MARCH 1907

VOL. VIII

NO. 2

# THE ARCHITECT AND ENGINEER OF CALIFORNIA

THE WORK
OF
## Alfred Faist Rosenheim
ARCHITECT
WITH
Forty Selected Photographs and Drawings Including the Superb
## Herman W. Hellman Building
and the Great
## Hamburger Department Store
IN
LOS ANGELES.

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# ARCHITECTS' SPECIFICATION INDEX

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## ARCHITECTS' SPECIFICATION INDEX—*Continued*

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## ARCHITECTS' SPECIFICATION INDEX—*Continued*

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# The Architect and Engineer
## Of California

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## Contents for March

Frontispiece. The Architect and Engineer of California

THE
# Architect and Engineer
Of California

VOL. VIII. MARCH, 1907. No. 2.

## The Work of Alfred F. Rosenheim, Architect

CONSPICUOUS among men of exceptional and enduring achievement in the profession of architecture in Los Angeles, is Alfred Faist Rosenheim, who planned the superb Herman W. Hellman building, at Fourth and Spring streets, and is now supervising the construction of the mammoth Hamburger Department Store, which will occupy more than a half block in what promises to become, in a short time, the business center of the Southern California metropolis.

During his four years residence in Los Angeles, Mr. Rosenheim has made himself known as a master of the architectural business, one not only skilled in the innumerable practical requirements of his special line of industry, but notably gifted with a fine sense of harmony in proportions, a leaning toward accurate and exquisite detail, and, above all, structural stability.

Mr. Rosenheim is a vigorous champion of the steel frame in the erection of large and important buildings. He has invariably recommended the selection of this material when the choice has been at issue among his clients, and, in more instances than space allows for enumeration, his judgment has prevailed.

"I make no protest against the use of reinforced concrete", Mr. Rosenheim remarked a few days ago. "Concrete has its uses and its place, but, in my opinion, it cannot at present be classed with protected steel, and indeed probably never will be. The elements of chance and danger preclude this possibility. The temptation and the tendency, on the part of contractors, to slight this kind of work, will always exist. This being true, as long as contractors are dependent on unskilled labor and inadequate supervision for the performance of honest work, the results are certain to be disastrous."

