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THE BABIES' HOSPITAL OF PHILADELPHIA

CARL A. ZIEGLER, Architect

ONE of the most discouraging facts about the practice of architecture in this country is that so few people have any proper conception of just what services the architect is called upon to render in connection with the buildings he is asked to design.

A former president of the American Institute of Architects may have had this in mind when he made the statement at a recent convention that "Architecture was a most delightful profession, but a H—— of a business."

There is no doubt that most of the laity have the same feeling about the architectural profession that a jovial son of Erin had of the Bishop's office, namely that "it is a nice, clean, easy job."

That an architect, before he can successfully house any industry must practically become an expert in that business, is a fact well known to the profession and whether it be a biscuit

factory, a sewage disposal plant, a model farm, a school or a hospital, an architect is obliged to know every phase of the problem before he can successfully meet the utilitarian requirements of the project.

Should the architect be a man of vision, he may have the audacity to suggest radical changes in the methods of carrying on the industry that he has been asked to house; in fact there are cases on record where

architects have been gratuitously elected to the status of stockholders in the company whose industry they have housed, because of the obvious increase in the efficiency of the plant due to the vision of the architects in housing it.

Of all the problems that an architect is asked to solve, there is perhaps none more interesting nor more exacting than the designing of hospitals.

The "rule of thumb" may be, and probably is, used in the planning of many structures and the unsophisticated practitioner may, by being sufficiently noncommittal, weather many a building committee meeting, but when facing a committee of medical experts, each zealous in the interest of his own specialty and with a highly scientific reason for every requirement, he had better, if unprepared, take a leaf from the book of the late Richard Hunt who, when called upon in his early practice to de-

sign a church building and being asked by one of the committee at their first meeting what he knew about acoustics, replied that he thought he knew as much about the subject as any other architect. "And what may that be" persisted his insistent interrogator. "Not a d—— thing," replied Mr. Hunt. The subsequent relations of the architect and the building committee were most amicable and the building a great success.

An examination of the hospitals in most of



View into Waiting Rooms

our Eastern cities discloses the fact that a large percentage of these buildings are purely makeshift; like Topsy they "were never born, but just grewed." Started in old buildings built for other purposes, they were added to from time to time and the marvel is that such excellent work has been done by the medical profession in such inadequate structures.



Roof Garden

To examine the hospitals in some of our larger cities and then to read a report on the requirements of a modern hospital, by such an expert as Dr. Goldwater causes one to realize what a handicap the medical profession has been laboring under for generations.



Chemical Laboratory

If the facts as they exist could be placed before the work-a-day world, who never go to hospitals unless they are forced to, we would have much larger sums subscribed for this purpose.

To the lay mind the hospital implies an operating room, wards, private rooms, etc., and rounded corners, flush doors and noiseless elevators and ramps have become bromidical in discussions on

the subject, but those who have given much study to the matter realize that the requirements of every hospital are different from the requirements of every other hospital and that the entire matter is in a state of evolution requiring expert consideration of every detail and no architect is capable of meeting these requirements successfully without the closest kind of co-operation with those whose theories and practices are to be worked out within the new building.

The Babies' Hospital of Philadelphia should perhaps not be called a hospital at all, as its purposes are quite different from those of the average hospital; and it must not be regarded in any sense as a Children's Hospital, for whom another building has been erected in Philadelphia.

The Babies' Hospital was built in the interest of babies up to about three years of age, those little tots who suffer so much from improper food, cloth-



Porches are provided in front of each cubicle, all of which are carefully screened

ing and environment and often from heredity, that great Moloch in whose lap the sins of the father are expiated by the children.

This building is in fact a great social service center, the result of ten years of experience and evolution, and is operated by a valiant body of men and women who are giving to the poor children of Philadelphia, without money and without price, the services of the leading babies' specialists of the city.

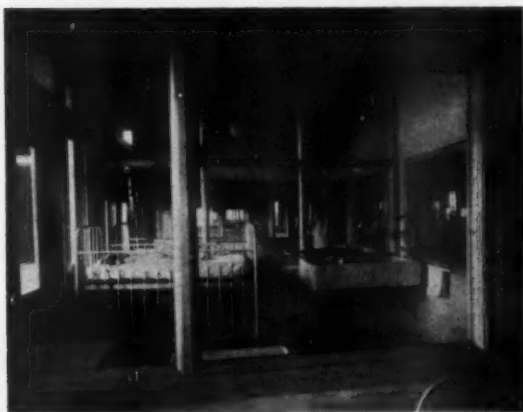
The work of the organization began in 1911 as a country hospital for treatment of summer diarrheal cases, but it soon became evident that placing a baby in a country hospital for a few weeks was only a temporary expedient and the rate of mortality among the poor children remained remarkably high. Visiting nursing was instituted and dispensary and home treatment was given under medical supervision. Where possible, the little patients were sent to other hospi-



Babies' Hospital, Philadelphia, Pa.
Carl A. Ziegler, Architect

tals, but owing to the great number of applicants, especially during the summer months, the facilities were inadequate.

A woman interested in the work of the organization donated a generous sum as a memorial to her husband and in 1917 a campaign resulted in the securing of a fund for the erection of the pres-



View through Cubicles

ent building. The building was erected upon a lot 90' x 100' at the corner of 7th and DeLaney Streets, which location is convenient to the poorer sections of the city and the fact that a modern public school building with a large school yard occupies the opposite corner, insures an adequate



Nurses' Observation Room, showing views through Cubicles

open exposure to the South, while the buildings across 7th Street to the West are restricted to a height of 16'-0"; all of which considerations were borne in mind before the purchase of the site.

By studying the first floor plan it will be observed that the mother who usually comes with the baby in her arms and one or more children clinging to her skirt is greeted at once by the clerk whose office is in the vestibule facing the entrance.

Should any of the children exhibit symptoms of contagious disease, they are sent down a short flight of stairs to the basement, which is above the grade and well lighted and ventilated, to the Isolation Rooms where they may be kept under observation. These Isolation Rooms have exterior doors leading to the street, so that the patient may be taken directly to the Municipal Hospital ambulance, if necessary, without coming in contact with any of the other patients.

Should the patients be passed by the clerk, they are sent up a short flight of steps to one of the two large waiting rooms on the first floor where they are met by an attendant and assigned to one of the enameled steel booths, of which there are about forty in each waiting room. These booths are 6'-0" high and were designed to prevent cross infections among the waiting patients.

While awaiting their turn for examination by the doctors, each mother is instructed to undress the baby and wrap it in a blanket or sheet pro-



Equipment of Cubicles, showing specially designed baby's bath

vided for that purpose. The medical history is taken by a nurse, the baby is weighed, temperature, pulse and respiration taken and recorded and the chart sent to the examination room, of which there are four in each of the two waiting rooms. Much of the family history is learned by the social service worker while the patients are occupying the booths, all of which is recorded in connection with the case. The examining rooms to which the patients are escorted are arranged so that they may be thrown together for teaching or demonstration work when required. They are well lighted and each is provided with special plumbing fixtures, examining table, etc. There is also a Specialty Room where treatment for teeth, ears, eyes, nose and throat is given. A social service worker or nurse is present during the examination and at its completion she conducts the mother and child to the Demonstration Room where the moth-



Detail of Main Entrance
Babies' Hospital, Philadelphia, Pa.
Carl A. Ziegler, Architect



Milk Preparation Room

er is given a practical demonstration of how to prepare the food or clothing prescribed by the doctor. Drugs are practically never used for children of this age.

Visiting nurses follow up the case in the home and social service and medical work go hand in hand and in this manner thousands of foreign born mothers, many of whom cannot speak the English language and who do not understand the first principles of hygiene are taught to care for their children in the most scientific manner.

Should the case require hospital care or study, the patient is sent to one of the emergency rooms on the sixth floor or to the Country Hospital, which is a part of this organization.

The second floor is given up entirely to the administration headquarters of the entire organization, city, country, and seashore. Rooms are provided on this floor for the staff, superintendent and office force, medical directors and social service workers.

The third floor is unassigned for the present and is awaiting future developments in the work before it is subdivided. At the present time it has been found useful for lectures and special gatherings of those who are interested in the work of the institution.

The fourth floor is devoted to chemical and research laboratories, doctors' quarters, dining rooms and kitchens. The visiting nurses and social service workers meet here for lunch in order to compare notes on their daily routine, and create closer contact and co-operation.

The fifth floor is devoted to housing the nurses and nursery maids.

The sixth floor is a cubicle floor where special cases are kept under observation. The cubicles face the South with the Nurses' Observation Room in the center so arranged with plate glass partitions that the nurse on duty has an unobstructed view of the cubicles and the porches in front of each cubicle at all times. The cubicles are ar-

ranged for one baby only and each has its individual bath, special crib and metal wardrobe which is fitted over the radiator in order to keep the clothing, etc., at an even temperature. The baths in these rooms are of porcelain in one piece and were specially designed for this purpose. The temperature of the water is controlled by thermostatic regulations so as to prevent any possibility of chilling or scalding the child.

Special attention is given to the Milk Preparation Room which also has plate glass partitions, so that the preparation of the food may be under supervision at all times. This room is equipped with hand basins, combined sterilizer, pasteurizer and bottle cooler, electric food mixer, refrigerator and large porcelain sink with double drain board.

The Utility Room which is a most important room in this type of hospital is large and well lighted and equipped with special plumbing fixtures, sterilizers, incinerator, etc.

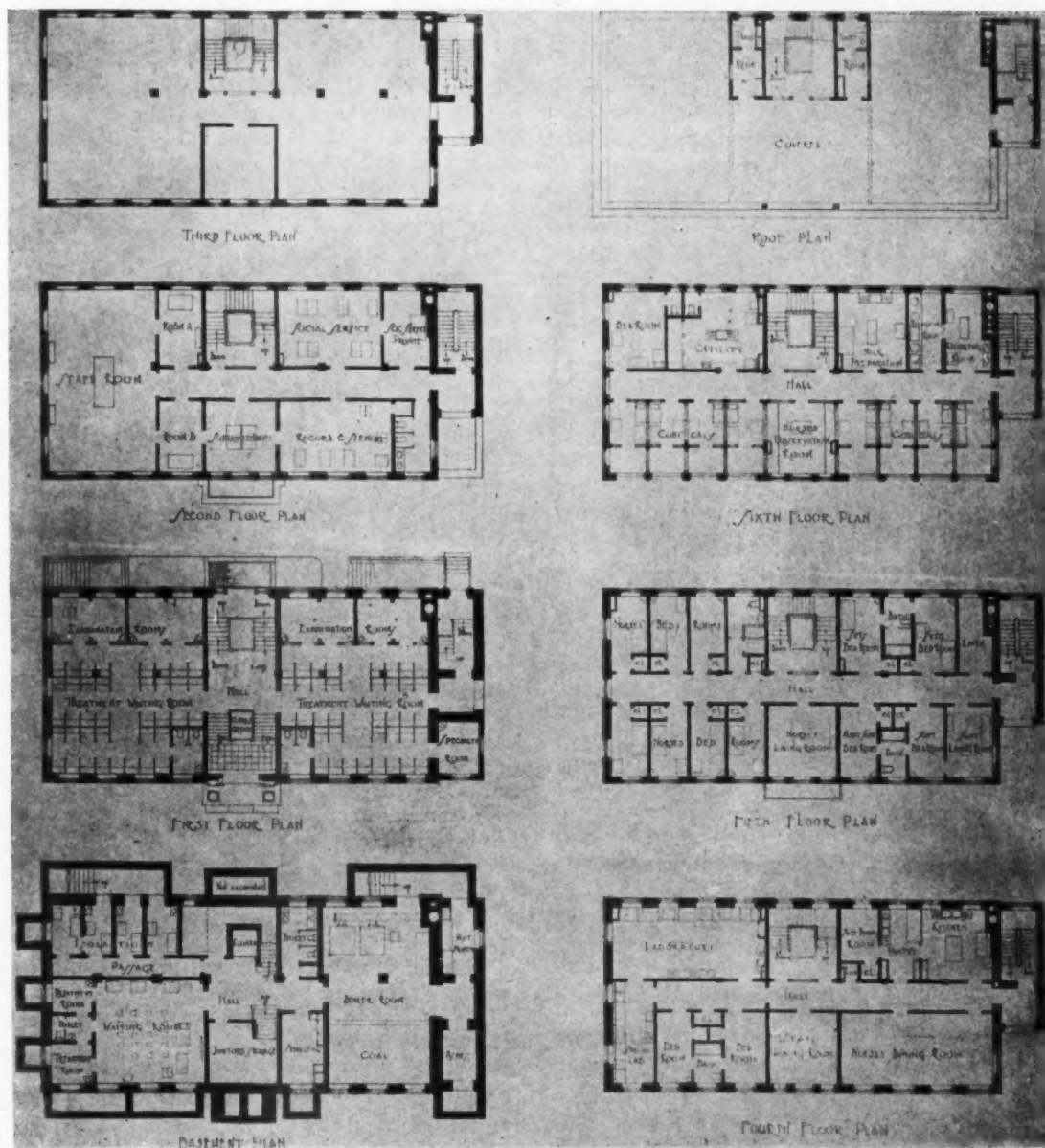
As very little operative work is done among babies of this age little importance is given to the Operating Room. The Sterilizing Room, however, is of great importance and it is thoroughly equipped with the most up-to-date apparatus.

The roof is arranged as a playground for the children, one-third of the space being covered by a substantial covering of reinforced concrete. During the heat of the summer, the poor families in the neighborhood are permitted to sleep on this roof garden at night.

In the basement of the building only about one-third of the space is required for the mechanical plant, which consists of heating boilers, hot water generator and electrical pumps for raising the water to the tank located above the fire tower. No high pressure steam is used in the buildings, all the sterilizers being operated by gas. No trained engineer is required and the cost of operating the plant is therefore reduced to the minimum. One electric elevator of the latest type is found to be



Equipment of Milk Preparation Room



Babies' Hospital, Philadelphia, Pa.

Carl A. Ziegler, Architect

adequate for the needs of the building, together with a well lighted and ventilated fireproof stairway, which is centrally located. A Post Mortem Room is provided and arranged with an exterior door. Also four Isolation Rooms for contagious cases which are entirely cut off from the rest of the building and so arranged that a case once sent to these rooms never comes into the building again.

As priority orders could not be obtained during the War the construction of this building was delayed until 1919. Sufficient was saved by this delay, however, to enable the directors to add an additional story to the building.

The building was erected of reinforced concrete,

the walls being entirely of brick. The construction was kept as simple as possible and no attempt at architectural embellishment was made. The floors were finished of cement, the surface being treated with a hardener, excepting the cubicle floor where marbleoid was used and all of these floors have stood very well without cracking. The walls and ceilings are finished in hard plaster with rounded corners everywhere.

The building, including heating, plumbing, wiring, elevator and laboratory equipment, was erected for the very low cost of forty-six cents per cubic foot, which is probably the lowest price at which a fireproof building in Philadelphia has been erected since the War.

Art Instruction in Oregon

STUDENTS of Fine Arts and Architecture at the University of Oregon will have an opportunity this winter to work on definite problems of decoration on one of the new buildings on the campus. The building is the Allied Arts Building. It will be left bare of interior decorations so that the students may be afforded a chance for creative art work.

An open court, surrounded by a loggia, will be left as a problem in decoration and ornamentation for sculpturing and art classes in addition to the interior. The court, which will be between the present architecture building and the New Allied Arts Building, will measure approximately sixty-five feet by seventy-five feet.

"The court will be a Fine Arts Court in every sense of the word, embodying the fundamental principles of true art throughout," said Professor Avard Fairbanks, head of the department of sculpture. "Future classes in sculpturing will thus have a goal to work for as no doubt the best pieces of work will find a place in this court."

One interesting feature of the court will be the rough cast stucco pillars supporting the loggia in which removable cast stone tiles are to be placed. As suitable designs for these columns are created in class work, they will replace the original plain tiles.

The present plans of the Allied Arts Building include a thirty by fifty feet fireproof museum, a weaving room, dyeing room, home decoration studio and lecture rooms, a large modelling room, casting room, locker space and offices for the faculty.

The building will be finished in dark rough cast stucco except for the museum, which will be of brick. It will replace the Art Building which was destroyed by fire this summer and is expected to be completed by March first. It will cost approximately \$40,000.

Art Instruction in Oregon

THE Fiftieth Anniversary Volume of the Fairmount Park Art Association is a well illustrated book of 279 pages and demonstrates why every fairly large community should have such an organization.

In America there is no other organization of this type which has so long a history. What it has done is shown on pages 134 to 183, so far as works in statuary are concerned. It has had, however, a very powerful influence on the building of the Fairmount Parkway, which is now largely completed, and on the construction of the Art Museum which is nearly half finished.

The Executive Secretary in forwarding the report wrote as follows: "The excellent financial condition of the Association illustrates the wisdom of its early Boards of Trustees in determining to put the entire funds received from Life Memberships and perpetual memberships in the permanent fund, and to put ten per cent (10%) of the annual receipts for membership dues in the same fund. We now have a capital of \$150,000.00; and in addition, under the will of Ellen Phillips Samuel, on the death of her husband, J. Bunford Samuel, we will receive a fund of \$765,000.00, the income of which is to be used on a certain series of works in sculpture to be placed along the Schuylkill River banks, and then anywhere in Fairmount Park. Such a fund in itself makes this organization a notable one."

War Memorial for Italy

IT is learned from recent press announcements that a War Memorial, "The Boy of the Piave," by Attilio Piccirilli, sculptor, and Henry Bacon, architect, will be set up in Rome as a gift from America to Italy.

DESIGN AND CONSTRUCTION OF THEATERS

BY ROI L. MORIN

Part VI—Foyers, Lobbies and Promenades

IT is to be deplored that with the passing of the 18th century theater there also vanished a fine and charming relic of the olden days, the social intercourse and fashion show of the *entre-acte*. Theatrical men in those days realized the value of this urbane institution and did much to encourage it. Spacious foyers and promenades were provided, the intermissions were unusually long,—as they are in France to this day,—in England bars were installed in the foyers, and the amenities of social intercourse repaired, in some measure, for the tediousness of the entertainments.

But today we have substituted efficiency for happiness; everything is done with a practical ulterior motive. The theatergoer has no sooner passed the box office than he finds himself in his seat, and he is there to stay until the play is over—herded in with a lot of people in their working clothes. Long intermissions break up the continuity of the plot, make for incoherence in the play, and destroy the illusion. The intermissions are almost too short to permit one to leave one's seat. The present day audiences have become accustomed to the new order of things and remain seated because there is no place to go. *Premières*, of course, do not follow this custom. The intermissions are longer and there is much crowding, jostling and chattering in the aisles and lounging rooms. But even first nights, as different as they are from the following performances, are rather pitiful during the intermissions, because there is hardly room enough to make people feel at ease. The throng shuffles slowly through the orchestra promenade (a space usually 12 to 15 feet wide and some 40 feet long), crowds the narrow stairways in an attempt to reach the insufficient toilet facilities, and overflows into the courts and street. The metropolitan theater in this coun-

try today has no lobby or foyer space to speak of, and only a small lounge or toilet room relegated to some corner of the basement.

The theater of tomorrow should be provided with more and larger facilities—not merely what is required by law, but ample ante-rooms to care for a cultured and polite society. It is true that some types of modern plays suffer from the break-

ing up of the illusion by the lowering of the curtain but not in the proportion that the average audience suffers from remaining over two hours in cramped and uncomfortable seats. The conventional curtain may be done away with and the scenes hurriedly shifted behind a curtain of darkness, as proposed, provided social intercourse is permissible before and after the play, and during at least one long intermission. What few plays would really suffer from such treatment? A continuous character study, made up of a series of short and staccato scenes, like "The Emperor Jones,"

or "From Morn To Midnight" perhaps, but not the average drama. Those disciples of the new stagecraft who argue that the light and movement of the *entre-acte* distract the attention and destroy the illusion forget that physical exhaustion of a continuous performance will do far greater damage. The newer German theaters provide not only spacious foyers and circulation corridors, but also lounging rooms, restaurants, etc., and these new theaters have all the ground and mezzanine floor facilities of a modern hostelry.

Roughly speaking, the ante-rooms and entrances to a theater, such as the vestibule, lobby, foyer and promenades, should be laid out as follows: Between the street and the auditorium there should be three sets of doors to act as wind breaks and to shield the noises of the street,—the first set directly at the pavement, to separate the vestibule, or



Fig. 2. Promenade, Free Folk Theater, Berlin
Oskar Kaufmann, Architect

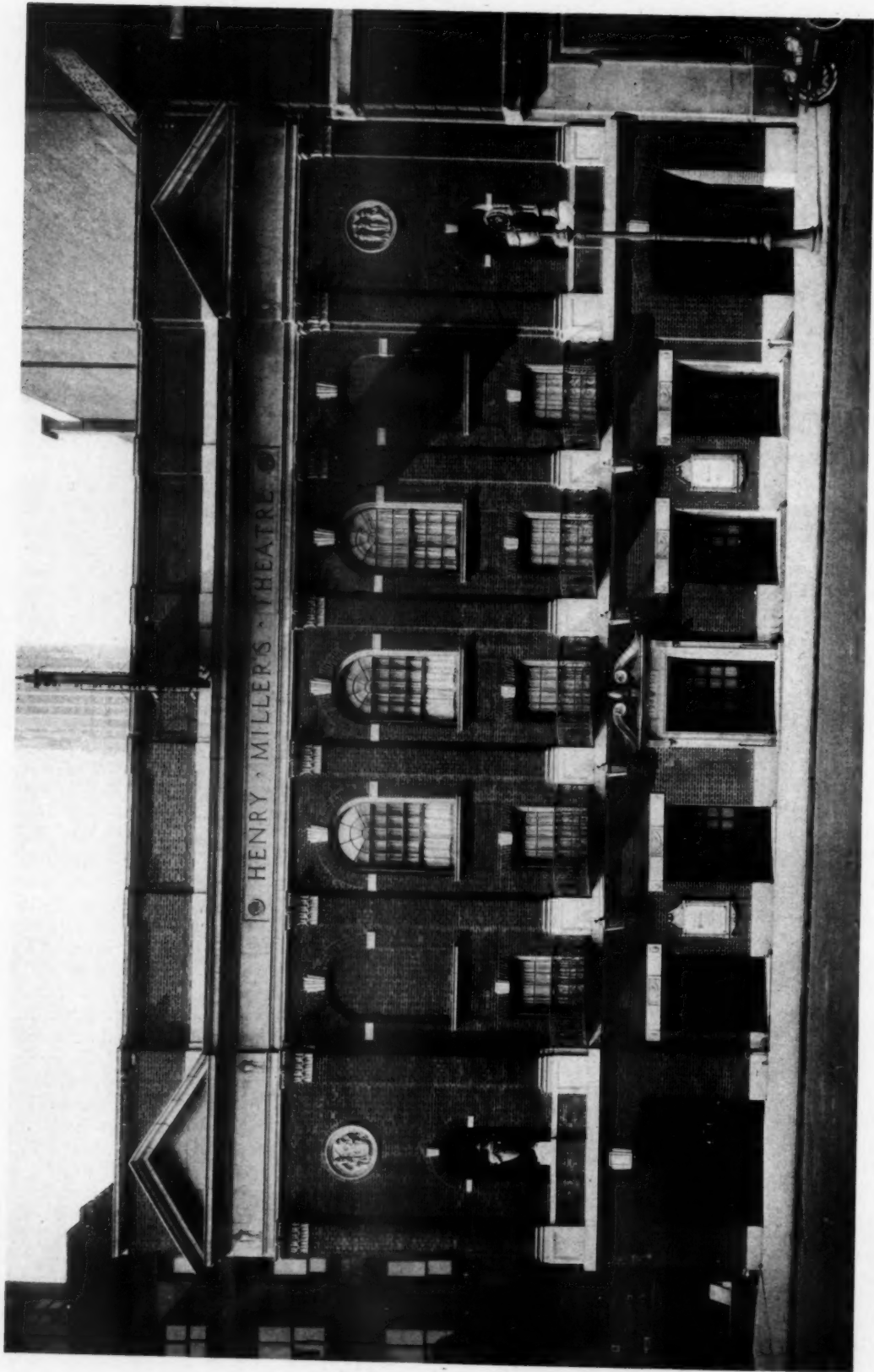


Fig. 1. Henry Miller's Theater, New York
Harry Creighton Ingalls and Paul R. Allen, Associated Architects

lobby, from the outside. If the box office window is not located in this vestibule, then a room 10 feet deep, the entire width of the lobby (i.e., three pairs of 5'-6" doors) is ample. It is thought to be advantageous from the commercial viewpoint, however, to place the box office as closely to the sidewalk as possible, so that people may readily



Fig. 3. Foyer, Free Folk Theater, Berlin
Oskar Kaufmann, Architect

procure tickets. In this event the vestibule becomes a lobby where people congregate, waiting for their friends, standing in line before the box office, and a room 18' wide and 30' or more in length is none too large for a theater seating 1,200 people.

