northerly axis of the group is a building which has missed its opportunity. Designed with a massive tower rising behind an E-shaped plan it might have filled the vista in an imposing and beautiful manner, were it not an attempt to harmonize Elizabethan with Beaux-Arts detail, a most disastrous combination. The latest of the dormitories, Olivia Josselyn Hall, erected by Mrs. Russell Sage, and named in memory of her mother shows the Elizabethan type used in a more domestic manner, and freed from axial design. Although the building has the same number of stories as the older dormitories, the treatment of the roof and the arrangement of plan give a much more picturesque appearance.



Taylor Art Building, Vassar College

Allen & Collens, Architects

Each of these dormitories accommodates about one hundred girls and is a complete unit with separate Dining Halls, Living Rooms and service quarters.

To the Southwest of Main College is another Domestic Building, the President's House, which also follows the Elizabethan type established by the older Dormitory group.

Every College has its "show buildings," and Vassar, through the munificence of Mrs. F. F. Thompson and Mr. and Mrs. Charles M. Pratt,

has a group of three buildings which form the decorative feature of the Campus. Although of different types of English architecture, these three buildings are all built of stone ashlar with Indiana limestone trim and with the charming setting of lawn and trees, harmonize even in their individuality.

The Chapel was the first of the buildings to be constructed in 1904. It is of Norman type with a low square battlemented tower and charming cloistered porches. The interior judged from the purely ecclesiastical standard of today is of too great a breadth of span, and too low to be fully successful. The jutting hammer beams and the flattened trusses at the crossing are overpowering and the great expanse of wood ceiling somewhat oppressive, yet withal the interior is pleasing in tone and mellowed by what was considered the best American stained glass of that period, La Farge and Tiffany,—glass which, however, is of the realistic picture type and hardly accords with the standard set by the ecclesiastical craftsman of today.

The Library, opened in 1905, is an imposing building in the crenelated type of perpendicular Gothic. It is dominated by a large central tower, from which radiate three great Reading Rooms, with the offices and Seminar Rooms in the central entrance motif. This building has been much improved by the later addition of Cloisters squaring out the angles formed by the Wings, and creating two interior grassed courts. The main feature of the Library is the great Memorial Hall which occupies the entire tower, the ceiling of which rises above the seried cusped windows over the ridges of the wing roofs. This Hall is finished in stone with traceried arcades below opening onto the staircases and a wide carved cornice ornamented with Collegiate heraldry. The vistas from the center of this tower looking into the three reading rooms are most pleasing, especially that toward the West, which culminates in an English stained glass window, depicting the education of Ursula at Padua University. The wings, however, might justly be criticized, as in the case of the Chapel, as being too heavily ceiled, the double trusses in every bay spanning the full width from wall to wall in a somewhat ponderous construction. These wings would have been much improved if columns had been carried up on the outside lines of the bookstacks and the span reduced to the smaller scale. The Library houses at the present time about 100,000 volumes and is arranged in the alcove system with access by the students to all books. A new Periodical Room and Browsing Room have been added in the Cloisters.

The latest addition to this group of three buildings is the Taylor Art Building dedicated in 1915, and which has the further distinction of being the main gateway to Vassar College. This

Students' Building, Vassar College
McKim, Mead & White, Architects

building supplanted the old brick Entrance Lodge long endeared to many generations of Alumnae. It is built in the same general type as the Library, but with a freer and less ecclesiastical use of the style and a plan fully emancipated from the axial principles which characterized most plans of the period in which the Library was designed. It contains exhibition halls and cast rooms, a large lecture hall, with an Art Library and a Studio. The Gothic note has been carried throughout the exhibition rooms which is effective in the unfurnished state. It develops, however, that paintings and statuary are best exhibited in rooms wholly devoid of architectural treatment, in order that there may be no distraction created by the setting. This analogy, however, does not apply where an especial setting is created for a particular work of Art, as in the staircase Hall, the Gothic window embrasure forming a charming background for a beautiful mediaeval tomb.

The Science group is located to the South of Main College and is unfortunate in its mixture of styles. The Vassar Brothers' Laboratory built in 1880 is without architectural merit other than that of fitting very well into the atmosphere created by the adjacent Museum of the original Main College group. This atmosphere has been somewhat jarred by the two flanking buildings, on one side Sanders Laboratory, and on the other side the New England Building both showing the Beaux-Arts tendency of those days to disregard surroundings in favor of individual expression. Although the general note of the College had been well established by the creation of the dormitory group, the New England Building built in 1901 departed from the prevailing style into a French Classical motif which recalls the hundreds of Carnegie Libraries scattered about the country during that period. Sanders Laboratory built in 1909 is in the same type as the New England Building, but less formal and its style may have been influenced by the proximity of the New England Building.

The Students' Building, built in Colonial, strikes another note, with its white pediment, its ample portico and lofty columns, and in itself is a well designed and pleasing building. It is fortunate that this building is surrounded by evergreens which soften what otherwise might be a rather abrupt transition in style from the adjacent dormitories.

Dormitory Building, Vassar College

Francis R. Allen, Architect

The most recent addition to the College is a building built off the Campus for the Faculty in a stuccoed and half timbered Gothic, which recalls French rather than English antecedents.

Strict adherence to a particular period in any particular style undoubtedly produces a dry effect in a group of Gothic Buildings. Salisbury Cathedral with its purity of style is by no means as effective as Canterbury. For that reason, Vassar College after once striking the English Gothic note should not be limited in any English type from Norman to Elizabethan, but the introduction of foreign styles even in isolated buildings is according to modern theories of group design in questionable taste. There is no particular reason why architectural history should be studied on the Campus. Most of our institutions, large and small already have, or, if not, should immediately adopt the standard of subserving any desire for

self-expression, either on the part of architect or donor to the broader principle of harmony in design and material.

Vassar has fine trees, shaded walks, well clipped lawns, a lake, an outdoor theatre, and every natural advantage. Its Campus is one of the most beautiful in America. With the wide tracts of land which the College owns, it can expand indefinitely. With a careful adherence to type this future expansion will augment the charm of atmosphere, and outweigh the present inconsistencies in the harmony of the group. Mathew Vassar has and always will have a fine Memorial "whose high aim is to educate womanhood trained in body, mind and spirit, the woman, who whatever else she may be, is first of all and last of all the refined true woman." Architecture as well as all the other arts has its place in modern education and the College of today has its responsibility in creating an architectural environment which shall have a vital although possibly an intangible influence in æsthetic training as well as in creating an atmosphere which reflects the type of education, whether academical, religious, or technical to which that particular college subscribes.

New York University Appoints Professors in New School of Design

TWO important chairs in the arts of design at New York University, newly provided by endowment of the Altman Foundation, have been filled preliminary to the organization of a School of Design in the college curriculum, it was announced recently on behalf of the University and the Altman Foundation.

The positions, named in honor of Samuel F. B. Morse, painter and inventor of the telegraph, who was the first professor of art at New York University, are the S. F. B. Morse Lectureship of Design and the S. F. B. Morse Professorship of Design. The former will be occupied by Edwin H. Blashfield, noted painter, while Professor Fiske Kimball, of the University of Virginia, will assume the duties of the latter. Mr. Kimball at present is a special lecturer in the extension course in art and decoration now offered at the university in co-operation with the Art-in-Trades Club.

The School of Design, as planned, will begin to function in the fall of this year. It will be conducted through co-operative alliance with the National Academy of Design, of which Mr. Blashfield is president, and with the Metropolitan Museum of Art.

Students of the university courses in design and those of the National Academy of Design at Cooper Union who register with the university will receive the degree of Bachelor of Fine Arts on the completion of their work, it was announced. The S. F. B. Morse lectureship and professorship revive a long-discontinued department in the university founded by Morse 100 years ago. The chairs were endowed as an addition to extra-mural courses in design, now held at the Metropolitan Museum.

Through its department of design the university hopes to prepare men and women in the knowledge of the background of decoration so as to enable them to hold positions as curators of the many museums and galleries opening throughout the country. It is also desired to increase America's appreciation of design and encourage designing as a profession for the benefit of native industry.

In Mr. Blashfield and Mr. Kimball the university authorities feel they have made excellent selections. The latter is a graduate of Harvard and has lectured upon art at the University of Michigan and the University of Illinois. Mr. Blashfield is responsible for some of the country's best public decoration.

International Student House Now Being Erected

WITH the increasing number of students coming to New York from all over the world, the question of housing facilities becomes daily a more serious matter. The Intercollegiate Cosmopolitan Club, formed some twelve years ago by a group of college students, grown now to a membership of 730, with representatives from sixty-eight different countries, has, in a measure, solved the problem. The homes of these young foreigners who have come to study in American universities and colleges run through the alphabet from Albania and Bessarabia to Venezuela and Wales. At present their home must be New York.

"International House," the gift of John D. Rockefeller, Jr., to the Cosmopolitan Club, now being built on Riverside Drive opposite Grant's Tomb, will accommodate 500 resident students and will be unrestricted as to religion, nationality, race or color. This building with its assembly and social rooms, cafeteria and gymnasium, is expected to fill a long-felt need in the lives of strange boys and girls coming to study in and near New York, who have found it difficult to procure living quarters near their study halls.

Main Circulation, Century (New) Theater, New York
Carrere & Hastings, Architects

DESIGN AND CONSTRUCTION OF THEATERS

BY ROI L. MORIN

Part V—The Auditorium (Continued)

THE balcony has undergone more rapid and more radical changes than any other part of the theater building. No more than a century ago there were no balconies, as we know them today, but tier upon tier of boxes surrounding the entire auditorium, from one side of the proscenium frame to the other. At first these were the only, and later the most desirable seats in the house. The rabble stood, and later sat, in the pit, which is today called the orchestra and is now the best section of the auditorium. Shortly after seats were introduced into the pit, the highest tiers of boxes were cleared to make room for galleries. The partitions between these boxes were removed, leaving the structural columns exposed. A better class of people patronized the pit, and the rabble moved up to the topmost galleries where the seats were cheaper and the position was better for fusillading the stage.

These earliest galleries were shallow, only containing several rows of seats, but as they sold cheaply, they were heavily patronized and were soon made deeper to accommodate the throng. This was made possible in two ways, first, by cutting down the number of tiers (some theaters had as many as six) and thereby lowering the highest balconies, and, secondly, by causing the front of the balconies to overhang the orchestra section; otherwise the stepping in the balconies and gallery would be too steep to be practical.

Fig. 1. Stairway to Lounge, Music Box Theater, New York
C. Howard Crane, Architect

In those days theaters were constructed with outside masonry walls, and the balconies were carried on steel columns, but most of the flooring, stepping, bridging and furring was of wood, and consequently these galleries were fire traps of the most dangerous type. In theater fires more than 75% of lives lost could be traced to balcony patrons.

We next find theaters with the first and second balconies and a single gallery, but still with the obtrusive columns, though now part of the overhang was cantilevered so that the sight lines in the first few rows in the balconies were clear.

With the introduction of steel construction, as we know it today, in the earlier years of this century, a number of different efforts were made to eliminate the columns which obstructed sight. It seems that all the energies of theater design were bent upon this one problem. The gallery was finally done away with and there remained but two balconies, whose combined seating capacity was greater than the orchestra floor. The first balcony was made deeper and the steel columns which carried the balcony truss were concealed in a partition directly behind the last row of seats in the orchestra. The second balcony was sometimes hung from the roof trusses by heavy rods (the theory being, it is supposed, to place the obstructions in the midst of cheaper seats). This practice is quite recent and a New York theater built in the last decade has this construction.

Not more than 15 years ago new methods of cantilevering were tried in order to eliminate the structural columns altogether, and engineers gradually developed what is now commonly known as the K-truss, a combination of three trusses which bear upon the side and rear walls and reduce the cantilevering to its minimum length. Today structural steel and reinforced concrete design have gone even further than this excellent type.

The growth of affluence amongst the populace

and its resultant emptying of second balcony seats, together with the new steel construction which made it possible to build deep first balconies and keep the total seating capacity the same, resulted in the elimination of the second balcony. Today, some recent work to the contrary notwithstanding, the second balcony is *passé*. The theater of *today* has but one balcony.

Now that we have the balcony "boiled down" to its present status, which status, it is believed, will not be of long duration, let us make

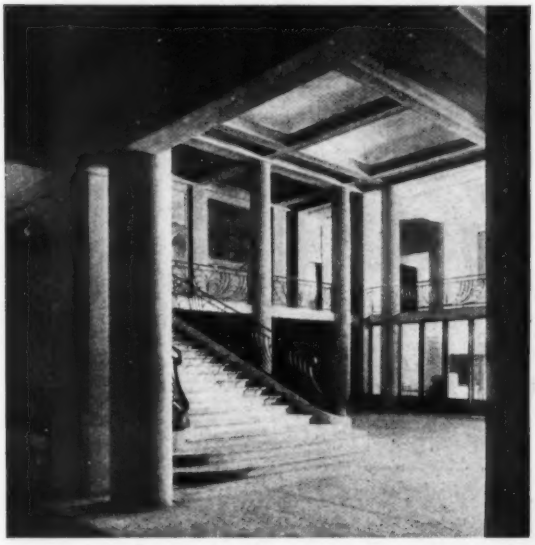


Fig. 2. Peristyle Hall and Entrance Foyer, Theatre des Champs-Elysees, Paris
A. & G. Perret, Architects

inquiries into its layout and construction.

The balcony aisle layout is generally similar to that of the orchestra, though sometimes it is found necessary, or advantageous, to arrange it differently on account of the location of stairs, or vomitorias. This is a problem which has so many inter-related factors, such as the width of the lot, layout of lobbies and promenades, sight lines, and the local building code, that it can only be solved on paper, and one cannot lay down any rule of thumb to help solve it.

When stairs lead directly up to the balcony (i.e., not used in relation with vomitorias) there are two staircases, one on each side, and the top landing is effected in the rear of the balcony, and not at any intermediate level. When stairs are used in conjunction with vomitorias, the landing is on a mezzanine promenade, which is at an intermediate level, and from there the vomitorias lead to the balcony, to a cross aisle either in the center of the balcony seating, or about two-thirds of the way down. In wide auditoriums a third vomitoria leads to the center of the balcony, and this makes it necessary to cut up the seating still further. The sizes (widths) of these vomitorias may be computed from the local building code.

The balcony sight lines, although far simpler than when there were a number of balconies, require careful study to adjust properly, and the principal factors which determine the stepping of the balcony are as follows: (a) The distance of the balcony front rail from the curtain line along the longitudinal axis of the house. This distance should not be less than 35′ in order that the pitch of the stepping may not be too great. (b) The depth and location of the balcony supporting trusses. (c) The minimum ceiling height for the orchestra promenade. (d) The sight line from the last row of seats in the orchestra. (e) The height of the proscenium arch—(as mentioned in the preceding article, it is necessary for the highest spectator to be able to see the bottom of the back wall of the stage). (f) The line of "shot" from the projectors in the picture booth. This shot should not be pitched over 25 degrees and the highest step in the balcony should be at least 10′ below the center line of the "shot." When projection booths were first built they were so low that boisterous ones in the balcony might wave their hats in the light, throwing grotesque shadows on the screen. In one of the largest picture theaters in New York the work was nearing completion

Fig. 3. Blackstone Theater, Chicago
Marshall & Fox, Architects

before it was discovered that no adequate provision had been made for a projection booth. The consequence was that the ports were placed so high, in order that the shot might clear the seating that it is impossible to see the screen from the lookout ports.

The minimum rise for the balcony stepping is approximately 10″, and this only when the balcony

(*Continued on Page* 66)

·EDITORIAL·COMMENT·

CHOOSING AN ARCHITECT is not always a simple matter. The *Tribune* competition was but one of many cases in which the widest possible competition seemed proper. It was noteworthy because it was an instance of a private corporation copying a method heretofore followed by public bodies. Perhaps the journal felt that it is in reality a public rather than a private institution, even though operated for profit, and therefore public competition methods alone were suitable.

A well known manufacturing company adopted another plan based on a mixture of friendship and business. A new office building was decided to be necessary and the company prepared a list of architects who had specified its products. The list showed the volume of business for which each office was responsible during the past year and the members of the twenty-three firms standing nearest the top were invited to a dinner given by the president of the company. The firm to serve as architects for the new building was chosen by lot from among those present. The method was fair and the touch of humor implied in the number of firms represented was no doubt consoling to those who missed the dinner favor.

* * *

THE ARCHITECT IS the master builder and he must have a human understanding of the needs of clients. Clients after all are quite necessary if one must live and beauty is most appreciated by those whose minds are at ease. It is because of this understanding of his problem that the American architect may be justly entitled today to be styled the leader in the design and planning of livable houses. America has for years been confronted with a lack of domestic servants to which are added a high standard of living and a demand for conveniences that in other countries are yet in the non-essential or luxury class. The Architect's Small House Service Bureau is doing a good work in educating the average client to the value of real architectural service by enabling architects to give the small client a unified service that enables lovers of beauty to conduct a campaign of education without financial sacrifice. Yet in some plans and specifications put out by architects too much is left to the contractors for the heating, electrical work, plumbing and a number of minor items as well, all of which have an effect on the nerves of clients and thus directly on the standing of the architect in the community. The man diligent in his business, says the Prophet, shall stand before kings; he shall not stand with obscure men.

* * *

THE AVERAGE CLIENT in selecting an architect works according to the laws of choice and chance. Occasionally such a client, who says he knows nothing about architecture but does know what he wants, shows remarkable intelligence in the selection of an architect. His plan is to take things that are satisfactory for granted and to list all the items that did not suit him in houses in which he had lived. When possible to obtain the names of architects, something very difficult to accomplish, he attaches them to his lists. The architect who seems to be thoughtless in specifying little things gets his name on the black-list and he who shows great attention to details is on the preferred list. Faulty placing of bells, thoughtlessness in the locating of toilets, bath tubs and wash basins, inconveniently placed cupboards, small mail boxes, awkwardly located closets, lack of convenience outlets for electrical attachments, all these are part of the architect's job and these things have a greater influence in the selection of an architect than the prettiness of a façade or the accentuated lines of roofs, porches and steps.

* * *

THE BUILDING OF HOUSES to live in constituted the bulk of the building business in the year just ended. The best authorities see the present year as one in which the residence will take second place. This is to be the year of churches, schools, small manufacturing plants, hotels, average business blocks, churches and theatres. While a respectable sprinkling of power plants and large industrial enterprises is evidenced the present year is pre-eminently to be the year of domestic development. A long step forward will be taken and if events in Europe do not move too fast the United States should be in an enviable position before this year ends. We predicted in the fall of 1921 that the fall in prices of materials would soon stop and the rise, then imminent, would continue for some years. At that time bankers were reluctant to advance money for construction purposes, fearing that property would depreciate greatly in value because of lowering prices. Loans are more freely granted today, after careful scrutinizing of applications and the conviction seems fairly general that living costs will be higher before they begin to fall and that

any lowering of prices, if it comes, will extend over one or two generations and be anything but uniform. We will go down a stairway instead of descending a ramp, as it were.

* * *

THE SUMMER SCHOOL of Architecture and Painting in the Palace of Fontainebleau is now assured. It does not duplicate any course of study that now exists in France or America. It is a summer school only and is designed as a sort of post-graduate school for advanced students who, under an intensive system of instruction, can benefit by their unique surroundings. There will be atelier work in the Palace for painters, sculptors and architects, with lectures on related subjects.

The American organization is concerned solely with the recruiting of students. It has been placed, by the French authorities, in the hands of Mr. Whitney Warren for the Department of Architecture and of Mr. Ernest Peixotto for the Department of Painting. It is believed that five hundred dollars will represent the entire cost of a summer spent at the school.

The final organization of this school, a labor of love to which the late Lloyd Warren gave much of his time, is one of the most important steps taken in recent years by the men who have at heart the development of architecture and allied arts. A good enrollment is anticipated for the present year. All applications should be made: for architects, to Mr. Whitney Warren, care Beaux-Arts Institute of Design, 126 East 75th Street, New York; for painters and sculptors, to Mr. Ernest Peixotto, care The Mural Press, 215 West 57th Street, New York.