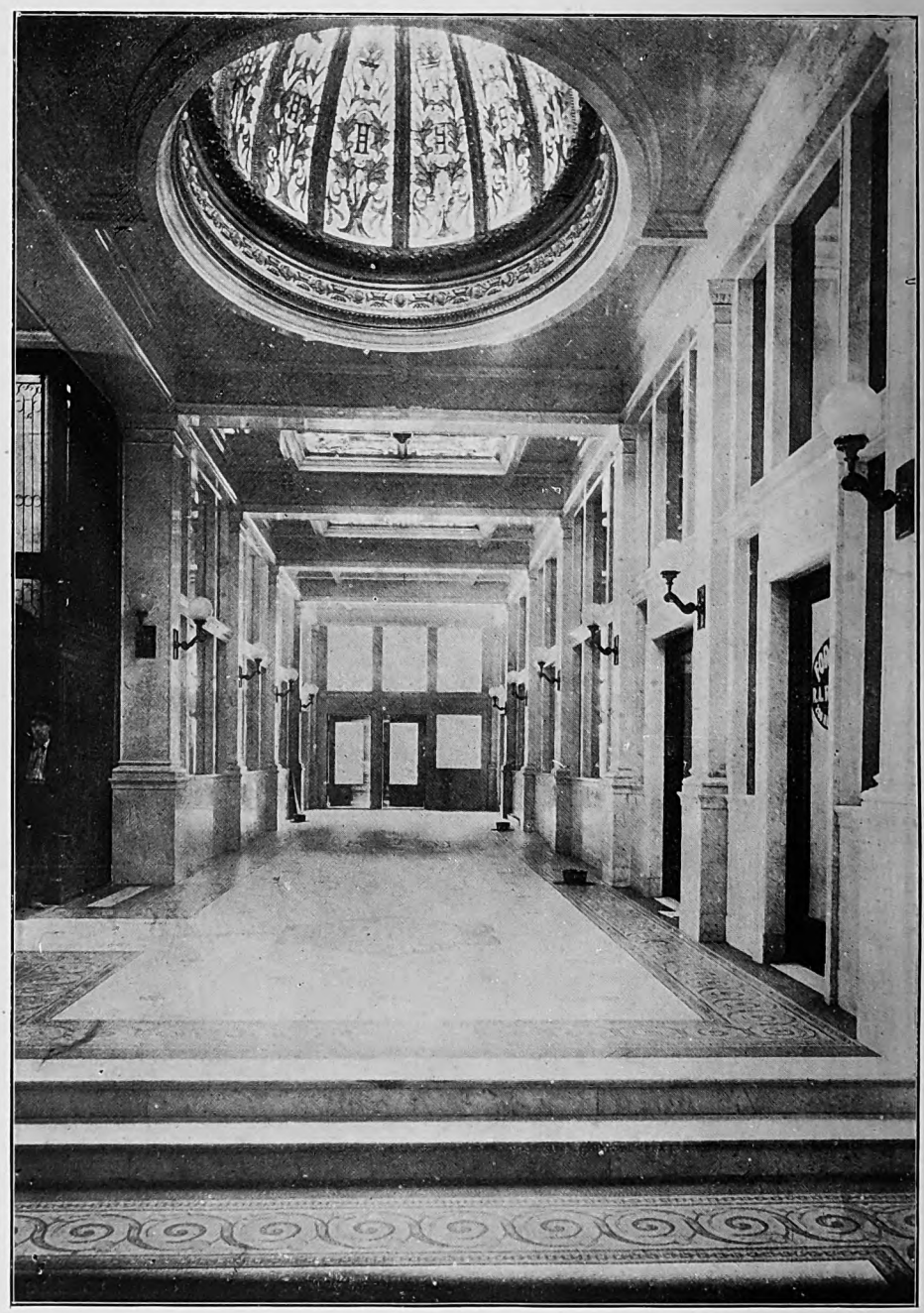
"Numerous failures in concrete construction, in many parts of the United States during the past few years, supply sufficient evidence of the facts I have mentioned. More particularly has this come to public notice within the preceding twelve months."

Alfred Faist Rosenheim was born in St. Louis, June 10, 1859. After attendance at the public schools in that city he went to Germany to pursue