From the vestibule, or lobby, as the case may be, a second set of doors leads to the main circulation foyer. This room should be fully as large as the lobby, in either case, and as large as the layout will allow, if the theater be a large vaudeville or concert motion-picture house, as it will bear much traffic. Off from the foyer there should be located all the cloakroom and checking facilities (this sounds like a platitude yet most theaters have their check rooms either in the auditorium or in the basement), and a door leading to the manager's office. (Often this latter is impracticable as the manager can better utilize the space beneath the balcony, between the trusses, on the mezzanine floor, but, if possible, it is well to have the manager's office so located that the patrons can obtain easy access to it.) *The cloak room should, by all means, be kept out of the auditorium.*

The third set of doors leads from the foyer to the orchestra promenade, in the rear of the seats. The total jamb size of doors is kept throughout. Either at these doors, or at the set previous to them, as the case may be, stand the ticket takers, and they should be provided with the usual paraphernalia exigent upon their work, ticket boxes or choppers, rails, cords, etc., with the necessary slots in the floor for same.

In most theaters on Broadway all of these sets of doors are glazed, for what express purpose the author could never learn. The first set on the street might be glazed to make the lobby more inviting (though even this injures the treatment of the entrance) but no intelligible reason can be given for glazing the other two sets, only to paint or curtain them off when the theater is opened. Wood or bronze panelled doors are much more beautiful and quite as practical.

The orchestra promenade should be spacious and elegant, for it is the place which will receive the closest scrutiny. It should be partitioned off from the auditorium proper (as mentioned in a previous article) directly behind the last row of seats. This promenade should run around the rear of the auditorium from one side wall to the other and should be at least 15' wide, or as much wider as practicable. Off from it should be an ushers' closet (where the uniforms and programs may be kept), a small bookstall (it has become the custom in some of the finest theaters to have a bookstall in the foyer or promenade where the latest plays are on sale, and very often the play of the evening, newly translated from some foreign language, or the musical score), and doors at both ends leading to the floor below to the men's and women's toilet rooms. (Most theaters are still in the "Ladies and Gents" stage of their cultural development.)

These doors to the men's and women's rooms should be quite prominent and so distinguished (usually by small and tasteful electrically lighted signs) that they may be seen from any part of the floor.

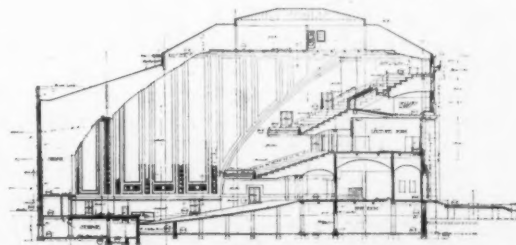


Fig. 4. Longitudinal Section, Hill Memorial Hall, Ann Arbor, Mich.

Albert Kahn, Architect

Hugh Tallant, Consultant on Acoustics

An auditorium noted for its excellent acoustical properties

There should be both men's and women's toilet facilities for both the orchestra and balcony levels. If the balcony is reached by means of a mezzanine the problem is somewhat simplified, as there is ample space under the balcony, on the mezzanine floor, for the toilet rooms, but if the balcony is reached by stairs which land on the rear of the balcony, these rooms must be crowded in somehow as it is very annoying and tiresome for a balcony pa-



Fig. 5. The Music Box Theater, New York
C. Howard Crane, Architect

tron to have to walk down two or three flights of stairs to the basement and back again. For a balcony seating from 300 to 1,000, the following fixtures should be ample: Men's room—one or two WCs, three or four urinals, two wash basins with mirrors, a medicine cabinet, in charge of an attendant, and a drinking fountain (*all four toilet rooms in any theater should be provided with drinking fountains, cup holders, and an adjoining cooler*). In one of the largest theaters in New York, there are no drinking nor telephone facilities in the balcony, which seats nearly 1,000 people, and consequently brings nearly one-half the revenue of the house. To slake one's thirst, it is necessary to walk down six flights of stairs (some 90 odd risers) to the street and dodge into a neighboring rathskeller, unless someone has been provident enough to bring along a pocket flask or a vacuum bottle. Women's room—three WCs, two basins, an excellent dressing table and several mirrors. Each room should be amply provided with accessories,—paper holder, paper towel rack, soap dispenser, basket, etc. The toilet rooms for the orchestra level, which are usually located in the basement, require these fixtures: Men's room—three WCs, six urinals and three basins; Women's room—four WCs and three basins, two dressing tables. There should also be a janitor's closet with slop sink, etc.

The toilet rooms should not open directly upon the public corridor, but should each have an ante-room between. On the balcony level these ante-rooms must necessarily be small, but they should nevertheless be provided. The men's room is a smoking room, with facilities for same, cigarette lighter, ash trays, lounge and chairs while the women's room is a retiring room with chairs and a chaise-lounge. Patrons are often taken ill dur-

ing a performance and these rooms are really the only place to which to take them.

Whenever possible a theater should be provided with a large lounge, or drawing room, sometimes called a tea room, as was built in the Little, Henry Miller's and the Music Box theaters in New York City. This room is located in the basement, directly below the orchestra promenade, in the center, and should be made as large as the space will allow. The men's room is usually on one side of it and the women's room on the other. This room should be treated like an elegant living room in a town residence though with the economy one usually meets with in theater construction. It is thickly carpeted, the walls are panelled and often hung with paintings of the "stars" under the management, or drawings and photographs of sets and costumes of previous productions. It is usually furnished with a mantel, chairs, sofas, tables, etc., and both sexes congregate during the intermissions, and chat, smoke or read.

In some theaters refreshments are served between the acts, such as tea and elfin sandwiches. In this case, kitchenettes are built in next to the lounge-room.

(Concluded on Page 117)

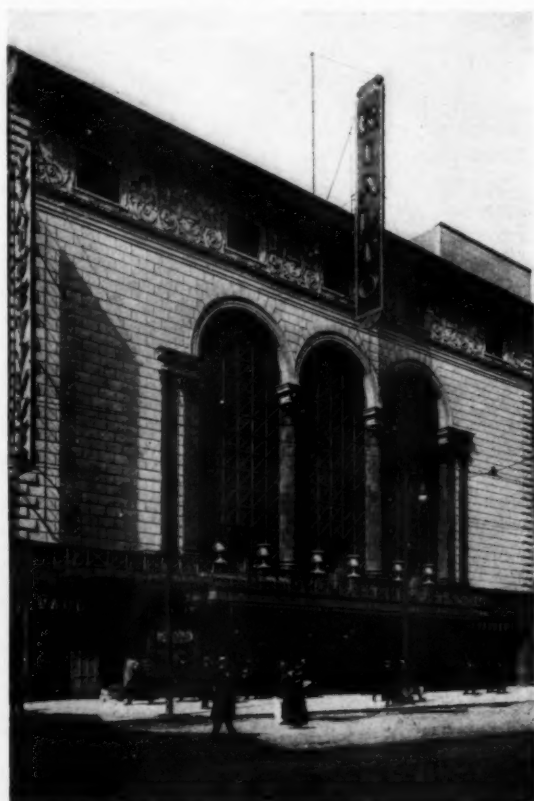


Fig. 6. The Rialto Theater, Chicago, Ill.
Marshall & Fox, Architects

EDITORIAL COMMENT

AN ARTICLE discussing the present building situation from an economic viewpoint, appears in another section of this issue. This is the first of a series which will become a monthly feature of this journal. The fact that these articles are prepared for *THE AMERICAN ARCHITECT* by The American Chamber of Economics, of which Mr. George E. Roberts, vice president of the National City Bank, is supervising director, insures their authoritative character.

The large part which economics and finance are bound to play in the work of the architect during the coming years, coupled with the fact that no one who can speak with authority has regularly addressed himself to this field, has led to the arrangement for these articles. It is proposed to give in these contributions information concerning the economic conditions of the country, which so vitally affect the building industry. A thorough study of them should enable an architect to advise his client with greater knowledge of the true situation than could be gained from ordinary sources, such as the daily papers and other fragmentary bits of information that come to him.

* * *

FROM ENGLAND comes the news that the University of Liverpool has established the degree of Master of Architecture, to be conferred upon Bachelors of Architecture of not less than ten years' standing who have erected a building of distinguished merit in their own names. This fact would not be particularly worthy of comment were it not that several English architectural journals state that, "This is the first degree of its kind in any University, English or foreign, etc." The degree of Master of Architecture has been conferred as a professional degree by several universities in the United States for a number of years. It is conferred upon holders of the degree of Bachelor of Architecture or of the degree of Bachelor of Science in Architecture who have been engaged in acceptable professional work for a term of years, the number of years varying among the schools. The academic degree of Master of Science in Architecture is given to bachelors who complete a year of graduate work in the school. The higher degrees are Doctor of Architecture, Doctor of Science in Architecture and Doctor of Philosophy. The honorary degree of Doctor of Architecture was conferred by the University of Illinois in 1900 upon Nathan Clifford Ricker, who, for fifty years, has been identi-

fied with the work in architecture at that university. Our English cousins are somewhat tardy in conferring the degree of Master of Architecture upon graduates of their schools. The Americans long ago asserted their proud claim to this title.

* * *

CAMBRIDGE, MASSACHUSETTS is to be the seat of an aggregation of schools of art that will rival *L'Ecole des Beaux-Arts* in Paris. The school of architecture of the Massachusetts Institute of Technology and Harvard University will work with the Boston Society of Architects and groups of painters and sculptors to make this new enterprise attractive to foreigners who may wish to study in America. Arrangements have been made, it is understood, for the exchange of instructors and lecturers between Cambridge and some of the noted European schools of architecture and the associated arts.

* * *

THE STANDARDIZATION movement is extending into every line of industry. Inquiries have recently come from manufacturers of steel sash as to the advisability of designing sash sizes to correspond to brick sizes. The question is "How many architects pay enough attention to brick sizes to warrant changes in present sash sizes?" The question of height is not important for the thickness of mortar joints readily may be altered, but when attention is paid to the length and width of a brick there is a conflict with standard glass sizes. By making sizes of sash correspond to glass sizes cutting is avoided. A standard size brick recently was adopted after many years of agitation and now to effect changes in glass sizes in order to enable manufacturers of steel sash to make frames to work in with brick means many more years of hard work on the part of those who worship regularity.

It hardly seems worth while to discuss the matter. The average designer determines the exact sizes of his wall openings from a study of the sash manufacturer's catalogs. The pier widths are determined after a study of the best possible arrangement of brick. Belt courses below and above window openings may be, and often are, run without attention to the piers, except when the latter project for architectural effect. To cut glass in order to make frames that will fit in with standard brick will increase the cost of the sash,

whereas brickmasons figure the cutting of brick in with their job. The request for information from the manufacturers being a serious one, discussion from readers will be welcomed.

* * *

FIREPROOF CONSTRUCTION may not be within the possibilities but fire-resisting construction is something that every architect should advocate. Underwriters are undertaking a campaign of education on the subject of relative fire resistance and owners are learning about "one-hour," "two-hour," etc. fire-resisting materials and construction. Walls made of a certain type of mortar were found to have a resistance of one and one-half hours and now come the lumber manufacturers to show that when wooden joists and beams are protected by metal lath and gypsum a fire-resisting limit of one hour is obtained. This is going at the problem the right way. The next step is to determine just how long a time is best for different classes of structures. One hour should be ample for an ordinary residence but is it long enough for a large apartment house, a school, a hotel? Will partitions having a fire-resistive factor of one hour be enough in an office building or should a two hour wall be used? The underwriters must furnish this information to the men who design and until they do settle upon the minimum requirements for walls and floors there will be conflicts of opinions between advocates of various building materials.

* * *

THE PRINCIPLE of arbitration is recognized as basically correct. The next step is to see that it is so put before the men most to be benefited by its application as to enlist their support. The greatest difficulty so far encountered is the idea that arbitration and compromise are to all intents and purposes synonymous, which they are not. Arbitration implies the submitting of disputes to a tribunal selected by the interested parties. The alternative to arbitration is submission of the matter to a regular court of law, the judge being skilled—perhaps—in the law but devoid of adequate understanding of the intricacies of the subject under review. Thousands of cases that now clog our courts and interfere with prompt administration of justice should better be settled in a court of arbitration, where the judges will be men specially qualified to pass upon the merits of the question at issue and these judges will be selected by the parties between whom disagreements have arisen. Arbitration and compromise have nothing in common although the giving in by one or more members of an arbitration court to other members, in short the giving of a decision in which the opinion of each member have no inclination to stir up trouble.

exerts an effect is often mistaken for compromise. There is now actively working in the United States an organization known as the Arbitration Society of America with executive offices in New York City. Mr. Charles M. Schwab, it is officially announced, has been elected to head a committee of New York business men to enlist trade support through a clearer understanding and a wider use of arbitration in commercial disputes. This is a movement that architects properly can endorse and aid actively. Some day labor organizations may be able through the workings of arbitration courts to rid themselves of leaders and policies that hinder the proper development of such organizations.

* * *

BEST KILLS BETTER runs an old German proverb. Something of this thought may have been in the mind of the editor of *The Review* of The Master Builders Association of Boston when he presented the following to his readers as a "Free translation from Maldeb," a sage not known to the writer of this page:—"And then there came to the kingdom of Maldeb great progress—progress such as had overtaken kingdoms before, and will trouble civilization yet unborn. Life grew tedious and confused and unrest arose. Then did Maldeb call together his counselors to advise, and they told him of bad habits, bad standards and evil teachings and how these should be changed. But, said Maldeb, none of these things may be altered except by a long effort. Go and consult together and then tell me what of the meantime. Show me those things which may at once be of help to the troubles which beset us. Point out those things which are a part of life itself and may not be altered. Show also the goal to which we should aim so that our trend thither may be certain. Tell me how to show my people to avoid the cure-alls of those who would spoil, of those who would destroy what they do not understand, or those who urge a perfection where nothing perfect can exist. Then went away the counselors, doubting among themselves. For the task seemed heavy." Evidently in the days of Maldeb they had not learned the modern fairly successful method of "Muddling through," something for which not nearly enough credit has been given. The modern contractor driving a job through in spite of obstacles, in order to complete his work within a time limit epitomizes the idea. Only the idle, from choice or necessity, are to be feared. The big problem is to lessen the number of idle people in order that good leaders may not be hampered. The natural progress of humanity will take care of the problems if all who are able to work are always so profitably busy that they



APPROACH TO THEATRE, SHOWING FORECOURT AND SHOPS

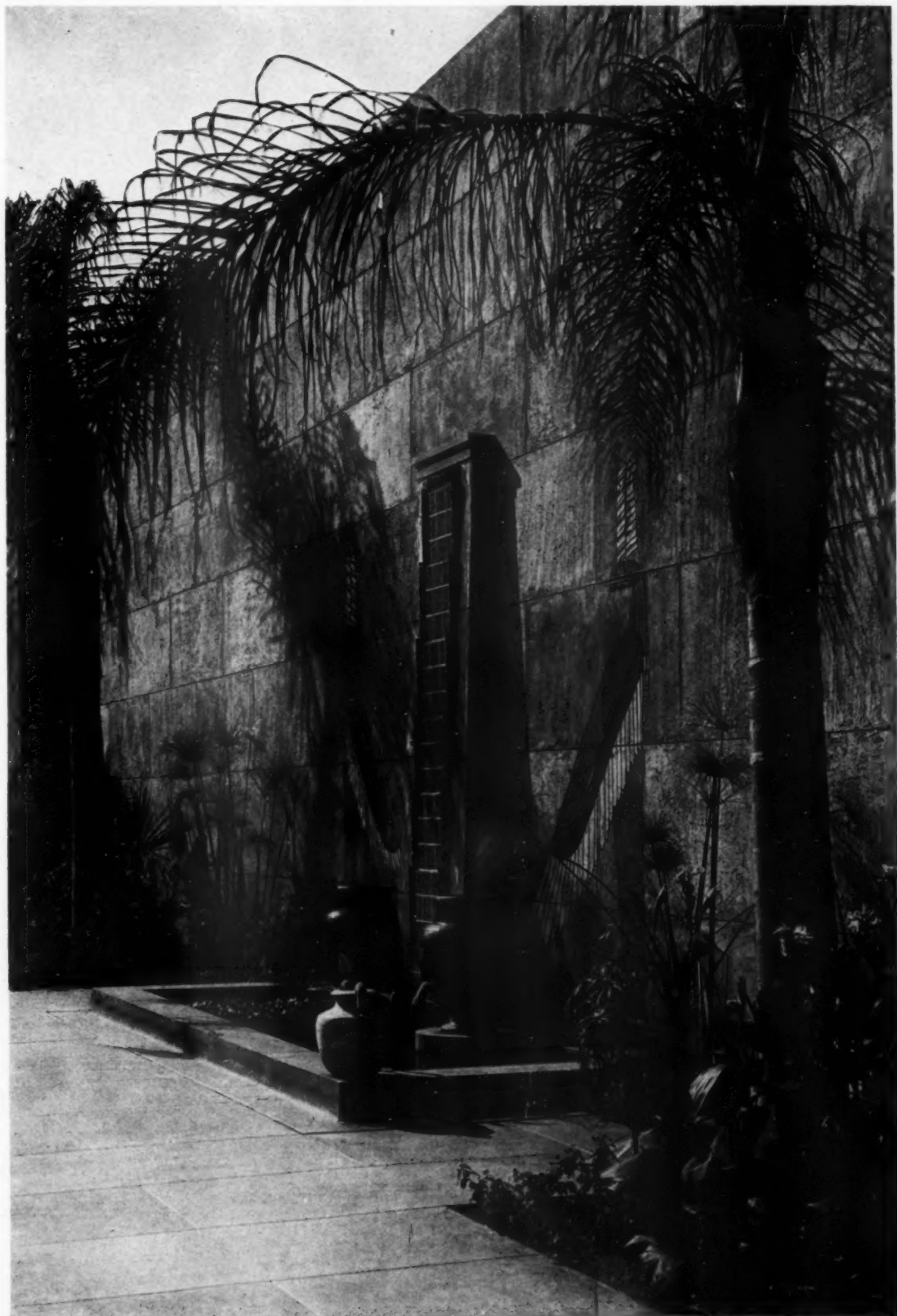
GRAUMAN THEATRE, HOLLYWOOD, CAL.

MEYER & HOLLER, ARCHITECTS

LIBRARY
OF THE
EDISON CO.

1923

MAILED
JUN 10 1964
JUN 10 1964



DETAIL OF GARDEN WALL, FORECOURT
GRAUMAN THEATRE, HOLLYWOOD, CAL.
MEYER & HOLLER, ARCHITECTS



DETAIL OF FORECOURT AND SHOPS
GRAUMAN THEATRE, HOLLYWOOD, CAL.
MEYER & HOLLER, ARCHITECTS



ENTRANCE PORTICO
GRAUMAN THEATRE, HOLLYWOOD, CAL.
MEYER & HOLLER, ARCHITECTS



GENERAL VIEW OF FORECOURT AND SHOPS, LOOKING THROUGH PORTICO

GRAUMAN THEATRE, HOLLYWOOD, CAL.