* * *

THE REGULATION of the calendar is again up for consideration. There was a time when the beginning of the year was in the spring, and the year contained ten months. Then an ambitious Cæsar added two months and pushed the beginning of the year back to where it has since rested. In 1582 Pope Gregory introduced the present system of reckoning days but the change was resisted in non-catholic countries, England not adopting the Gregorian calendar until 1752, while Russia and Greece held on to the Julian calendar until after the World War. A new movement is now on foot to amend the calendar by introducing a thirteenth month, each month to contain 28 days. New Year's Day will be omitted from all computations and may be known as such or may become January 0. The extra day in Leap Year will follow the sixth month and will also be a day not reckoned or numbered. The conveniences will outweigh the inconveniences which will be temporary only for all the world except those whose birthdays now fall on the 29th, 30th and 31st days of any month. For them it will be necessary to select a corresponding day in the month following and on their tombstones have engraved O. S. following the date of birth and N. S. following the date of decease. Manufacturers of calendars and diaries are the only men who will have a just grievance for a calendar once printed will serve until it wears out. Bankers and all business men who now experience trouble over the confusion of actual months with hypothetical months of 30 days each, will be the classes most benefited. Insofar as architects are business men they should lend their influence to bring about the reform. It is not wholly a move to "make things regular" but is a move in the direction of efficiency as evidenced by the sloughing off of old inherited things having no scientific basis and hampering in their influence on modern affairs. All old things are not good; the Parthenon for example should not be used to bolster arguments for the retention of a calendar with four months of 30 days, seven months of 31 days and one month of 28 days for three years and which contains 29 days in the fourth year. The Parthenon moreover was perfect from the beginning but the calendar has been changed a number of times, to correspond with advances in scientific knowledge and religious ideas. The change now proposed comes from astronomers, hence is scientific, is demanded by business men and makes immovable certain religious holidays that now are movable because they were established at a time when astronomical knowledge was imperfect.

HOUSE OF E. F. HUTTON, ESQ., ROSLYN, L. I., N. Y.

C. M. HART, ARCHITECT

HOUSE OF E. F. HUTTON, ESQ., ROSLYN, L. I., N. Y.

C. M. HART, ARCHITECT

HOUSE OF E. F. HUTTON, ESQ., ROSLYN, L. I., N. Y.

C. M. HART, ARCHITECT

HOUSE OF E. F. HUTTON, ESQ., ROSLYN, L. I., N. Y.

C. M. HART, ARCHITECT

HOUSE OF E. F. HUTTON, ESQ., ROSLYN, L. I., N. Y.

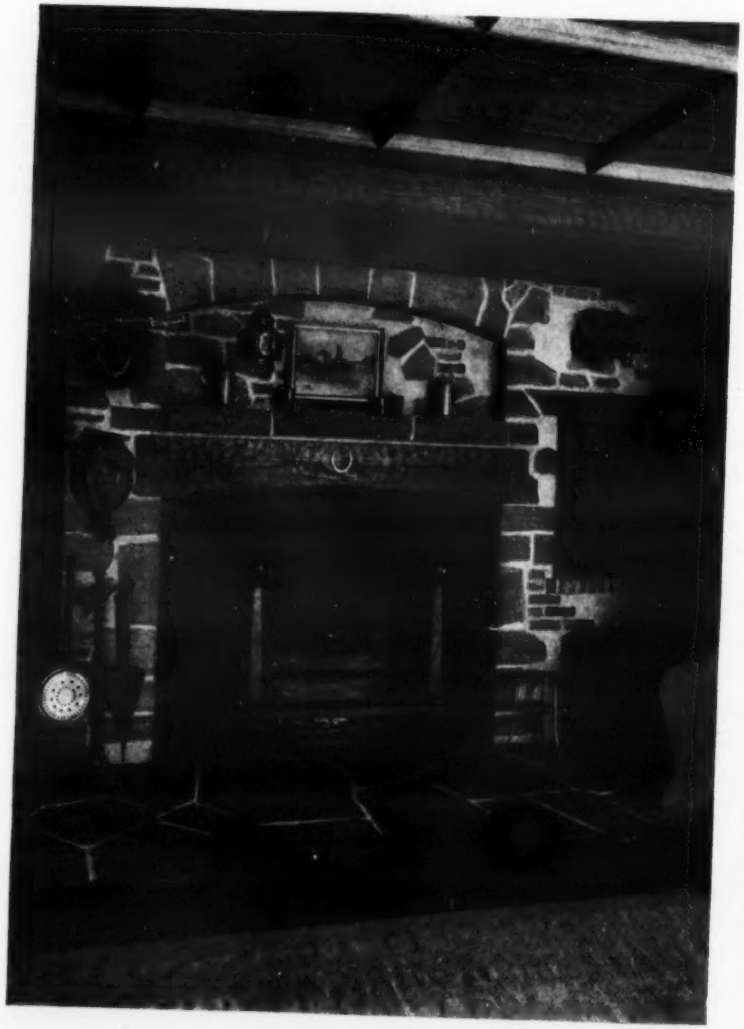
C. M. HART, ARCHITECT

HOUSE OF E. F. HUTTON, ESQ., ROSLYN, L. I., N. Y.

C. M. HART, ARCHITECT

HOUSE OF E. F. HUTTON, ESQ., ROSLYN, L. I., N. Y.

C. M. HART, ARCHITECT



HOUSE OF E. F. HUTTON, ESQ., ROSLYN, L. I., N. Y.

C. M. HART, ARCHITECT

ALTERATIONS TO AN OLD HOUSE IN SYRACUSE, N. Y.

DWIGHT JAMES BAUM, ARCHITECT

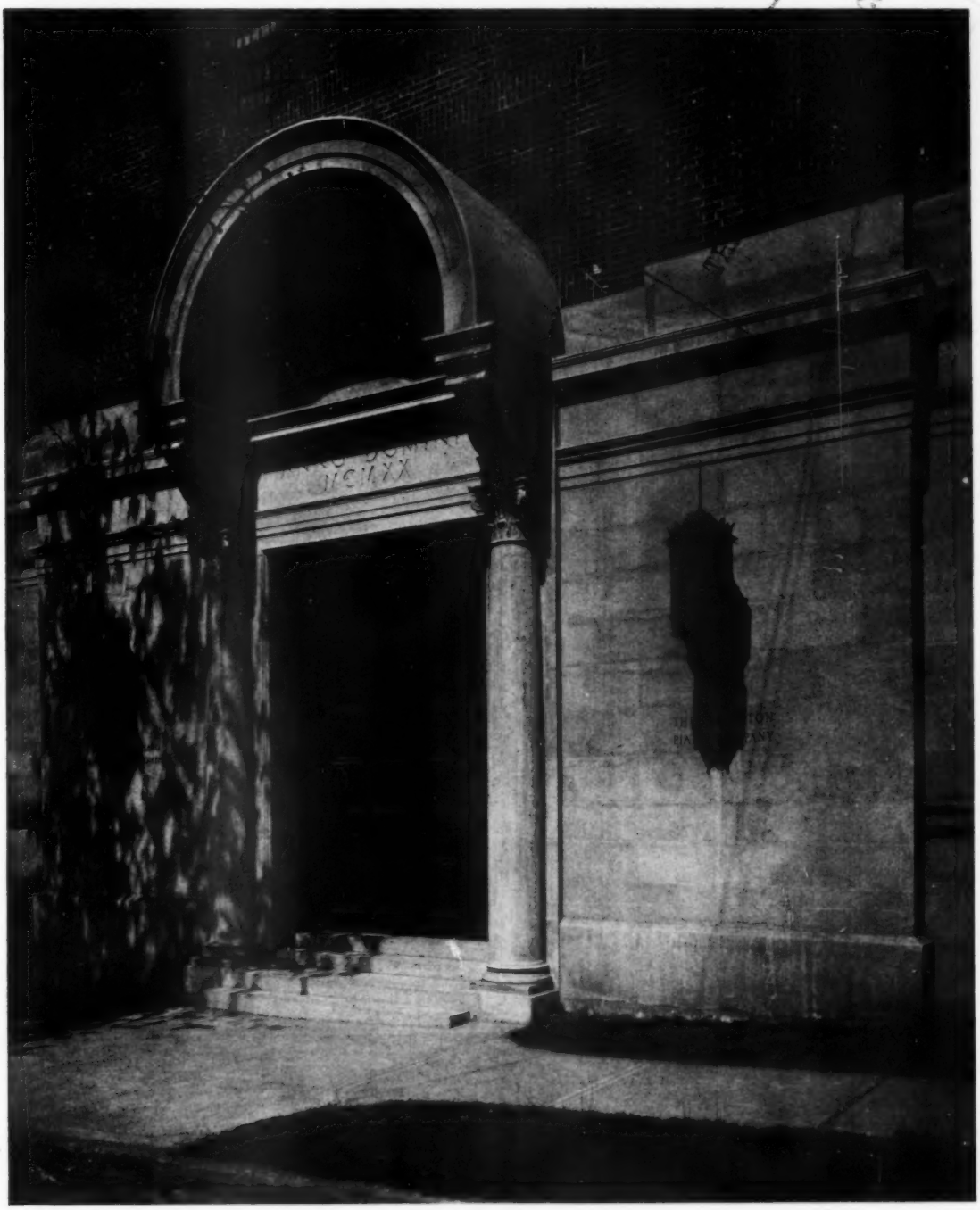
MAIN DOORWAY

ALTERATIONS TO AN OLD HOUSE IN SYRACUSE, N. Y.

DWIGHT JAMES BAUM, ARCHITECT

BUILDING FOR BALDWIN PIANO MANUFACTURING CO., CINCINNATI, OHIO

LOCKWOOD, GREENE & CO., ARCHITECTS AND ENGINEERS



DETAIL OF MAIN ENTRANCE

BUILDING FOR BALDWIN PIANO MANUFACTURING CO., CINCINNATI, OHIO

LOCKWOOD, GREENE & CO., ARCHITECTS AND ENGINEERS

HIGHLIGHTS OF A SKETCHING TOUR IN FRANCE—PART II

BY SAMUEL CHAMBERLAIN

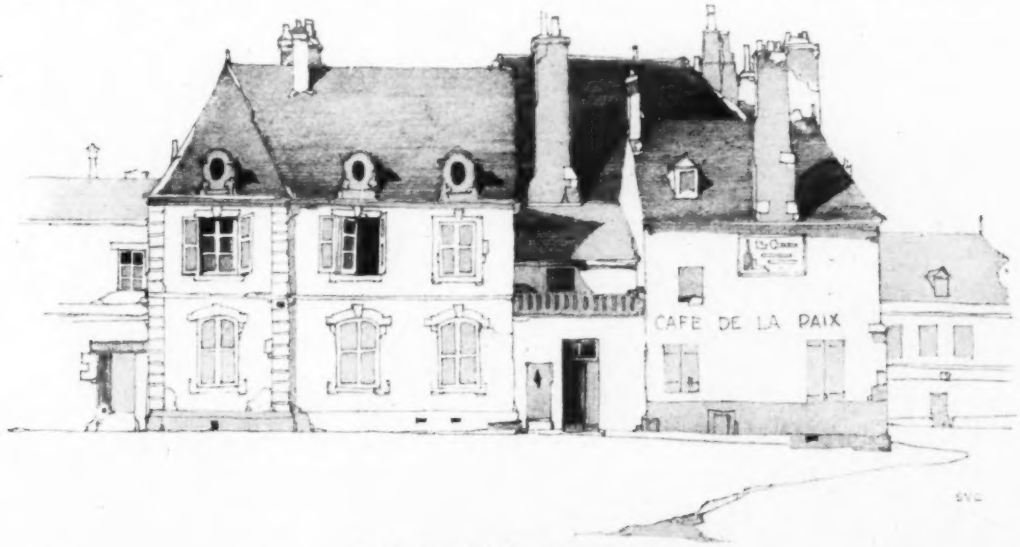
Illustrated with sketches by the author

FRANCE is so abundantly spotted with small towns which fascinate an architect that every itinerant member of that profession seems to have discovered his own distinctive favorites, and quite invariably they prove to have their individual charm and appeal to his fellows. It is with this conviction in mind that mention is being made of a few minor cities within a few short hours of Paris. All of them proved very gratifying for the purposes of sketching. While they are doubtless familiar to the majority of readers of THE AMERICAN ARCHITECT, renewed mention of these corners of France may serve to refresh memories of them.

Church near Vendome

Loches, snugly situated in the very heart of the Touraine, has long been looked upon as one of the loveliest towns in France, and the photographers, the movies and the tourists that swarm through every year have made it well known in America. Beside its pastoral charm, however, Loches is unusually rich in "monuments." Rarely does one find so small a city with such a wealth of public buildings. The chateau and the ominous, overpowering old dungeon are usually the only objects of the tourist's gaze, but nestled in the crooked corners of the place is a diversity of well conceived buildings. The so-called Chancellerie, now the abode of a shoemaker, possesses an admirable pilaster treatment on its two façades, while the Porte des Cordeliers, so agreeable a subject to etchers, reveals a very competent handling of that thorny problem, unsymmetrical balance.

The Rennaissance richness of the Hotel de Ville, combined with its mellow coloring, make one undecided whether to tackle it in line or aquarelle. It is in a remarkable state of preservation. A stone's throw away is the gaunt old Tour de St. Antoine, which still maintains suffi-



On the Place de la Republique, Montoire

cient dignity to endure gracefully its use as a tool shed. And there stands a monument to the skill of an older generation of Beaux-Arts architects in the Palais de Justice, a most happily proportioned and simply planned edifice.

Loches is not so fortunate in its churches, but at Beaulieu a short kilometer away, there is a splendid eleventh century Romanesque tower, quite reminiscent of the South tower at Chartres, serving as an appendage to a conglomeration of many perioded fragments which finally manage to form themselves into a church.

Quite as famous for its wine and for the fact that it is the birthplace of Rabelais, Chinon has a lure and an atmosphere of its own. Here are to be found street upon street of old houses, many of them half-timbered, dating back dim centuries and marred by but few scars of the restorer's zeal. The French government has rescued a few of the finer specimens on the eve of their destruction by the house wreckers. They still stand, not quite so staunch as at one time, but still entirely capable of supporting themselves and their inhabitants. Chinon clusters in an intriguing fashion between a precipitous hill, from which the ruins of the chateau rise forth, and the banks of the placid little river Vienne. Behind the well sheltered esplanade one encounters a maze of jagged streets punctuated now and then with a tiny square planted with weird, stunted old trees that look for all the world as though they had been especially conceived by Arthur Rackham.

But Chinon's greatest attractions were its old houses. Walk down the rue Rabelais some autumn night at dusk, when a candle or two is just beginning to beam forth and the grotesque, bulky forms of overhanging façades shoot up on either side of the ridiculously narrow roadway about you, exactly as they did four hundred years ago. Do that, and if your mind is unable to shake off the oppressive present, it never can.

Not on the beaten track of tourists, and consequently little known to many Americans, the quiet city of Vendome stretches itself over a network of tiny streams, by virtue of which fact the place is enriched by several delightful old bridges. It was the writer's experience that Vendome offered as good a hotel and as charming a scattering of neighboring villages as any town in the Touraine. A few kilometers away are three most unusual villages. Lavardin, with its baked and blistered Romanesque church, and the huge towering mass

Provins

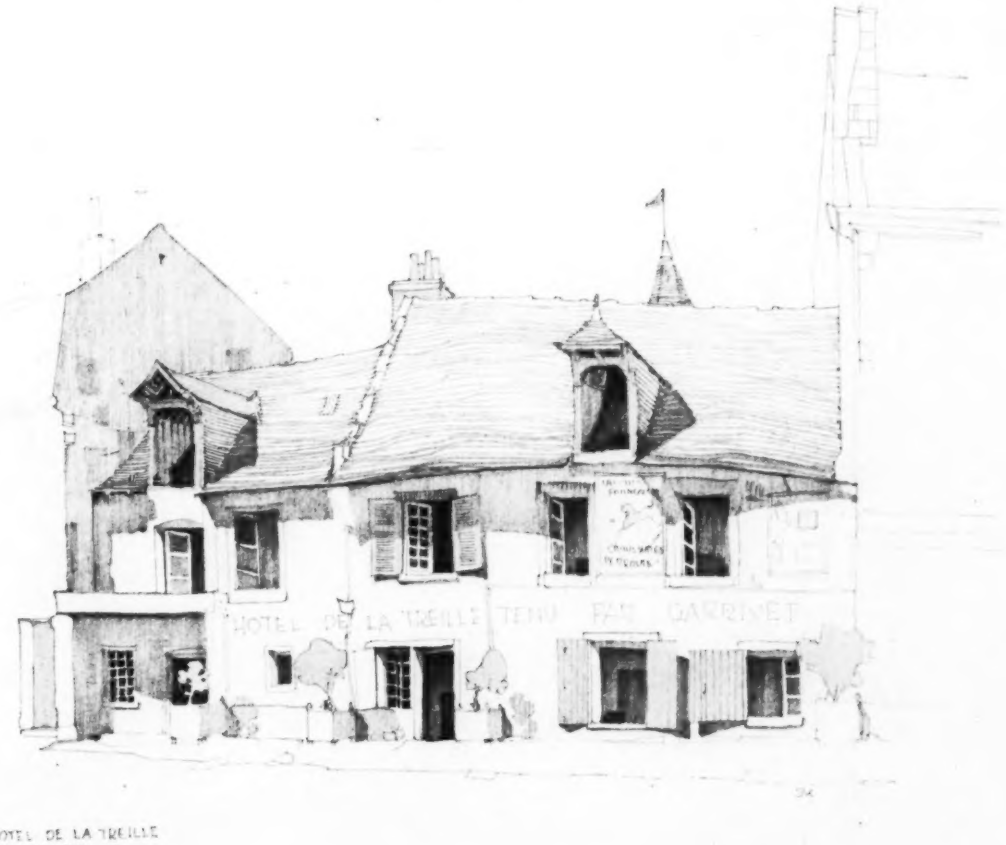
of ruins that was once a stately and feudal chateau, is perhaps the most picturesque. The scale of this impressive heap of stone is tremendous. One immediately wishes that Frank Brangwyn had been here and had etched his impressions with characteristic vigor.

Three kilometers away is a larger village, Montoire-sur-Loir, with dim ruins giving a strange profile to the hill that rises up behind it. A good day's sketching can be found among the old houses, which seem to possess a charm distinctly their own. By snooping about with sufficient zeal, one can stumble upon an unheralded little farm building here that turns out to be the XII century Eglise Saint-Gilles. A damp and dingy little structure, with low massive vaults, it betrays not the slightest restoration. The mottled remains of some very gaudy painted ornament still cover most of the wall surface.

Langeais

To complete the trio of villages, there is Troo near at hand, offering another Romanesque church, and much pastoral charm.

Vendome itself is rich in old houses of strange profiles and angles. In its cathedral church, however, lies the big surprise. One's breath is fairly taken away at the first



Chinon

sight of it. The West façade is of the last, most flamboyant Gothic, fragile and lacelike and hopelessly complicated. One observes the bewildering complexity of the tracery in the central arched window and wonders how in Heaven's name such a network can solve itself. The richness of the entire stonework is astonishing, and it is in a state of excellent preservation. But adjoining the West front, quite by itself, looms up the gratifying surprise in a vast single Romanesque spire, utterly simple and statuesque and magnificent. Very pure in design, and mighty in scale, these eighty meters of sunbaked stone tower far above the rest of the town.

THE CORNER CAFE
VENDOME

Vendome

In the other direction from Paris are two towns, Provins and Senlis, which are almost inexhaustible sketching grounds. Provins, especially the old town on the hill, possesses a wealth of simple old houses with delicately tinted stucco walls. The many different plastered surfaces, some tinted a yellowish pink, others in various grades of ochre and brown, with an occasional flash of pale mineral green or blue, form luminous water color subjects on every side. Three or four handsome church towers are here, and a lofty and formidable old XII century monument, boasting a very black history, known as the Tour de Cesar. It requires a bit of imagination, but one quite readily can picture a starved face behind each of the tiny holes in the masonry that once served as daylight and ventilation for the unhappy prisoner within. In the lower town is a rambling old XIII century church, the lines of which remind one forcibly of a circus tent. String upon string of decapitated figures over the main entrance portal recall to mind the ravages of the revolution.