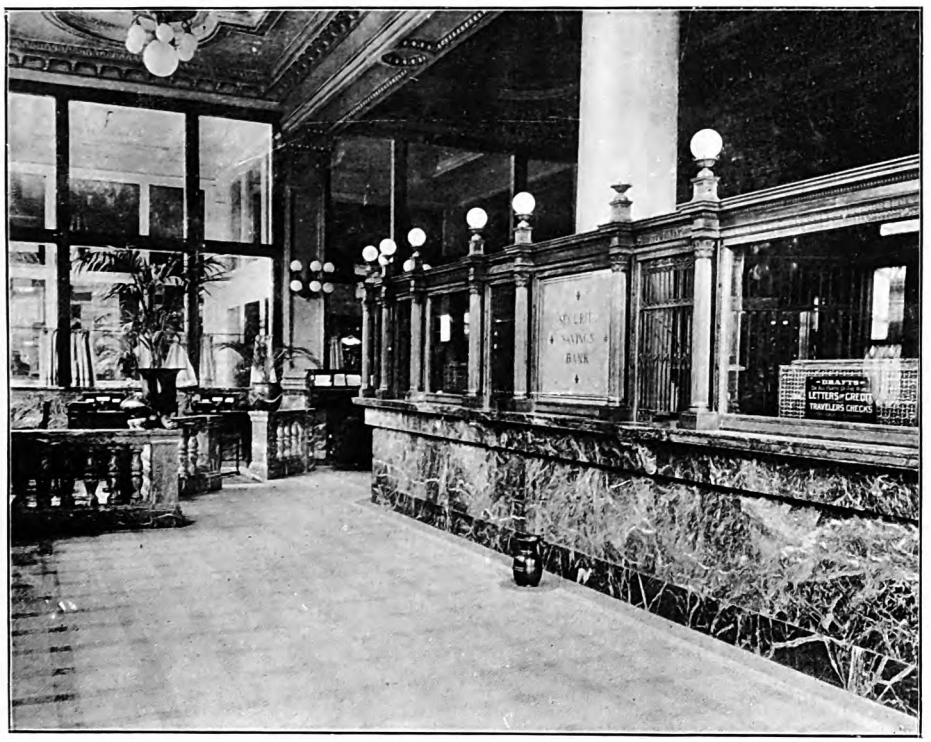

*Fourth Street Entrance Herman W. Hellman Building. Los Angeles*

his studies, and spent the interval between 1872 and 1875 at Frankfort-on-the-Main. On his return to St. Louis he entered Washington University, one of the prominent educational institutions located there, and continued as a collegian until the summer of 1879.

It was in the fall of 1879 that Mr. Rosenheim, with a view to the establishment of a solid ground-work for the architectural profession, which he had at that time determined to study and master, proceeded to the Massachusetts Institute of Technology at Boston. His abilities soon attracted the notice of the faculty, and when he departed in the summer of 1881, it was with the encomiums of highly pleased preceptors.



*Corridor, Spring Street Entrance, Herman W. Hellman Building, Los Angeles*



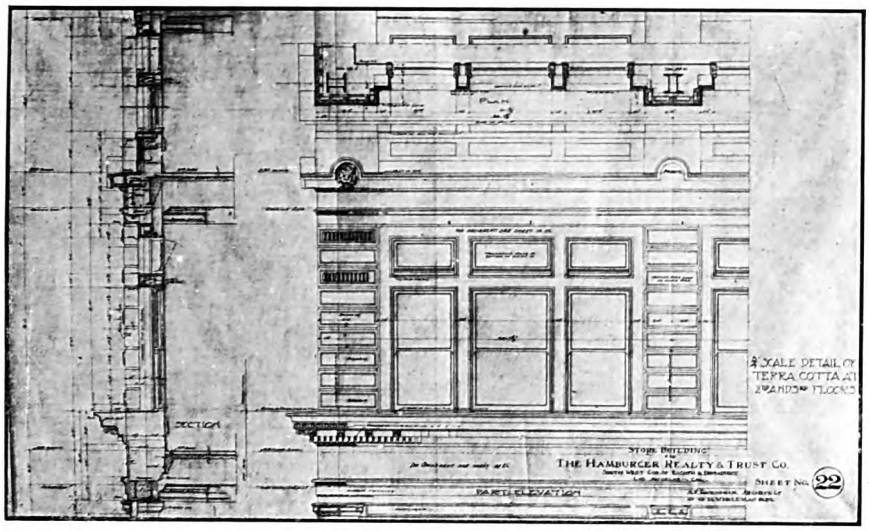

*Security Savings Bank in the Herman W. Hellman Building, Los Angeles*

Next came the actual opening of the young student's career as an architect. From the date of his leaving the Institute of Technology, until January, 1884, Mr. Rosenheim made his home in Boston, serving creditably in the offices of some of the foremost architects, among them Ware & Van Brunt, Peabody & Stearns, Hartwell & Richardson, George D. Rand and Carl Fehmer.

In the early part of 1884, Mr. Rosenheim returned to St. Louis and became associated with the office of Charles K. Ramsey, one of the most prominent architects of that city. A year later he transferred his activities to the office of Major Francis D. Lee, at that time the leading architect of St. Louis. When Major Lee died in the fall of 1885, Mr. Rosenheim succeeded to his unfinished business, and on January 1, 1886, undertook to practice on his own account.

Late in 1894 a partnership, formed with T. C. Link and W. B. Ittner, was the next important event in Mr. Rosenheim's career, the business title being enlarged to Link, Rosenheim & Ittner. This partnership continued until the summer of 1897, when the firm was dissolved by mutual consent.