MEYER & HOLLER, ARCHITECTS



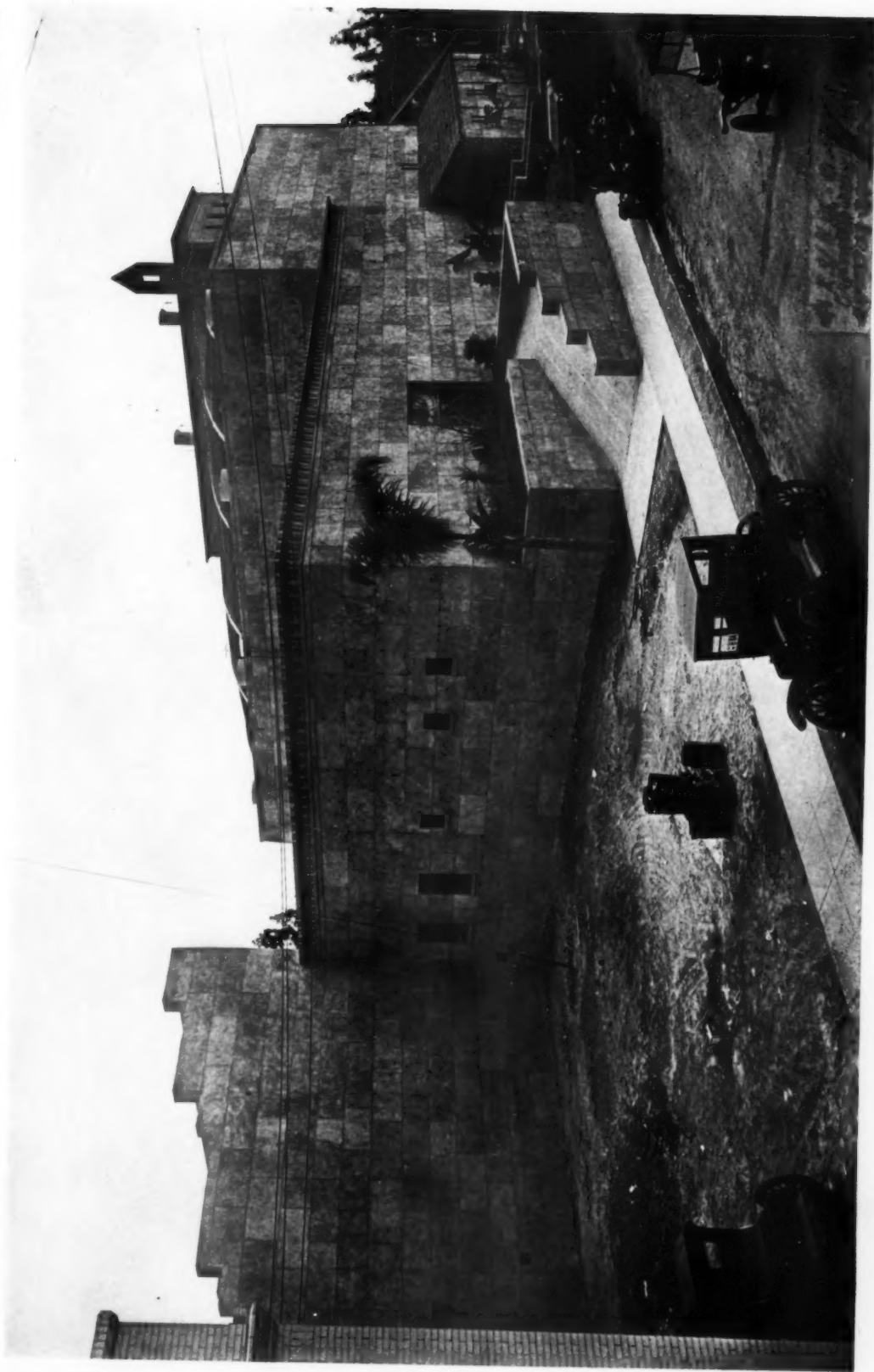
TWO VIEWS SHOWING DETAILS OF FORECOURT
GRAUMAN THEATRE, HOLLYWOOD, CAL.
MEYER & HOLLER, ARCHITECTS



GENERAL VIEW OF INTERIOR
GRAUMAN THEATRE, HOLLYWOOD, CAL.
MEYER & HOLLER, ARCHITECTS



PROSCENIUM AND ORGAN GRILLE
GRAUMAN THEATRE, HOLLYWOOD, CAL.
MEYER & HOLLER, ARCHITECTS



REAR VIEW

GRAUMAN THEATRE, HOLLYWOOD, CAL.,
MEYER & HOLLER, ARCHITECTS



A HOUSE AT TOLEDO, OHIO
MILLS, RHINES, BELLMAN & NORDHOFF, ARCHITECTS

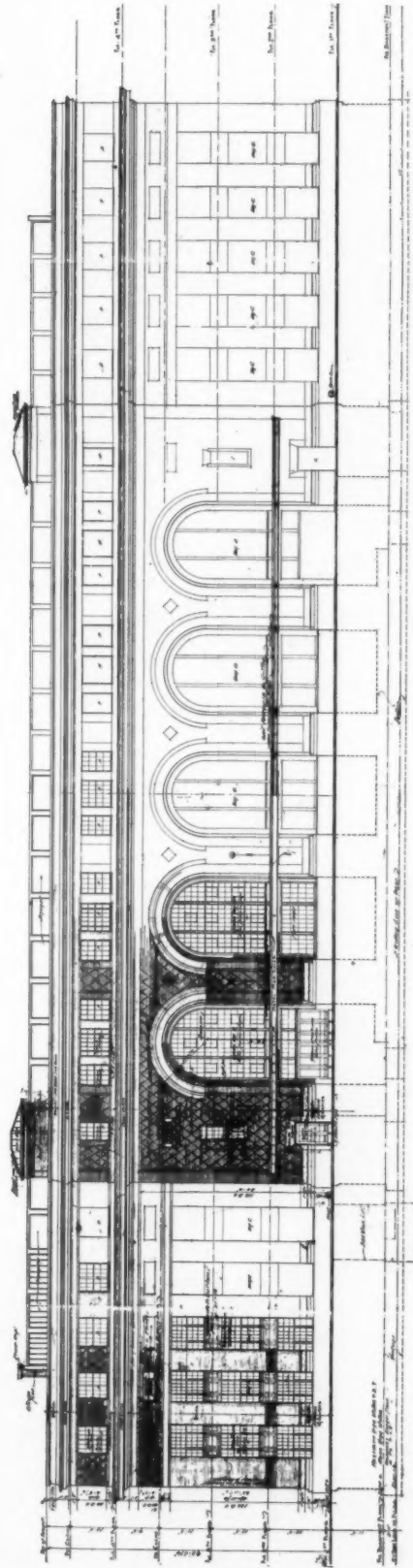


NEW HAVEN RAILROAD STATION, NEW HAVEN, CONN.

CASS GILBERT, ARCHITECT



NEW HAVEN RAILROAD STATION, NEW HAVEN, CONN.
CASS GILBERT, ARCHITECT

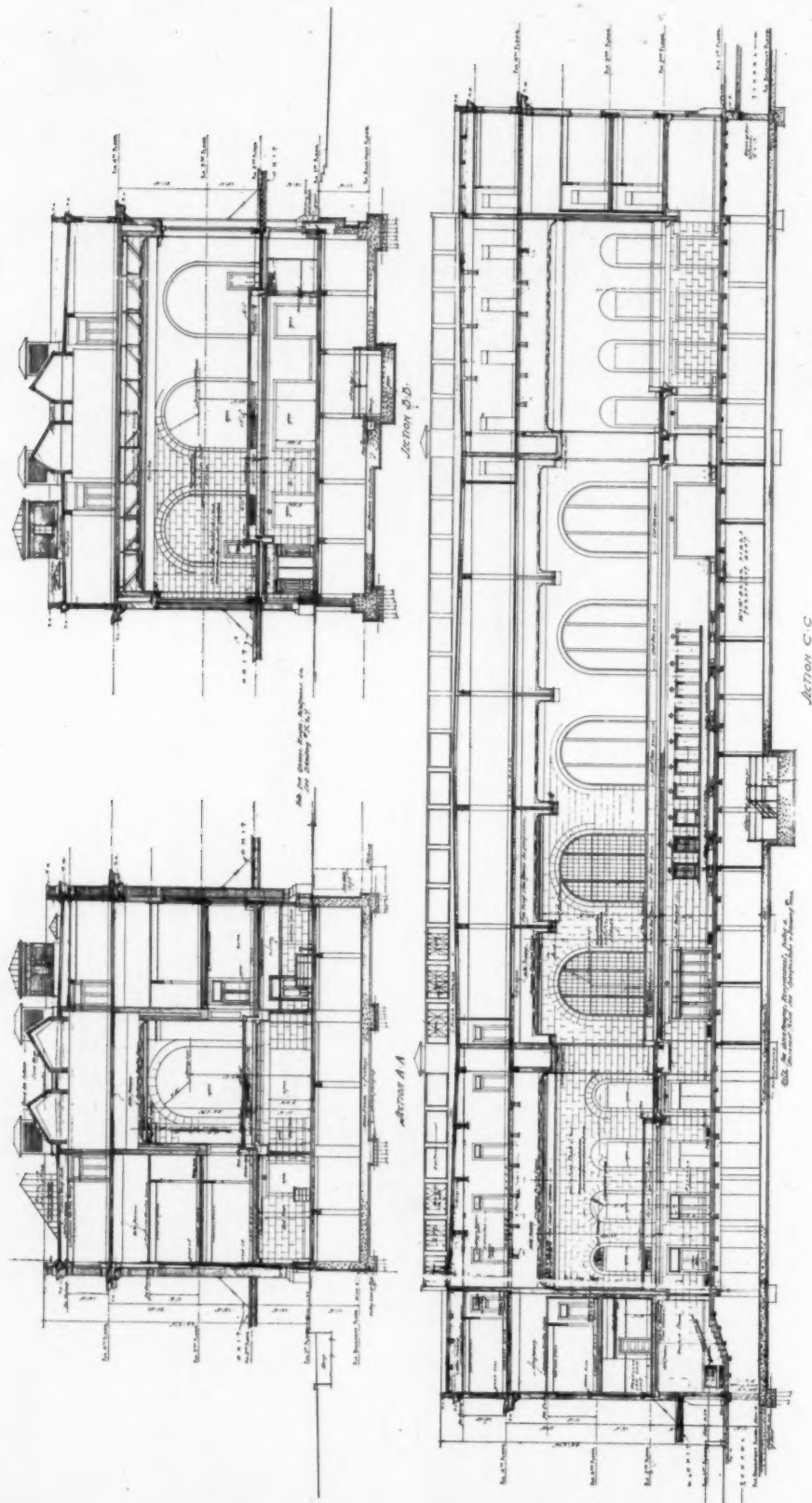


Basement Elevation

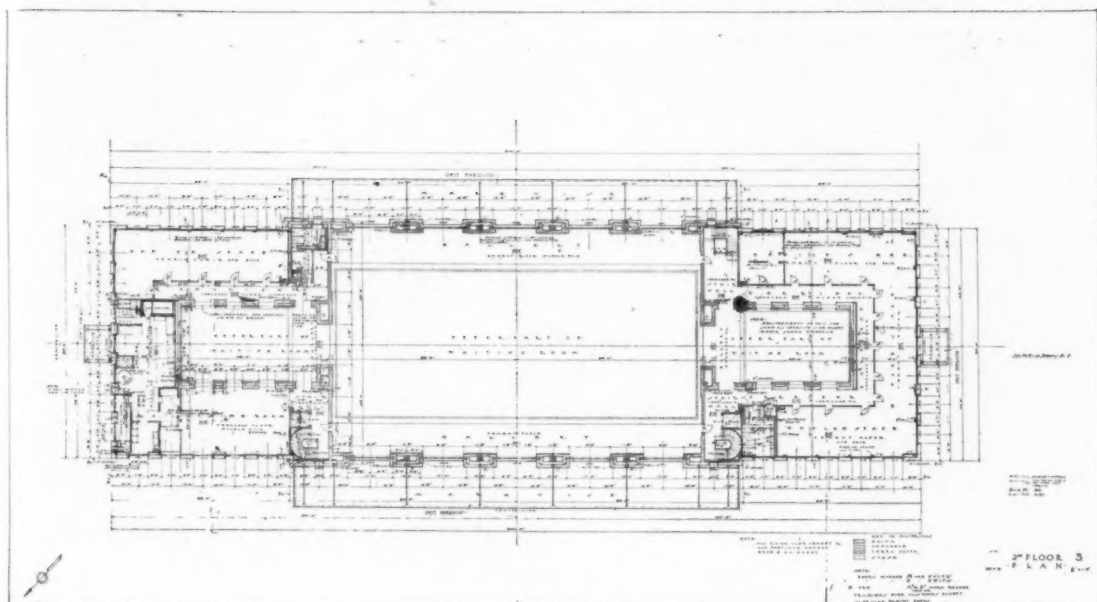
NEW HAVEN RAILROAD STATION, NEW HAVEN, CONN.

CASS GILBERT, ARCHITECT

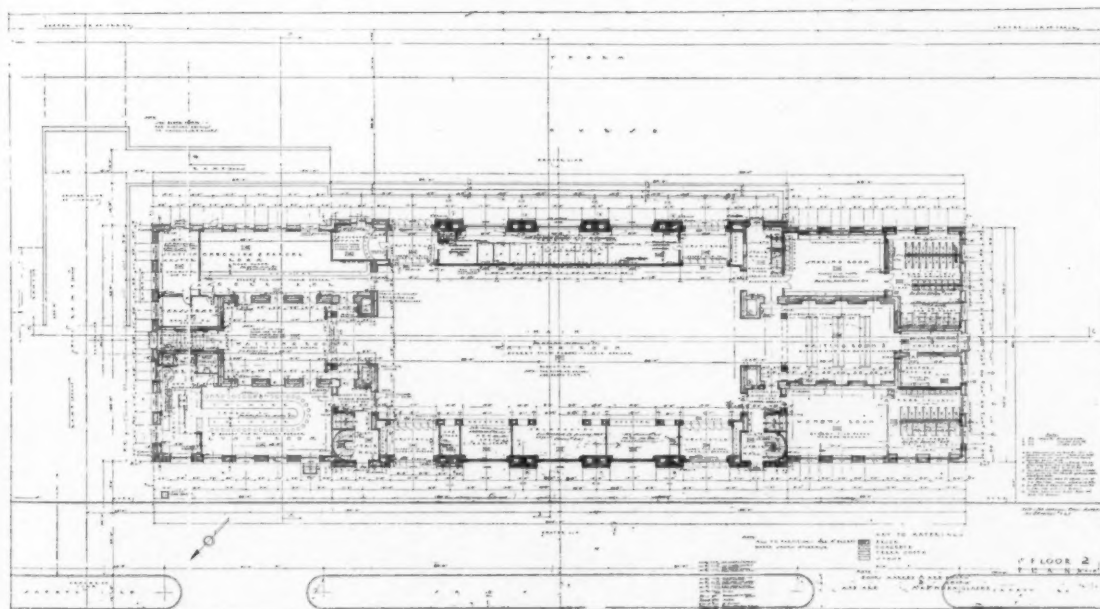
Basement floor at elevation of mean high water; waterproofed walls in basement; all floors of concrete with cement finish; base of exterior walls artificial granite; terra cotta cornices, coping and window sills; wood frames and sash in small windows; metal frames and sash in large windows; exterior doors glazed in wood with metal frames; metal marquise shown in drawing was omitted in contract



LONGITUDINAL AND TRANSVERSE SECTIONS
NEW HAVEN RAILROAD STATION, NEW HAVEN, CONN.
CASS GILBERT, ARCHITECT



SECOND FLOOR PLAN

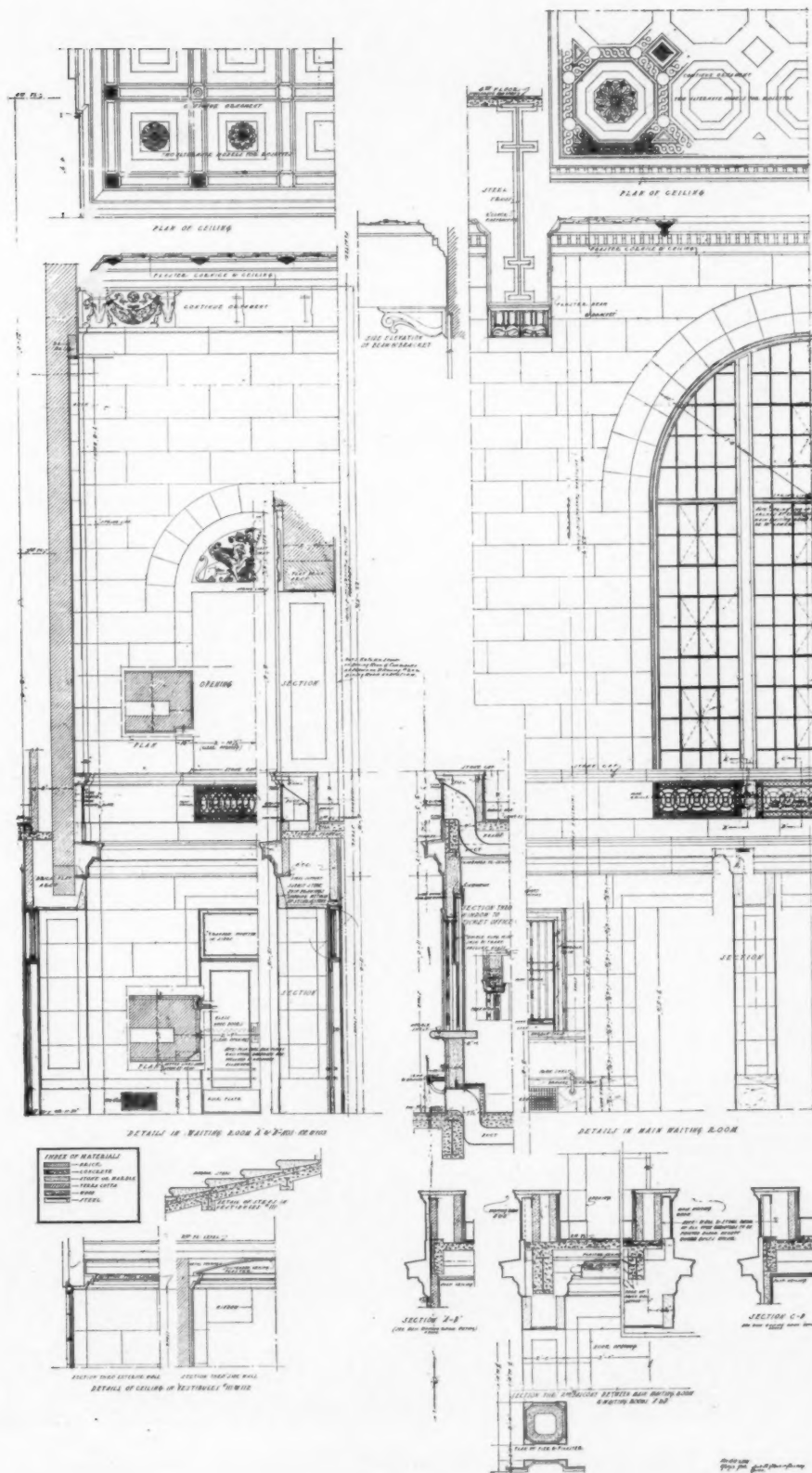


FIRST FLOOR PLAN

NEW HAVEN RAILROAD STATION, NEW HAVEN, CONN.

CASS GILBERT, ARCHITECT



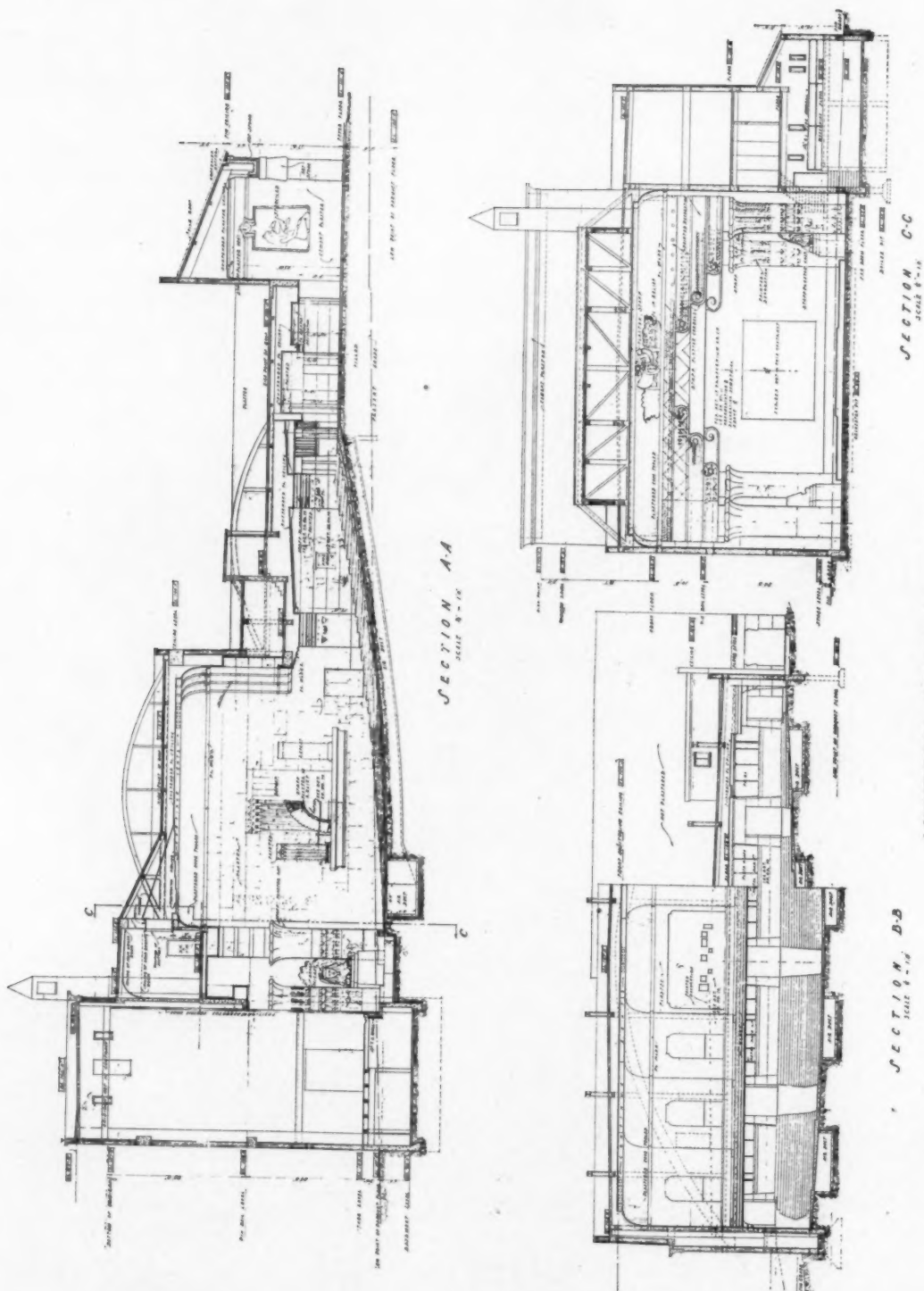


INTERIOR DETAILS
NEW HAVEN RAILROAD STATION, NEW HAVEN, CONN.
CASS GILBERT, ARCHITECT

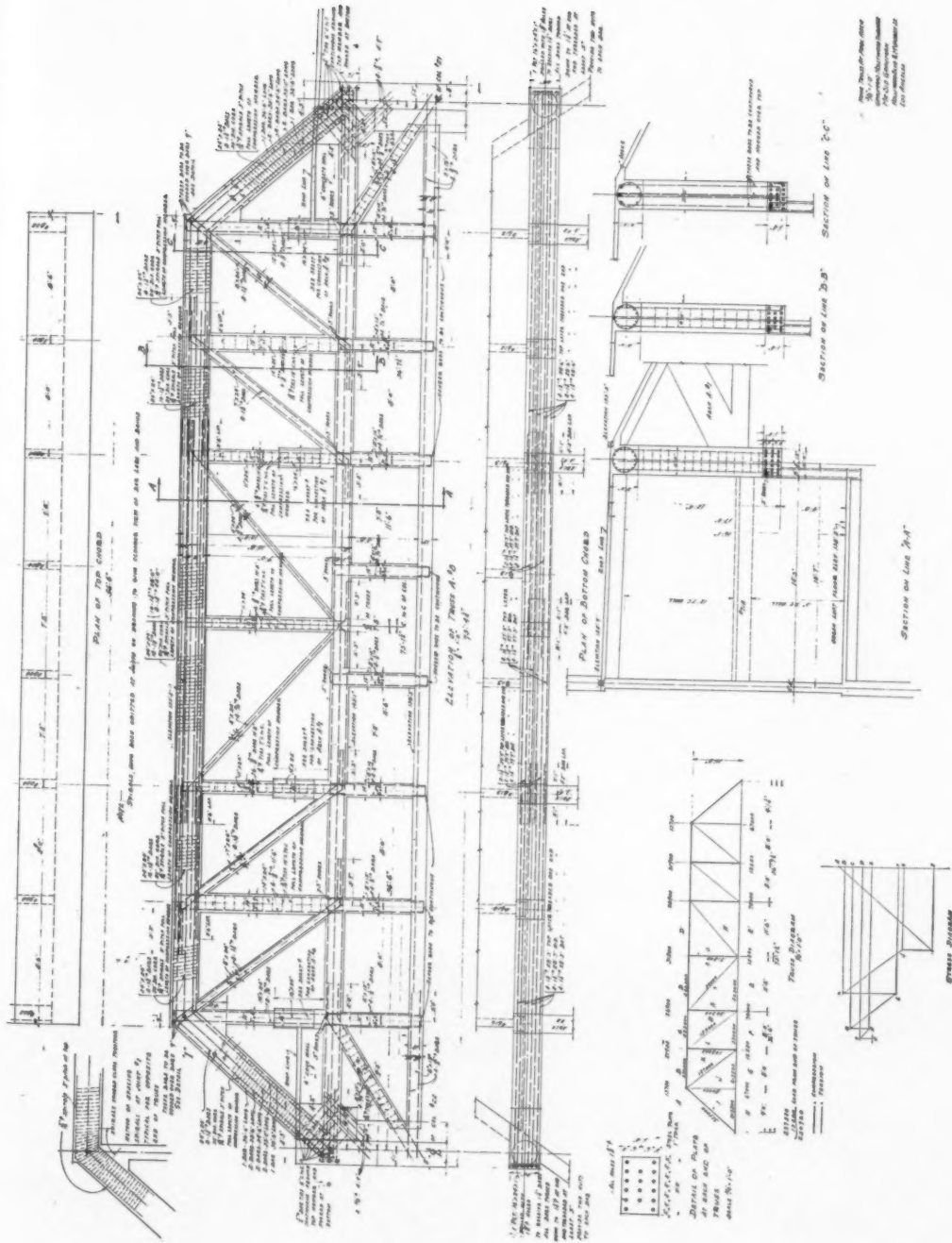


WAREHOUSE OF CHURCHILL DRUG CO., PEORIA, ILL.