More recent scars of war are evident in the well wooded city of Senlis, the point that marked one of the deepest advances of the Germans in 1914. The cathedral, of course, needs no lily painting here. It stands unblemished by the Germans, even though they made total wrecks of

On the market place, Vendome

Provins

Vendome

all the public buildings and gutted dozens of houses with flames in the few days they were in possession of the town. One is intrigued by the adaptations made of the shells of one-time churches in Senlis. There is one that has been magically turned into a cinema where performances, logically enough, take place on Sunday night only. A second is almost lost in the maze of houses which have sprouted up inside and outside the walls of its roofless nave. Its gaping pointed arches, already devoid of glass for centuries, pop forth between gable and chimney pots and lend an air of the picturesque to an unconsciously handsome heap of houses below them. But the third, an entirely lovely little Gothic church, one that would be treasured beyond words were it to be a heritage of our country, afflicts one with an undeniable regret. For here is the town market. And fish and cauliflower now flourish where once did founts and candle sticks.

Hard things are sometimes said about some of the more recent French architecture, but look at the new railway station at Senlis and decide if there is not a great deal that is praiseworthy therein. It has turrets and towers and fleches and spots of brilliant color, but it is essentially and effectively a station, and after a few days the realization seeps in that it's a darn good one.

Senlis indeed has bitter memories of the war, as its cemeteries and a stone wall, against which its heroic mayor was executed, will testify. But there is a note of triumph in a memorial tablet which adorns the massive gateway of the town's most pretentious mansion. For it was from this house that Marshal Foch drove forth to sign the Armistice.

(*The End*)

An old mill at Senlis

Design and Construction of Theaters

(*Continued from Page* 58)

is low and a good distance from the stage, which is enough to allow a person to see clear, over the heads of those directly in front. The maximum rise should not be over 18″, though the law permits 21″. Any rise over 18″ gives one a feeling of discomfort, as though there were some danger of pitching forward over the rail, down into the orchestra. In the aisles these steps, or platforms, are broken up by one or more intermediate treads, to form a natural stair.

The balcony structure should be entirely of steel and concrete construction, with no wood finish. The platforms (minimum width of 32″, 36″ being preferable), should have a 2″ cement finish, as the orchestra floor, to fasten the seats. The rail should not be over 2′-0″ above the finished floor, with a pipe rail 8″ higher. (See illustration of balcony rail construction.)

The ceiling over the balcony should never be broken back to form a higher ceiling in the rear, but the entire balcony should come below the main ceiling. This practice of having a broken ceiling often ruins the acoustics for the last few rows of seats and further breaks the intimacy and association of the actor with his audience (a breach which cannot bear further widening), and annoys the people who pay to attend performances which they can barely see or hear. In one of the finest and newest of New York theaters, one seating about 1500, the last rows in the balcony are useless because of this error of design.

In the balcony, as well as in the orchestra, there should be two exits on each side of the auditorium, one on the higher level and one on the lower, independent of staircases. These exits usually lead to fire-escapes, but it is far better to have enclosed stair-towers which lead directly down to a street or court. It is unnecessary to add that it is undesirable to have stairs cross.

The front of the balcony should be given a slight pitch downward each way from the center towards the side walls, about 12″ in an auditorium 100′ wide. This difference in elevation is gradually made up in the risers in the side aisles so that the rear of the balcony is level throughout. This is to correct the sight lines from the seats in the extreme upper corners of the balcony,—especially when

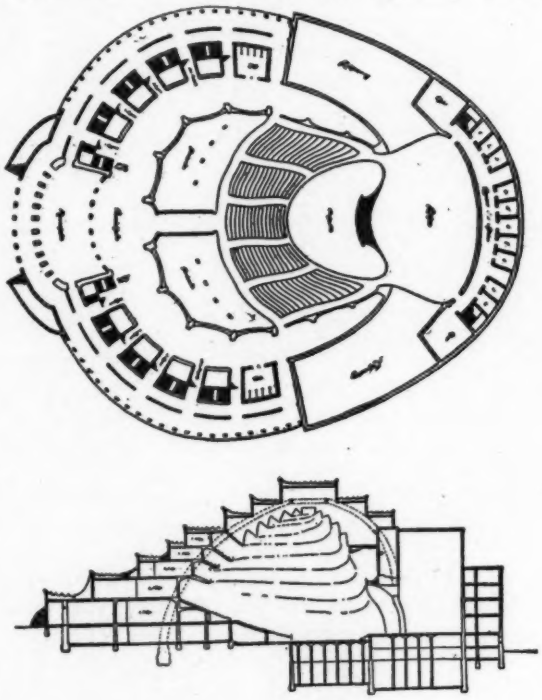
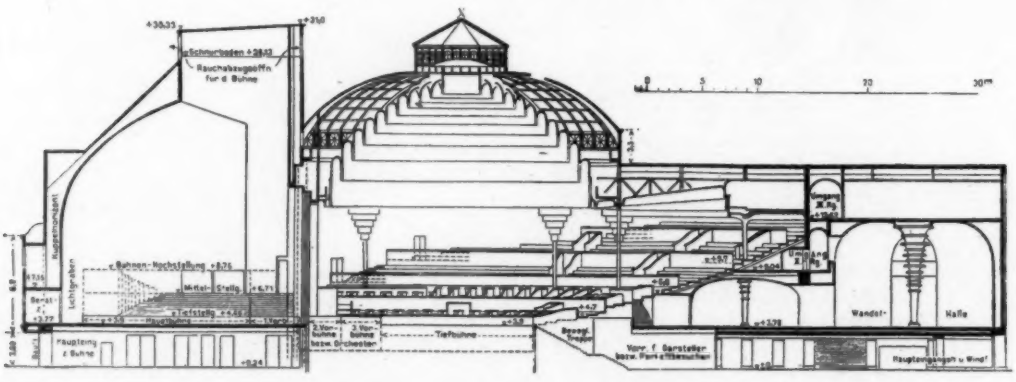


Fig. 5. Reinhardt's Projected Festspielhaus
(From The Theater of Tomorrow, by Kenneth Macgowan)



M 1 : 500

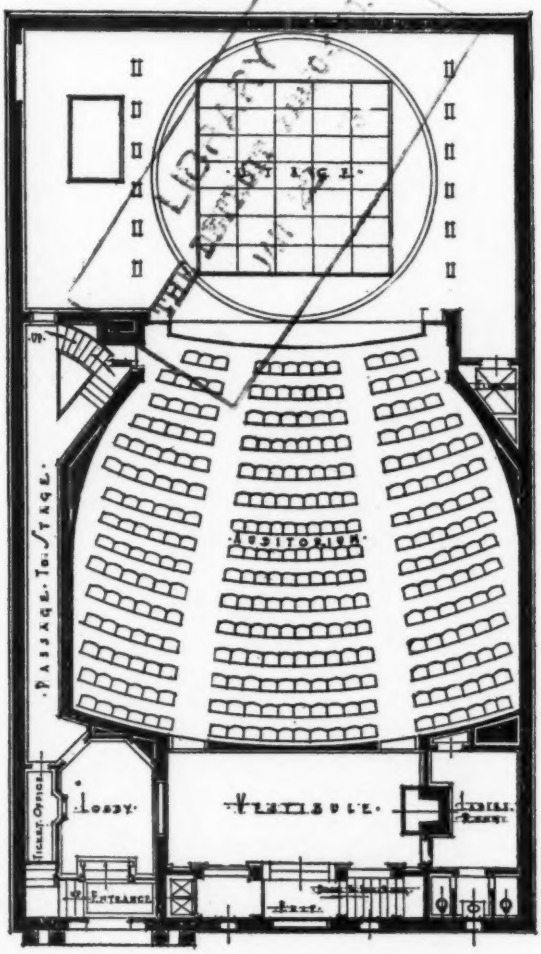
Fig. 4. Longitudinal Section, Grosses Schauspielhaus, Berlin
Hans Poelzig, Architect

the balcony is a deep one,—but one must be careful not to injure the sight lines from the extreme corners of the orchestra. It is always advisable for the architect to make a scale model of the auditorium, and test the sight lines from every questionable point.

The aisles and promenades in the balcony as well as in the orchestra, are covered with carpet, or laid in tile of a non-slip type. The platforms and floor between the seats are simply given a cement finish.

A NEW type of auditorium plan has come into vogue recently for use in moving-picture theaters, known as the "stadium" type. In this design, a large promenade leads, up through vomitorias, to a wide cross aisle in the center of the auditorium. Between this cross aisle and the proscenium a saucer floor is laid, exactly like an ordinary orchestra layout. Behind this cross aisle platforms are built up in steps, clear to the back wall of the theater. There is no balcony, and it is as if the balcony was taken bodily from over the orchestra and placed directly behind it, starting from the level of the orchestra promenade. Sight being the only requirement of a picture theater, this is an excellent type, providing the property is not too expensive. It naturally requires a large plot of ground to build one of these theaters, as the "stadium" type is often 200′ or more, deep, and seats twenty-five hundred people. The rear of the steppings extends up over the spacious promenades, lounge rooms and foyers.

Fig. 6. Foyer, Bellevue Theater, Upper Montclair, N. J.
J. H. Phillips, Architect



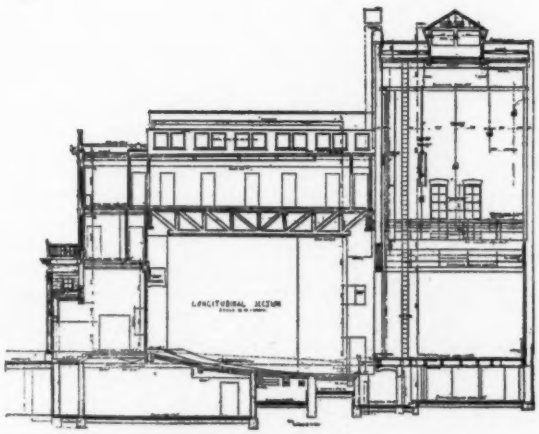


Fig. 7. Longitudinal Section and Plan
The Little Theater, New York
H. C. Ingalls and F. Burrall Hoffman, Jr., Associated Architects

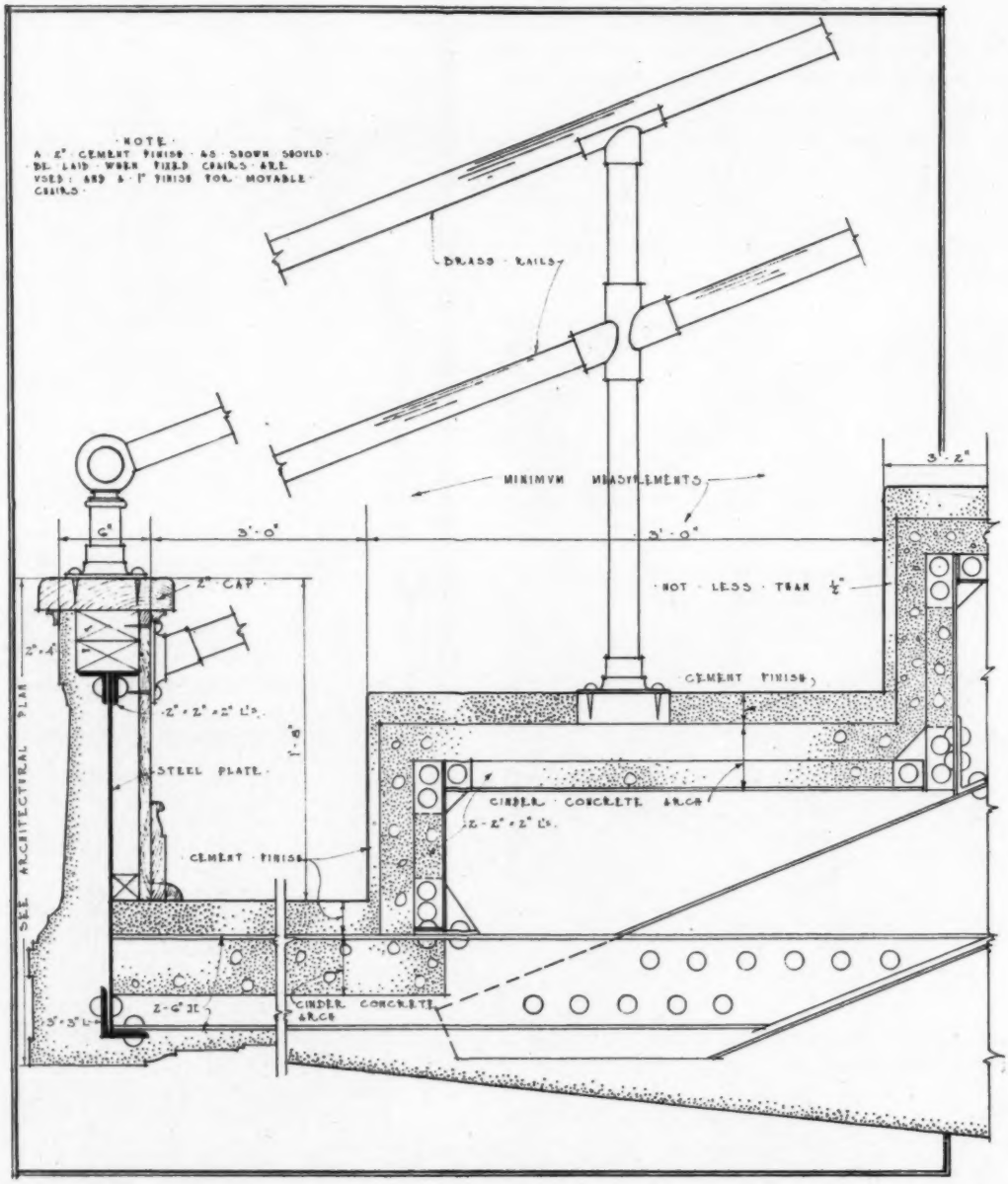


Fig. 8. Detail of Balcony Rail Construction

The newest types of theaters in Germany never have aisles in the orchestra, and many of them have no balconies. The entire auditorium is a solid bank of seats. (See illustrations in the previous articles of the Grosses Schauspielhaus, the Munich Art Theater, the Volksbuhne in Berlin, and the Court Theaters in Dresden and Stuttgart.)

Fig. 9. Foyer, Henry Miller's Theater, New York
H. C. Ingalls and Paul R. Allen, Associated Architects

The floor is stepped up row for row, from the very front of the auditorium to the rear. The rows are 3′, 3′-6″ or 4′-0″ apart, back to back, and the seats are not crowded 21″ from side to side. The seats are heavily upholstered easy chairs with arms, and one's neighbor is not in a disagreeable proximity as in the commercial theater (most German theaters are subsidized by the state, municipality, or groups of individuals).

Though there are no aisles leading from the front to the back of the auditorium, each separate row serves as an aisle as the seats are far enough apart, making it possible to leave one's seat without causing people to rise.

Access is had to the auditorium directly at the ends of the rows, through a series of doors along both sides of the auditorium, each single, or pair of doors, feeding three rows. Ramps, or steps lead from these doors down and back, to the main circulation, lounges, etc., which are located either behind or below the auditorium. The levels are usually so juggled that the main entrance is about on a level with the center of the orchestra, the front rows being nearly ten feet below the street level, and the last rows several feet above it. Every seat has a perfect sight line as the auditorium is only

Fig. 10. The Grand Staircase, Century (New) Theater, New York
Carrere & Hastings, Architects

slightly wider than the proscenium opening.

This type of theater has been under consideration by theatrical men in this country for some time but so far nothing has been done with it. Such a theater would not be more expensive to build than any other type, all other things being equal, but the greatest difficulty one would encounter is the building code. The code in most of the largest cities in this country was framed from, and for, the peculiar type of theater which is commonly built, and it will admit of no other type, even though safer and completely fireproof (a theater without stairs, without balconies, built entirely on one level, of concrete and plaster, would obviously be safer than the theaters on Broadway), without radical revision. It is to be hoped that this matter will be taken up with the authorities to allow room for experiment and improvement in our theaters.

The orchestra pit, if one is built, should be large enough to hold at least twelve musicians, if the theater is of the legitimate or vaudeville type, and from sixteen to twenty, if it is of the musical comedy or operetta type. To obtain this space it is necessary to make the pit nearly as wide as the proscenium opening and with a width of 10′ maximum, and 8′ minimum, in the center. The curve of the rail being concentric with the curve of the seating layout. It is well, when laying out any orchestra pit, to leave ample space for the installation, at some future date, of an organ. The pit should be so constructed that it would always be possible to construct a forestage over it projecting into the orchestra seating. Some pits are built with electric elevators which raise the musicians up to the stage level and down again, while playing. This is a costly equipment, is neither new, interesting nor desirable. It was first used some forty odd years ago, and it does not add to the quality of production.

Heating and Ventilation

VENTILATING apparatus may be cheap or expensive and its mechanical value varies accordingly. The cheapest type is one in which huge fan blowers are located above the auditorium, in the space between the ceiling and the roof, and either force in or draw out air from the auditorium, through grilles. These fans are reversible and are made to function according to weather conditions. In the summer fresh air is forced into the auditorium, and in cold weather the foul air is drawn out, the incoming air to replace it coming through doors, windows, registers, etc., where it is heated by concealed steam radiators. The practice of forcing in air is bad because it only serves to stir up the foul air which has gathered in the top of the auditorium, and set it into circulation again. That of drawing out air is bad because it causes draughts, does not heat or regulate the incoming air properly, nor does it draw out all of the foul air. There is a tendency either way to form a direct stream of circulation between the source and the exhaust, and to allow pockets of foul air to collect in corners of the auditorium. Neither system is scientific, but both are crude ways of doing the work. The best proof of the inefficiency of this method is to visit the balcony of any one of the large theaters, so equipped, on Broadway, on a warm night. One visit would convince even the most incredulous.

The other system, with various machinery, all of which is not always used, is to force air in through numerous small diffusers, located in the floor under the seats, throughout the auditorium, and either drawing it out or allowing it to find its way out, at the top. Sometimes the air is not forced in through the diffusers, as some authorities maintain that to put pressure behind the incoming air causes a slight whistling noise; in which event, the foul air is exhausted at the ceiling and fresh air finds its way in through the diffusers to replace it.

The elaborate air-conditioning apparatus is located in the basement of the theater, and is composed of the following machinery: (1) Blower, (2) Air-warming apparatus (two or three heaters), (3) Humidifying apparatus, (4) Refrigerating apparatus, (5) Air-washing and purifying machinery. All the air should be drawn in from the outside, rather than used over again as washing does not eliminate the foul gases. The grille should not be located down on the street where it will draw in dust and dirt, but above the roof, away from chimneys. The blower should be located as far away from the auditorium as possible, in a soundproof room. The fresh air is drawn in through preliminary heating coils and passes through a spray and air-washing chamber, where it is thoroughly cleaned of dust particles. Then it passes through reheating coils, is brought to the proper humidity, and is forced into the plenum chamber, where it is conducted to all parts of the house through diffusers. The plenum chamber and all ducts should be extra large so that the air will pass through at a large volume and a low velocity, so as not to cause drafts.

It is of the utmost importance that the air should be of the proper humidity for air that is either too dry or too moist, is devitalizing. In the last analysis, it is not the temperature or any other single characteristic that counts, but the effect on the body, as, for instance, air that is properly humid, at a temperature of 65 to 68 degrees will feel comfortable to the average person, and if raised to 70 degrees will be found discomforting. If it is too dry, it may be raised to 78 degrees before being noticed, yet it is none the less injurious. Regulated temperature without regulated humidity is disastrous.

The diffusers in the orchestra floor are the "mushroom" type, so designed as to avoid drafts, whereas in the balcony the diffusers may be replaced by grilles in the risers of the steps.

Safety from Fire

In this day and age it seems like supererogation to enter into any discussion on the subject of theater fires and prevention. It is a subject that has been thoroughly discussed by competent men; yet today, as in the past, in spite of this careful supervision, theater disasters happen periodically. There are existing theaters which were built before the present stringent laws became effective, others which were built after these laws were enacted but through carelessness and negligence have been allowed to deteriorate, and to accumulate obstructions and inflammable materials in out-of-the-way corners, and a third which somehow manages to avoid the law, being located in cities and towns where theater laws are not framed as in the large metropolis.

The best course for the conscientious designer to follow is to study the various codes in the large cities, (Cleveland, Chicago and New York codes are well framed), pick out the most exigent safety requirements, and then excel them in his own work. The widths of courts, exits, stairs, lobbies, etc., have been well studied and should be strictly adhered to.