Following in the line of his various and meritorious excursions into the wide field of architecture, was the association by Mr. Rosenheim with his younger brother, Samuel F., who had several years before been graduated from the Massachusetts Institute of Technology. While this partnership continued, which it did until the spring of 1899, Mr. Rosenheim devoted himself to the firm's business at Boston, his brother remaining in charge of the St. Louis office.

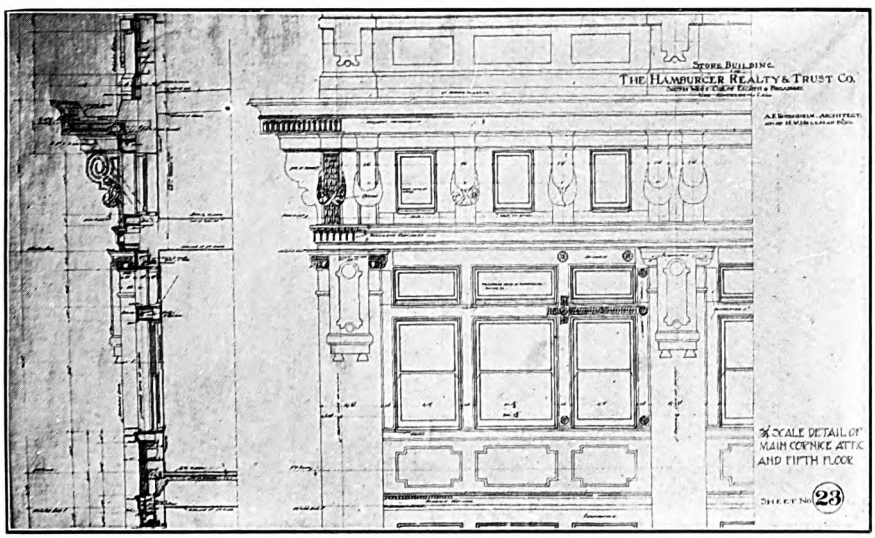



*Terra Cotta Detail for Hamburger Building, Los Angeles*

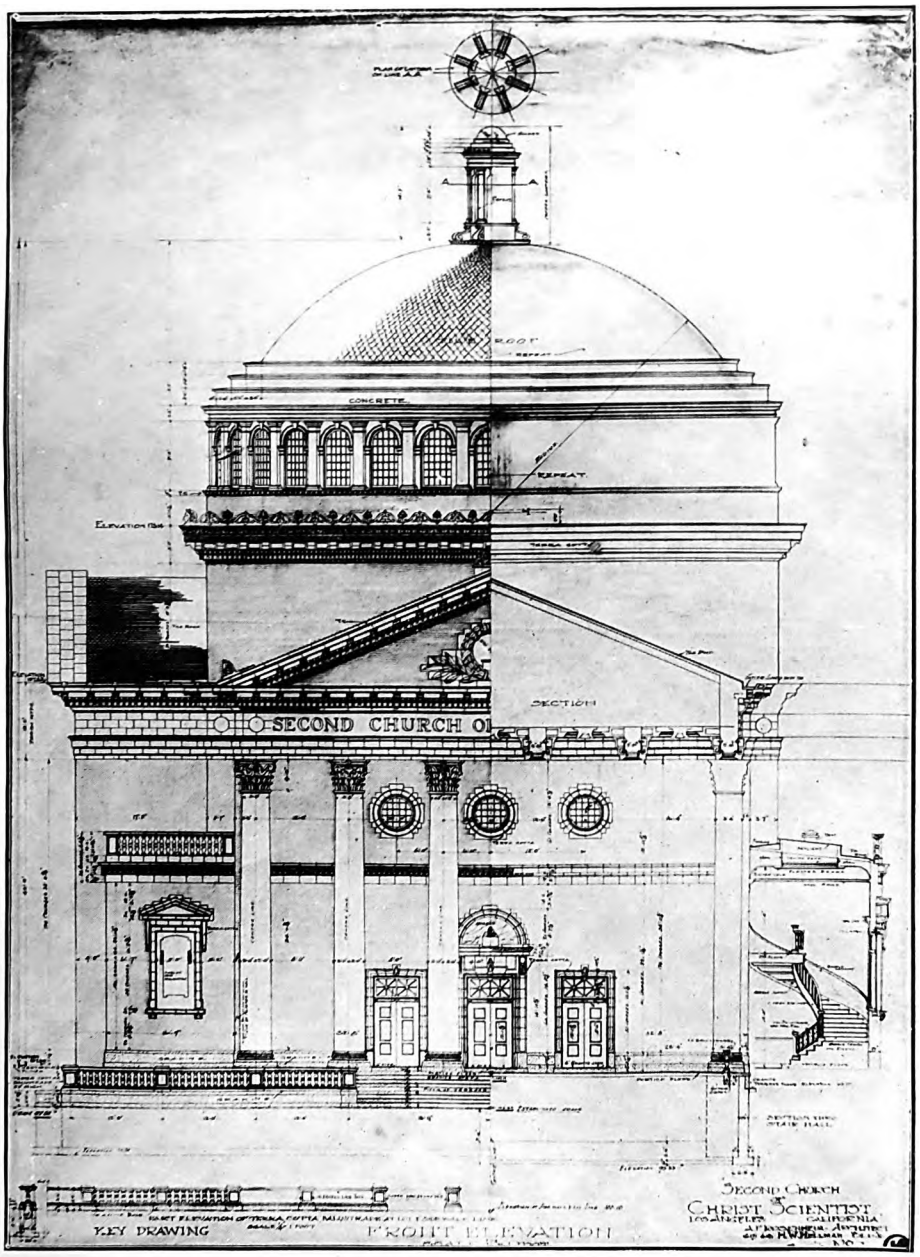