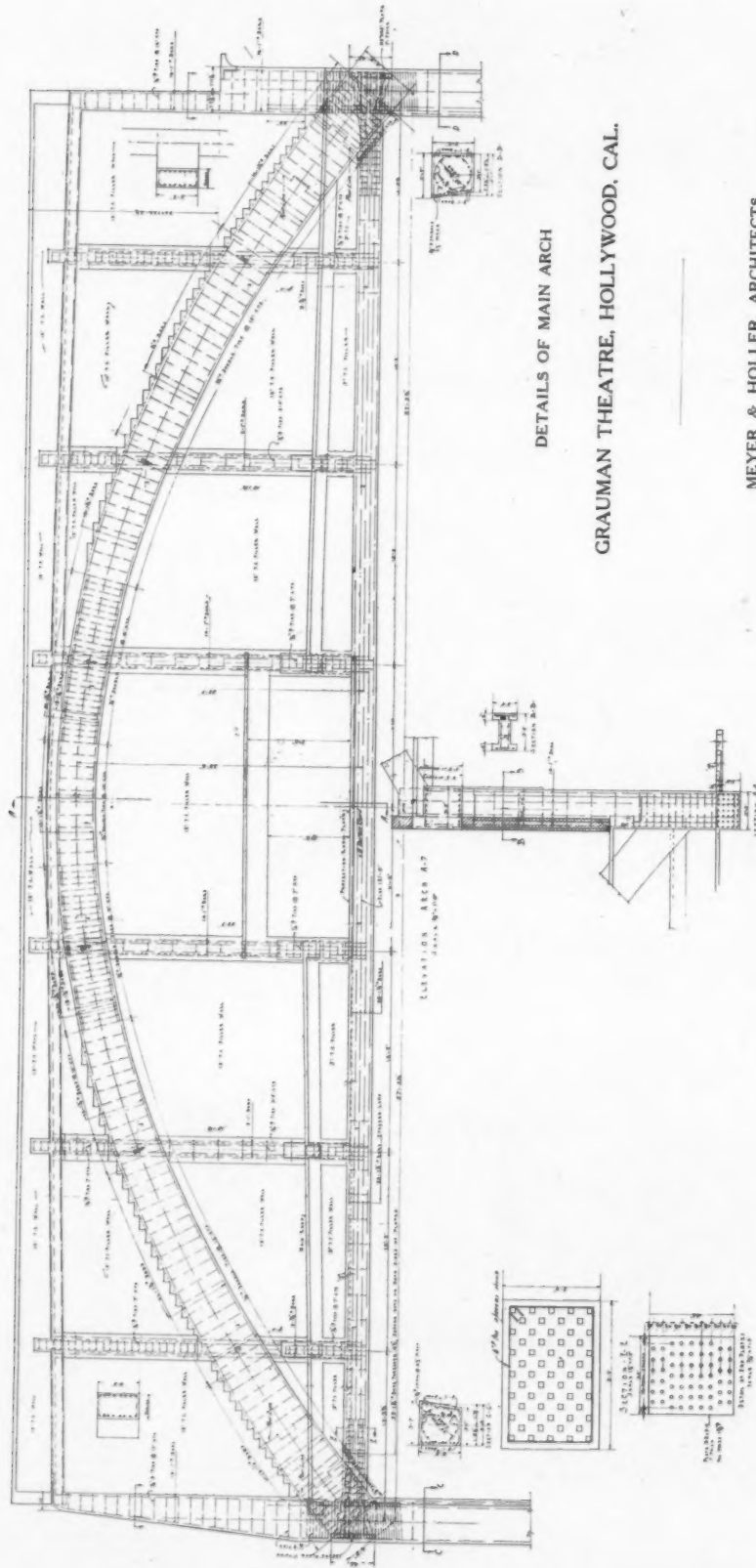
HEWITT & EMERSON, ARCHITECTS



LONGITUDINAL AND TRANSVERSE SECTIONS
GRAUMAN THEATRE, HOLLYWOOD, CAL.
MEYER & HOLLER, ARCHITECTS



DETAILS OF PROSCENIUM ARCH TRUSS
GRAUMAN THEATRE, HOLLYWOOD, CAL.
MEYER & HOLLER, ARCHITECTS



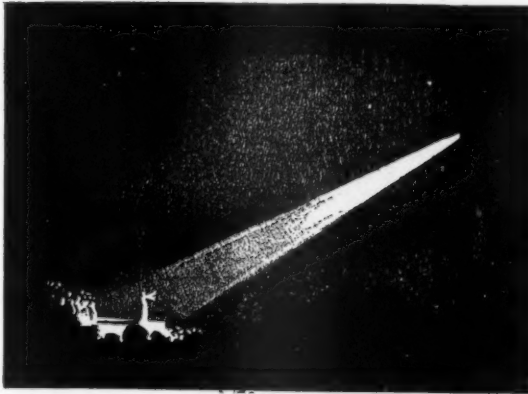


Fig. 7. Lighting the Forestage by concealed spotlights, Grosses Schauspielhaus, Berlin

Two and three thousand watt lamps have been introduced in stage lighting in Berlin during the past season, a thing heretofore unknown
(From *Continental Stagecraft*, by Kenneth Macgowan)

Design and Construction of Theaters

(Continued from Page 104)

Some continental theaters have restaurants where patrons may go between the acts or after the performance, but so far as is known this has never been done here, except at the well known roof gardens, such as the Century and New Amsterdam, with their after-theater shows.

All these rooms mentioned above, such as lounge, retiring rooms, smoking rooms, lobby and toilet rooms should have a buzzer system connected with the backstage to announce the rise of the curtain.

One or two telephone pay stations should be installed in every theater. A watchman's clock system and a vacuum cleaning system may also be installed.

ACOUSTICS

THE problem of acoustics is one which, in the past, was shrouded in mystery and ignorance. Most architects did not know how to build

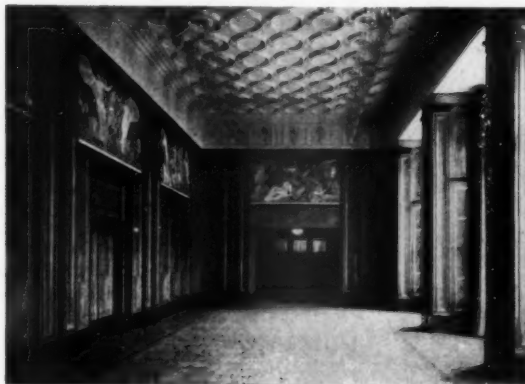


Fig. 9. Foyer of The Small Theater, The Court Theater, Stuttgart
Max Littman, Architect

an auditorium with good acoustical properties, and frankly admitted it,* excusing themselves on the grounds that no one else knew either. The usual custom was to build the new theater after the fashion of some existing auditorium which had good acoustical properties. Today this condition is changed and the problem of acoustics is one on



Fig. 8. Foyer of The Large Theater, The Court Theater, Stuttgart
Max Littman, Architect

which we have definite and exact scientific knowledge, thanks being due, for the most part, to the late Prof. Wallace C. Sabine, of Harvard, who made innumerable practical experiments and devoted a number of years to the correction of acoustics of auditoriums already built, most notable of which was the New (Century) Theater, worked in conjunction with the architects to correct working drawings of theaters to be erected, as on Winthrop Ames' Little Theater, and retailed data to the profession through the architectural press. The theory of acoustics is set forth in a simple and straightforward manner in Prof. Sabine's collected papers, which have recently been published by the Harvard University Press, and it is impossible to reiterate or enlarge upon any of his data in such a sketchy series of articles as this. The prospective theater architect should find data in these pa-

*"Je vas faire ce que fait la plupart des hommes: je vas parler de ce que je ne connais rien."—Chas. Garnier on the Acoustics of the Paris Opera.

pers to solve any problem with which he might be confronted.

ON the mass design and treatment of the façade of a theater building there is much to be said, yet all æsthetic questions are purely personal. It is a far cry from the magnificent and monumental treatment of the Paris Opera House to the simple, utilitarian elevations of Reinhardt's Grosses Schauspielhaus in Berlin, or from the

the rest of the building as it is only a huge box and will not bear changing its shape as readily as will other parts of the building. It usually rears up in the back of the design like some factory abutting the theater proper. And as such, it is feared, it will remain, except again, in such works as the Paris Opera House where enormous sums of money were lavished to make the whole structure as beautiful as man knew how.

Where a theater is adjoined by buildings on

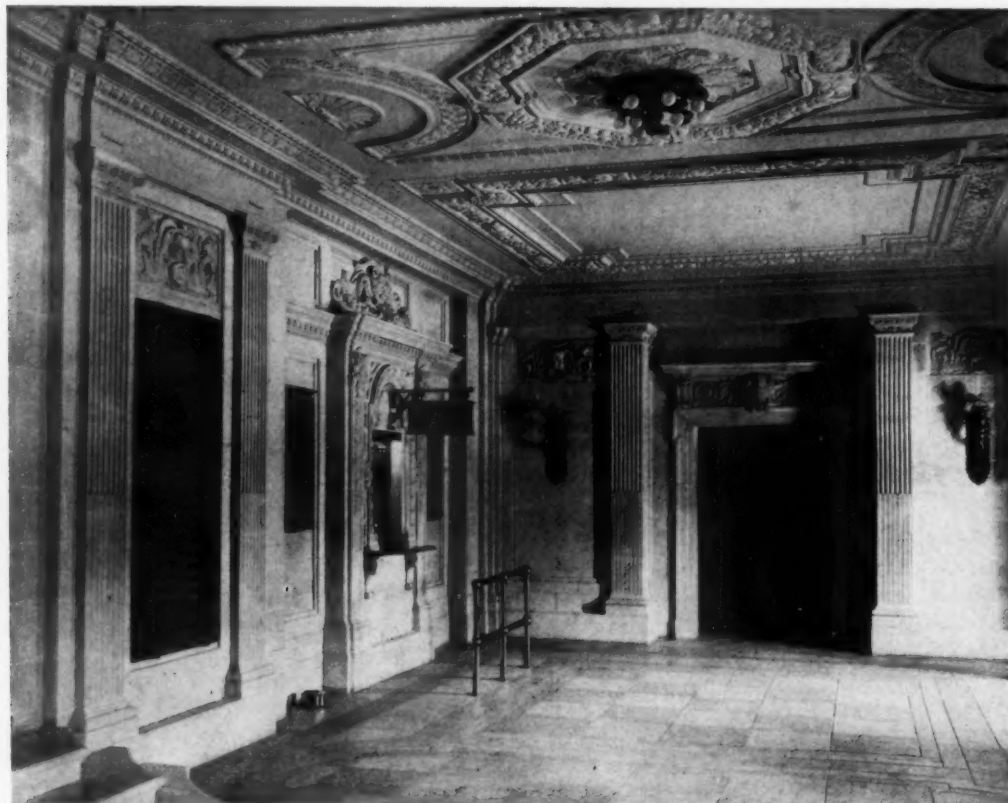


Fig. 10. Lobby and Box Office, The Century (New) Theater, New York
Carrere & Hastings, Architects

hard, sheer beauty of the Volksbühne to the soft and simple graciousness of the Music Box. A designer has more real freedom in designing the exterior of a theater than of most any other type of building, except monumental works, such as libraries, capitol buildings, etc., as there are no perforations to speak of, except in the rear, in the dressing room wings.

The mass proportions of a theater building are treated frankly in accord with the plan, in three parts: first, the main façade, secondly, the dome over the auditorium which takes the main ceiling, and thirdly, the stage loft. It is usually difficult to work this latter into the composition of

three sides and only the main façade is on the street a designer should experience no difficulty, provided the building is not combined with an apartment house or office building. Both Henry Miller's and the Music Box theaters in New York (see accompanying plates) are theaters frankly, and are treated as such, very charmingly and beautifully.

A theater architect should always make it his duty, even at his own expense, to design the signs and marquee which will afterwards be erected on the façade of his building, otherwise his painstaking work, nine times out of ten, will be ruined. The contraptions which are designed and erected

by the professional sign shops are atrocious, without exception, unless supervised by a competent architect. There are perhaps ten theaters in New York City, out of sixty odd, whose façades are not made ugly by signs which were erected after the buildings passed out of the architects' jurisdiction.

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*These volumes are out of print, and rare.

(The End)

New Daylight Lamp

FROM a recent issue of *The Industrial Digest*, we learn that an artificial daylight lamp has been developed in England. The lamp is of the regulant incandescent electrical type, the light being reflected from a reflector which is colored with spots of certain shades. The resulting reflection is very much like ordinary daylight. The absorption of the yellow and red rays in the light produces a light of maximum clarity. The new lamps are purchasable on the English market at the present time.

Soundproof Rooms

THE engineers of the Western Electric Company have recently constructed four rooms in the Bell Telephone Laboratories in New York that are as thoroughly soundproof as ingenuity can make them. Their design was based on principles and data published by the late Prof. W. C. Sabine of Harvard University.

To shut out the vibrations which would be transmitted by the floor, the rooms are built on foundations of three alternate layers of one inch thick special all-wool felt and sheet iron. The maple flooring, which is individual for each booth, is laid on top of this foundation and covered with battleship linoleum. The idea of the alternate layers of felt and sheet iron is that the sound vibrations, which are not damped out in passing through the felt, will be reflected by the sheet iron.

The walls are double and the inner one is built on top of the maple flooring. The framework for this inner wall is made of 2 by 3 inch timbers making a 3 inch air space. Nailed to the inside of this framework is a layer of sheet iron. Over the sheet iron is a 1 inch layer of felt and this is finished off with burlap. Nailed to the outside of the 2 by 3's is a layer of felt; outside of this is the outer wall. This rests on the main floor of the room in which the booths are built and is entirely free from the inner wall and its resilient foundation. The outer wall consists of a framework of I-beams, and built up between these is a wall of gypsum blocks. The booths are entered from the outside world by double doors, one door mounted on the door frame of the inner shell and the other mounted on the door frame of the outer gypsum block wall. The doors are provided with heavy glass panels set in felt.

The booths are ventilated by a small ventilating fan which has been mounted on a wall at a distance of about 15 feet so as not to convey any vibrations to the wall of the booth. The pipe carrying the air to the booth is lined with felt and terminates in a felt lined box equipped with felt baffle plates through which the air escapes into the booth practically free from sound vibrations. The air also escapes from the booth through one of these baffle boxes. Where it was necessary that sprinkler pipes or conduits pass through the booths they were wrapped with felt.

It is said that the feelings of one who has been accustomed to city noises, when first entering one of these booths, is that of almost suffocating stillness, such as might be experienced out in the woods on the stillest of nights.

THE BUILDING SITUATION FROM AN ECONOMIC VIEWPOINT

Prepared for THE AMERICAN ARCHITECT by the American Chamber of Economics, Incorporated*

TIMING its arrival to concur with the release of an enormously amassed and pent-in demand for all kinds of building and construction, the past year, 1922, has easily outstripped all other housing and construction years in the industry's history. Contracts awarded during the last twelve months have run approximately 50 per cent ahead of 1921, and have established the high mark of achievement for the industry.

Will this activity be carried to even greater heights in 1923? What is there in the present situation to discourage it? What is there in the situation to favor it? It is an argumentative point in building circles, and no attempt will here be made to forecast any eventuality. Consideration of the factors at play in the situation, however, is both interesting and profitable.

One participant in the argument maintains that building activity in 1923 will not exceed the activity of the preceding year, because the recent rise of the curve of contracts awarded has been rather meteoric in character, and it would be an unusual occurrence if the succeeding year pushed the total achievement still higher. The year, 1922, has made such an advance over its predecessors, that it assumes a tinge of abnormality sufficient to encourage the doubts of some of the more conservative observers.

Again, the man who maintains that 1923 will fall slightly short of 1922 in contracts awarded holds that residential construction, which usually forms from 30 to 40 per cent of the total, will experience a slight recession this year. The demand for housing, while far from being fulfilled, has been reduced. The cost of building materials and labor has been extremely sensitive to the trend of the rising cry for homes, and whatever additional demand is created by favorable industrial conditions and easy money, will have to face mounting wages and construction costs. This man admits that the trend of residential building is against his argument, if the immediate present is considered. Home building, according to the F. W. Dodge & Co. statistics, opened 1922 at about 45 per cent of

the total activity. It immediately dropped off to about 40 per cent; in the late summer down again to approximately 30 per cent. A surprising rally occurred thereafter and residential construction in November was approximately 50 per cent of the total construction awarded. For the opening months of 1923 residential work is expected to be heavy and to hold up well for the first six months of the year. After that our conservative friend looks for a recession which will just keep total building and construction for 1923 under the record of 1922.

The possibilities of 1923 not becoming a bumper building year should be welcomed with open arms. Business makes money in big, unprecedented years, but business loses money, too, in the inevitable depressions that follow these rallies. A moderately active year would be greeted with more genuine acclaim. Demand would be spread out over a longer period. The basic structure of the trade's activity would have time intelligently to be planned and formulated, to cool and become perfectly sound. Then, the economies of competition would have a greater opportunity to correct the galling irregularities of immature prosperity, and to establish stabilized markets and prices. Better to have the next decade a building decade than to have 1923 a bumper building year!

Those in the trade, who take the stand that 1923 is going to be a bigger year than 1922 has been, are not inclined to agree with the statement, that the volume of residential construction will fall below its achievement last year, which was approximately 40 per cent of the total contracts awarded. Granted for the moment that it does. The demand for educational, business and industrial, public works and utilities construction is so great in potentiality that it will rise to meet whatever deficit occurs in housing. We are entering upon an era of commercial and industrial expansion! A wealth of business and industrial building is ahead! Public utilities crippled by rate regulations during the war and the inflationary period could not pay for their sorely needed developments. Money was too tight, taxes too high for governmental bodies to finance the construction of new public buildings and schoolhouses, the old ones long outgrown, cramped and inadequate.

And now back to house building. Try to get a house in this town! The demand is enormous. The surface has only been scratched. Residential con-

*The American Chamber of Economics conducts a consultation and educational service for executives, in economic principles. Its Supervising Director is George E. Roberts, Vice President of the National City Bank of New York. Co-operating with the Chamber are James B. Forgan, Chairman of the Board of First National Bank, Chicago; Frank A. Vanderlip, Financier and Economist, New York; Samuel Insull, President, Commonwealth Edison Company, Chicago; Joseph H. Defrees, Ex-President, United States Chamber of Commerce; Henry S. Pritchett, President, Carnegie Foundation; Edward J. Nally, Managing Director, International Relations, Radio Corporation of America.

struction, which in November was approximately 50 per cent of the total contracts awarded will continue to dominate the situation for months to come. But the volume of total construction will continue to be unusually high for all classes of building, surging up with the increasing demand, which always attends the approach of spring. And so these arguments go.

An accurate measurement of this need for shelter is impossible. There is no gauging it. Demand is very flexible, and rather elusive. The force of its assertion is determined, to a large degree, by the play of economic factors underlying the whole commercial and industrial situation.

The year 1923 occupies a very favorable position with respect to the general business cycle of recurring peaks and depressions. The physical law, which holds that all that goes up must come down, has no significant meaning to the present business situation. Commerce and industry have just emerged from a period of depression and have only started upward on the road toward prosperity.

Confidence in the basic soundness of the fundamental structure of business is general. Weak spots in the situation have been disclosed and corrected. Structurally, the present business situation is more sound than it ever has been since the inflationary period. Any impulse to expand conservatively and intelligently the physical assets of industry, where investigation shows such expansion is warranted, is going to be mildly urged by: (1) a growing tendency to depart from the old custom of planning to meet one's immediate needs, and to anticipate one's future requirements; (2) the fact that the volume of general production, the pace of manufacturing and the amount of consumption warrants an optimistic outlook for future business; (3) growing corporate earning ability, as demonstrated by the trend of security prices and dividend payments, suggesting greater purchasing power and the accumulation of potential strength for expansion of physical assets when the volume of business justifies it; and (4) the prospect for a period of comparatively easy money rates.

The presence of these underlying factors is definitely favorable to the future welfare of the building and construction industry. If these factors continue to operate, and there is every indication that they will, the demand for building and construction of all classes cannot but be materially helped by their exhilarating influence. Industries allied with the building and construction trade will derive similar benefits.

Now the position of the individual is in many aspects similar to that of the corporation. High prices, dear credit, and a dwindling income kept him out of the market for a new home throughout the period of hectic inflation. He was cramped for room; he was discommoded; in many instances

he was sorely disturbed. As soon as the situation would become more favorable he would overcome these inconveniences, he would change his habitation.

So this inherent desire for a new home has been increased by the favorable outlook of the individual in his occupation. Unemployment has diminished until it in some instances amounts to an actual labor shortage. Wages, since April of last year, have been slowly, but steadily, rising. The income of the salaried man follows, to a great degree, the trend of wages and corporate earning power, and these during the past year, have been making moderate gains. A gradual advancing standard of living in all classes seems to be general. Credit is comparatively plentiful and cheap.

The big agricultural districts have likewise felt the stimulation of the business revival. Agricultural products, cotton, wool, corn, wheat, oats and livestock, all have been disposed of at considerably higher prices than those which prevailed in 1921. The volume of production in some instances has been heavier. Consequently the purchasing power of the farmer has been favorably altered. His easier financial position is indicated by heavier sales of mail order houses, better collections and sales reported by fertilizer manufacturers and implement makers, and the improved financial position of the banks located in agricultural districts. The full force of the farmer's buying power has yet to be felt in building and construction circles.

Leaving out of consideration the possibility of such hampering influences outside the building industry, as numerous and protracted freight embargoes, railroad strikes, miners' strikes, and similar contingencies, which might have a tendency to lessen demand in 1923, leaving these entirely out of consideration, the new year opens with not the slightest hint that the demand for housing and shelter will be mitigated during the first six months. Prices of building materials in general have become stabilized to a very considerable degree. Recessions and advances of values are looked for, of course, in the same way that rallies and relapses of demand are to be expected. No sharp flurries, and certainly no acute breaks are anticipated. The trend of the market is expected to reflect very accurately the trend of supply and demand within the industry.

Early winter sales of fabricated structural steel disclosed a seasonal decline, but in volume business is considerably ahead of last year. Steel prices have not been particularly strong, although there has been a firmer underlying tone displayed since the holidays. New business and unfilled orders are reported in good volume, shipments are gradually improving, and the strength of pig iron

and labor costs suggest firm to higher steel prices when depressing seasonal influences have spent themselves.

Lumber mills and associations continue to report orders in greater volume than either shipments or production. During December production betrayed the customary decline at this time of year. Shipments were well sustained, and the volume of new business showed a tendency to increase.

Soft wood demand is still heavy, particularly for future business. The spot market has shown some signs of weakness, but this has been attributed to seasonal influences. Production and shipments of Douglas fir have declined somewhat but are far ahead of last year at this time. Quotations have advanced due to heavy purchases by the railroad equipment companies for car material, a steadily maintained Eastern demand and good movement to Western markets. Yellow pine prices have held firm. Mills are generally well booked with orders and are not in the market for much new business. The production and orders of oak flooring have shown slight increases, but shipments have declined and stocks made only a slight gain.