Standpipes and hose racks should be installed on each side of the auditorium, on all tiers. No combustible material whatsoever, except that which is absolutely necessary, (such as the upholstery fabric on the seats, the act drop, the playing stage, etc., and these should be saturated with a fire-resisting solution) should be introduced into a theater.

It is well for architects to pay periodic visits to the theaters which they have built, even long after they are completed and put into operation, to make sure the fire hazard is kept down to minimum, for their reputation is at stake, long after the building has passed out of their hands.

The most important factor for the saving of lives is the emergency lighting equipment described in a previous article. Darkness will precipitate a panic sooner than real smoke and flame.

(To be Concluded)

A New Material Used in the Chicago "Fountain of Time"

THE "Fountain of Time," by Lorado Taft, dedicated last November at Chicago, is sculptured in a new material that may become widely used in the future. The Art Institute News Letter gives the following account of it:

"John Early of Washington, D. C., has for years been using materials that would give sufficient beauty to sculptural works and still endure the extreme changes of climate, and the soot and grime of a city like Chicago. There are certain things in our atmosphere that even a hard-boiled statue will not stand for. For instance, limestone will not do. The attacking forces in the air soon relegate it to the scrap pile. Finally, Mr. Early found that by taking pebbles from the Potomac River and crushing them he obtained a concrete mixture of great beauty and endurance, and that the reflected light thrown off by the silica in the pebbles added greatly to the esthetic value of the material. And this mixture can be used in the casting of the sculpture at a much less cost than marble or bronze. A replica of the Parthenon at Athens, pronounced the most perfect architectural building in the world, is being built of this material in Nashville, Tenn., and the women's clubs of Illinois are financing the reconstruction in the same material of one corner of the Fine Arts Building in Jackson Park."

Metropolitan Museum of Art Receives Gift of New Wing

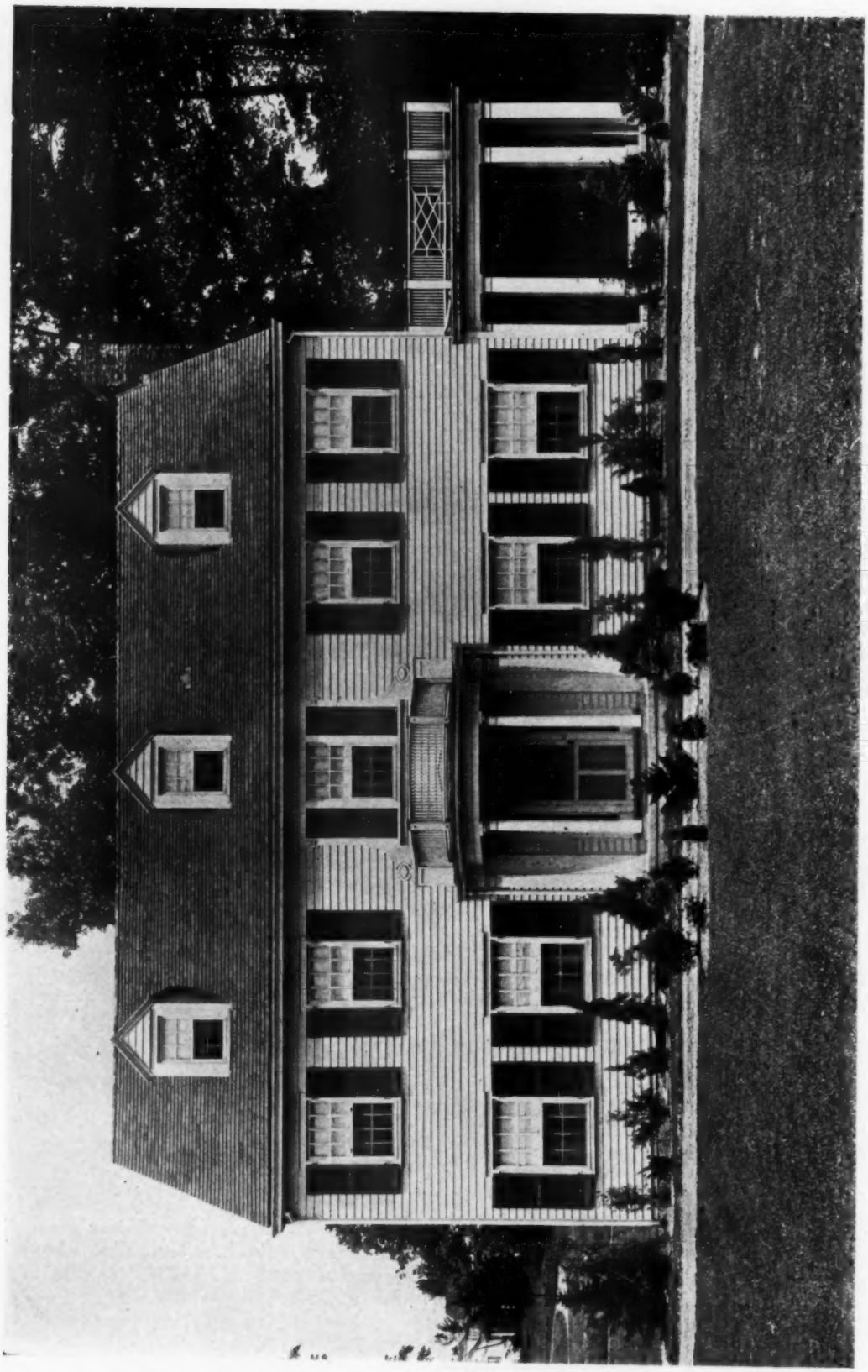
THE gift of an American wing to the Metropolitan Museum of Art, New York, from its President, Robert W. DeForest, and Emily Johnston DeForest was announced a short time ago by Edward Robinson, Director of the Museum.

The American wing will be a three-story structure connected with the North end of the Morgan wing. It will contain eighteen exhibition rooms, material for fifteen being already on hand. Its construction will realize one of the fondest hopes of the Museum and is regarded as one of the most important developments in the Museum's expansion in many years.

The new wing will measure approximately 81 feet by 60 feet. Plans for the structure have been prepared by Grosvenor Atterbury, architect, of New York. It will be devoted entirely to American art of the colonial, revolutionary and early republican periods.

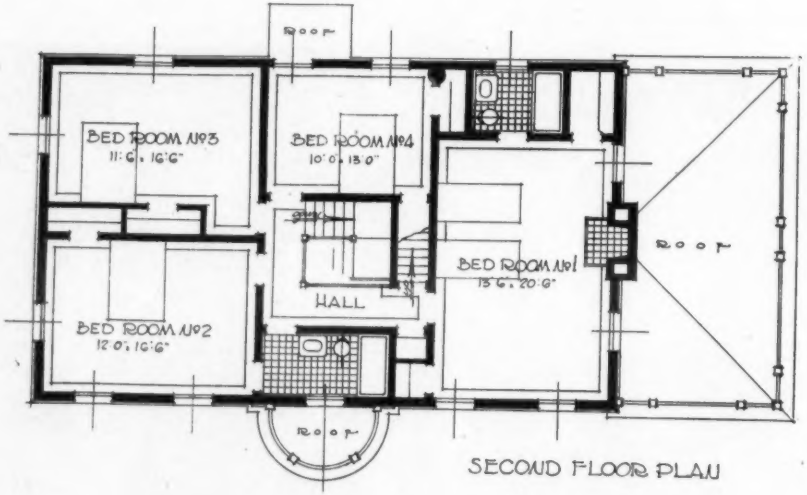
To Restore Faneuil Hall

FROM recent press reports, it is learned that provision has been made for the restoration of Faneuil Hall, the "cradle of American liberty," to its original condition architecturally. The cost will be approximately $150,000.

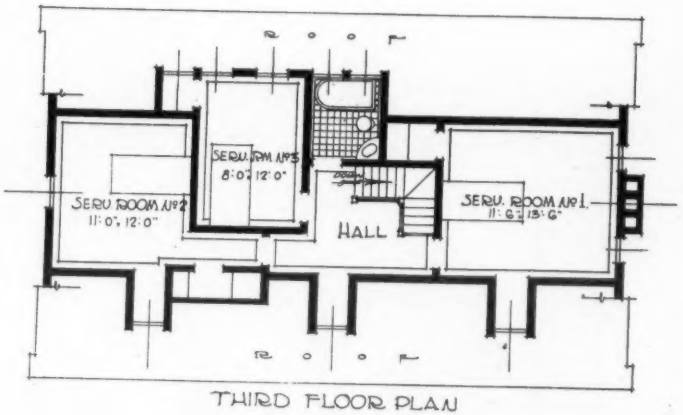


HOUSE OF W. E. KNOWLTON, ESQ., TENAFLY, N. J.

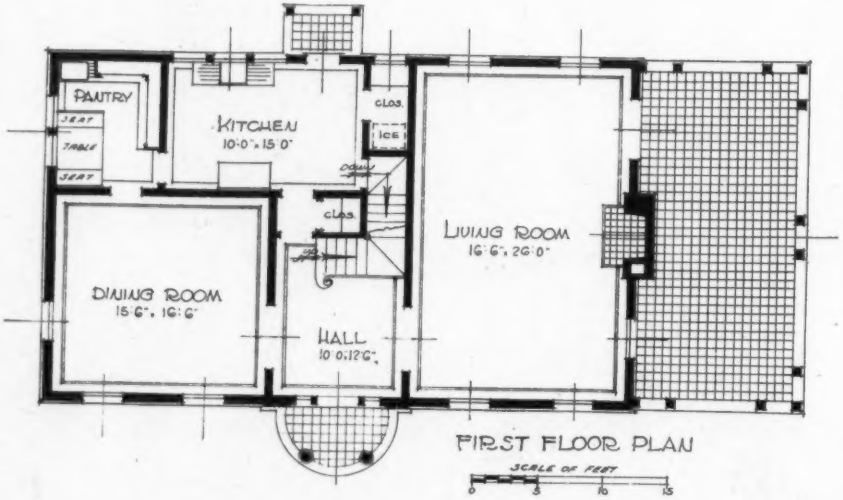
R. C. HUNTER & BRO., ARCHITECTS



SECOND FLOOR PLAN



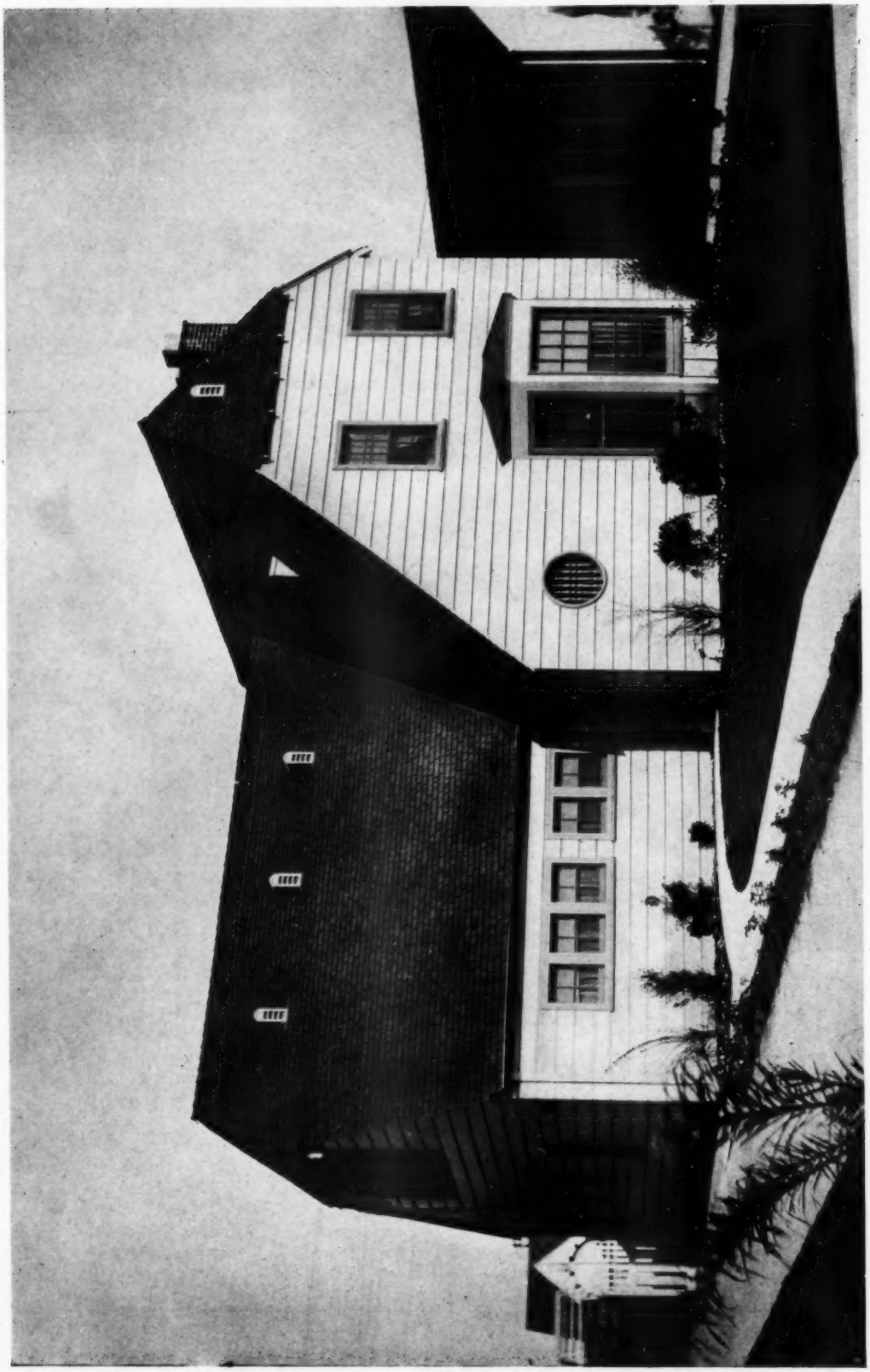
THIRD FLOOR PLAN



FIRST FLOOR PLAN

HOUSE OF W. E. KNOWLTON, ESQ., TENAFLY, N. J.

R. C. HUNTER & BRO., ARCHITECTS



HOUSE OF JOHN McCOY, ESQ., LOS ANGELES, CAL.
PIERPONT & WALTER S. DAVIS, ARCHITECTS

REPORT OF MEETING OF THE DIRECTORS OF THE AMERICAN INSTITUTE OF ARCHITECTS

Held at Denver, Colorado, December 13, 14 and 15, 1922

THE Directors of The American Institute of Architects met in Denver, Colorado, December 13, 14 and 15, 1922. The full Board of fourteen holds two semi-annual meetings and the Executive Committee, composed of five officers and directors, meets quarterly and carries on the affairs of the Institute between sessions of the full Board and between conventions.

At the December gathering the Directors were guests of the Colorado Chapter for one day. A dinner was served in the Cactus Club, at which speeches were demanded of every Director from President Faville to the most recently elected members, namely, William Emerson, William L. Steele and Benjamin Wistar Morris.

R. K. Fuller, the president of the Colorado Chapter, proved himself an accomplished toastmaster and after past president Williamson delivered a formal greeting, various other Colorado members were called upon to alternate with the visitors in the speechmaking. There were speeches grave and speeches gay. Stanley Parker sang his punning architectural song. Abram Garfield indulged in some of his refined nonsensical fun. Edwin H. Brown of Minneapolis complimented the Mountain Division of the Small House Service Bureau on the excellent results already achieved in Colorado. W. E. Fisher and T. R. Wieger referred to the fact that Colorado was the second state of the twenty-six which have passed registration laws, and explained their project of devoting the surplus fees received by the Board of Examiners to architectural education through a state architectural library. This idea should be of value to New York and other states where the profession is taxing itself and paying the surplus over into the general funds.

Robert Kohn described the methods of the Fifth Avenue Association in its work of encouraging the use of better design in buildings on Fifth Avenue and of exercising some veto power in individual cases.

The hospitality of the Colorado Chapter did not stop at a dinner but included an entire day of entertainment of the visitors who were taken on an automobile tour through the city and suburbs and mountain parks, and given a lunch at a fine motor club house in the Rockies.

During the two days of long business sessions the Board of Directors had to consider sixty-four scheduled items of business. Careful thought, and sometimes long discussion, is devoted to each item on the calendar, from the detailed program of the next convention, to the placing of an honorable member on the retired list; from plans for the award of the gold medal to Henry Bacon, to a report of the Octagon building committee; from a report of the Jury of Fellows which will function this year, to an approval of the Institute manual; from a report of the Finance Committee which is studying the Institute's income and activities years ahead, to a discussion of ambitious plans of the Structural Service Committee; from the increase of trade apprentices reported by the Building Congress, to the participation by the Institute in the work of the Board of Jurisdictional Awards; from the Public Buildings program at Washington, to the granting of a charter to a new chapter; from the exoneration of a member under charges, to the imposition of a penalty in another case; from election of new members, to resignation or retirement of some old members.

One topic which received considerable attention from the Board at this meeting is that of the Small House Service Bureau. The Directors believe that this work is to the interest of the public and in the long run, through the education of the public and the architects themselves, to the betterment of architecture generally. The purpose of the Institute is to limit this service to filling the gap in which architects are almost never called. To accomplish that purpose the policy was adopted of confining the work of the Bureau to houses simply designed and not exceeding six rooms in size.

Any project worth while is liable to abuse. The promoters of the Small House Bureau have rigidly guarded against commercialism so far as architects are concerned and the Institute, since it stands sponsor for the whole enterprise, must watch with greatest care to continue in the assurance that the project shall be carried on with full respect to the ethical principles of the profession. In short, the Institute must watch the conduct of these corporations which are being formed all over the country, with the same strict care which it exercises over the conduct of its individual members.

The *Journal* of the Institute received consideration by the Directors at this meeting, as it does at every meeting. The *Journal* is the official organ of the Institute and as such, the Directors think it should be of interest and real use to every member and to every architect eligible to membership. The Directors desire to keep it out of competition with the regular architectural periodicals, and in their ambition to make it in the best sense an official journal, they welcome all sincere criticisms and suggestions.

DEPARTMENT OF SPECIFICATIONS

Specifications for Reinforcing Steel

IT may be said that specifications for reinforcing steel do not call for a great deal of space as there are not many conditions of manufacture, fabrication or installation that require specific instructions. The structural drawings invariably show the amount of reinforcing steel for both straight and bent bars, together with all stirrups and other special types of reinforcement and all accessories such as spacers, chairs, and similar items. The specification then may be divided into three major portions, as is the rule in practically all specifications, the first being "Scope of Contract" the second "Quality of Materials," and the third, "Shop Fabrication and Field Installation." This, however, applies more particularly to specifications for reinforcing bars or rods. Where sheet reinforcing, such as expanded metal or wire mesh is used, the character of the specifications will be changed somewhat, but the three main factors are present, regardless of the kind of reinforcing used.

Where structural drawings are to accompany the specifications, the latter documents need be only so definitive as regards materials and installation that those points not covered by the drawings may be made clear.

Where structural drawings are not to accompany specifications, in which case the architect contemplates the making of structural drawings by the contractor furnishing the reinforcing material, the specifications need to be much more explicit in regard to shop and field fabrication and installation. The preparation of specifications under such circumstances is rather onerous if the writer expects to cover all details of fabrication and installation, and the intelligent writing of them demands a picturization of all reinforcing material in its final position. Unless the operation is quite small and the architect is unable to prepare designs for reinforcing, it should be a rule that structural drawings showing the reinforcing be prepared. This, of course, would include schedules of bar sizes, spirals, stirrups, and all fabrication and other explanatory memoranda diagrams that will be necessary. In a small operation of unimportant character, it is not common to have structural drawings, but the specification writer should not deem any operation unimportant where the success of the structure depends on any parts that are to be furnished or installed under his specification.

It will be understood, then, that, as in many other branches of building construction, there will be two methods of writing specifications for reinforcing steel; that is to say, one where complete drawings and diagrams accompany the specifications, and second, where diagrammatic information is almost entirely lacking.

It will be assumed that the specifications discussed here will cover the furnishing and installation of reinforcing material in a building of comparatively large size where sheet reinforcing as well as bar reinforcing is used.

As noted heretofore, the General Conditions will be placed first in the specifications, these being "The General Conditions of the Contract" prepared by The American Institute of Architects.