In the list of the firm's work, at that time, was the erection of Farragut Chambers at Washington, D. C., a ten-story fire-proof apartment house. Mr. Rosenheim, about the same time, planned and supervised some important work at Boston and at Worcester, Mass.

After his Eastern experience of fifteen months, Mr. Rosenheim returned to St. Louis and remained there until 1903, when he removed to Los Angeles.

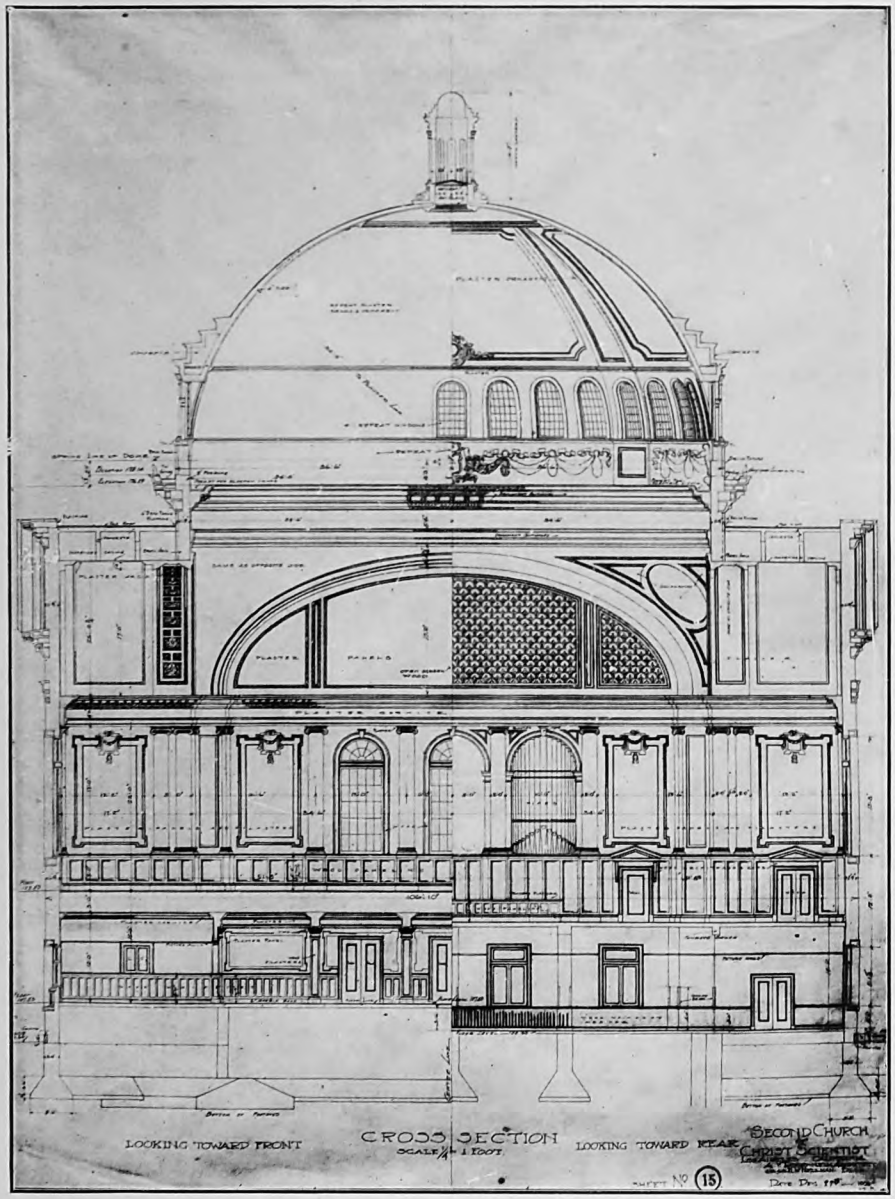
His sole purpose in coming West was to take personal charge of the erection of the Herman W. Hellman building, and for more than a year