In spite of the delay occasioned by the fuel and transportation tie-ups, Portland cement mills, according to the United States Geological Survey, have shipped during the past 11 months 19 million barrels more than in a similar period in the

best previous year. During November, the most recent month upon which a report exists at this writing, shipments were nearly twice as heavy as a year ago. Mills must operate at about 75 per cent of capacity in order to care for the prevailing demand. Cement statistics show a seasonal decline in production and shipments, and a slight accumulation of stocks on hand. Prices are stabilized and are holding up well with demand.

Production of brick has increased with the approach of winter, and this together with the recession in shipments has resulted in a general increase in stocks in kilns and sheds. Unfilled orders have dwindled with the approach of seasonal inactivity with prices displaying an irregular surface movement, but hiding a very firm undertone.

Whatever easing that has been perceptible in the prices of building materials is attributed to temporary seasonal influences, coupled with the easing of the transportation situation and the lifting of freight embargoes. Prices have apparently become definitely stabilized and their course throughout 1923 will be governed very largely by the influence of major forces of supply and demand within the industry, contingent, of course, upon such influences as inadequacies of transportation facilities, which have disturbed the trade not a little, and labor troubles within and without the industry.

Propose to Establish an American Institute for Acoustic Research

COMMENTING a short time ago on the failure of the acoustics of the new London County Hall, *The Times* suggested, states *The Building News* of London, that bodies such as the Royal Institute of British Architects and the National Physical Laboratory might get together for the devising and conducting of experiments for future guidance. But, so far, no practical steps seem to have been taken in this country. Meantime, similar problems are engaging attention in the United States, where, indeed, the late Professor Sabine, of Harvard, had already made valuable progress in exploration of the acoustic properties of architectural interiors. A scheme is on foot to establish an American Institute for Acoustic Research. Professor C. A. Rummick, of Wellesley College, Massachusetts, to whom the proposal is due, calls attention to the progress which has followed combined intensive research in the photographic and lighting industries, and thinks that the time has come when equal advan-

tages might be gained for acoustics. Already there exist more than a dozen American laboratories where investigation into different branches of the subject are in progress, but these could be encouraged and expanded by co-operation and concerted attacks on special problems. There is no doubt as to the scope of the work that might be undertaken.

City Landmark Passes

ANOTHER landmark of New York City's early history will soon pass when the old road house at the Southwest corner of Amsterdam Avenue and 181st Street is torn down to make room for a modern business building.

In recent years the building has been used as a lunch room, but originally was a well known road house. It was built in 1784, and consisted originally of a small building on the corner; later two wings were built.

Fort George Inn was the original name of the road house and as such it entertained many military and civil guests.

LEGAL DEPARTMENT

Conducted by

CLINTON H. BLAKE, Jr., of the New York Bar

I AM going to say a few words in this issue on the subject of "fool letters." While I have constantly been urging architects to have their dealings with their clients and the contractors covered by written memoranda, there is a real danger in too free letter-writing which must be considered and avoided. It is, beyond question, desirable to cover, by letters or other written memoranda, the important points as they arise. It is equally important that these memoranda and letters be written with discretion and with proper care.

Just as there is a tendency on the part of many architects to neglect putting anything in writing, so there is a tendency on the part of many others to write too much. I have in mind repeated instances in my practice, where architects have courted trouble and become involved in expensive and annoying entanglements and misunderstandings, solely because they have been too ready letter-writers. As between writing no letters and writing too many, without proper thought of the effect of what is written, I should unhesitatingly choose the first alternative as the lesser of the two evils.

The golden mean is to write letters only when they are necessary to make definite your relations with your client or with the contractor, or some issue involved in the relationship between the contractor and the client. There are cases where it is imperative that a proper letter be sent covering some of these points. Where this becomes necessary, however, it is of prime importance that the letter be prepared and phrased with care and that you secure proper advice regarding it, before it is mailed. In other words, cut out all unnecessary letters, put your emphasis on those that are necessary, see that they are sent in time and in proper form, and that they are correctly worded from the point of view of your own interests and the interests of the client.

It is quite natural that an architect, unacquainted with the law and the technicalities of the legal construction of what is written, should write, in many cases, letters, the legal effect of which is entirely different from the real intent and purpose and understanding of the writer. A phrase which, to the architect, may seem entirely innocuous, or a phrase which may connote to him a certain conclusion, may have, and often has, a very different meaning and effect, when considered from the point of view of the lawyer or the court. The letter may contain, legally speak-

ing, an admission which binds the architect in some way and to an extent which he has not intended or contemplated at any time. As an example, it may be taken as a guarantee by the architect that the cost of the building will not exceed a certain amount, when, in fact, all that he has meant to do is to give to the client a statement of his best guess regarding cost. It is very easy in the phrasing of what you write, unconsciously to slip across the border line which divides a direct representation on your part that the cost will be limited to a certain figure from a mere estimate on your part of what the cost will be, based on your experience and general knowledge, but not intended in any way as a guarantee that your figures are accurate or that the cost will fall within the upset figure which you give.

Similarly, in the case of dealings with sub-contractors, a letter may be intended to accept a bid and close a contract, in behalf of the client and, by a failure to make clear the fact that the architect is acting as the agent of the client, may bind the architect, in fact, as principal, so that the sub-contractor, in case of the default of the client, may look to the architect for his compensation. The architect may, again, write to the client, stating that he will proceed under the Schedule of charges of The American Institute of Architects or of the New York Society of Architects or of some similar body. He may have in mind, when he does this, the fact that his basic rate is to be more than the minimum rate prescribed by the Schedule of Charges of the Institute or of the Society, but he may fail to mention his basic rate in his letter, and he may find that, by phrasing his letter as he has, he is limited to the minimum rate set forth in the Schedules.

Only a short time ago, I represented an owner in a dispute with an architect, where the architect had written a letter confirming his employment and stating that his charges would be based on the Schedule of the American Institute of Architects, when, in fact, he had reference to an entirely different schedule. The owner proceeded on the assumption that the architect meant what he said, and when the architect's bill for a larger amount than that specified in the Schedule of the Institute came in, he naturally objected to paying it. The result was that the architect was bound by the letter which he had written, and was unable to collect the amount of his bill, as rendered. If he had given a moment's additional thought to his letter and seen that it was exact

in its terms and in accordance with his intentions, he would have saved a considerable amount of money.

The cases where careless or thoughtless letter-writing is responsible for loss might be multiplied almost indefinitely. The remedy in all cases, however, is the same, namely, to take more care with your written records, whether in the form of letters or otherwise; to place nothing in writing, unnecessarily, and, on the other hand, to place in written form, carefully checked and prepared, all those really essential matters on which written evidence is desirable.

LEGAL DECISIONS

A CORPORATION was organized under the Illinois law to carry on the business of consulting engineering and building and construction work. It made a contract to perform for another corporation all the necessary architectural services in connection with the construction of a building, and agreed that pursuant to this agreement the owner should be furnished with plans and specifications. The plans were prepared by and under the direction of an architect, duly licensed under the Laws of Illinois, who was an employee of the corporation, and the plans and specifications were signed by this architect. An action was brought against the corporation, as above, claiming a penalty for a violation by the defendant of the Illinois statutes, regarding the licensing of architects, in that the defendant, a corporation, had engaged in the practice of architecture in violation of the Act. The Act provided that no corporation should be licensed to practice architecture, but that such a corporation might employ licensed architects. The Court held that the defendant was not guilty of violation of the Act; that it had, in effect, simply contracted for the doing of the architectural work, and that the work itself was actually performed by the licensed architect.

People v. Rodgers, 198 Ill. App. 144.

THE Lien Statute of Minnesota provided that all persons, except encumbrancers, having an interest in land, should be deemed to have authorized improvements, made on the land with their knowledge, "insofar as to subject their interests to liens therefor," unless they should give or post a notice disclaiming responsibility, in the manner provided by statute. The defendant knew of improvements which were being made in property in which he had a two-ninths interest, and did not give notice of his disclaimer of responsibility. He admitted that under these conditions there was a lien created against his two-ninths in-

terest in the property, but contended that the statute could not create a lien against his interest for the entire cost of the improvements; but only for a two-ninths part thereof. He claimed that liens for improvements made, without express authority of the owner, can be sustained only on the theory that they become a part of and are beneficial to the land, and that only a two-ninths part of the land benefited was apportionable to his interest. The statute provided that, where improvements are made by one person on the land of another, all persons having an interest in the land, except encumbrancers or lienors "shall be deemed to have authorized such improvements insofar as to subject their interest to liens therefor," unless they give the notice of disclaimer of responsibility referred to. The Court held that the purpose of the statute was to give to laborers and materialmen a lien on the property for the value of the work and material they contributed toward its improvement and that the statute imposed on every person having an interest in the property, and having a knowledge that improvements were being made, the duty to warn materialmen that he would not be responsible therefor. Inasmuch as the defendant failed to do this, the Court held his interest in the land liable for the full amount of the lien obligation.

Berglund v. Wright, 182 Northwestern 624.

A CONTRACTOR entered into a contract to construct terrazzo floors in an apartment house in Seattle. The other party to the contract cancelled the contract. The contractor had intended, it appeared, to do work personally on the job, and the job would have provided him with thirty-four days' work at seven dollars per day, in addition to the difference between the contract price and what performance would have cost him. He endeavored to recover from the owner on account of the breach, by the cancellation of the contract, the difference between what he would have received for his personal services and what he actually earned in other work. It also appeared that the general contractor who let the contract for the floor construction acted merely as the agent for the owners. The Court held that it was not proper to include the general contractor in the judgment against the owners, in favor of the floor contractor, for breach of the contract let by the general contractor as agent for the owners, and that the measure of damages of the floor contractor should be the difference between the contract price and what it would have cost him to perform the work, had it been proceeded with under the contract.

deLuch v. Bradner Co., 190 Pacific 904.

GRAUMAN THEATRE, HOLLYWOOD, CAL.

MEYER & HOLLER, Architects

BY H. ROY KELLEY

(See Plate Section for illustrations and Pages 113-116 for Plans)

THE site selected for the Grauman Hollywood Theatre is a peculiar one, inasmuch as there are only 75 ft. on Hollywood Boulevard, the main thoroughfare of Hollywood, which 75 ft. are not on a corner. This 75 ft. strip extends back from Hollywood Boulevard 160 ft., then the lot widens to a subsidiary street 148 ft. This created the problem of developing the auditorium of the theatre on the rear of the lot 160 ft. from the principal street. It had the advantage of having two streets for exits. The lot slopes from Hollywood Boulevard to the rear of the lot 10 ft., which created a natural site for a theatre, the earth taken from the low part of the auditorium filling the front part or small or smaller portion of the lot.

After a great deal of study, it was decided on account of the strip, 75'x160', to adopt the Egyptian style of architecture, as this strip lent itself very well to the adaptation of a forecourt in front of the theatre, which in addition to being in accord with Egyptian precedent was both novel and of commercial value, and has made a wonderful approach to the theatre.

The Egyptian style of architecture was also chosen for the interior of the theatre because after the trial of several other decorative treatments it was felt that the Egyptian style lent itself more satisfactorily to the solution of the problem than any other style considered. In carrying out the design an effort was made to adhere to all precedent in Egyptian architecture as nearly as was possible. Therefore everything that was done in the way of decoration and furnishings was carried out with a close adherence to historical precedent. The only feature incorporated which perhaps does not adhere strictly to precedent, because of the fact that Egyptian architecture offered no similar feature, was the organ screen in the ceiling, but this was designed so as to have as nearly as possible an Egyptian character and fill the practical requirements as well as make it harmonious with the entire architectural treatment of the theatre. Deflected from the organ by the sloping roof above the musical notes are sent through penetrations in this organ screen directly over the heads of the audience, thus giving a uniform and concentrated tone. Every detail for the perfect diffusion of music has been carefully worked out to insure perfection in harmony.

The usual conception of Egyptian architecture, because of the fact that most of the remaining examples of such architecture have stood the weath-

ering of centuries and are in ruins, is that the style is one that is coarse, monotonous and cold, but a careful study was made of many restorations of Egyptian color decoration and the most accepted examples of such color decoration were a guide in the decoration of this theatre. The result was that the adoption of a most harmonious color scheme throughout the theatre was accomplished.

An outstanding feature of the manner in which the problem of design was approached is that care was taken to have highly decorative and elaborate motives used in contrast with extremely simple and plain surfaces. In this respect the theatre offers a most pleasing contrast to many theatres, in that the entire interior is not completely covered with decoration and ornamentation on every available surface. Fortunately, the architects were permitted to have complete charge of the designing and construction of the theatre as well as the designing of all equipment and fittings. Therefore such things as the theatre chairs, carpets, draperies, stage curtains and furniture were all designed within the architects' organization and the result was decidedly pleasing in that the same character of refinement and detail is carried throughout the entire theatre, making every part of it harmonious.

The plan of the theatre is of a more or less standard design, it being a megaphone type, with entrance directly off the forecourt into an outer lobby and from there into a curved foyer extending from one side of the theatre to the other, from which access is had to ladies' and gentlemen's rest rooms, smoking rooms, and a nursery for small children, with attendant in charge; also the projecting room which is situated on the roof of the low portion. The auditorium is 120 ft. from the curtain to the rear wall, and is 114 ft. wide at the widest portion. The ceiling is broken up in two planes, the higher plane being 44 ft. above the auditorium floor and the lower one 152 ft. at its highest point.

At the beginning of the design, concern was felt in the acoustics on account of this break in the ceiling planes, but it is interesting to know that the acoustics seem to be perfect now that the design has been completed.

The stage is 28'x72' and 54' high to the grid-iron. The proscenium opening is 42 ft. wide by 24 ft. high above the stage, the stage being cut back so that the curtain passes to a concrete slab in the orchestra pit directly in front of the stage

footlights, thus allowing an orchestra pit which lends itself to being banked and brings the musicians into more prominence. The stage is 3 ft. 10 in. above the auditorium floor.

All seats are built on radii. The wall aisles are 6 in. higher than the aisles in the center of the auditorium on each distinct radius. The total pitch of the seats from the back row to front row is 11 ft. 4 in., giving a rather steep pitch at the rear of the house, but as can readily be seen, an excellent sighting. After the seats were installed, it was found that there was not one bad seat, from a sighting standpoint, in the whole house. The number of seats in the house is 1760.

The vault is situated on the roof of the building adjacent to the projection room for the storage of film. The back stage and vault are both equipped with an automatic sprinkler system. The large storage space for emergency dressing rooms and other uses is under the stage, but the main dressing rooms in the wing are directly over the boiler room.

The boiler room is absolutely cut off by masonry from any part of the theatre, access being gained to same directly from the side street by an outside stairway.

The fan rooms are adjacent to the boiler room and are separated from the auditorium of the theatre by tile insulated walls.

Without a balcony the structural design of a theatre resolves itself practically into the design of a stage and a roof over the auditorium, and whereas architectural requirements as a rule do not permit any columns to obstruct the view of the stage, the roof construction becomes a series of longspan members.

It was decided the location did not warrant the construction of a balcony in this theatre, but the effect of a large house, the coziness of the rear of the auditorium under the balcony and the architectural splendor of the proscenium wall and highly decorated lofty ceiling were desired, and for this reason the division of the auditorium into a high and a low part was determined upon.

The predetermined location of the organ chamber, 15x56 ft., suggested a natural place for a structural member, and the division wall between the high and low parts of the auditorium suggested another. Between these members and the rear wall of the auditorium there suggested themselves the following methods of spanning the remaining members:

- (a) All members across the auditorium
- (b) Members in high roof over auditorium across the same; and members in low roof lengthwise between the members in the division wall and the columns in the rear part of the auditorium
- (c) Members of both upper and lower roofs spanning lengthwise

The latter method was adopted.

After careful analysis of the concrete girder,

the concrete truss, the structural steel girder, the structural steel truss, the steel arch and the reinforced concrete arch, the last named was found to be a great deal more economical and more desirable from many points of view.

Both the upper and lower parts of the auditorium roof were consequently laid out to be carried by six arches in each plane; those in the upper part carried at one end by a reinforced concrete truss, which also carries the floor and roof of the organ chamber, and at the other end by a reinforced concrete arch standing in the division wall between the high and low parts of the auditorium. The six arches in the lower plane are carried at one end by the arch in the division wall and at the other end by columns in the rear wall of the auditorium.

The arches in both the lower and the upper roof planes, as may be seen from the drawings shown elsewhere in this issue, have reinforced concrete beams and slabs framing into the bottom chord, thus forming a rigid plane, and have their top chords standing free above this plane. This method was decided upon for the following reasons:

(a) In case of temblors, the danger of damage is practically removed because with the top chord standing free above the roof, the plane of the bottom chord with the curved wall of the auditorium form a box-like structure admirably suited to withstand the effects of temblors.

(b) The bottom chord, lying in the plane of the roof and covered only by three layers of black roofing material, is exposed to practically the same temperature as the free standing top chord, so that temperature stresses are eliminated.

(c) With the top chord standing above the roof, wind stresses are eliminated.

(d) The construction of the form work for the beams and slabs is a great deal more economical than it would be were the beams and slabs in the plane of the upper chord, for the roof plane, which slopes to the sides only enough to shed water, makes an ideal working space above which to erect the forms and accurately place the steel for the top chords.

(e) Periodic examination of the structural members is greatly facilitated, for the top chords standing in the open air can be observed at any time, whereas were the beams in the plane of the upper chord one would have to crawl between the suspended ceiling and the roof with artificial light.

The spacing of the arches was determined by the requirements of the projection room, which is located on the roof over the low part of the auditorium directly back of the division wall between the high and low parts and between arches A4. This excessive central spacing, which was also used in the upper plane in order to have the upper and lower ones lie in the same vertical

planes, caused a considerable increase in cost by causing the big arch carrying them to be less uniformly loaded; and this was further aggravated by the necessity for a reinforced concrete vault adjacent to the projection room for the storage of films.

The small arches A1, A2, A3, A4, A5 and A6 were designed as two-hinged parabolic arches for full dead and live load and for dead load plus live load over one-half the arch. The unsupported length of the top chord was limited in every case to fifteen times the least dimension of the core and the top chords are braced laterally by a series of 12 in. by 12 in. braces reinforced with $4\frac{5}{8}$ in. bars and $3/16$ in. ties at 8 in. on centers.

The roof beams are supported by looped hanger bars passing underneath the beam steel and extending through the top chord and over the top steel. In no hanger are there less than four bars and these are encased in 8 in. of concrete.

The bottom chord steel bars are threaded at the ends and passed through a steel plate at each end. Additional bars are added at the ends to make up the area lost by threading the bars.

The big arch A7 with a span of 114 ft. and a rise of 23 ft. 6 in. center to center, carries a total dead and live load of 1,500,000 lbs. and was designed both as a two-hinged and as a no-hinged parabolic arch. The size of the columns necessary to carry the reactions of the arch and the desirability to carry these up to the planes of the upper arches suggested the design of this arch as a no-hinged arch, but it was felt that in case of a tremor the fixity of the ends might temporarily be nullified and the arch act as a two-hinged arch. For this reason it was designed to satisfy both conditions.

Since the top chord is largely exposed to the heat of the sun, while the bottom chord is located a few feet below the lower roof deck, a rise of 40° above and a fall of 40° below normal temperature were considered in the design.

Wind stresses were disregarded, as of no account, because the arch is located in the division wall between the high and low parts of the auditorium and the space between the upper and lower chords and also the spaces between the upper chord and the upper roof line are solidly filled with 12 in. hollow tile. Moreover, any tendency of wind force to move the arch horizontally would, of necessity, have to rotate both the upper and lower roof decks, which manifestly have an enormous power to resist such rotation, the upper deck at the far end being rigidly connected to the stage

construction, and the lower deck to the walls and columns back of the auditorium wall.

The rise of this arch is large compared to its span, but the effect of the direct stress was, nevertheless, included in the design, as was also the stretch of the bottom chord.

Arch A7 was therefore designed as follows:

(a) As a two-hinged arch for full dead and live loads, the effect of direct stress in the upper chord, the effect of the stretch of the lower chord, and the effect of temperature changes

(b) As a two-hinged arch for full dead load plus live load over one-half of the arch, direct stress in top chord, stretch of bottom chord, and temperature changes

(c) As a no-hinged arch for full dead and live loads, direct stress in upper chord, stretch of lower chord, and temperature changes

(d) As a no-hinged arch for dead load plus live load over one-half of the arch, direct stress in upper chord, stretch of bottom chord, and temperature changes

The moment at the haunch of the no-hinged arch was divided equally between the column above and below the haunch.

The bars of the bottom chord, as in the smaller arches, were threaded at the ends and attached to steel plates, and additional bars added to make up for the loss of area due to threading. The bars, owing to the length of the bottom chord, had to be spliced. The splices were made 7 ft. long and all staggered.

The arches of the lower roof deck frame into the I-shaped hangers at 3 ft. 6 in. above the bottom chord. The bars in these hangers are all looped underneath the bottom chord steel of arch A7 and passed through the top chord and through the columns on top of the top chord supporting the arches of the upper roof deck, to the very plane of this roof. These hanger bars were encased in concrete moulded into I-beam shape so as to act not only as hangers to support the lower arches but also as lateral supports for the top chord of the big arch.

The details of these arches are shown in some of the drawings reproduced on Pages 113-116 of this issue.

In pouring the wall beams and columns, the tile work was laid first and then the columns were poured into spaces left in tile work for same, and the girders and beams were poured directly on the tile at the proper levels, thus eliminating the necessity for any shoring, and making a considerable saving in the construction of the building.

DEPARTMENT OF ARCHITECTURAL ENGINEERING

SAFETY EXITS FOR SCHOOL BUILDINGS

The advantages of the double tower stairway and the work done in the State of North Carolina in safeguarding the lives of school children

THE architect who is called upon to design school buildings is faced often by a hard problem in that he does not have much to say about the character of construction to be employed. Hasty estimates of cost are often made by some contractor for a school board and on this is based a bond issue. Then architects are invited to prepare plans for a building that may be erected within the limits of cost thus set. The number of rooms being fixed, all reductions in cost, in case bids are too high for the building plans adopted, must be made in materials and workmanship. In some states the bond issue is based on adopted plans with actual bids from contractors. This, then, leaves the question of cost up to the voters whose children must attend the school.

Everything conspires to keep down costs. The limit of ability to issue bonds is based on assessed valuation of property. If the assessed valuation is increased in order to give authority to issue more bonds for school purposes the county authorities are certain to take advantage of the opportunity thus offered to collect more taxes for general purposes. The architect is placed in an awkward position when he tries to secure better construction because his fee is based on cost and whatever arguments he presents are supposed to be directed by personal interest. Therefore, when a new school is proposed, the insurance men should be enlisted to talk to the taxpayers and the architect should ally himself with the best insurance men in the school district. The people should have prominently kept before them the statement of the Wisconsin Industrial Commission that the

law compels children to go to school and condemns criminals to be kept in jails. Choice can be exercised in the selection of all other buildings, therefore the school and the jail should be fireproof. If not fireproof then safe means for egress should be provided.

The State of North Carolina several years ago adopted the double tower stairway for schools under the leadership of former Insurance Commissioner, James R. Young. In 1910 he had

erected such a tower at Goldsboro on an asylum building and it was so satisfactory that he worked to have the principle adopted for all school buildings in North Carolina. In an address in 1917 he classified the school buildings in North Carolina as follows:

1. Frame
 2. Brick, metal-roof, hollow construction
 3. Brick, metal-roof, mill construction
 4. Brick, metal-roof, mill construction, with automatic sprinklers
 5. Reinforced concrete or fireproof building
- From the remarks made by Mr. Young it is evident that by hollow construction (Class 2) he meant wooden joist floors and ceilings with concealed spaces where fire could gain a good hold before discovery.