The next, or second paragraph of the specifications should be captioned, "Scope of Contract." This paragraph should detail carefully all work that is to be included and, if necessary, should state specifically what work is not to be included. This matter should be scheduled or tabulated even though the structural drawings are sufficient to show the entire amount of work in detail. In some offices it is the practice, where the majority of reinforcing is bars, but where a small amount of sheet reinforcing is used, to require that the concrete contractor furnish sheet reinforcing of a specific kind in which case the specifications for reinforcing steel would exclude that from its scope. No consideration will be given here to such method of segregating reinforcing material. In any event, the scheduling of work included will be found to be quite convenient, not only for the bidders and contractors, but for all others who will use the specifications and will be especially convenient for analysis of a specification years after a building is built when it is required to know exactly what material was included in each of the several contracts.

Where material of a reinforcing nature is not to be included, this should be made the subject of a third paragraph, entitled "Work Not Included." It may be that the reinforcing contractor is not to furnish spacers or chairs, in which event such items will be furnished by the contractor installing the material.

Referring back to the second paragraph, there should appear a notation as to whether the material is to be furnished f. o. b. trucks at the building, or f. o. b. freight cars at a nearby switch-track, or f. o. b. plant with freight allowed to destination.

The next division of the specifications should be devoted to "Drawings." This paragraph should schedule the drawings that are to be furnished by the architect and should require that

the contractor furnish such additional drawings for the shop fabrication and field installation of the material. If the architect furnishes complete structural drawings, carefully detailed, accompanied by detailed schedules, it is probable that the contractor will not find it necessary to prepare additional drawings, but will only need to furnish his customary shop drawings. Where this condition does not exist the architect will expect the reinforcing steel contractor to prepare his own drawings and diagrams. If the latter case obtains, the specification should state the requirements quite clearly so that the contractor may know that in certain instances, where necessary, he may change the sizes of beams or other reinforced structural members as may be necessary to suit engineering requirements. If there should be any errors in shop drawings prepared by the contractor the detection of such errors should be left to the responsibility of the contractor, as the architect ought not to be expected to check these drawings for accuracy except to see that they conform in general with the indications or diagrammatic representations of the work as shown on the architect's drawings. In all cases figured dimensions should govern, and where dimensions are lacking they should not be scaled from dimensions on the drawings furnished by the architect but should be obtained directly from the architect. Other requirements in connection with the submission of shop drawings or the furnishing of architectural or structural drawings by the architect will be covered by the General Conditions of the contract if the A. I. A. document is used.

Even though structural drawings are carefully drawn, it may be that they do not include bending diagrams, schedules, or mill order lists. A complete set of structural drawings for reinforced concrete calls for bending diagrams and schedules, but it is not so customary to furnish mill order lists. It is well, then, to devote a paragraph to an explanation of the requirements covering these items. There are three methods of having these bending diagrams and schedules produced: first, prepared by the architect and placed on his structural drawings; second, prepared by the contractor from the architect's drawings; and third, prepared by an independent consulting engineer hired either by the architect or the contractor. The specifications should state the conditions governing this portion of the work and if the bending diagrams scheduled are to be prepared by a consulting engineer, it is customary to write into the specifications an allowance in dollars per ton as evidenced by the total estimated tonnage, or as evidenced by shipping weights if inspection service is expected to show shipping weights. If the contractor is to prepare the bending diagrams and schedules, the entire responsibility for their production and accurate form will rest with him. Where they are prepared by a consulting engineer employed by the architect, the specification should state that any errors found in these drawings or in the drawings furnished by him will be corrected at the expense of someone other than the contractor.

Mill order lists are almost always prepared by the contractor, in which case the specifications should state only that they are to be so furnished.

The next paragraph should be devoted to "Quality of Materials." For all bar or rod reinforcing, the standards of the American Society for Testing Materials should govern. For sheet reinforcement the Quality of Materials can be best specified either by name of one or more particular kinds that would be acceptable, or by sizes, weights and gauges. For expanded metal reinforcing the usual practice is to require bare metal surfaces. Wire mesh reinforcing usually is furnished in galvanized wire. It may be well to remind the specification writer that where sheet reinforcing is to be used, he should make sure that the concrete in which it is to be embedded, is protected against the absorption of water. If the concrete is permitted to become saturated with water, the destruction of expanded metal reinforcing will be exceedingly rapid.

Bar reinforcing may be specified as new billet steel in structural, intermediate or hard grade, or rail steel which is hard grade, may be used. The specification writer should be specific in stating whether he wishes new billet or rail steel, and if new billet steel is to be furnished, exactly what grade is required. This information must, of course, coincide with assumptions of strengths of reinforcing steel that were assumed by the engineer in his calculations. Of course where no structural drawings are furnished, the specification writer will have to determine himself what kind and grade of steel will be used.

Bar reinforcing may be plain or deformed and, again, the engineer who has prepared the structural drawings should be consulted regarding the character of manufacture under which he wished the reinforcing steel to be made when making his calculations. This point may not be especially urgent in many cases, but for many more cases and especially in the interest of accuracy, it should be required that reinforcing steel of a particular outward form be used. Options, of course, may be granted, but if so, their election should be stated in the proposals submitted under the specifications.

Where sheet reinforcing is used, and if conditions require it, the specifications should require that it be painted or galvanized. This, of course, would depend on the engineering assumptions used in the preparation of calculations for the sizes or kinds of sheet reinforcing.

The next paragraph should cover the making of inspection and tests on the reinforcing steel. This usually applies only to bar reinforcing, not to sheet reinforcing. As stated in the discussion on specifications for structural steel, the practice of specifying that the contractor must pay the testing engineer selected by the architect, is not recommended, for the reason that it would be ridiculous to expect an absolute impartiality in the dealings between the contractor and inspecting engineer, where financial arrangements exist between them. The specifications should state quite clearly that the owner or architect will supply the services of an inspecting engineer, who will act on behalf of his employer in the shop inspection of reinforcing work and if desired, in the field inspection of its installation. Shop inspection on many operations of apparently small scope is becoming more universal than ever before but field inspection has not been submitted to the care of a testing engineer as frequently as might have been done. This latter class of work, of course, depends on the kind of construction work contemplated, and on the character of superintendent that will represent the architect or owner on the job. It is perfectly evident that it is quite important that field work be inspected on the same basis as is shop work in order that complete assurance respecting all conditions of contract documents may be had. The specifications should state that reports of all tests and inspections will be sent to the contractor for his information. The specifications for inspection and tests also should provide for the rejection of materials found to be not in conformance with the contractual requirements. The matter of rejection of condemned work is rather difficult to handle at times where the specifications are not sufficiently specific.

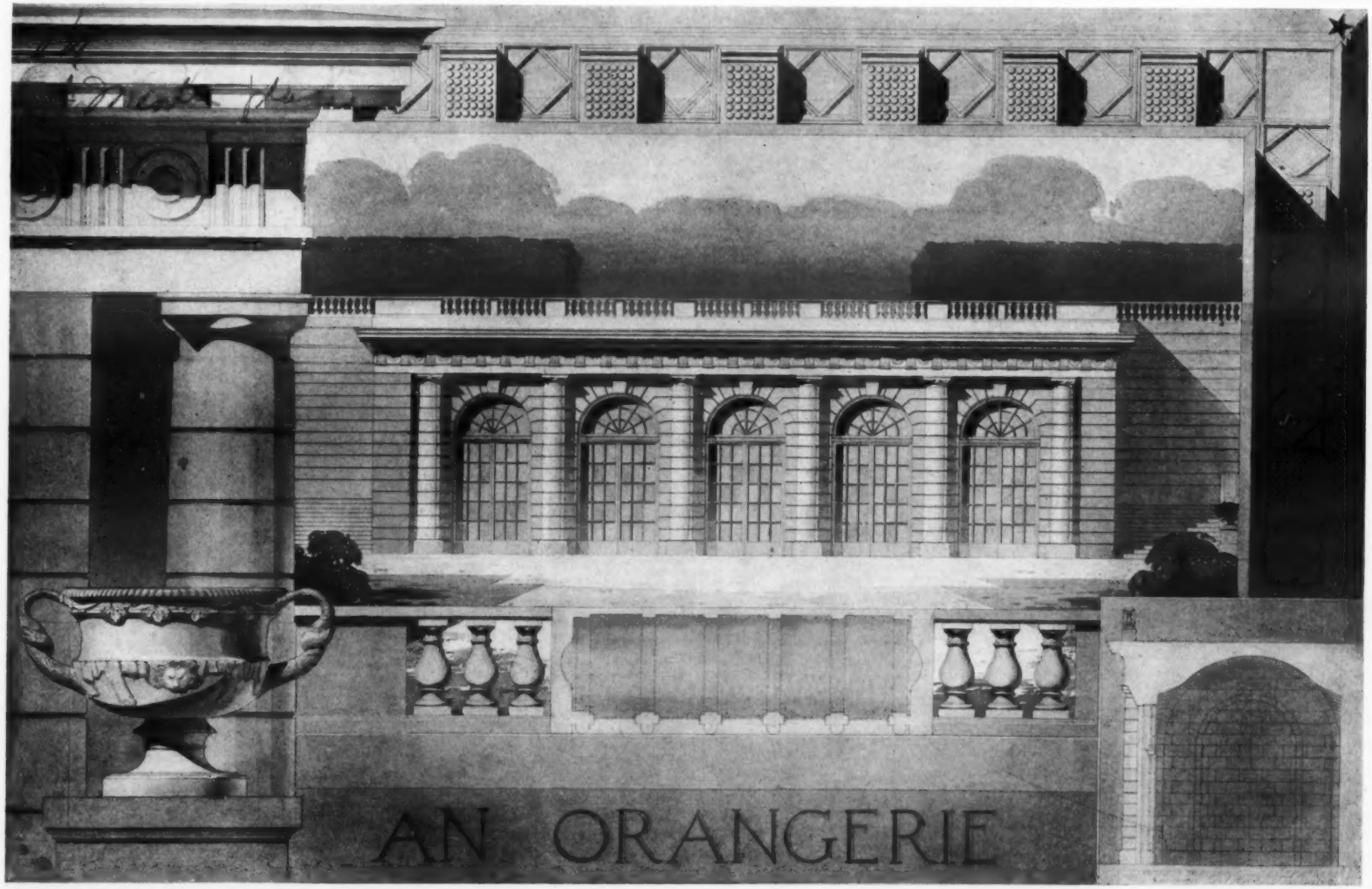
The specifications for inspection and tests would require that the contractor furnish the inspecting engineer or his representative all facilities customarily furnished by the contractor for the proper accomplishment of his work. The inspecting engineer will at all times have access to all parts of any shop where work under this specification is being fabricated.

Unless the character of the reinforced concrete work is most extreme in form or profile, it is usually not necessary to specify very much regarding the shop fabrication of the material. Column spirals should have an extra turn at the top and bottom, splices and spirals should be made by lapping or by bending end of bars into body of the column a distance sufficient to develop full strength of the bar and that spirals should have spacers of some kind most suitable to the character of the work. Straight bars should be cut to length and bent bars cut and bent to form as shown on the drawings and diagrams or as scheduled. Where material is fabricated incorrectly, its return at the expense of the contractor and the substitution of correct material should be specified. For the shop fabrication of sheet reinforcing, the specifications may require cutting to size, but ordinarily the majority of the fabrication work of sheet reinforcing is done in the field. Only in special cases that require the bending of sheets in some manner that would be more easy of accomplishment in the shop than on the field should the specifications be explicit regarding the fabrication work required on this material. The specification writer must use his judgment as to what must be included in shop and field work and if his experience is not sufficient to enable him to determine this, he should so word his specifications that the contractor may perform the work wherever he wishes, provided only that it follows the requirements of the drawings.

For the shipping of reinforcing material the specifications should require that the material be bundled and tagged with suitable identification marks to facilitate sorting and placing. If the material is to be delivered f. o. b. truck at building site, the contractor for the placing of reinforcing steel should have received at the time of delivery a copy of a shipping invoice, so that he may check the material as unloaded. Where material is shipped by railroad the delay in receiving shipment usually would insure the receipt of the invoice in ample time.

The specifications for delivery by truck at building site are recommended to be written "f. o. b. truck at building site" in order that the contractor for placing of the material will be responsible for the unloading of it and the proper placing of the various bundles so that they may be easily procured when needed. It should be assumed that the contractor will be more careful in the unloading of reinforcing material than will the truck driver. This point, of course, will have to be made clear in the specifications for installation of materials.

A discussion of specifications for the placing of reinforcing steel appeared in these columns in the issue of April 12, 1922. Some phases of installation of reinforcing referred to therein, have something to do with the specifications for furnishing of reinforcing steel and the reader is referred to this discussion for the completion of his specification on reinforcing steel. These matters will be covered in some detail in the outline of reinforcing steel specifications that will appear in the next issue containing this Department.



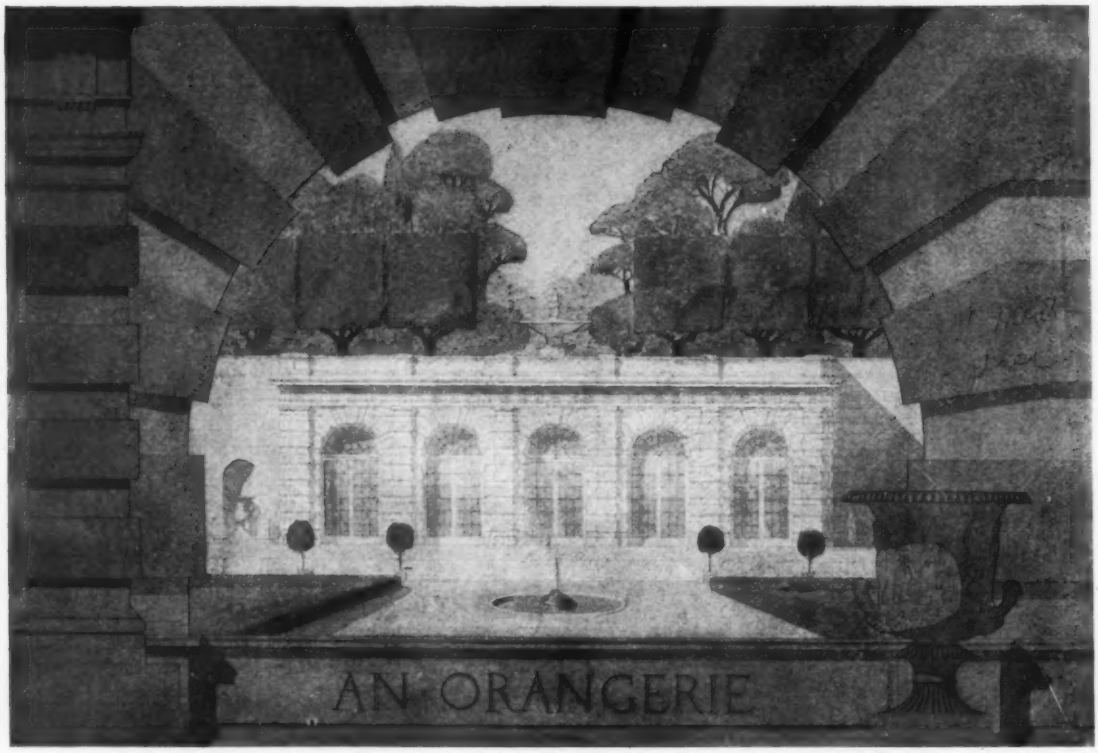
V G. TILBROOK

FIRST MENTION PLACED

CLASS "B"-I ANALYTIQUE—AN ORANGERIE

STUDENT WORK, SOCIETY OF BEAUX-ARTS ARCHITECTS

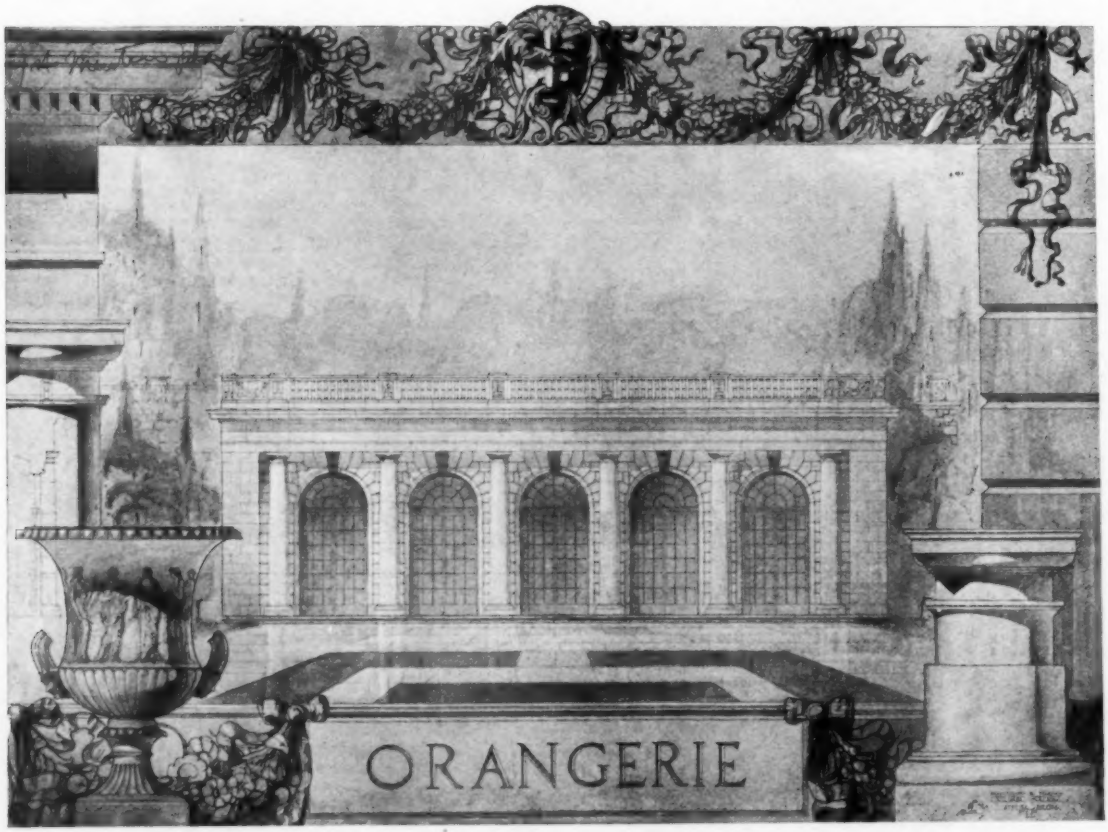
CARNEGIE INSTITUTE OF TECHNOLOGY



F. O'BRIEN

FIRST MENTION PLACED

ATELIER CORBETT-KOYL, N. Y. C.