*Cornice Detail for Hamburger Building, Los Angeles*

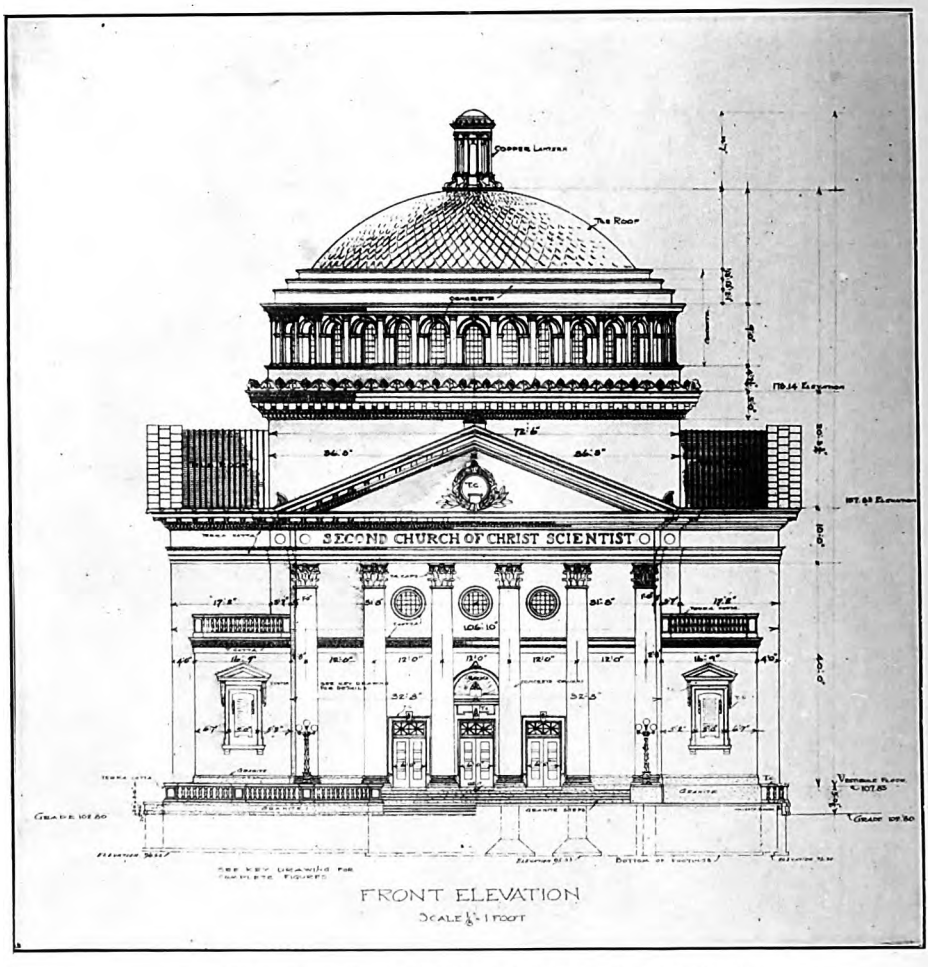



*Front Elevation, Second Church of Christ, Scientist*




*Cross Section, Second Church of Christ, Scientist, Los Angeles*

buildings in the United States. No expense was spared to make it complete in every conceivable feature. Mr. Hellman's early home in the far days of the pueblo was upon that corner, and he had the building erected so that it