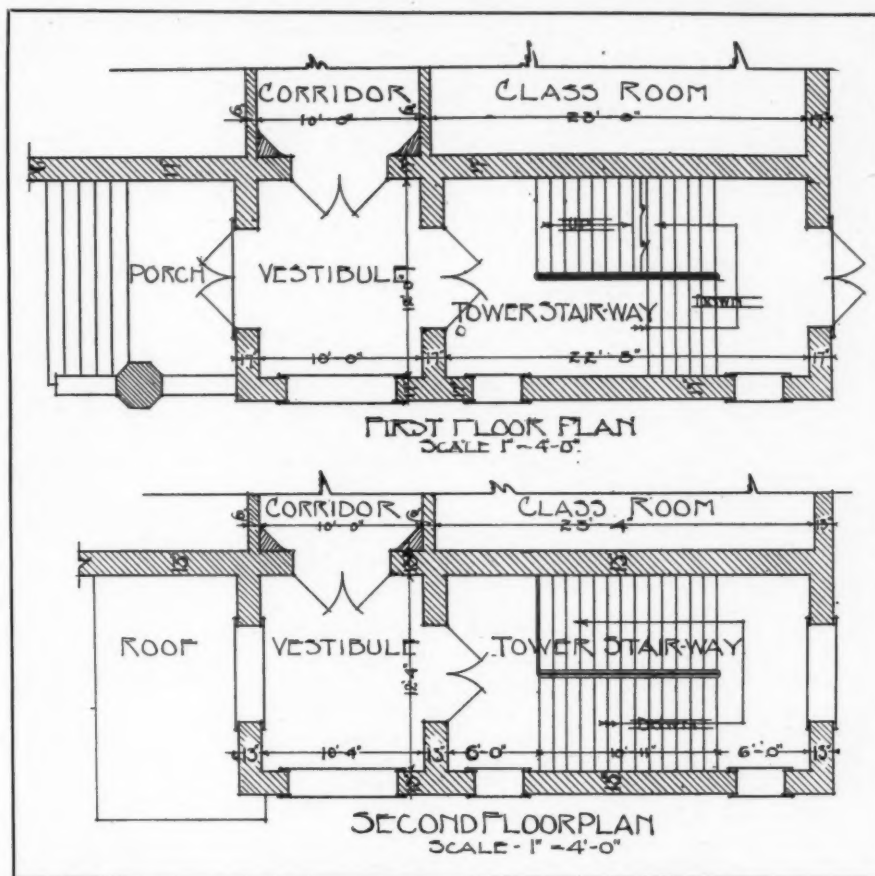
He stated that placing the second class, or the building usually erected in that state, as 100 per cent for cost, the third class would cost 106 or 108 per cent, while the addition of automatic sprinklers at an additional cost of 1 to 2 per cent placed the third class building in the fourth class. The fifth class, fireproof construction,



Public School, Fairmont, N. C., with double tower stairways at ends of building
C. Gadsden Sayre, Architect

cost 112 to 115 per cent. The figures quoted were obtained by him from architects and contractors of experience. He called attention to the fact that the better the building the less its cost of upkeep, and that the fireproof building, because of less depreciation, less need of repairs, and smaller rate of insurance, is much cheaper in the end than any other class of building. To the teachers and parents who listened to his arguments he showed that the difference in cost of upkeep will, in seven or eight years, pay the difference in cost of the building. These facts are

fire escapes and thus replace the outside fire escape ladders and stairways in use on many schools, but to replace all inside stairways and thus serve as the common entrance and exit for the school. He was not an architect and his first idea was to place the stairways at the ends of the buildings. The objections of the architects were based on the idea that such structures would be detrimental to the architectural beauty of the buildings and would unduly increase the cost. These objections were legitimate and represented the first reaction. Then a number of architects began the study of



Plans Illustrating the principle of the double tower stairway. All vestibules are open and no smoke or flames can enter the masonry enclosed stairway

well known to architects but it is hard to compel parents who are taxpayers, to understand it. To them must be shown the awful statistics of lives lost in fires. He proposed the use of tower stairways to safeguard lives in all classes of schools.

It is strange but true, that when the double stairway idea was placed before the state society of architects there was opposition, even while due recognition was given to the vast improvement from a fire protection standpoint. The idea of Mr. Young was to place double stairway towers in every school, these towers to serve not only as

the problem and evolved practical designs in which the tower stairways did not interfere with appearance and the cost was kept down to a practicable minimum. In these designs the danger of panic from smoke, the most important thing to guard against in the opinion of Mr. Young, was provided against by the use of open verandas on each floor to serve as stair platforms. Further study eliminated the item of additional expense.

At the time of his speech before the teachers' summer school in 1917, Mr. Young announced

that he had managed to secure the construction of school buildings with double tower stairways in Raleigh, Gastonia, Reidsville, Mount Airy, Burlington, Shelby, Albemarle, Thomasville, Conover, Pink Hill, Peachland, and other places. The Teachers' Assembly passed a resolution endorsing the double tower stairway with the following amendment:

"That to safeguard the children in school buildings, all plans for new school buildings and extensive repairs to old ones be submitted to the Insurance Commissioner, ex-officio Fire Marshal, for approval as to safety before being accepted by any school board."

The General Assembly of North Carolina later made the resolution a law. There were many objectors on the ground that as the platforms were open the children would be unduly exposed to the weather and it took considerable argument to convince them of their error. Another objection was that the cost would be from \$1,000 to \$12,000 extra and it took actual bids from contractors to show these objectors that they were wrong. The final argument, that the architectural beauty of a building was destroyed by the double tower stairway was met by showing photographs of beautiful school buildings thus e-

of beautiful school buildings thus equipped. From an article by Sherwood Brockwell, Deputy Fire Marshal of North Carolina, in the *Fire Protection Magazine*, November 1921, the following is taken:

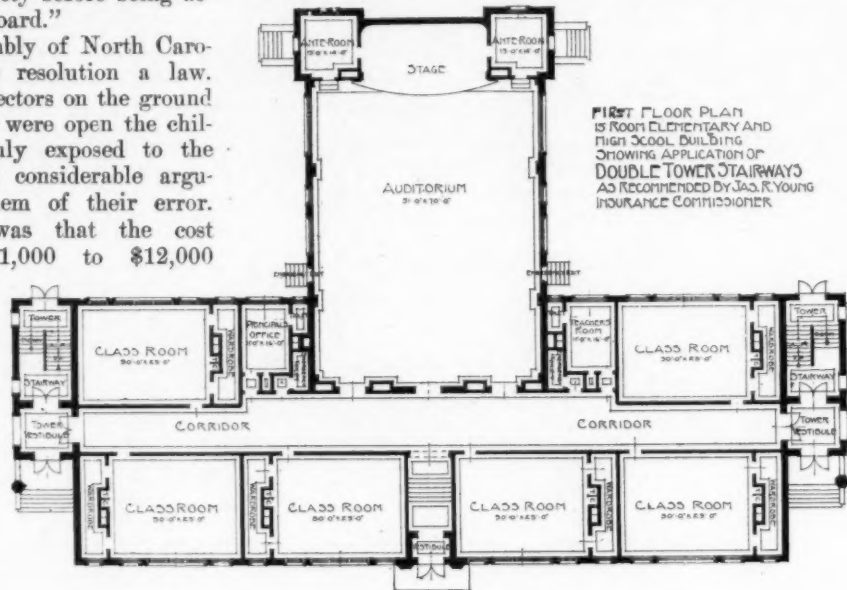
"In the meantime the buildings already constructed had shown advantages other than for safety, in that where a building was used for primary and grammar classes it was found that recess periods at different hours did not interfere with the classrooms as the stair arrangement made it possible to empty either room without interfering with classrooms on the other floors, this being impossible in any other type of building.

"The insurance interests had found still another advantage of the double tower stairway in that it made each floor a separate and distinct unit, eliminating all openings between floors and allowed a substantial decrease in insurance premiums on buildings of this type.

"As a building would reach a certain stage of construction we would test it with smoke, and in

each instance found that the double tower stairway did eliminate the danger of a smoke panic, and the school teachers soon found that what they had first thought would be an inconvenience from a stair standpoint offered many advantages over the old stair arrangement in that the children could be handled from floor to floor more quickly and better than before.

"Roughly speaking, there are about 700 new school buildings of the double stairway type in the State, including all the largest school buildings, and about 200 old buildings have been con-



An example of a school building with Towers at ends

verted to the double stairway type. In addition, all dormitories and school buildings erected by the State are being built in like fashion, notably the new buildings being constructed at the University of North Carolina, the State College, North Carolina Insane Asylum, School for the Deaf, North Carolina School for the Blind, the last named being a new institution, all buildings of which are being erected with the tower stair.

"Of course there is no difference between the heating of this building and any other type of building. Another factor in school construction required in this State is that all furnace rooms and fuel rooms be separate and distinct parts of the school building, that is, separated by four solid walls and fireproof ceiling with entrance from the outside only. This often takes the heating plant from the center of the building, where it never should be, to a corner, requires in some instances larger pipes and a little more fuel, but a dividend is given in exchange in both safety and convenience. The janitor sometimes objects to going outside to get to the furnace room, but the people in

North Carolina all unite in believing that the safety of children is of greater importance than convenience of janitors."

The double tower stairway fire exit has been before the public for a number of years and the

of North Carolina, show how the stairway is planned by good architects.

Requirements for Small Dwelling Construction

THAT eight inch brick walls can be used in one and two family houses having walls under thirty feet high was one of the conclusions reached in a recent extensive investigation of building codes by the Building Code Committee of the Department of Commerce. This conclusion was reached as a result of careful analysis of building codes, of a series of fire tests conducted at the Bureau of Standards, and of a series of strength tests conducted at the same institution.

Beginning in July, 1921, the Building Code Committee of the Department of Commerce has been studying and comparing building codes from all over the country as applied to small houses. The Bureau of Standards has been co-operating closely with them and has furnished much of the experimental work on which the findings of the committee are based.

Its work is now completed and is embodied in a publication entitled "Recommended Minimum Requirements for Small Dwelling Construction." This publication is now in press and will be ready about February 1. It can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 15 cents a copy.

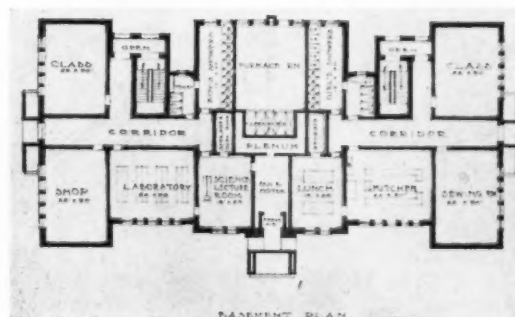
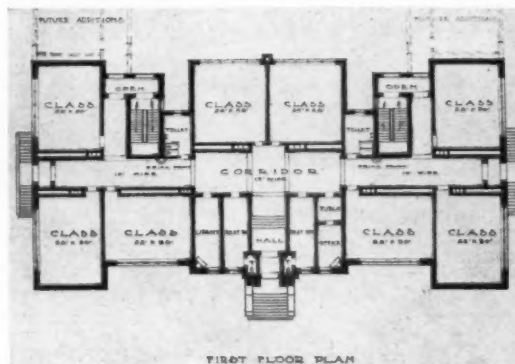
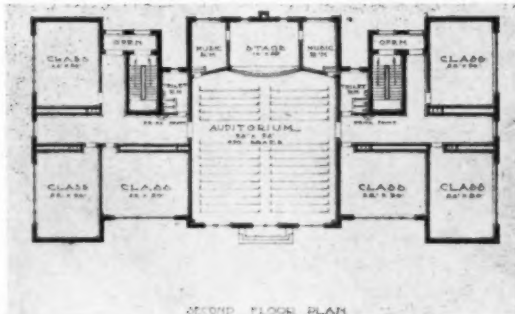
The book begins with a discussion of the origin of the committee, its methods of working and some of the more important of its findings. This is followed by a standard building code which covers the minimum requirements, and is written in such form that it may be adopted without change in wording either as a building code or as an amendment to existing codes. It is intended to serve as a guide and a standard in the formation of local building codes.

The latter part of the book is taken up with an extensive detailed discussion of the recommendations made and the data on which they are based. It is freely illustrated and contains much information of value to architects and builders.

Defects in Apartment House Design

AN architect designed an apartment house and it was illustrated in several architectural magazines. Local newspapers also reproduced the photographs and the architect soon found himself in demand. The plan was good and the facade architecturally was pleasing. One of the tenants decided recently to own his own home and when it was suggested that this architect would be glad to serve him, roughly remarked that if he was the only architect living he would have no architect design his house.

The tenant when pressed for an explanation said the architect was lazy and careless. This when repeated to the architect brought forth a sharp



A Public School Building with interior Double tower Stairways
C. Gadsden Sayre, Architect

National Board of Fire Underwriters earnestly advocates such stairways wherever it is possible to introduce them. The practical application to schoolhouses as shown by the experience of North Carolina should lead to the adoption of this type of stairway wherever schoolhouses are built. The accompanying illustrations, loaned by the Hon. Stacey W. Wade, Insurance Commissioner

letter of protest and an intimation that the criticism was slanderous. The tenant thereupon called the architect's attention to two items that had greatly annoyed him during the two years he had occupied an apartment on the fifth floor of the "walk-up" apartment house. The architect had specified that the contractor place in the hallway sixteen boxes for letters. There being nothing said about sizes of openings the contractor had set boxes in the wall of the hallway the openings of which were one-half by three and one-half inches. For envelopes ordinarily used by business houses an opening of four and one-half inches should be specified. Not all envelopes received at residences are small. All the tenants complained that many photographs and engraved cards had been ruined by the mail carriers who folded the envelopes containing them, in order to get them into the small slits. The building cost one hundred thousand dollars and the tenants believed that if the architect had specified generous openings for the mail boxes the cost would not have been increased.

The second item was that of wiring the door bells. The specifications called for a push button in the entrance lobby connected to each apartment. That was all. The electrical contractor evidently put his most thoughtless helper on the work and the architect, beyond satisfying himself that the bells were in, gave no thought to convenience.

On the right, where most convenient to callers, were placed the bells for apartments on the fifth, fourth and third floors. On the left of the double doors were the bells for the basement, first, second and part of the third floor. The bell to the janitor's apartment in the basement was the farthest away. Furthermore the janitor had an engraved card like the ordinary tenants, who paid twenty dollars per room rental per month.

The tenant who criticized the architect lived on the fifth floor and had a wife whose health was not very good. The bell to his apartment was most convenient to the door. There were no speaking tubes nor other means of communication. During the renting season he and his wife made many trips down in response to imperative rings. He believed that a good architect should indicate the position of the push buttons and that the one most convenient to the door should be marked "Janitor." The resentment of this tenant because of the indifference displayed by the architect not only lost the latter the commission for a good residence but also worked against him when he was later proposed as architect for a building to be erected by a company in which the tenant was a director.

Flooring made from Leather Waste

THE latest entrant in the class of floorings is one made by the Endicott-Johnson Company, the well known manufacturers of shoes.

It is called Long Life Fibre Flooring (patent pending) because, while the principal ingredient is ground up leather waste, it contains considerable vegetable fibre waste. The company is said to have over 300,000 square feet in use in a number of representative industrial plants. It is claimed to be fire resistant to a remarkable degree although it is impregnated with a coal tar waterproofing compound to drive off the moisture content and prevent buckling in damp weather. Lately another variation has been made with another compound and in this form it will be possible to manufacture the material in colors. It is laid over wood floors or over concrete, in the latter case being used to overcome surface hardness complained of by many workmen and to guard against the wearing of the surface of poorly laid concrete.

Fuel Briquettes to be made from Wood Waste

IN the best lumbering operations there is a waste of from 60 to 70 per cent of all trees cut. The 30 to 40 per cent utilized must bear all operating costs and produce all profits. These facts have led many experimenters to carry on intensive research work in the search for profitable by-products. This search, it is now asserted, has been crowned with success.

On the authority of Robert B. Allen, of Seattle, Secretary-Manager of the West Coast Lumbermen's Association, it is stated that a process has been developed for carbonizing wood wastes and converting them into fuel briquettes. The claim is made that the thermal value of these briquettes is equal to that of anthracite coal.

Under the initial auspices of the West Coast Lumbermen's Association, the new carbonizing and briquetting process has been developed exhaustively in a plant at Centralia, Washington, under the direction of W. T. Dumbleton and W. A. Leuenberger, engineers, of Tacoma. This plant has demonstrated that on the most conservative calculation the waste of a 200,000 ft. daily capacity mill will produce 60 tons of charcoal briquettes, at a manufacturing cost of \$8 per ton, nothing being allowed for cost of material when the briquetting plant is operated in conjunction with the mill.

If the by-products of 15 gallons of tar oil, 30,000 cubic feet of wood gas and seven gallons of acetone alcohol to each ton of briquettes are recovered, as they may easily be, virtually the entire cost of making the briquettes may be offset by their profits. It has not been practicable heretofore to distill these by-products from wood waste because the market for them was not extensive or profitable enough to carry the costs of operations. But in the Pacific Northwest, at least, remote from high-grade coals, which retail at as much as \$15 a ton, there is now a large market for

briquettes equal to anthracite; so that it is believed that complete utilization of mill wastes will be feasible.

The practical operation of such a process will have far-reaching effects in the Pacific Coast territory where the lack of good coal at a price per ton comparable with the price of coal elsewhere, has prevented many kinds of desirable development work. A few more years of work on the part of chemists and metallurgists and we will have to speak of "bi-products" instead of "by-products," for there will be no waste.

New Method of Measuring Sand

THE reliability of concrete construction is likely to be increased, and the cost in some cases reduced, by the application of a newly

developed method of measuring sand, which is now being tested at the Bureau of Standards of the Department of Commerce. The method has been termed the "inundation method" and consists of measuring sand in a container which has been partly filled with water before the sand is put in, so that when the sand is in, the water is up to the top and the sand completely soaked.

The volume occupied by a given amount of sand when shoveled into a measuring device varies with the moisture content of the sand; the difference in measured volume between dry and moist sand being usually from 10 to 15 per cent and occasionally running as high as 50 per cent. But it is found that if the sand is completely soaked or "inundated" uniform measuring results can be obtained no matter how much the original moisture content may have varied.

BUILDING STATISTICS FROM DECEMBER, 1922, SURVEY OF CURRENT BUSINESS U. S. DEPARTMENT OF COMMERCE

NOTE.—Items marked with an asterisk (*) have not been published previously in the SURVEY or are repeated for special reasons; detailed tables covering back figures for these items will be found at the end of this bulletin. For detailed tables covering other items, see the last quarterly issue of the SURVEY (No. 15).	NUMERICAL DATA.					Percentage increase (+) or decrease (—) cumulative 1922 from 1921.	BASE YEAR OR PERIOD.	INDEX NUMBERS.						Percentage increase (+) or decrease (—), Oct. from Sept.	
	September, 1922	October, 1922	Corresponding month, September or October, 1921.	CUMULATIVE TOTAL THROUGH LATEST MONTH.				1921		1922					
				1921	1922			Sept.	Oct.	July.	Aug.	Sept.	Oct.		
BUILDING AND CONSTRUCTION.															
Building Costs.															
Building materials:															
Frame house.....	Index number.....						1913			181	189	193	196	+ 1.6	
Brick house.....	Index number.....						1913			184	193	197	199	+ 1.0	
Building costs.....	Index number.....						1913	188	183	173	185	189	189	0.0	
Concrete factory costs.....	Index number.....						1914	180	157	171	174	190	192	+ 1.1	
Construction and Losses.															
Building volume.....	Index number.....						1913	114	109	118	154	129	127	- 1.6	
Contracts awarded, floor space:															
Business buildings.....	thous. of sq. ft..	9,074	8,873	7,991	55,499	83,007	+ 49.7	1919	78	86	95	84	98	74	- 24.3
Industrial buildings.....	thous. of sq. ft..	4,569	7,242	3,984	28,730	54,934	+ 91.2	1919	21	31	54	88	36	57	+ 58.5
Residential buildings.....	thous. of sq. ft..	23,059	25,814	21,978	160,001	256,687	+ 60.4	1919	108	109	121	118	114	128	+ 11.9
Educational buildings.....	thous. of sq. ft..	3,644	3,343	3,228	33,870	50,063	+ 47.9	1919	221	169	360	273	190	175	- 8.3
Hospitals and institutions.....	thous. of sq. ft..	714	1,085	680	9,403	10,337	+ 9.9	1919	540	185	379	465	194	295	+ 52.0
Public buildings.....	thous. of sq. ft..	198	149	212	2,569	2,923	+ 13.8	1919	291	123	263	157	115	87	- 24.7
Social and recreational buildings.....	thous. of sq. ft..	1,855	1,077	1,383	15,252	17,021	+ 11.6	1919	157	109	113	202	147	85	- 42.0
Religious and memorial buildings.....	thous. of sq. ft..	1,035	1,162	928	8,201	11,488	+ 40.1	1919	275	209	323	301	233	282	+ 12.3
Grand total.....	thous. of sq. ft..	44,275	46,806	40,436	314,113	487,395	+ 55.2	1919	89	87	111	116	95	100	+ 5.7
Contracts awarded, value:															
Business buildings.....	thous. of dolls..	45,007	32,037	37,405	285,069	440,495	+ 54.2	1919	122	111	130	113	136	95	- 30.2
Industrial buildings.....	thous. of dolls..	26,385	27,640	18,419	141,077	276,482	+ 96.0	1919	26	43	75	158	62	65	+ 4.8
Residential buildings.....	thous. of dolls..	101,428	110,776	89,050	686,824	1,104,815	+ 60.9	1919	135	127	154	143	143	157	+ 9.2
Educational buildings.....	thous. of dolls..	21,214	17,437	22,429	210,575	276,037	+ 31.1	1919	266	225	409	322	213	175	- 17.8
Hospitals and institutions.....	thous. of dolls..	5,331	8,541	5,300	50,296	73,237	+ 23.5	1919	364	159	338	287	163	262	+ 60.2
Public buildings.....	thous. of dolls..	1,325	1,144	1,523	19,287	28,766	+ 49.1	1919	234	136	1,237	233	118	102	- 13.7
Public works and utilities.....	thous. of dolls..	50,379	41,477	35,141	404,954	509,776	+ 25.9	1919	85	84	189	119	120	99	- 17.6
Social and recreational buildings.....	thous. of dolls..	12,005	6,565	6,632	95,736	108,200	+ 7.9	1919	168	95	146	179	172	94	- 45.3
Religious and memorial buildings.....	thous. of dolls..	7,259	7,224	5,785	53,784	77,458	+ 44.0	1919	249	183	323	284	232	231	- 0.5
Grand total.....	thous. of dolls..	271,493	253,137	222,480	1,983,946	2,893,340	+ 46.9	1919	115	103	163	150	126	118	- 6.8
Fire losses.....	thous. of dolls..	41,515	40,065	27,955	277,569	332,688	+ 19.9	1919	114	125	164	96	185	179	- 3.5

BEAUX-ARTS INSTITUTE OF DESIGN

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Special Notice to Students

BY special arrangement with the Society of Beaux-Arts Architects, there appears in each issue of THE AMERICAN ARCHITECT an average of five pages devoted to the presentation of drawings selected from the Beaux-Arts Institute of Design exhibitions, and also the listing of awards and the promulgation of all notices to students. These matters will be exclusively presented to students of the Beaux-Arts Institute of Design through the pages of THE AMERICAN ARCHITECT. By arrangement with the publishers of THE AMERICAN ARCHITECT, a special student subscription rate of \$5.00 per annum has been secured. Further particulars with reference to this service to Beaux-Arts students may be obtained by addressing THE AMERICAN ARCHITECT, 243 West 39th Street, New York City.