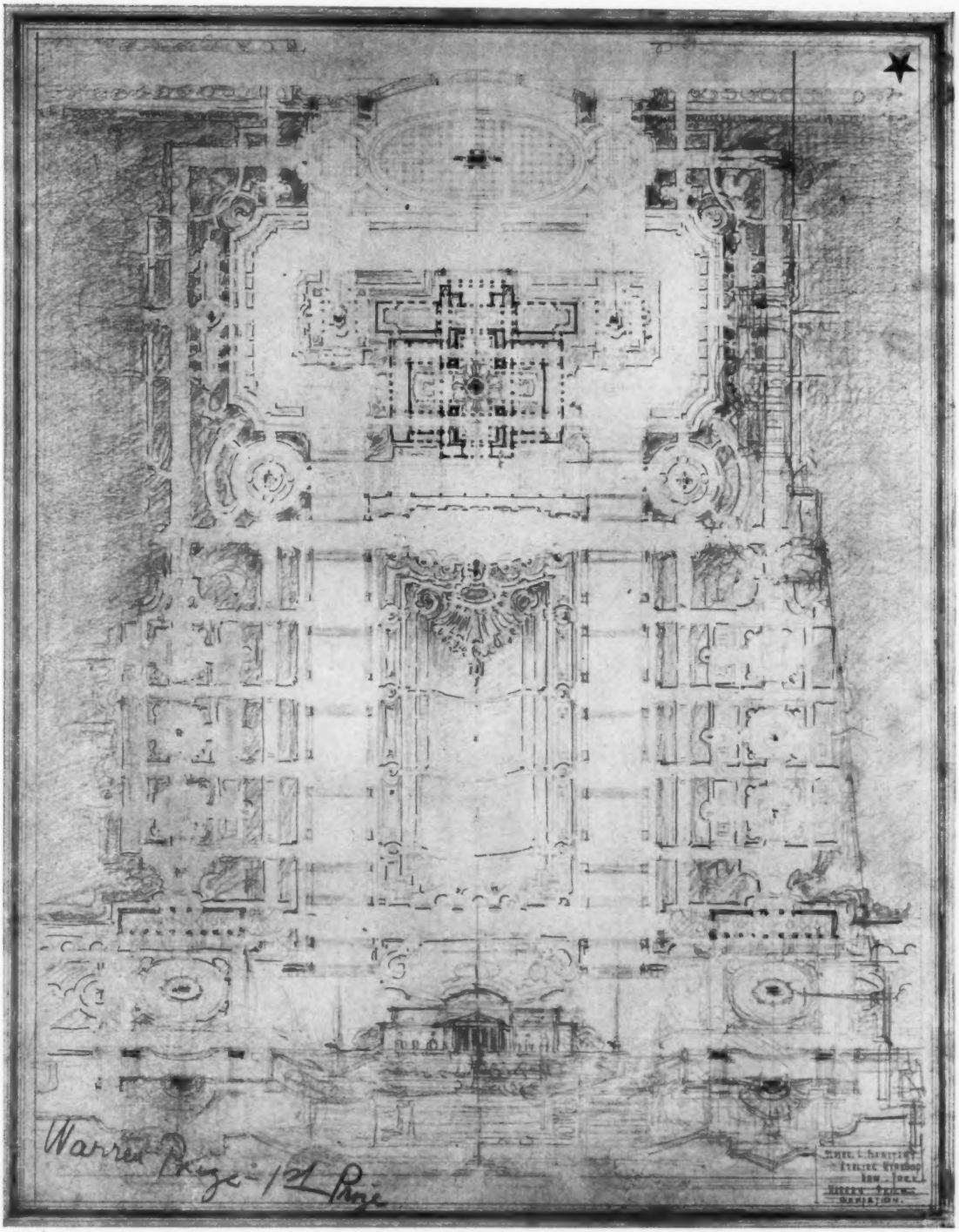
G. GONZALEZ

FIRST MENTION PLACED

ATELIER HIRONS, N. Y. C.

CLASS "B"-I ANALYTIQUE—AN ORANGERIE

STUDENT WORK, SOCIETY OF BEAUX-ARTS ARCHITECTS

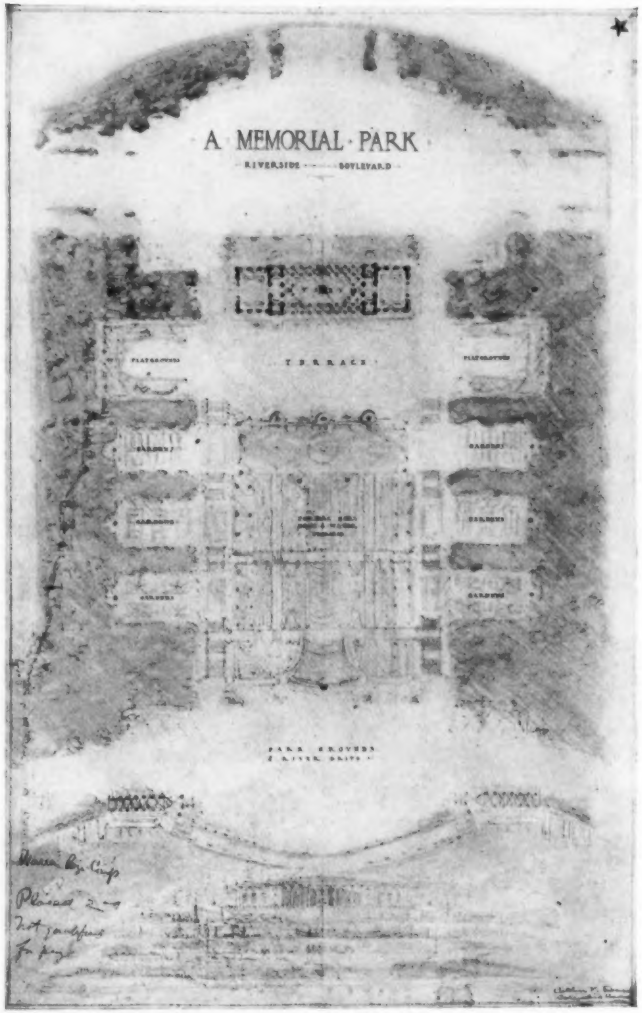


FIRST PRIZE

E. L. BABITSKY — ATELIER WYNKOOP, N. Y. C.

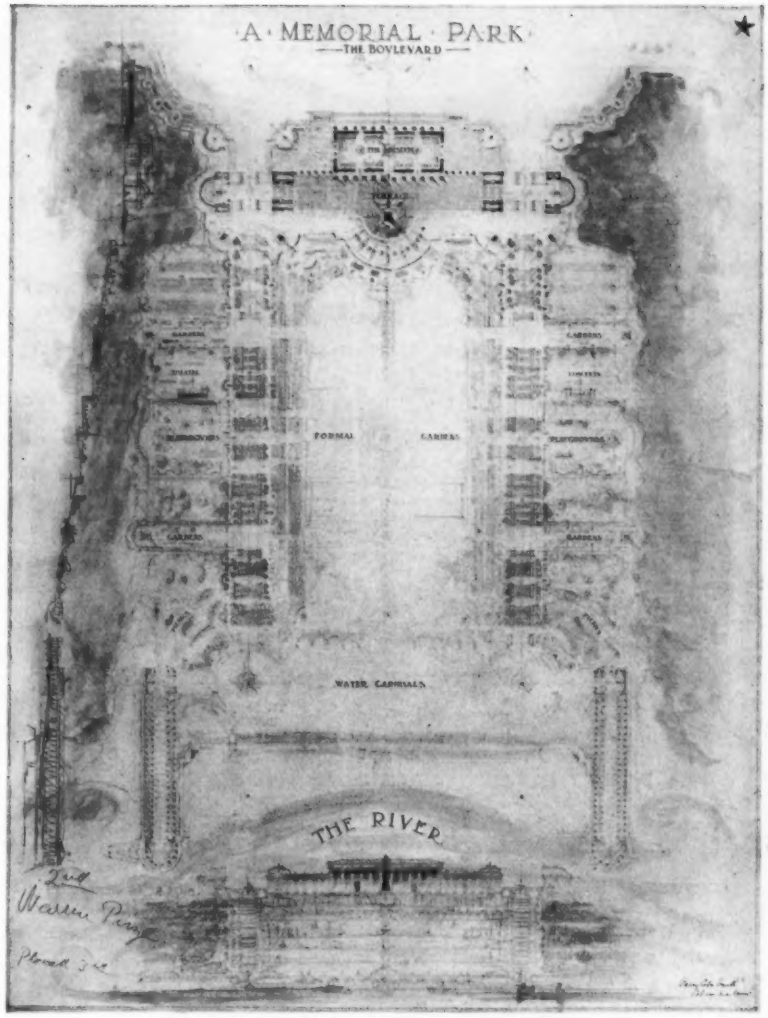
THE WARREN PRIZE COMPETITION—A MEMORIAL PARK

STUDENT WORK, SOCIETY OF BEAUX-ARTS ARCHITECTS



PLACED SECOND (NOT QUALIFIED FOR PRIZE)

A. F. DEAM COLUMBIA UNIVERSITY

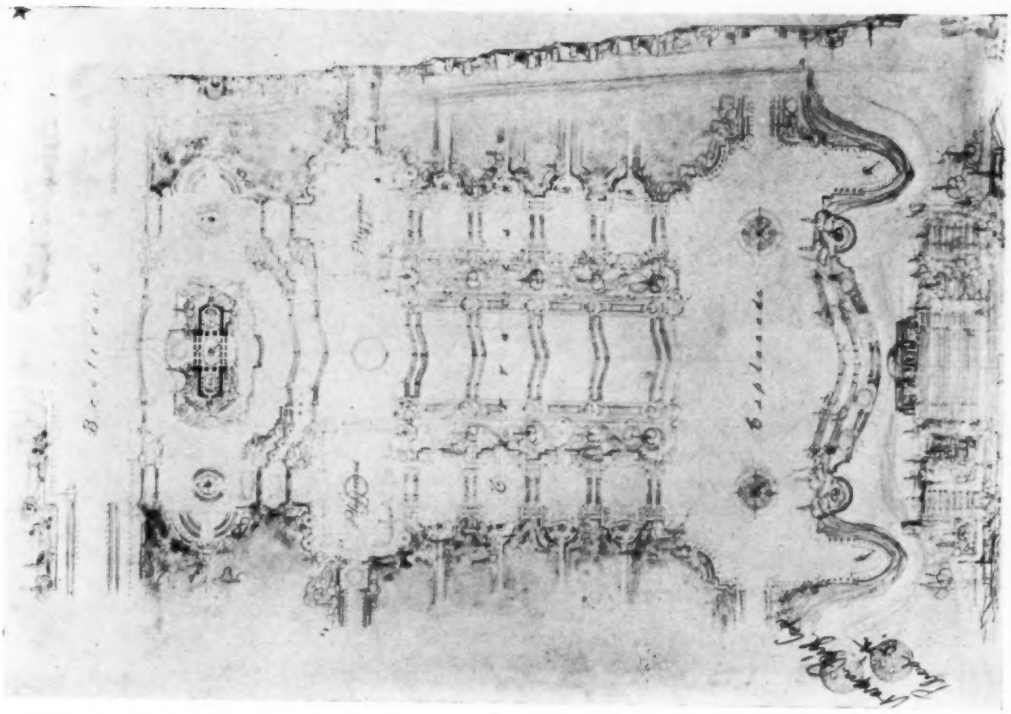


PLACED THIRD—SECOND PRIZE

P. C. SMITH COLUMBIA UNIVERSITY

THE WARREN PRIZE COMPETITION—A MEMORIAL PARK

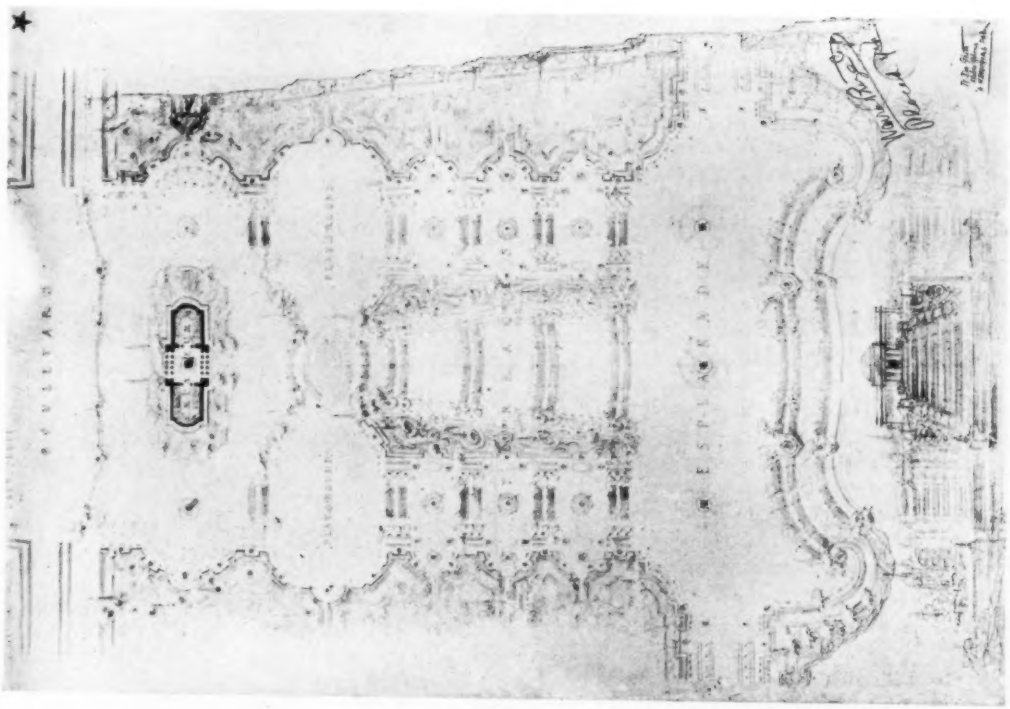
STUDENT WORK, SOCIETY OF BEAUX-ARTS ARCHITECTS



PLACED FIFTH

H. VAN DER LYN

ATELIER HIRONS, N. Y. C.



PLACED FOURTH

R. DE GHETTO

ATELIER HIRONS, N. Y. C.

THE WARREN PRIZE COMPETITION—A MEMORIAL PARK

STUDENT WORK, SOCIETY OF BEAUX-ARTS ARCHITECTS

DEPARTMENT OF ARCHITECTURAL ENGINEERING

THE LIGHTING OF SCHOOLHOUSES*

A Study of the School Room Lighting Problem and the Solution

THESE recommendations were adopted by the Board of Education. Since this investigation was made, seventy-one existing buildings have been completely rewired and lighted on this plan at a cost of $291,128.24; three high school buildings are under contract for rewiring and lighting at a total estimate cost of $47,000.00; thirty-one buildings have been completely redecorated at a cost of $138,203.24. When these high schools are completed every class room in the Cleveland public schools will have been satisfactorily wired and fixtures installed, either of the totally enclosing direct type or of the semi-indirect type. This program involved the lighting of over 1,500 class rooms requiring some 9,000 lighting units. As previously stated, the semi-indirect units are open inverted bowls in buildings which had been equipped prior to this investigation. These will eventually be replaced by units of the direct type, as it is practically impossible under present conditions to maintain an open bowl in good efficient condition and to maintain ceilings in such conditions as to make a semi-indirect system satisfactory.

Public bodies, such as Boards of Education, are obliged by law to make their purchases by inviting bids for the supplies desired, and letting contracts to the lowest and best bidder. It would be desirable in advertising for bids for lighting fixtures and glassware to have all firms bid on the same fixture and so to formulate the specifications for the glassware as to call for and require certain specific qualities.

The Cleveland School Board has adopted certain fixture designs as standard and have formulated "standard specifications for fixtures and reflectors." The specifications and the general details of the standard class room fixture are given in Appendix B.

There has not as yet been adopted in Cleveland or elsewhere, as far as is known, standards for the performance of glassware for direct lighting in class rooms.

Few cities have undertaken at one time so large a program as has been carried out in Cleveland and it is hoped that this resume of the work done in this instance may be of value to others.

The following specifications are suggested as a basis on which enclosing diffusing globes for direct lighting service might be purchased. The limits stated are put forth for discussion and very probably should be changed in some particulars.

Continued from Page 45 of our January 3 issue.

APPENDIX A

Suggested Specifications for Enclosing Globes of Diffusing Glass for School Rooms

In the following it will be understood that the standard allowance mentioned is to be met by the average test examples, selected at random by a representative of the Board of Education.

The number of samples so to be selected and tested shall be

Lots of less than 100 ..... 2 samples
Lots of 100 or more and less than 200 3 samples
Lots of 200 or more and less than 400 4 samples
Lots of 400 or more ..... 5 samples

The bidder shall include in his price bid the cost of making these tests at the laboratory designated by the Board of Education. The number of samples stated above is the minimum number to be tested. The bidder may, if he wishes, specify a greater number of samples to be tested.

(*A*) The total output, with a standard clear bulb, uncolored Mazda C lamp as the light source, and with the light center placed at the approximate center of the globe, should be in excess of 75 per cent without reflector over the opening; that is, the opening should be covered throughout the test with a black covering absorbing at least 90 per cent of the incident light.

(*B*) Tested as in *A*, the 0 to 60 degree zone should contain at least 25 per cent of the total bare lamp lumens.

(*C*) In the case of lighting units of substantially uniform brightness, it is most important to limit the average brightness of the entire light source. Therefore, the horizontal globe diameters in Table V are the minimum acceptable for use with lamps of the sizes and light outputs as listed.

In addition to a sufficiently low average brightness determined by the diameter of the diffusing

globe, it is also important that the maximum brightness at any section to which the eye is exposed should not be unduly great. In Table V, therefore, allowances for candlepower from the brightest square inch of the globe are given for measurements to be taken at angles of 35° and at

TABLE V.

Size of lamp	Lamp lumens	Horizontal diameter of globe in inches	Candlepower from brightest sq. in.	
			Zone 35 degrees	Zone 70 degrees
100	1300	14	3.0	2.5
150	2100	16	3.5	3.0
200	3100	16	4.5	4.0
300	4900	18	5.5	5.0

70° above nadir. The brightness limit at 70° is restricted more closely than at 35° since high brightness at the higher angles tends to be more productive of glare. The measurement at 35° is considered representative of the zone 0° to 50°, the measurement of 70° is considered representative of the zone 50° to 90°. In case of equipment which gives evidence of unusual variations of brightness over the surface, additional brightness readings in these zones may be made to determine the maximum brightness for each zone.

(*D*) Some globes which otherwise are acceptable, may be so thin in places as not to withstand ordinary handling to which they would be subjected in service. Also, it is important that the support of the globe be sufficiently strong so that there is no likelihood that the globe would fall as results of breakage of the holder lip. It appears, therefore, that a practical specification as to the weights of globes would be one which provides for resistance against breakage in handling or when supported from the holder. Some statement should be included as to the crushing pressure applied to the bottom of the globe which should be withstood by test samples, and also weights which the test globes should withstand when supported by the standard holder. No figures have yet been derived for these tests.

A means of insuring compliance with the above specifications would be, to arrange in the contract form, to subtract from the price bid, the following amounts per globe furnished if the average of the test samples falls below the standards indicated.

The light output of the globes in the 0° to 60° zone very largely determines the effective illumination in the school room. It is important, therefore, from the standpoint of cost of lighting, that the unit show a satisfactory output in this zone. The specification might provide for the following penalties for non-compliance with the standard specifications of light output in the 0° to 60° zone as indicated by (*C*).

Less than 25 per cent but more than 24 per cent, subtract 10 per cent from globe price.

Less than 24 per cent but more than 23 per cent, subtract 20 per cent from globe price.

Less than 23 per cent but more than 22 per cent, subtract 30 per cent from globe price.

Less than 22 per cent not acceptable.

Upward light not only increases the cheerfulness of the appearance of the room, but also contributes to softening shadows by providing for a certain amount of well diffused illumination redirected from the ceiling. In Table VI, therefore, is given an additional scale for deduction for non-compliance with the standard total globe output. Two ranges are given depending on whether the test globes comply in all respects with the brightness allowance or whether they fail to comply with the brightness allowance specifications.

It would probably be necessary to call for separate bids for fixtures and glassware, should a penalty clause be attached to the specifications. A maximum brightness value would also need to be specified, above which glassware would not be accepted.

TABLE VI

Total globe output as determined under (A).		
	If globes comply with maximum brightness allowance; subtract,	If globes exceed maximum brightness allowance, subtract,
Over 75%	0%	10%
Less than 75% but 74% or more	3%	13%
Less than 74% but 73% or more	6%	16%
Less than 73% but 72% or more	9%	19%
Less than 72% but 71% or more	12%	22%
Less than 71% but 70% or more	15%	28%
Less than 70% but 69% or more	18%	28%
Less than 69% not acceptable.		

As stated, these specifications are in a formative stage and suggestions as to tolerances and values will be welcomed.

APPENDIX B

Standard Specifications for Class Room Fixture Type "E." Adopted by Cleveland School Board

Each fixture shall be made up of material arranged and assembled as follows:

A three-eighth inch by three-eighth inch hickey shall be screwed to a three-eighth inch iron pipe stem, then covered by a three-quarter inch diameter No. 22 B. & S. Gauge Brass Casing, that shall show no trace of seam, when finished. The casing shall be held in place at the top by the hickey and at the bottom by a smooth finished solid brass loop, which shall be screwed to the three-eighth inch iron pipe stem. This part of the fixture shall be five and one-half inches in length from end of hickey to top of loop.

Another solid brass loop shall be screwed to

three-eighth inch pipe stem, then covered by casing, as called for above. The loop shall hold the casing firmly in place at the top. At the bottom the iron pipe stem shall be screwed to a solid

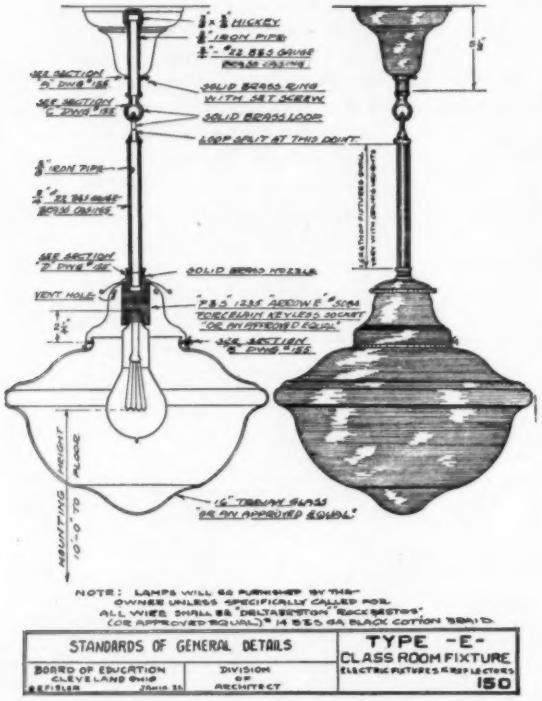


Fig. 10. Standards of general details of Type E luminaire

turned brass nozzle, recessed to receive and hold in place the casing.

The reflector holder shall be a six (6″) inch, two (2) piece spun holder, made of No. 20 B. & S. Gauge Brass and covered with white porceloid enamel on the entire inside surface. It shall be as shown in Figure 10 and the depth shall vary with other glassware than "Trojan" to bring the center of lamp filament to proper focal point.

The holder shall be complete, having only two (2) flanged eyelets and upset supporting screws together with an approved locking device or lock nut. The other two (2) supports shall be heavy brass studs, securely riveted and soldered in place.

The top of holder shall be flattened to permit iron cap of socket fitting up tight and in all cases the socket shall be placed against the top of holder.

Socket shall be "P. & S." No. 1235 "Arrow E" No. 5084, or equal. The location of this socket shall be such that the distance from center of holder screws to top contact in socket shall be two and three-sixteenths (2 3/16″) inches for the "Trojan" Unit.

The glassware for this fixture shall be Ivanhoe Trojan sixteen (16″) inch, Macbeth-Evans No. 4386 sixteen (16″) inch with six (6″) inch fitter not drilled, or their approved equal.

APPENDIX C

Key to Lighting Units

No.	Name of unit	No.	Name of unit
1	3756 Monax 14″	11	Apollo
2	12″ Trojan	12	4 in 1
3	3869 Monax	14	Filterlite
4	Ace	15	Gillender Cased Glass
5	1840 Macbeth-Evans	16	Cora Cased Glass 14″
6	11812 Phoenix	17	Cora Cased Glass 16″
7	14″ Trojan	18	16″ Trojan
8	4138 Monax	19	16″ Keldon
9	14″ Keldon	20	4386 Monax 16″
10	Duplexalite		

THE HOSPITAL FLOOR

Report of the Committee on Floors of the American Hospital Association

IN order to make recommendations for floor surfaces suitable for use in hospitals the American Hospital Association appointed a Committee on Floors which committee, after a more or less continuous study over a period of two years, made a report in September, 1922.

The Committee first established definitions of the properties to be considered, as a basis on which to issue questionnaires.

Ten properties were classified, as follows:

Appearance. The condition of the floors at least one year after installation and use. (This proviso is made since some floor materials do not show their characteristic defects before that time, and because a comparison of brand-new work would not furnish a true indication of merit.) Appearance is also the "natural" attractiveness of the material, its color range, texture and its decorative value in an architectural sense. The permanency of colors, their non-fading qualities and the non-staining properties are also part of "appearance."

Sanitation. Principally the non-absorbency of the material, the relative ease and effectiveness

of ordinary cleaning operations, and its property of showing up dirt, instead of hiding it. In this sense sanitation implies therefore the sum total of a variety of properties, which, on the one hand, prevent the accumulation or absorption of microscopic and macroscopic dirt, and on the other, facilitate their easy and complete removal. The condition of the material after a year or more of use should be taken for purposes of proper rating. In considering this property there must be taken into consideration the relative property of joints, or joining materials, if any.

Durability. The resistance of the material to time, to temperature and humidity changes, decay, disintegration; the resistance to abrasion incident to hospital traffic, shoe-nails, sharp casters, sand, grit. Uniformity of wear is a vital factor of durability, since the value of a floor depreciates more or less rapidly according to the early or late appearance of worn-out spots in places where a satisfactory walking surface is of most importance. In toilets, the hydro-therapeutic and utility rooms, where standing water is a likely possibility, the probable disintegration or decay is a part of durability. Bond, *i.e.*, the adhesion of the material to its foundation is also assumed a factor of durability. This property of floor materials can be rated properly only from experience, because time is the determining element.

Maintenance. The ease with which the flooring is cleaned, the necessity for care, for surface treatment (such as waxing, etc.), for refinishing, for repairs and the economy of such procedures.

Noiselessness. The property of being non-resonant, non-vibrant.

Comfort. Comfort under foot, as to shock absorbing qualities and temperature, surefootedness, evenness of surface.

Fire Resistance. The property of being non-combustible.

Acid and Alkali Resistance. Immunity from damage by occasional spilling of strong acid solutions and the property of resisting the effect of continuous use of soap, lye, cleaning and scouring compounds, and disinfectants.

Ease of Repair. The possibility of having small repairs made or patching done without upheaval and without the necessity for extensive renewal. Also the appearance of such repairs or patches.

Continuous Availability. The possibility of having facilities available eliminating necessity for shutting down certain rooms for refinishing, etc.

The following table is an attempt to establish a uniform division of hospital service, in order that there may be a standard of division, and that replies may be given on comparable types of service. It also attempts to establish a uniform requirement for various types of floors and to represent a composite opinion as to what ratio each of these requirements should hold in a consideration of a floor for any particular service.

In rating, consideration must be given to the maximum of demand for any given property and then decision made as to the extent to which that demand enters into the particular service under discussion. To illustrate specifically, as between Private Rooms, Operating Rooms and Service Corridors: Appearance is a most important factor in Private Rooms and would probably be rated at 90 per cent to 100 per cent. In the Operating Room it is important but not to such a great extent and would probably be rated at 50 per cent to 60 per cent. In the Service Corridor it is least important and would be rated at say, 25 per cent. As regards Sanitation, while it is important in a Private Room, the necessity for it as a property, as compared with other services in the hospital, is small and therefore the rating for purposes of this questionnaire would be about as follows: Private Rooms, 15 per cent; Operating Rooms, 100 per cent; Service Corridors, 60 per cent.

COMPOSITE OF TEN ANSWERS	See "Explanation" for Method of Rating								
	Appearance	Sanitation	Durability	Maintenance	Noiselessness	Comfort	Acid & Alkali Resistance	Ease of Repair	Continuous Availability
Private Rooms	90	84	75	67	77	77	33	62	53
Wards	75	70	81	79	79	82	67	67	77
Service Rooms—Utility Service Kitchens, Toilets, Baths	41	69	70	75	36	32	54	62	73
Corridors	83	65	80	86	75	52	43	68	75
Service Corridors	29	63	86	73	48	35	49	59	72
Laboratory	34	63	73	66	32	45	77	54	60
Operating Rooms	62	96	86	81	50	51	74	84	67
Out-Patient Department Treatment Rooms	46	84	81	76	47	43	60	59	57
Out-Patient Department Corridors	59	58	78	70	60	37	36	72	74
Kitchens Except Service Kitchens	59	73	80	79	48	48	42	62	69
Offices	74	50	71	65	54	50	24	56	61
Laundry	39	70	87	82	22	41	41	55	67

Table 1. A division of properties of floors according to services in hospitals

Table No. 2 is a division of various types of flooring into twelve major groupings and an attempt to evaluate how closely these various groups of floors approach the ideal.

In rating, one must vizualize a flooring that is ideal insofar as the particular property under consideration is concerned, and then determine to what degree the particular flooring measures in terms of percentages as regards the property under consideration. To illustrate: Considering the property of Sanitation, hardwood, by reason of cracks, absorbency, etc., would get a low rating, say 25 per cent; ceramic mosaic tile and slate

would get 100 per cent except for the joints, and should be rated at say 85 per cent, 90 per cent, or 95 per cent, dependent upon the opinion of the individual as to how important a factor this is, *ad infinitum*.

Aside from the two tables of ratings the questionnaire was not a success. A schedule of physical and chemical tests was then prepared. One hundred and twenty-seven companies were invited to co-operate of whom fifty-five sent samples of fifty-six kinds of flooring. Of the remaining companies some did not respond, some do not now manufacture floor material, a few sent samples too late and others sent too few samples to be included in the report.

COMPOSITE OF TEN ANSWERS	See "Explanation" for Method of Rating									
	Appearance	Sanitation	Durability	Maintenance	Noiselessness	Comfort	Acid & Alkali Resistance	Ease of Repair	Fire Resistance	Index of Merit
Hardwood Oak, Maple, Birch, Hard Pine	76	30	60	46	52	63	52	59	17	455
Magnesite Composition—Monolithic or in blocks with or without integral Chips	59	75	51	73	63	73	55	46	76	571
Rubber—Rubber Tile Rubber Carpet—Rubber Runner	70	76	62	77	91	91	55	82	35	639
Cork Cork Tile—Cork Carpet	65	57	57	63	93	96	61	77	32	600
Linoleum—Battleship	78	77	66	70	90	92	63	67	41	646
Vitreous Clay Tile White and Colored	81	92	89	92	41	41	80	61	98	685
Ceramic Mosaic Tile White and Colored	83	84	90	84	35	37	89	66	98	666
Marble White and Colored	79	84	77	82	40	42	60	65	94	623
Terrazzo Monolithic or in Blocks	84	88	86	82	38	39	65	46	98	626
Marble Mosaic White or Colored	87	85	85	90	42	45	62	62	98	654
Slate Black or Green	69	91	88	92	53	50	84	75	99	701
Concrete With or Without Hardener	39	69	77	69	35	35	85	52	99	560

Table 2. An attempt to evaluate various types of floors to the idea

While most of the wood flooring associations submitted samples, no gradings were made for the reason that no sample of wood floor can in any measure approximate actual service conditions. There are conditions under which wood floors may be used in hospitals but they are special ones which the committee felt did not fall within the scope of the report.

The committee noted the growing tendency, by reason of the apparent economy of maintenance, to make installations of certain of the hard types of flooring. It is believed however, that insofar as possible those parts of the hospital allocated to patient occupancy and corridors should be treated with the so-called soft type of floors.

There is a definite objection to the soft type of flooring in that it has not the durability of some of the other types. This objection was well founded up until the last few years. There has been, however, a development in this type of flooring that apparently has retained all of the advantages of the former group of soft floors, at the same time has overcome the objection of pitting, and seems to offer a resistance to abrasion which compares very favorably with the hard types of flooring.

The committee commented on the vast difference of efficiency of various floorings of the same general type and interested individuals are referred to the full, detailed report which may be obtained from the American Hospital Association, Chicago, Ill.

The conclusions reached are given in the following:

TABLE OF RECOMMENDATIONS

	Soft Type	Hard Type
1 **Private Rooms**		
First Choice	Re-inforced Rubber.	Terrazzo in Blocks
Second Choice ..	Battleship Linoleum.	Concrete with integral hardener and coloring .....
Third Choice ...	Soft Mastic	.....
2 **Wards**		
First Choice	Re-inforced Rubber.	Terrazzo in Blocks
Second Choice ..	Battleship Linoleum.	Concrete with integral hardener and coloring .....
Third Choice ...	Soft Mastic	.....
3 **Service Rooms (see note)** Utility, Service Kitchens, Toilets, Baths		
First Choice	Re-inforced Rubber.	Flint Tile (Various Colors)
Second Choice ..	Battleship Linoleum.	Slate
Third Choice ...	Soft Mastic	Concrete with integral hardener and coloring .....
4 **Corridors**		
First Choice	Re-inforced Rubber.	Terrazzo in Blocks
Second Choice ..	Battleship Linoleum.	Concrete with integral hardener and coloring .....
Third Choice ...	Soft Mastic	.....
5 **Service Corridors**		
First Choice	No Recommendation	Asphalt Mastic
Second Choice ..	.....	Concrete with integral hardener and coloring .....
Third Choice ...	.....	.....
6 **Laboratories**		
First Choice	Re-inforced Rubber.	Quarry Tile
Second Choice ..	Battleship Linoleum.	Terrazzo in Blocks
Third Choice ...	Soft Mastic	Concrete
7 **Operating Rooms**		
First Choice	Re-inforced Rubber	Flint Tile
Second Choice ..	Battleship Linoleum.	Terrazzo in Blocks
Third Choice ...	Soft Mastic	Slate
8 **Out-Patient—Treatment Rooms**		
First Choice	Re-inforced Rubber.	Terrazzo in Blocks
Second Choice ..	Battleship Linoleum.	Concrete with integral hardener and coloring .....
Third Choice ...	Soft Mastic	.....
9 **Out-Patient Corridors**		
First Choice	Re-inforced Rubber.	Terrazzo in Blocks
Second Choice ..	Battleship Linoleum.	Concrete with integral hardener and coloring .....
Third Choice ...	Soft Mastic	.....
10 **Kitchens**		
First Choice	No Recommendation	Quarry Tile
Second Choice ..	.....	Terrazzo in Blocks
Third Choice ...	.....	Concrete with integral hardener and coloring .....

11 Offices		
First Choice	Re-inforced Rubber.	Terrazzo in Blocks
Second Choice ..	Battleship Linoleum.	Concrete with integral hardener and coloring .....
Third Choice ...	Soft Mastic	.....
12 Laundry and Comparable Services		
First Choice	No Recommendation	Concrete with hardener and coloring

NOTE—On Baths and Toilets ceramic tile can be used to very good advantage, in fact is preferable to flint tile.

Revenue from High Buildings

IN connection with the study of zoning laws for Chicago, Mr. George C. Nimmons serving upon a committee of the Chicago Real Estate Board made a study of the income derived from the rental of buildings. The results were given in the November *Journal of the American Institute of Architects.*

The assumption was made of a building in the form of a hollow square, this being the type represented by a large percentage of office buildings in Chicago. It was assumed that the site was a corner lot 160 ft. x 172 ft. with streets on two sides, an alley on the third and adjoining property on the fourth. It must be admitted that this is an assumption of ideal conditions for an office building regardless of height.

Estimates were made of the cost for a 5, 10, 15, 20, 25 and 30 story building on the lot. The land value was placed at $1,500,000, the cost of the building at 60 cts. per cu. ft. plus variations for its different heights. Taxes, insurance and operating costs were included at the average local rates. Depreciation of the value of the building was not included. The income was computed on the basis of an average of $5.00 per sq. ft. for shop or store space and $3.00 per sq. ft. for office space.

Land values are based usually on probable income. It is questionable whether this item should have remained constant for all heights of buildings.

The calculations show that the 5-story building earns annually 4.36 per cent on the capital invested, the 10-story 6 per cent, the 15-story 6.82 per cent, the 20-story 7.05 per cent, the 25-story 6.72 per cent and the 30-story 5.65 per cent. The study reveals that while it will cost more money to build two 15-story buildings than one 30-story building, each of the former will earn 6.82 per cent on the investment while for the 30-story building the earning will not be more than 5.65 per cent.

These figures are based on present conditions in cities without zoning laws, with land values largely speculative, and possibilities of creating new high building areas when the price of land in built up areas becomes too high for investment purposes. Obsolescence as well as depreciation should be figured. Tenants show a desire to move into less congested districts when transportation difficulties become acute and the cost of artificial light becomes too large a factor in overhead costs.

Measuring Light

THE fact that hollow spheres can be used for measuring the total light given by a lamp has been known for some time, but recently their use has increased very greatly because the new gas-filled lamps which have an irregular shaped coil filament cannot be very well measured with any other apparatus. Consequently, every factory or laboratory which wishes to make accurate measurements of such lamps has to have a sphere. For such work there are used spheres ranging from 3 inches to 9 feet in diameter.

The Bureau of Standards at Washington in Scientific Paper No. 447, describes a large sphere built at that Bureau and gives a complete explanation of the theory of spheres as light measurers and of the precautions which must be taken in order not to make mistakes when using them. The particular sphere described is 88 inches in diameter and weighs about a ton. It is simply a large, hollow, white-walled ball, inside which a lamp can be placed with a small window so that the brightness of the inside wall can be observed. The light is reflected back and forth between different parts of the white surface, and the sphere has the peculiar property that every part of its surface automatically sends to every other part exactly the right fraction of the light, so that the reflected light falling on the window correctly represents the total amount of light produced by the lamp.

This is true even when the lamp gives all its light upward or downward or in any other direction as well as when the light is given off in all directions. Consequently, a single measurement of the brightness of this window shows the total light given by the lamp.

First Aid Fire Appliances

A BOOKLET in which all architects should be interested has been issued by the National Board of Fire Underwriters, on the subject of first aid fire appliances.

In order to express the relative values of First Aid Fire Appliances, Underwriters' Laboratories have adopted the following classification plan:

CLASSIFICATION OF FIRES:

For all practical purposes there are three general classes of incipient fires:

CLASS "A" FIRES may be defined as incipient fires in ordinary combustible materials where the "QUENCHING" and cooling effect of quantities of water, or solutions containing large percentages of water, is of first importance.

CLASS "B" FIRES may be defined as incipient fires, in small quantities of inflammable liquids, greases, etc., where a "BLANKETING EFFECT" is essential.

CLASS "C" FIRES may be defined as incipient fires in electrical equipment, where

the use of a "NON-CONDUCTING" extinguishing liquid is of first importance.

A unit has been adopted for convenience in measuring the fire protection afforded by first aid fire appliances.

This unit is composed of from one to five first aid fire appliances, depending upon the extinguishing value of the kind of appliances comprising the unit.

The classes of fires; the appliances suitable; and the number required for a unit, are set forth in the following table:

Kind of Extinguisher	Classification	Protection from Freezing Required?
2½ Gallon Soda-Acid	A-1	Yes
1½ Gallon Soda-Acid	A-2	Yes
2½ Gallon Foam	A-1; B-1	Yes
2½ Gallon Calcium Chloride	A-1	No
5 Gallon Pump Tank	A-1	Yes
2½ Gallon Pump Tank	A-2	Yes
22 Gallon Bucket Tank containing 5 Standard Fire Pails	A-1	Yes
50 Gallon Cask with 3 Standard Fire Pails	A-1	Yes
12 Quart Standard Fire Pail	A-5	Yes
12 Quart Foam Fire Pail	A-5; B-5	Yes
1 Quart Special Tetrachloride	B-2; C-2	No
1½ Quart Special Tetrachloride	B-2; C-2	No

The classification "A-1" signifies that the appliances so classified are suitable for use on "A" fires and that one such appliance is required to make one unit of First Aid Fire Protection. The Classification "B-2; C-2" signifies that the appliance so classified is suitable for use on Class "B" fires and Class "C" fires, and that two such appliances are required to make one unit of first aid protection, etc., etc.

A small quantity of water or other extinguishing agent used intelligently at the start of a fire, may easily be more effective than the work of an entire fire department five minutes later.

First Aid Fire Appliances are essentially what the name implies: apparatus provided close at hand for immediate use when needed.

It should be understood that they are designed to cope with fires in their incipiency and are not to be regarded as a substitute for automatic sprinklers.

Various types of first aid fire appliances are described in the booklet. Each type is of value, but all are not equally desirable for all conditions. On this account consideration should be given to the particular needs of each individual property.

The requirements given are, in general minimum and the Inspection Department having jurisdiction should be consulted in all cases.

While the methods of operation of the various types of apparatus are generally apparent from their very nature, it is important to give instructions to occupants of buildings in order that all may understand their purpose and how to use them effectively. These instructions should be supplemented by yearly or more frequent demonstrations.

It is extremely important that the instructions regarding maintenance should be carefully followed so that the first aid fire appliances will be always fully charged; in their designated places at all times; and in a condition which will permit efficient operation at any moment without delay.

In buildings where appliances are likely to be obscured by piles of stock, lumber, etc., it is desirable to paint on the walls or on boards located well above the appliances, a sign approximately one foot wide by four feet long, consisting of alternate diagonal stripes of sharply contrasting colors. This sign becomes familiar, immediately brings the appliance into prominence and will save valuable time in case of emergency.