OFFICIAL NOTIFICATION OF AWARDS

JUDGMENT OF JAN. 2ND, 1923

CLASS "A"—II PROJET

"A HOTEL FOR A SMALL TOWN"

In a town of approximately 60,000 people, a group of residents have decided to finance a hotel, not with the idea of getting a high return on their investment, but in order to provide the town with a hotel that will not only be a center of business and social activity, but also a real institution.

A level plot of ground, 300'-0" square has been set aside for this purpose. The front of the plot faces the main thoroughfare of the town, while the back faces on a street of secondary importance; private property bounds the other two sides. The requirements of the hotel are such that it is not necessary to cover the entire plot. In fact, the character of the town and neighborhood demand that a portion of ground be devoted to lawns or gardens. In general character, therefore, the hotel should be far different from the usual type of city hotel with its congested planning and dependence on artificial light and ventilation even for important rooms.

The hotel shall provide on the first and on a portion of the second floors, if desired, a public lounge and office, a small parlor and retiring room for ladies, a small writing room for men, a main dining room, a grill room, the kitchens, conveniently located to serve both the dining room and grill, a billiard room, and a ball room suite, consisting of a small ball room with the customary ante-rooms. Approximately one hundred bedrooms shall be provided on the second and upper floors. The number of bedroom floors should be established by the character of building that is sought.

In separate buildings, or in semi-detached wings, there should be a garage of ample size to take care of the cars of the numerous automobile guests and the hotel machines, and also a laundry and quarters for the servants.

JURY OF AWARDS:—H. O. Milliken, W. F. Lamb, W. Warren, J. H. Freedlander, W. E. Shepherd, Jr., J. W. O'Connor, P. A. Cusachs, A. L. Noel, R. H. Pearce, H. W. Corbett, P. P. Cret, F. C. Hirons, H. Sternfeld, O. Facl-ton and L. P. Burnham.

PRESENT BUT NOT SERVING ON JURY:—S. W. Morgan, P. H. Pratt and J. Skinner.

NUMBER OF DRAWINGS SUBMITTED:—106.

AWARDS:—

FIRST MEDAL:—J. P. Metheny, Carnegie Inst. of Tech., Pitts.; J. W. Walker, Columbia Univ., N. Y. C.; W. H. Speer, Atelier Denver, Denver.

SECOND MEDAL:—K. Matsunoi, W. Conley, S. R. Moore and E. Albright, Columbia Univ., N. Y. C.; L. Rombotis, D. G. Braik, and L. S. Young, Univ. of Pennsylvania, Phila.

FIRST MENTION:—C. W. Hunt, R. B. Schell, V. H. Stromquist, J. G. Todd, E. W. Klee, G. A. Brink, W. Harris, J. Franklin, J. J. Kiel, R. Patterson, D. D. McGervey, H. T. Aspinwall, P. F. Simpson, P. C. Reed and H. C. Brockman, Carnegie Inst. of Tech., Pitts.; I. L. Scott, D. C. French, S. Schellkopf and H. L. Wickerham, Cornell University, Ithaca; W. L. Suter and R. Trow, Chicago Sch. of Architecture, Chicago; A. Ehrenrich, A. F., Deam, O. W. Wilson, C. Fuller, M. C. Hills, J. Aronson and N. B. Mead, Jr., Columbia Univ., N. Y. C.; R. L. Linder, Atelier Denver, Denver; P. Simonsen and H. Van der Lyn, Atelier Hiron, N. Y. C.; P. Goodman, Atelier Licht, N. Y. C.; R. T. Morenus, Richmond Archtl. Club, Richmond; R. B. Bloomgarten, Univ. of Kansas, Lawrence; G. F. Frederick, S. Chao, A. E. Poor, A. L. Hawes, F. L. Hutchins, D. C. Cleland, C. F. Gromme, F. M. Baldwin and R. Ruhnke, Univ. of Pennsylvania, Phila.; V. M. Reynal, Yale University, New Haven.

SECOND MENTION:—L. E. Considine, M. D. Smith, H. C. Kriesle, E. O. Anderson and E. H. Beckman, Carnegie Inst. of Tech., Pitts.; J. A. Douglas, E. Kaw and T. Hendryx, Cornell University, Ithaca; E. A. Johnson, O. F. Cerny, C. F. Pope, Jr., L. H. Sommer and P. McFarlane, Chicago Sch. of Architecture, Chicago; P. G. Lee and C. Leonardi, Columbia University, N. Y. C.; L. F. Fuller, Los Angeles Archtl. Club, Los Angeles; K. Snow, Pittsburgh Archtl. Club, Pitts.; E. R. Perry, Princeton Univ., Princeton; F. J. Tarlowski, Syracuse Univ., Syracuse; O. F. Nicholson and G. M. Beal, Univ. of Kansas, Lawrence; F. V. Sauvignet, Univ. of Texas, Austin; W. E. Willner and H. J. Toombs, Univ. of Pennsylvania, Phila.; E. D. Everhart, Univ. of Virginia, Charlottesville; P. E. Isbell and E. A. Lehti, Yale University, New Haven.

H. C.:—C. E. Landefeld, Carnegie Inst. of Technology, Pitts.; J. D. Lorenz, Cornell Univ., Ithaca; D. M. Campbell, Jr., Columbia University, N. Y. C.; E. L. Babitsky and H. B. Marsh, Atelier Wynkoop, N. Y. C.; A. G. Clay and D. W. Orr, Yale University, New Haven.

CLASS "A"—II ESQUISSE-ESQUISSE

"A RECEPTION ROOM ON A STEAMSHIP PIER"

The arrival of many distinguished visitors has suggested to one of the big steamship lines the desirability of providing on the steamship pier a dignified reception room where these visitors may be received with due ceremony by the city and governmental officials. This room should, therefore, be of sufficient size to accommodate the receiving committees and their guests, and should be of a sumptuous character befitting its purpose. It shall not exceed 60' in any horizontal dimension, and its height, which is not limited in this program, should be such as to give fine and ample proportions to the room.

JURY OF AWARDS:—H. O. Milliken, W. Warren, W. E. Shepherd, Jr., P. A. Cusachs, R. H. Pearce, W. B. Chambers, H. W. Corbett and F. C. Hirons.

This Jury also served as Jury of Awards for: Class "A"—II Esquisse-Esquisse, Class "B"—II Esquisse-Esquisse, Class "A" and "B" Archaeology—II Projet and Class "A" and "B" Archaeology—II Measured Drawings.

NUMBER OF DRAWINGS SUBMITTED:—41.

AWARDS:—

FIRST MENTION:—P. Goodman, Atelier Licht, N. Y. C.; E. L. Babitsky, Atelier Wynkoop, N. Y. C.; P. E. Isbell and A. G. Clay, Yale Univ., New Haven.

SECOND MENTION:—P. C. Smith and E. Albright, Columbia Univ., N. Y. C.; P. Simonsen, Atelier Hiron, N. Y. C.; F. J. Tarlowski, Syracuse Univ., Syracuse; R. Nickel, "T" Square Club, Phila.; W. E. Willner, Univ. of Pennsylvania, Phila.; R. B. Bloomgarten, Univ. of Kansas, Lawrence; A. L. Muller, Atelier Wynkoop, N. Y. C.; V. M. Reynal, Yale Univ., New Haven.

CLASS "B"—II ESQUISSE-ESQUISSE

"A REAL ESTATE OFFICE IN THE COUNTRY"

A real estate concern that is developing a suburban district intends building an office for its local agent. The office will face a parkway and should be of substantial construction and attractive appearance, as it is to be a permanent branch office of the concern.

It should provide, on a single floor, a reception room and private office with toilet facilities for the agent. The building should not exceed 40'-0" in its longest dimension.

NUMBER OF DRAWINGS SUBMITTED:—112.

AWARDS:—

FIRST MENTION:—G. Gonzalez and A. Zava, Atelier Hiron, N. Y. C.

SECOND MENTION:—P. F. McLean and J. B. Blair, Carnegie Inst. of Tech., Pitts.; L. R. Claeson and M. G. Maybeck, Columbia Univ., N. Y. C.; W. E. Munn, Cleveland Sch. of Art, Cleveland; J. J. Wallwork, Atelier Hiron, N. Y. C.; H. P. Whitworth and L. A. Balicki, John Huntington Poly. Institute, Cleveland; W. C. Myall, Los Angeles Archtl. Club, Los Angeles; F. C. King, Jr., Syracuse Univ., Syracuse; J. Strehle, Southern Branch-Univ. of California, Los Angeles; R. B. Bloomgarten, Univ. of Kansas, Lawrence; H. W. W. Faulkner, Yale Univ., New Haven.

CLASS "A" AND "B" ARCHAEOLOGY—II PROJET

"A MOORISH ARCADE"

The houses and palaces of the Moors in Spain were severely plain on the exterior, but the courts and apartments were decorated with a luxuriant wealth of design and color. Stucco and tile were the predominating materials used to produce these effects.

It is supposed that the main court of a Moorish house is 50'-0" wide and 100'-0" long. On the long axis is a pool of quiet water reflecting the sky. At the end of this axis, and perpendicular to it, is an arcade which forms the entrance to the principal rooms of the house. This arcade, the subject of this problem, occupies the entire width of the court and shall not exceed 15'-0" in depth.

NUMBER OF DRAWINGS SUBMITTED:—17.

AWARDS:—

SECOND MEDAL:—L. Timotheeff, J. Aronson, A. M. Dick, P. C. Smith, Mary C. Hills, Columbia Univ., N. Y. C.; R. C. Danis, Catholic Univ., Wash., D. C.; W. P. Crabtree, Jr. and H. A. Martin, Syracuse Univ., Syracuse; C. F. Gromme, Univ. of Pennsylvania, Phila.; K. McLeary, Univ. of Texas, Austin; W. Douglas, Yale Univ., New Haven.

MENTION:—C. I. Cromwell, W. W. Heath and S. E. Chambers, Syracuse Univ., Syracuse.



First Mention

G. Gonzalez

Atelier Hiron, N. Y. C.

Class "B"—II Esquisse-Esquisse—A Real Estate Office in the Country

Student Work, Society of Beaux-Arts Architects

CLASS "A" AND "B" ARCHAEOLOGY—II MEASURED DRAWINGS

NUMBER OF DRAWINGS SUBMITTED:—3.

SUBJECT:—Original Home of Robert MacCarty, Esq., Bear St., Syracuse, N. Y.

AWARD:—SECOND MEDAL:—H. A. Martin, Syracuse Univ., Syracuse.

SUBJECT:—Andrew Safford House, Salem, Mass.

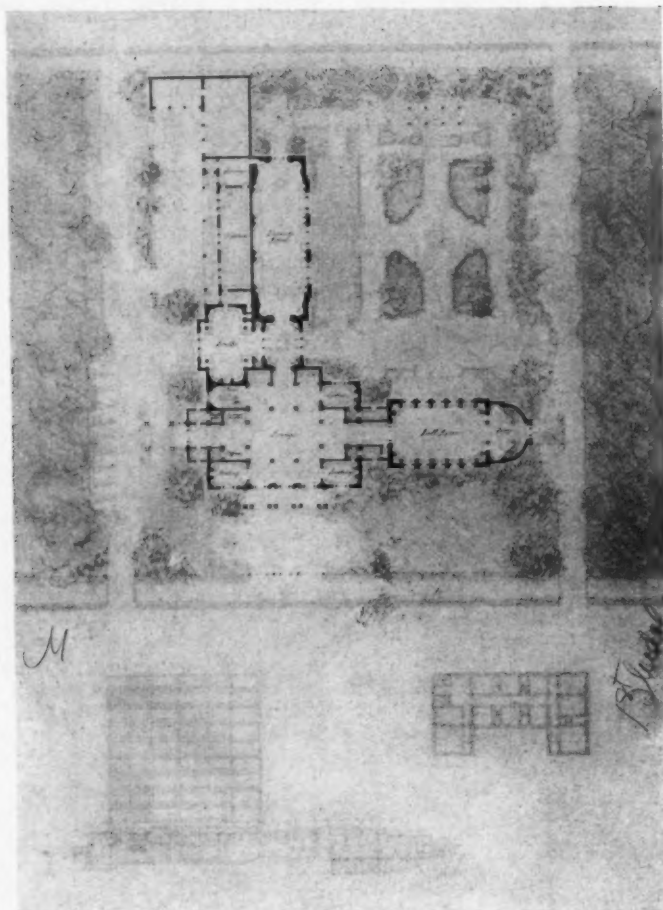
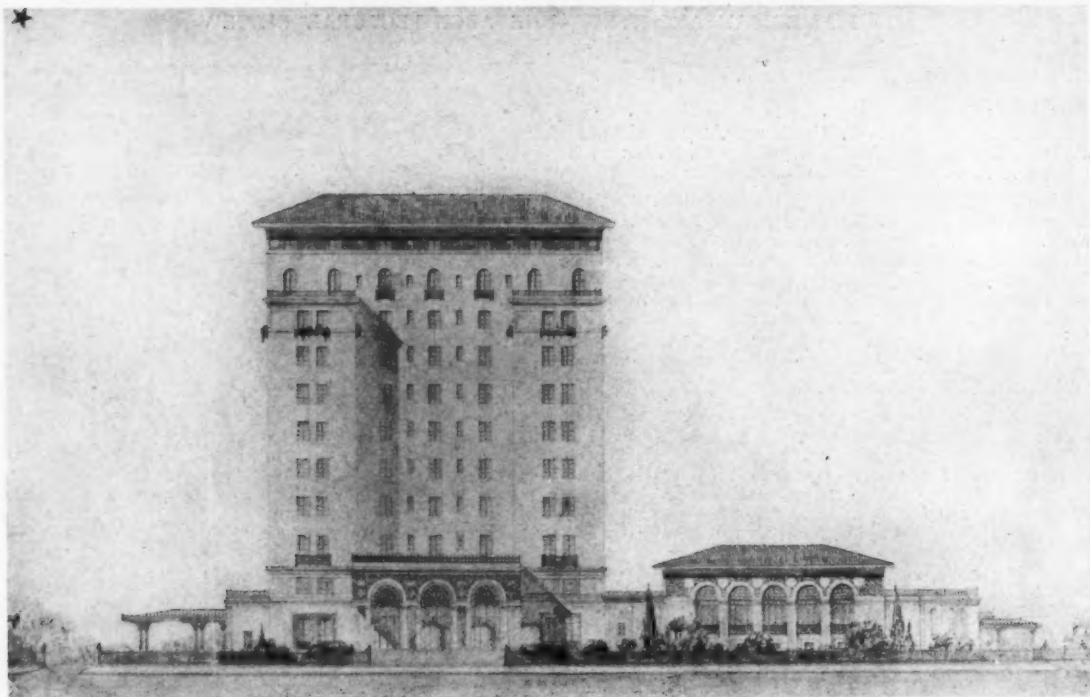
AWARD:—SECOND MEDAL:—F. C. King, Jr., Syracuse Univ., Syracuse.

SUBJECT:—The Sheldon Doorway, Deerfield, Mass.

AWARD:—SECOND MEDAL:—A. F. Eldridge, Syracuse Univ., Syracuse.

CORRECTION: In THE AMERICAN ARCHITECT, issue of Dec. 6, 1922, in the listing of Awards for Class "A"—I Projet, the name "J. E. Stanton," Los Angeles Archtl. Club, appears as having been awarded a First Mention, whereas, the name should have been "L. F. Fuller," Los Angeles Archtl. Club.

NOTE: In our issue of February 14 there will appear illustrations, reference to which is made in the text for this Judgment.

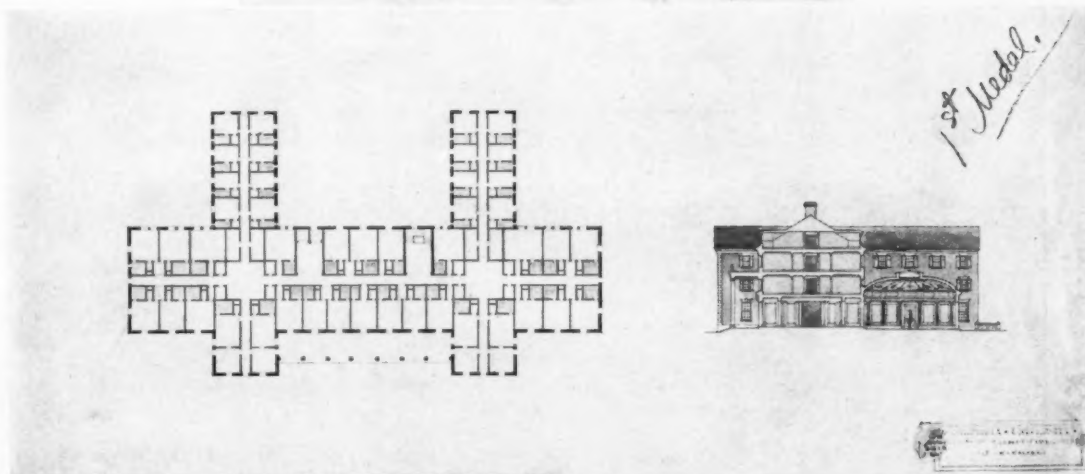
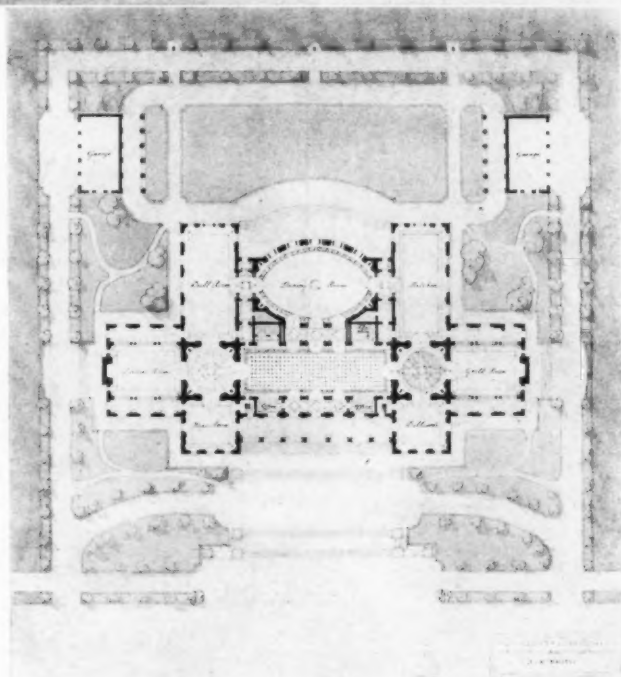
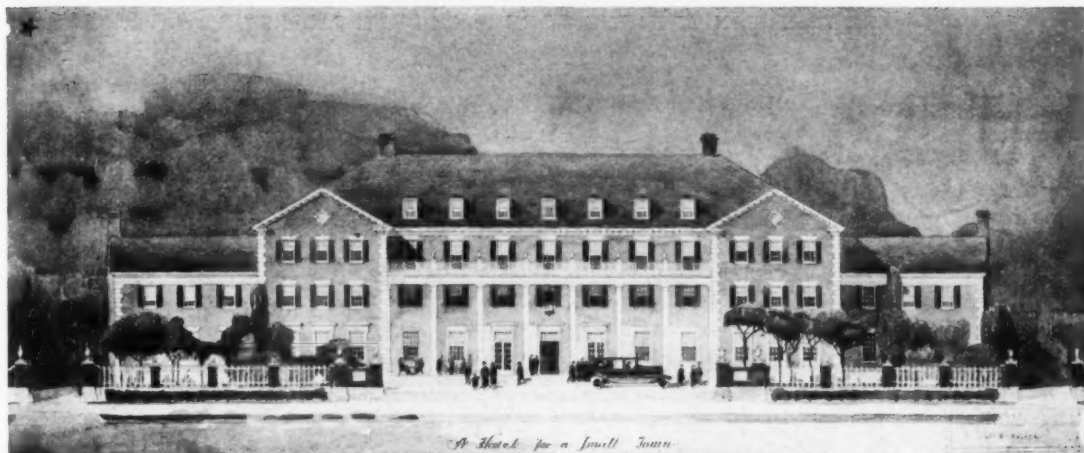


J. P. METHENY

FIRST MEDAL

CARNEGIE INSTITUTE OF TECHNOLOGY

CLASS "A"-II PROJ-ET-A HOTEL FOR A SMALL TOWN
STUDENT WORK, SOCIETY OF BEAUX-ARTS ARCHITECTS

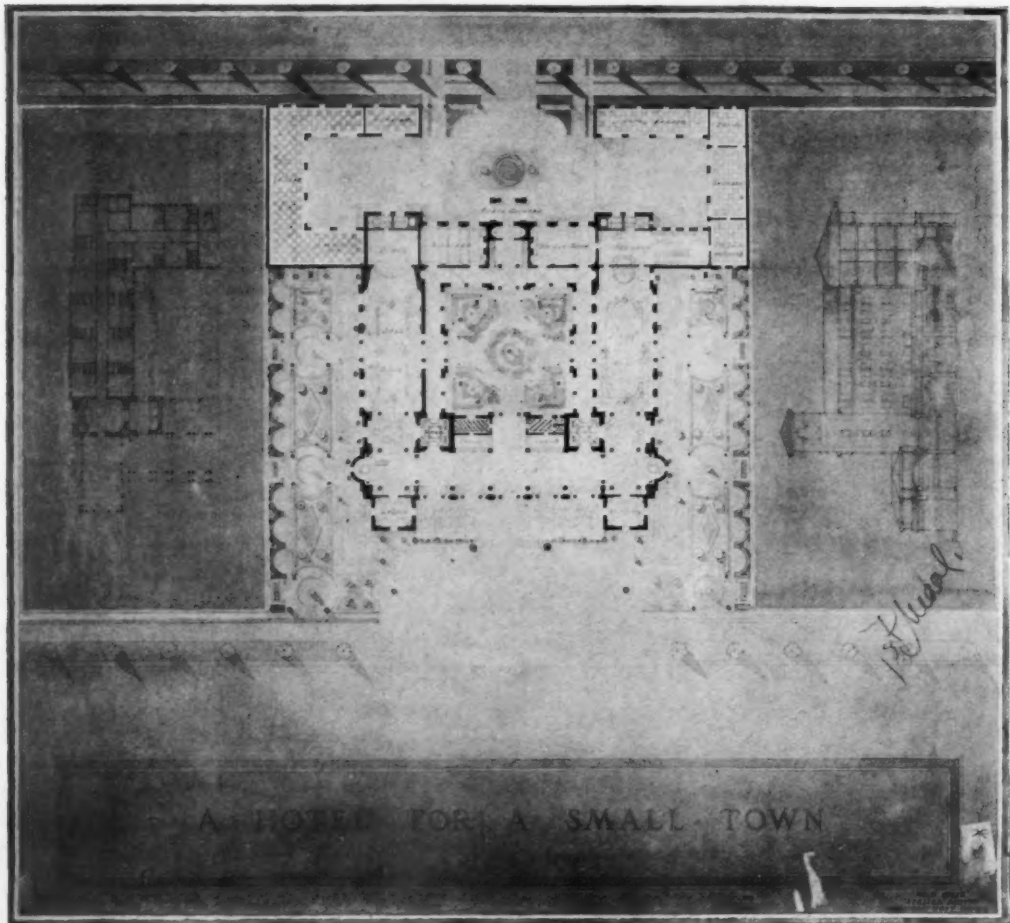
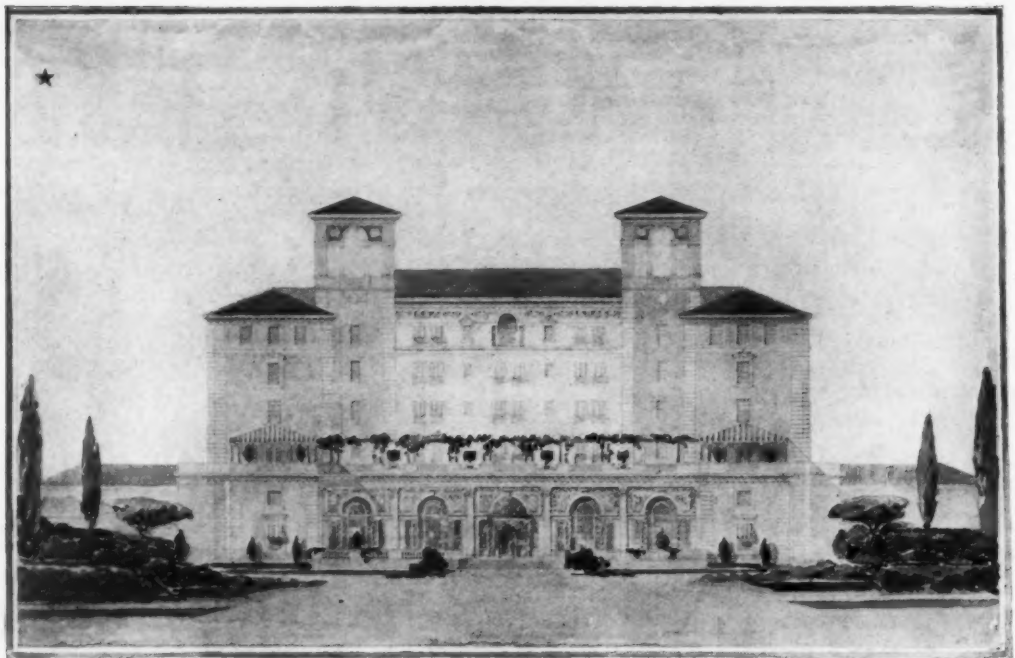


J. W. WALKER

FIRST MEDAL

COLUMBIA UNIVERSITY

CLASS "A"-II PROJCT—A HOTEL FOR A SMALL TOWN
STUDENT WORK, SOCIETY OF BEAUX-ARTS ARCHITECTS



W. H. SPEER

FIRST MEDAL

ATELIER DENVER

CLASS "A"-II PROJET—A HOTEL FOR A SMALL TOWN
STUDENT WORK, SOCIETY OF BEAUX-ARTS ARCHITECTS

Tudor Stone Roofs

FOR three generations we have quarried and produced roofing slate, and well has our product stood the test of time. Today "Tudor Stone" roofing on residences, churches, school buildings, public institutions and many industrial buildings stands as an everlasting monument to its enduring qualities.