In many industries temporary hazards occur from time to time. A good practice is to maintain a few portable stands or racks consisting of a horizontal bar on uprights with feet. Locate these stands as necessary and hang on them such first aid appliances as are suited to the "Special Hazard" to be protected.

So-called fire extinguishers, consisting generally of sheet metal tubes filled with mixtures of bicarbonate of soda and other materials in powdered form or of glass bottles filled with chemical solutions and designed to be hurled at the seat of the fire are not recognized as fire extinguishing appliances.

Building Costs

IN THE AMERICAN ARCHITECT for November 22, on page 474 some itemized costs were given for an average residence. They were given by the Copper & Brass Research Association and in reply to inquiries by some readers the following additional information has been received from the Association:

"The cost figures were compiled from data collected by the Chemical National Bank of this city and cover costs in March 1922 of small frame houses having about eight rooms and about 25,000 cu. ft. of volume. The cost per cubic foot for these figures is around 30 cents.

"The masonry includes excavation, foundations, chimneys, plaster and tile work and the carpentry includes not only the carpentry work but the glazing.

"While these costs in this particular instance are for a frame house, we f ıd that there is only a

slight change when the brick house is considered, in which case, of course, the carpentry figure is decreased and the masonry increased."

Indianapolis Adopts Zoning

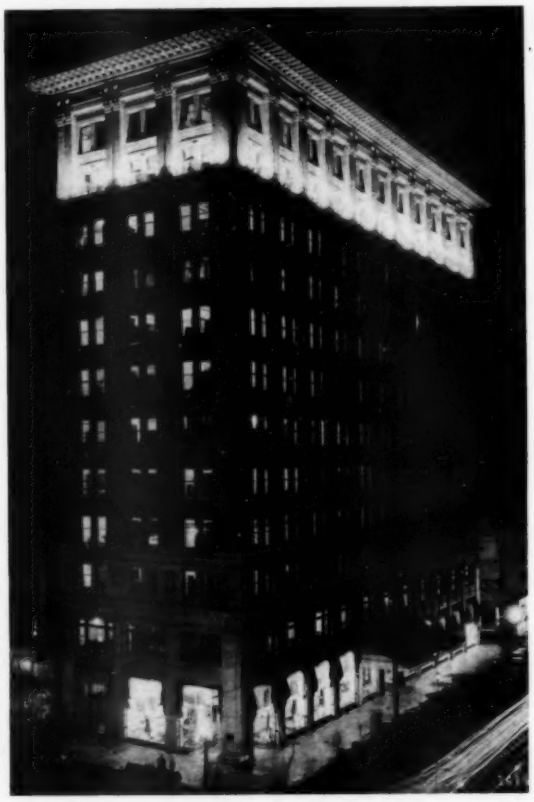
INDIANAPOLIS adopted a zoning ordinance November 20 by a unanimous vote of the Council. On November 27 the ordinance was approved by the Mayor. This is the first zoning ordinance to be adopted by any Indiana city under the authority of the State Enabling Act adopted in 1921.

The use districts established are: (1) dwelling house; (2) apartment house; (3) business; (4) first industrial and (5) second industrial.

The area requirements are designed to spread out the population, prevent congestion and promote a detached house development. 7,500 square feet of lot area per family is required in a limited section, 4,800 square feet per family in the less developed areas around the borders of the city; and 2,400 square feet or two families to the ordinary 40 by 120 foot lot throughout the rest of the dwelling house area. In much of the area in which apartment houses are permitted 1,200 square feet per family is required; in limited portions of the apartment house districts only 600 square feet per family is required; and in very limited areas suitable for hotels and apartment with elevators, there is no limit as to the number of families that may be housed on a given area. Front, rear and side yards are required in all residence districts.

In the height district allowing maximum height, the limit is 180 feet, except that for a street 100 feet or more in width, the limit is 200 feet. As practically all of the streets in this district are 90 feet in width the limit is really based on two times the street width. Washington Street with a width of 120 feet is the only street where the 200 foot height will be allowed at the street line. Greater height will be permitted with a set back in the ratio, 1 to 3; but this set back must be from all lot lines as well as from street lines. The City Plan Commission first recommended a height limit of 150 feet but later agreed to the 180 foot limit as a compromise with the down town owners who asked for the retention of the then existing limit of 200 feet.

Work on the zone plan was begun by the City Plan Commission in January of the past year. A careful zoning survey was made and many conferences were held before the ordinance was finally submitted to the Council. The zoning had the active support of the Chamber of Commerce, the Real Estate Board and other civic organizations. Mr. Robert Whitten is Consultant and Lawrence V. Sheridan is Secretary and Engineer of the City Plan Commission.



An interesting example of flood lighting
The A. Mattei Building, Fresno, Cal.
E. Mathewson, Architect

Notes for Designers of Heating Systems

A BLUEPRINT of a useful chart for figuring radiation has been received by THE AMERICAN ARCHITECT from Mr. J. N. Victore, Park Theatre Building, Youngstown, Ohio. It is on ruled paper accompanied by full instructions for use. Every combination of building materials in general use is provided for, with factors of heat transmission tabulated in convenient form.

Professor L. S. O'Bannon of the University of Kentucky is making a study in the Heating and Ventilation Department of Carnegie Tech., of data which it is believed will enable the sizes of pipes and valves in one-pipe heating systems to be determined readily.

American Concrete Institute

THE annual convention will be held in Cincinnati, at the Hotel Sinton, Monday to Thursday, January 22-25. Harvey Whipple Secretary.

THE AMERICAN SPECIFICATION INSTITUTE

Member of The American Society for Testing Materials

19 South LaSalle Street, Chicago, Illinois

THE Board of Governors represent memberships in the following national societies: American Institute of Architects; American Society of Civil Engineers; American Society of Mechanical Engineers; American Institute of Electrical Engineers; American Society for Testing Materials; American Concrete Institute; American Iron and Steel Electrical Engineers; which indicates the scope and activities of The American Specification Institute.

The American Architect and the Architectural Review has gratuitously set apart this section for use by The American Specification Institute. The Editors and Publishers assume no responsibility for any statements made, or opinions expressed.

The purpose, simply stated, is to afford an organization which, it is believed, will become a most important element in architectural practice and building operations, a medium through which it may, without expense to itself, reach a class of readers that are most intimately identified with the field of the activities of The American Specification Institute.

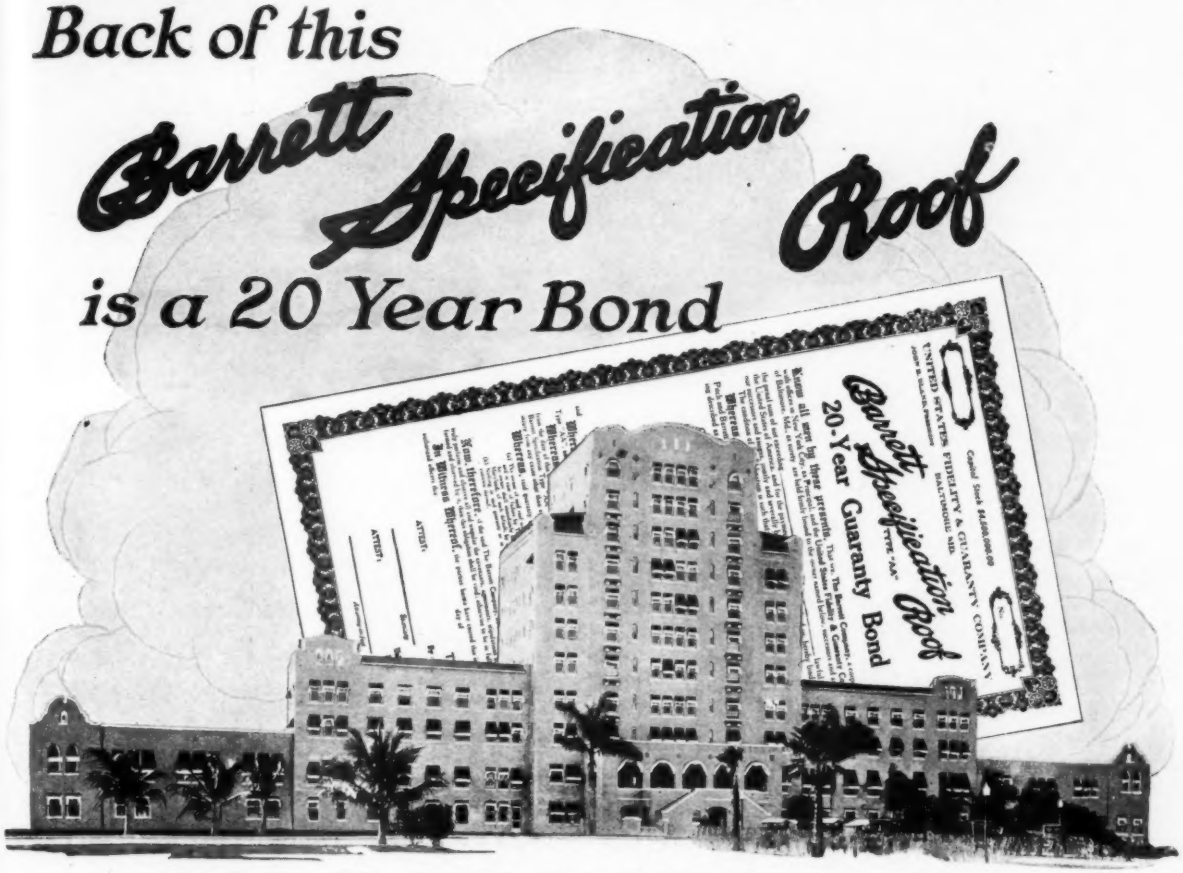
Publishers, The American Architect and
The Architectural Review.

THE Board of Governors has in contemplation the preparation of material that will form a specification for the production of specifications. This work is based on Bulletin No. 5 in part and in part on certain standards of form that have been developed in the preparation of bulletins as expressed more especially in Bulletins No. 13 *et seq.* This specification is intended to portray the building up of a complete document in the best sort of fashion and will embrace all factors that enter into its preparation. The Board of Governors is desirous of receiving from members suggestions they may have on any of the following topics:

The Purpose of a Specification
The Scope of a Specification
The Qualifications of a Specification Writer
Suggestions for Additional Clauses for General Conditions of the Contract
Subject outlines
Sources of Information that should be available to a Specification Writer
Composition of a Specification

It is felt that the preparation of such a document will go far toward concentrating the thoughts of members on the various phases indicated by the topics named, in that it cannot be gainsaid that the codification of rules governing the qualifications of specification writers and of the material that enters into the preparation of the document cannot be of very great help to those interested in producing specifications of the highest class. So far as the knowledge of the members of the Board of Governors goes, nothing of this kind has ever before been attempted, and for that reason the Board wishes the co-operation of all members in the accumulation of data in reference to all factors having to do with the subject "A Specification for Specifications." This matter will be published in the form of a bulletin as soon as possible and the members desiring to contribute suggestions for this document are requested to do so at the earliest possible date. The Board of Governors wishes to acknowledge the many helpful suggestions that have been received from members in the past and bespeak their earnest co-operation in this endeavor to supplement Bulletins No. 4, No. 5, and No. 11, with a document that cannot be equalled.

Back of this Barrett Specification Roof is a 20 Year Bond



Barrett Specification 20-Year Bonded Roof on Flamingo Hotel, Miami, Fla. Architect: Rubush & Hunter, Indianapolis, Ind. Gen'l Cont.: The Flamingo Co., Miami. Roofer: Cureton Lumber Co., Miami.

Regardless of Climate—the Bond Holds Good

There are no climatic restrictions on the Surety Bond back of the Barrett Specification Roof.

Take the roof on the Flamingo Hotel, in Miami, for instance.

Florida *winters,* of course, are easy on roofs. There's no snow, no frost, and practically no rain. But the *summers* are different. Miami's annual rainfall is exceptionally heavy — averaging over 63 inches. Most of it comes in the four warm months, June to September. And combined with this excessive rainfall are continuous high humidity and the intense heat of the tropical summer sun. Here is a roof-test even more rigorous than a Northern winter.

But all climates are alike to the Barrett Specification Roof. So the roof that protects the beautiful Flamingo Hotel, in Miami, from Florida summers, and the roof that protects the palatial new Mount Royal Hotel in Montreal from Canadian winters, are *both* bonded against repair and maintenance expense.

Two types of Bonded Roofs

There are two types of Barrett Specification Bonded Roofs—Type "AA," bonded for 20 years; and Type "A," bonded for 10 years.

We will gladly send you on request complete information regarding these bonded roofs and copies of The Barrett Specifications. Kindly address our nearest office.

New York Chicago Philadelphia Boston St. Louis Cleveland Cincinnati Pittsburgh
Detroit New Orleans Birmingham Kansas City The Barrett Company Minneapolis Dallas Salt Lake City Atlanta
Bangor Youngstown Toledo Columbus Richmond Baltimore Omaha Houston
Denver

THE BARRETT COMPANY, Limited: Montreal Toronto Winnipeg Vancouver St. John, N. B. Halifax, N. S.

John Stewardson Scholarship Awarded

OTTO M. OLSEN, a post-graduate student at Carnegie Institute of Technology, Pittsburgh, has recently been awarded the John Stewardson Memorial Scholarship in Architecture, for 1922. In winning this, the most coveted prize for young architects in Pennsylvania, Carnegie Tech. students have won the scholarship for two consecutive years, and three times in the last five years. H. L. Rubin won it in 1917 and Russell F. Simpson was the holder last year.

The scholarship, valued at one thousand dollars, is a memorial established on the basis of a fund donated by John Stewardson, noted architect of Philadelphia, who died 23 years ago. Candidates are restricted to architects, 22 to 30 years of age, who have completed at least one year's office experience and two years in an approved school of architecture, and must have studied or practiced architecture in the State of Pennsylvania for the period of at least one year immediately preceding the scholarship award. The scholarship includes a year's travel in Italy, France, Greece, and Spain. More than 120 architects entered this competition.

Exhibition of Work by Manufacturers and Designers

THE Exhibition of Work by Manufacturers and Designers showing study of the Metropolitan Museum Collections takes place this year from January 15 to February 28. This is the seventh in the annual series of these collections of current work by firms and individual producers engaged in the industrial arts who regularly come to the Museum for aids of many kinds in the production of home furnishings, costumes, scenery, jewelry and other objects in some forty trades represented in and near New York. Many designers and manufacturers now come from afar.

Indiana World War Memorial

THE Board of Trustees of the Indiana World War Memorial will receive, not later than March 15, at its offices in The Chalfont, Indianapolis, Ind., competitive designs, plans and specifications for a World War Memorial to be erected in the city of Indianapolis at an approximate cost of $2,000,000.

Full information in regard to this competition may be had by addressing Paul Comstock, Secretary, The Chalfont, Indianapolis, Ind.

PERSONALS

Charles R. Weatherhogg, architect, has moved his offices to 250 East Wayne Street, Fort Wayne, Ind.

Charles T. Olsen, architect, has moved his offices from 155 Main Street to 101 Main Street, Brockton, Mass.

George Hitchings, architect, announces the removal of his office from 20 Church Street, Boston, Mass., to 28 Benson Street, Whitman, Mass.

Announcement is made that Joseph Jackson has opened offices at 185 Church Street, New Haven, Conn., where he will practice his profession of architecture.

Axel V. Teisen, architect, will resume his practice of architecture at 4803 North Kedzie Avenue, Chicago, Ill. Mr. Teisen has only recently returned from Europe.

F. A. Hollingsworth, architect, announces the opening of offices for the general practice of architecture, in Suite 12, City Building, St. Augustine, Fla. Manufacturers' catalogs and samples are desired.

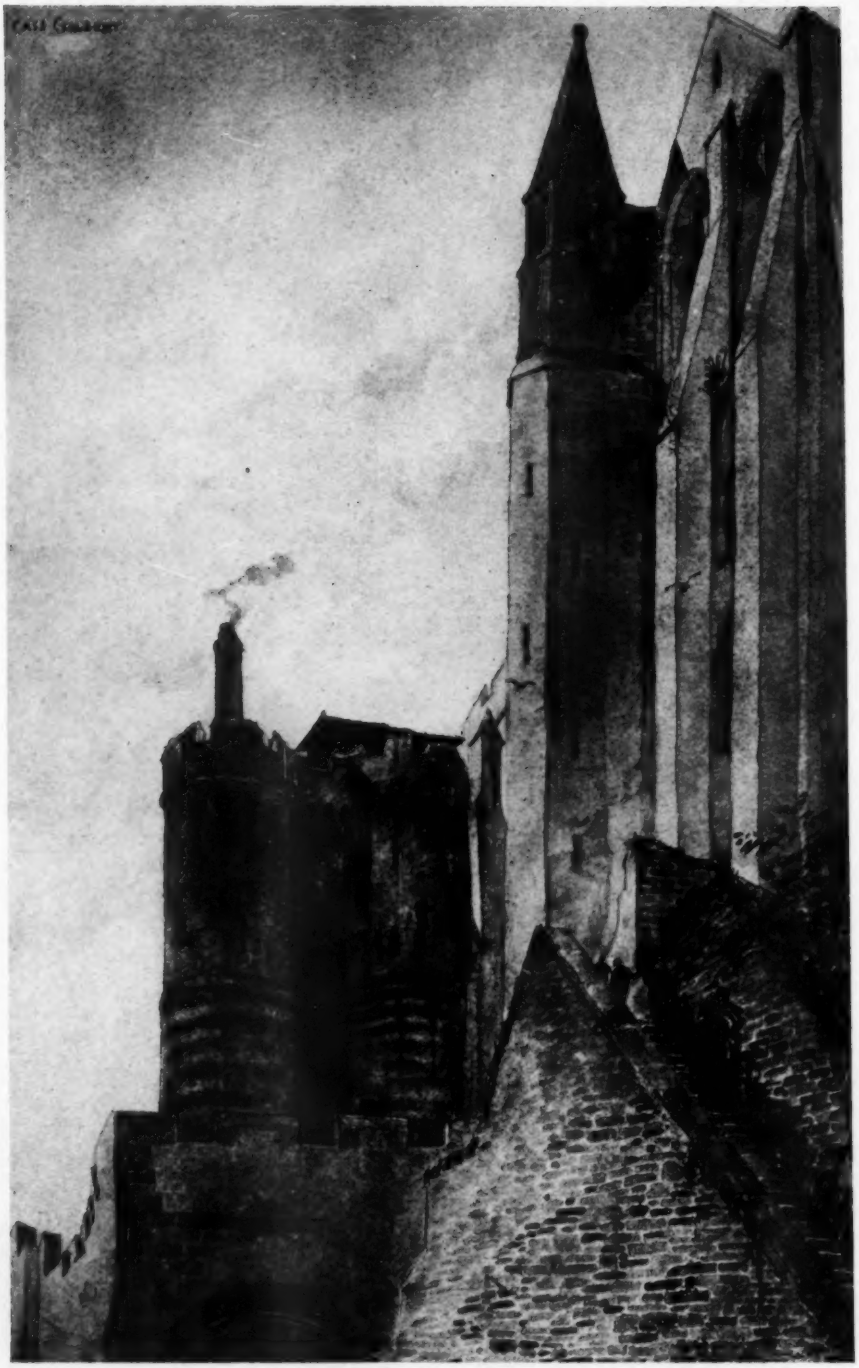
Announcement is made that J. A. Hallaren, architect, will resume his practice of architecture at 8 Supple Street, Roxbury, Mass. Manufacturers' samples and catalogs are desired.

Knapp & Haviland is the new firm name of architects with offices in the Capitol Bank Building, Charleston, W. Va. The old partnership known as Higginbotham, Knapp & Haviland has been dissolved.

Owen James Southwell, architect, announces the removal of his offices from the Metropolitan Theatre Building to the new Haas & Howell Building, Atlanta, Ga. New catalogs and other data are requested.

Byron H. Edward, architect, announces the opening of a branch office at 34 South Seventeenth Street, Philadelphia, Pa. Mr. Edward's main office is located at 1410 Atlantic Avenue, Atlantic City, N. J.

William Tallman, architect, has recently returned from a trip abroad and has opened new offices in the Winslow Building, New Bedford, Mass., where he would be pleased to receive manufacturers' catalogs and samples.



MONT ST. MICHEL, FRANCE

(From the original water color by Cass Gilbert)