"Tudor Stone" is natural rock—hard, non-absorbent, quarried from deep beds where the strata does not run straight or smooth. Cut and split by experienced workmen, it retains all the original texture, being rough and irregular, with natural sculps, seams and edges. To the finished product there is imparted a hand-wrought quality which, added to the exceptional range of colors, produces a medium for roofing which cannot be excelled. No artificial means are used to improve its appearance. Many authorities have stated that "Tudor Stone" is superior even to the roofing slate of England which for centuries has been used to such excellent advantage. "Tudor Stone" is delivered to each job in its natural state, either in weathering or unfading colors, according to color effect desired.



We shall be glad to send this booklet to any architect who will write us for it on his letterhead.

With this background we have prepared a 28 page booklet in which is told the story of "Tudor Stone". This booklet contains 32 photographic illustrations of installations, and under each we have stated the architect's name and the location of the job. All of these illustrations show unique and interesting details of ridges, gables, valleys and treatment of butt lines.

Through this booklet we hope to focus the interest of all architects upon the desirability of the use of "Tudor Stone", and hope that they will find a place for this booklet in their library, and use it as an introduction to the Rising & Nelson Slate Company when discussing with their clients the important subject of roofs. The thoughtful observer will perceive at once that in the wide variation of illustrations, "Tudor Stone" harmonizes perfectly with each type of architecture, and blends with the topographical surroundings shown, giving one the feeling of unity that brings satisfaction and repose.

Our Architects Service Department is ever ready to confer with the architect as to the color and texture of Tudor Stone best adapted to assure the desired effect.

Rising and Nelson Slate Company

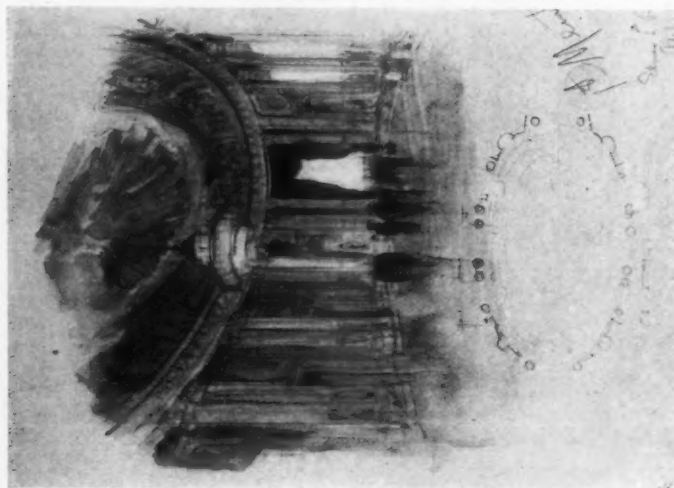
Quarries & Main Office, West Pawlet, Vermont

Office of Architects' Service Department, 101 Park Avenue, New York

CHICAGO

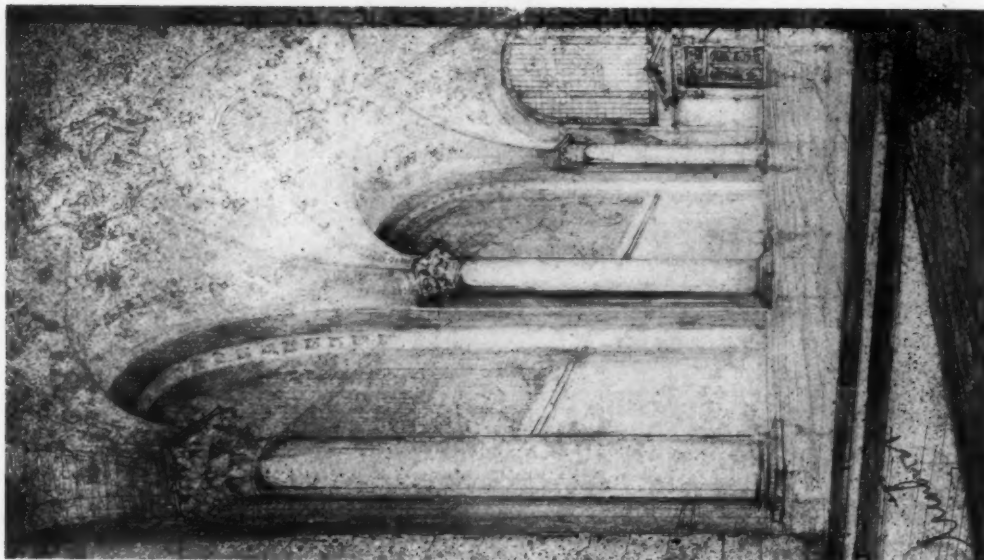
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BOSTON



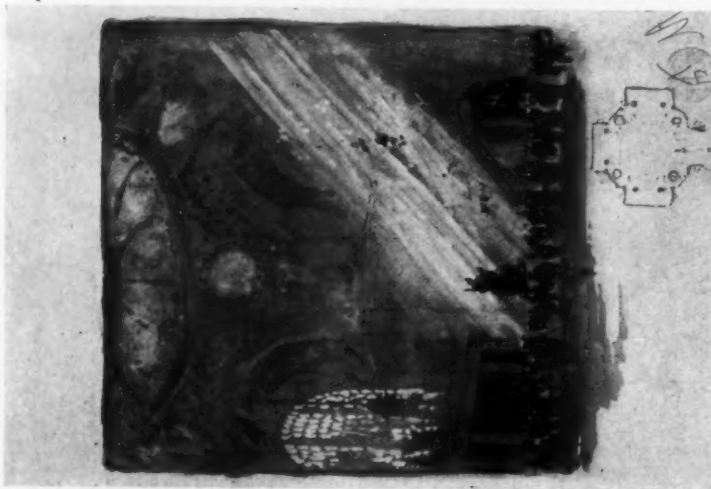
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FIRST MENTION

P. E. ISBELL YALE UNIVERSITY



FIRST MENTION

P. GOODMAN ATELIER LIGHT, N. Y. C.

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STUDENT WORK, SOCIETY OF BEAUX-ARTS ARCHITECTS



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Publishers, THE AMERICAN ARCHITECT AND

THE ARCHITECTURAL REVIEW.

OUTLINE FOR TENTATIVE SPECIFICATION FOR STEEL WATER TANK AND TOWER

Bulletin No. 21

(The form of this bulletin conforms to the arrangement of Elements of a Specification as given in Bulletin No. 5, ANALYSIS OF A SPECIFICATION.)

(Note: Drawings showing general design should accompany these specifications.)

I. CONTRACT AND LEGAL

- | | |
|------------------------|--------------------|
| 1. Parties. | 5. Regulations and |
| 2. Agreement: | Codes: |
| 3. Terms of Payment: | 6. Standards: |
| 4. General Conditions: | 7. Patents: |

II. ECONOMIC

SCOPE OF CONTRACT:

- | | |
|-------------------|------------------------|
| 8. Drawings: | 10. Work not Included: |
| 9. Work Included: | |

METHODS OF ANALYSIS AND COMPARISON OF BIDS:

- | | |
|--------------|------------|
| 11. Methods: | 12. Basis: |
|--------------|------------|

III. GENERAL DESCRIPTIVE

- | | |
|---|-------------|
| 13. Characteristics, Service Conditions and Ultimate Requirement: | 14. Design: |
|---|-------------|

IV. PRELIMINARY PREPARATION

- | | |
|-------------------------|--------------------|
| 15. Field Measurements: | 16. Shop Drawings: |
|-------------------------|--------------------|

V. MATERIALS

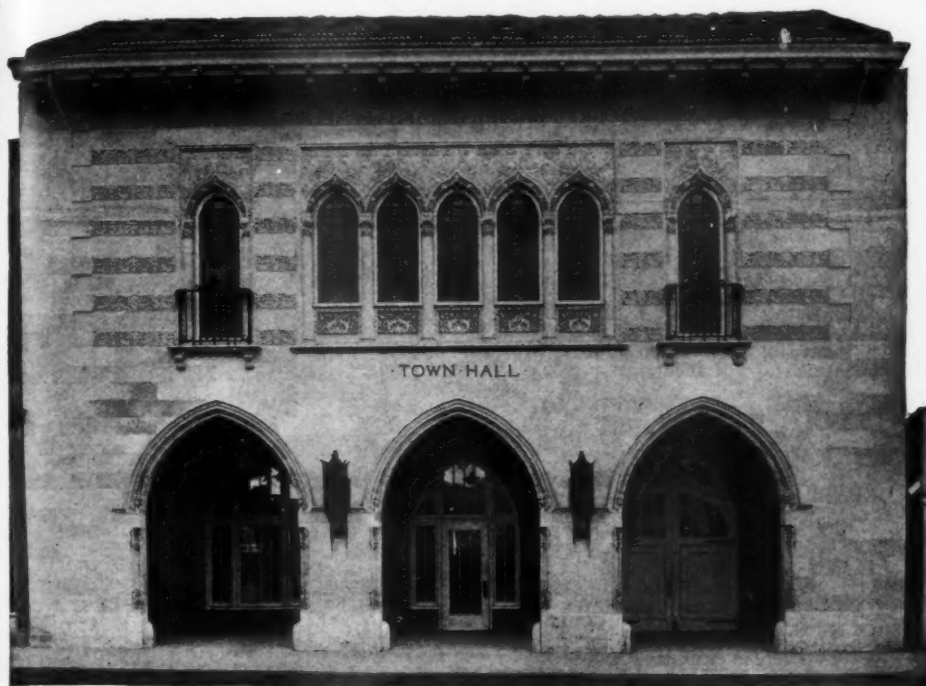
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|--|---------------------|-------------|-----------------|
| 17. Properties, Chemical and Physical: | 18. Sizes, Weights, | 19. Gauges: | 20. Quantities: |
|--|---------------------|-------------|-----------------|

VI. METHODS

- | | |
|----------------------------------|--|
| 20. Processes: | 21. Workmanship. |
| SHOP: | |
| 22. Protecting Material: | 30. Assembling: |
| 23. Straightening Material: | 31. Riveting: |
| 24. Templates: | 32. Annealing: |
| 25. Shearing and Chipping: | 33. Welds: |
| 26. Punching: | 34. Milling, Planing, Hot-Straightening: |
| 27. Reaming: | 35. Rods, Turnbuckles, Clevises: |
| 28. Turned Bolts: | 36. Bearing Plates: |
| 29. Drilling: | 37. Separators: |
| FIELD: | |
| 38. Damage to Material: | 53. Column Bases: |
| 39. Erection: | 54. Tower Bracing: |
| 40. Cleaning Material: | 55. Tank: |
| 41. Anchors and Base-plates: | 56. Ladders: |
| 42. Plumbing and Levels: | 57. Attachment of Ladders: |
| 43. False Work: | 58. Painter's Trolley: |
| 44. Assembling: | 59. Pipe Connections and Expansion Joints: |
| 45. Reaming: | 60. Pipe and Steam Coils: |
| 46. Riveting: | 61. Frost Proof Boxing: |
| 47. Bolted Connections: | 62. Tank Indicator: |
| 48. Misfits: | 63. Finish: |
| 49. Cutting and Fitting: | 64. Co-operation with other Contractors: |
| 50. Caulking: | 65. Protection of Work: |
| 51. Circular Girder and Balcony: | |
| 52. Post Connections: | |

VII. SCHEDULES

- | | |
|------------------------------|---------------------------|
| 66. Schedules of Operation: | 67. Marking and Shipment: |
| 67. Delivery and Completion: | |



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LITTLETON,
COLO.

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J. B. BENEDICT
Architect

Unglazed gray Terra Cotta
with subdued polychrome
enrichment.

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TERRA COTTA

Permanent

Beautiful

Profitable

VIII. RESULTS

- | | |
|-------------------------|----------------|
| 69. Inspection and Per- | 71. Tests: |
| formance: | 72. Rejection: |
| 70. Guarantees: | |

OUTLINE FOR TENTATIVE SPECIFICATION FOR
WET AUTOMATIC SPRINKLER SYSTEM

Bulletin No. 22

(The form of this bulletin conforms to the arrangement of Elements of a Specification as given in Bulletin No. 5, ANALYSIS OF A SPECIFICATION.)

(Note: Complete detailed design drawings should accompany this specification.)

I. CONTRACT AND LEGAL

- | | |
|------------------------|--------------------|
| 1. Parties: | 5. Regulations and |
| 2. Agreement: | Codes: |
| 3. Terms of Payments: | 6. Standards: |
| 4. General Conditions: | 7. Patents: |

II. ECONOMIC

SCOPE OF CONTRACT:

- | | |
|-------------------------|----------------------|
| 8. Drawings: | Bids: |
| 9. Work Included: | 11. Conditional Pay- |
| 10. Methods of Analysis | ments: |
| and Comparison of | |

III. GENERAL DESCRIPTIVE

CHARACTERISTICS, SERVICE CONDITIONS AND ULTIMATE RE-
QUIREMENTS:

- | | |
|---------------------|----------------------|
| 12. Visiting Site: | 14. Average Tempera- |
| 13. Water Pressure: | tures: |

IV. PRELIMINARY PREPARATION

- | | |
|-------------------------|--------------|
| 15. Field Measurements: | 17. Samples: |
| 16. Shop Drawings: | |

V. MATERIALS

- | | |
|--------------------------|---------------------------|
| 18. Meter and Valve Pit: | 26. Hangers: |
| 19. Pipe Under Ground: | 27. Sleeves, Inserts, Ex- |
| 20. Pipe Above Ground: | pansion Bolts: |
| 21. Hydrants: | 28. Valves: |
| 22. Hose Houses: | 29. Alarm Valves: |
| 23. Fire Hose: | 30. Siamese Connections: |
| 24. Hose Racks: | 31. Gauges: |
| 25. Sprinkler Heads: | 32. Frost Proof Covering: |

VI. METHODS:

- | | |
|---------------------------|---------------------------|
| 33. Processes: | 34. Workmanship: |
| FIELD: | |
| 35. Connection to Supply: | 38. Valve Locks: |
| 36. Risers and Branch | 39. Setting Pipe Sleeves, |
| Mains: | Inserts and Expan- |
| 37. Test Pipe: | sion Bolts: |

FINISH:

- | | |
|-----------------------|-------------------------|
| 40. Painting: | Other Contractors: |
| 41. Co-operation with | 42. Protection of Work: |

VII. SCHEDULES

- | | |
|--------------------------|-----------------------|
| 43. Schedules of Opera- | tion: |
| 44. Delivery and Comple- | 45. Marking and Ship- |
| | ment: |

VIII. RESULTS

- | | |
|-------------------------|-------------------------|
| 46. Inspection and Per- | 48. Tests: |
| formance: | 49. Approval and Rejec- |
| 47. Guarantee: | tion: |

OUTLINE FOR TENTATIVE SPECIFICATION FOR
VACUUM CLEANING SYSTEM

Bulletin No. 23

(The form of this bulletin conforms to the arrangement of Elements of a Specification as given in Bulletin No. 5, ANALYSIS OF A SPECIFICATION.)

I. CONTRACT AND LEGAL

- | | |
|------------------------|--------------------|
| 1. Parties: | 5. Regulations and |
| 2. Agreement: | Codes: |
| 3. Terms of Payments: | 6. Standards: |
| 4. General Conditions: | 7. Patents: |

II. ECONOMIC

SCOPE OF CONTRACT:

- | | |
|-------------------------|---------------------------|
| 8. Drawings: | and Comparison of |
| 9. Work Included: | Bids: |
| 10. Methods of Analysis | 11. Conditional Payments: |

III. GENERAL DESCRIPTIVE

CHARACTERISTICS,
SERVICE CONDITIONS:

- | | |
|----------------------|------------------------|
| 12. Characteristics: | |
| 13. Surfaces: | 15. Power Consumption: |
| 14. Duty: | 16. Lubrication: |

IV. PRELIMINARY PREPARATION

- | | |
|-------------------------|--------------|
| 17. Field Measurements: | 19. Samples: |
| 18. Shop Drawings: | |

V. MATERIALS

- | | |
|-------------------------|---------------------|
| 20. Vacuum Producer: | 26. Cleanouts: |
| 21. Dust Pan: | 27. Inlet Valves: |
| 22. Motor: | 28. Exhaust Piping: |
| 23. Motor Starter: | 29. Hose: |
| 24. Wiring and Conduit: | 30. Cleaning Tools: |
| 25. Vacuum Piping: | |

VI. METHODS

31. Workmanship:

SHOP AND FIELD:

- | | |
|-------------------------|-------------------------|
| 32. Piping: | 35. Co-operation with |
| 33. Inlet Valves: | Other Contractors: |
| 34. Sleeves and Plates: | 36. Protection of Work: |

VII. SCHEDULES

- | | |
|------------------------|---------------------|
| 37. Power Consumption: | 39. Cleaning Tools: |
| 38. Motor: | |

VIII. RESULTS

- | | |
|-----------------|----------------------------|
| 40. Guarantees: | 42. Approval or Rejection: |
| 41. Tests: | |



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PERSONALS

Theodore L. Perrier, architect, has moved his office to 602 Tulane-Newcomb Building, 211 Camp Street, New Orleans, La.

Davis W. Clark, Jr., has been admitted to partnership in the firm of Blackall, Clapp & Whittemore, architects, 20 Beacon Street, Boston, Mass.

It is announced that Aymar Embury II, architect, has moved his office from 132 Madison Avenue to 150 East Sixty-first Street, New York City.

John J. Donovan, architect, announces the removal of his offices from 512 Pacific Building to the Tapscott Building, 1916 Broadway, Oakland, Cal.

A. C. Zimmerman has opened offices for the general practice of architecture and engineering at 417 San Fernando Building, Los Angeles, Cal. Catalogs and samples would be greatly appreciated.

The firm of Hawkins & Hoener, architects, has been dissolved. The business will be conducted in the future under the new firm name of Earl Hawkins & Co., architects, 400 McDaniel Building, Springfield, Mo.

Richard Vander Straten announces the opening of an office for the general practice of architecture at 302-03 Hicks Building, San Antonio, Texas, where he would be pleased to receive manufacturers' catalogs and samples.

I. Albert Hartman, architect, formerly in business for over twenty years in Scranton, Pa., has moved to Rochester, New York, where he has opened an office at 1193 Culver Road. Manufacturers' samples and catalogs are requested.

M. Nirdlinger and R. M. Marlier announce the formation of a partnership under the name of Nirdlinger & Marlier, architects, succeeding to the practice of M. Nirdlinger & Associates, Empire Building, Pittsburgh, Pa.

The partnership of Duncan & Barron, architects, 120 Murray Street, Alexandria, Va., has been dissolved, and C. Errol Barron will continue his practice alone, with offices at 607 Guaranty Bank Building, that city. Mr. Barron's Post Office Box is No. 287. Manufacturers' catalogs and samples are desired.

Alfred S. Kellogg has retired from the firm of Brainerd, Leeds & Kellogg, architects and engineers. He will continue the practice of engineering of power plants, heating and ventilation, etc., at 89 Franklin Street, Boston, Mass.

Announcement is made that Edw. F. O'Brien, Jr., is now associated with David S. Castle Company, architects and engineers, Dallas County State Bank Building, Dallas, Texas. Mr. O'Brien would appreciate receiving manufacturers' samples and catalogs.

It is announced that Ralph W. Yardley, 865 Washington Avenue, Memphis, Tenn., has been selected by the Municipal Auditorium Commission of Memphis to take charge of the construction of the new Memphis Municipal Auditorium upon which work has recently been started. Pfeil & Asmund, of Memphis, are the architects for this auditorium which, it is estimated, will cost in the neighborhood of two million dollars.

Word has recently been received of the death on January 1, of Harry P. Knowles, architect, whose offices were located in the Straus Building, 9 East Forty-sixth Street, New York City. Mr. Knowles was the designer of several Masonic buildings, among them being the Masonic Temple, 46 West Twenty-fourth Street, New York City and the Masonic Hospital, Utica, N. Y. He had also completed plans for the new Shrine Temple to be built in New York on the block bounded by Sixth and Seventh Avenues and Fifty-fifth and Fifty-sixth Streets. He was a Thirty-second Degree Mason and a member of Pyramid Lodge No. 490. Mr. Knowles was fifty-two years old at the time of his death. He is survived by a wife, a daughter and a mother.

John Wynkoop, Professor of architecture in the University of Pennsylvania, and a practicing architect, with offices at 30 Church Street, New York City, died recently at his residence, after a week's illness of pneumonia. He was born in Ohio forty years ago and studied at Columbia before he won the Paris prize given by the New York Beaux-Arts Society, which entitled him to admission to the Ecole des Beaux-Arts in Paris without examination. In Paris he won three first medals. He returned to this country in 1908. Among the buildings he had designed was the Christian Science Church at 110th Street, New York City.

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VISTA, WITH STATUE OF PAN, IN AN EIGHTEENTH CENTURY GARDEN
IN SEVILLE, SPAIN

(From the photograph by Francis Howard)

THE AMERICAN ARCHITECT