should always remain a precious possession of the family. A short time before his untimely and greatly-regretted death, some months ago, he said to the writer, "If necessity demanded I would willingly part with all I possess except the Herman W. Hellman property at Fourth and Spring streets."



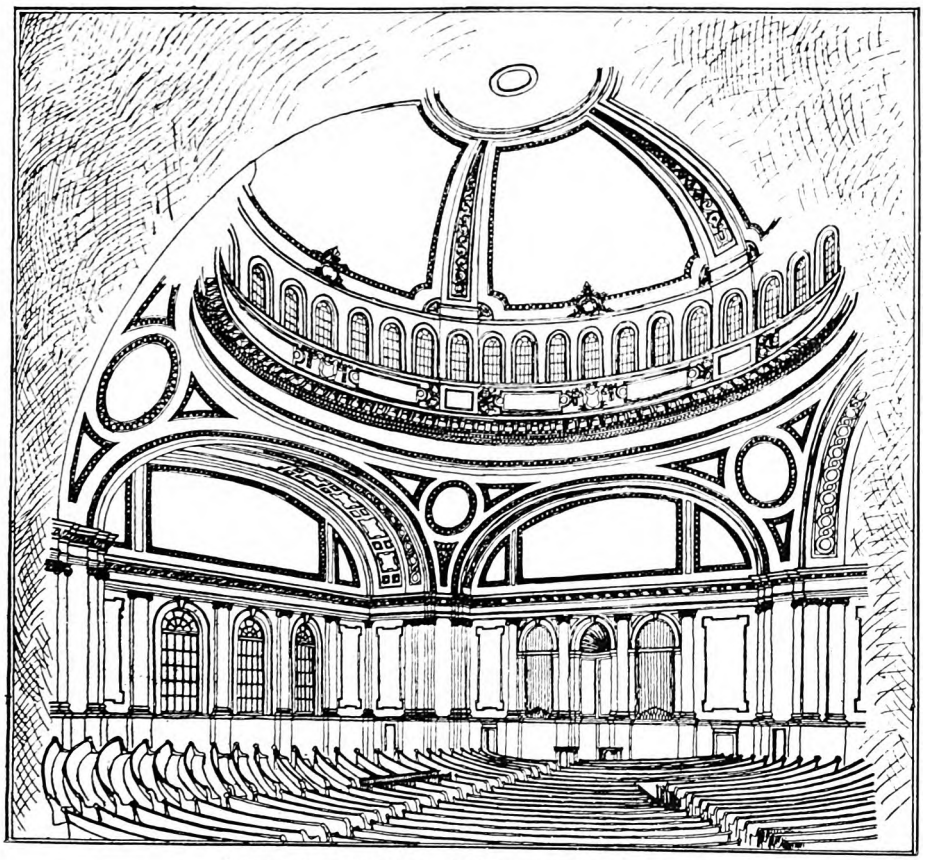

*Front Elevation, Second Church of Christ, Scientist, Los Angeles*

It should be noted here, as indicative of Mr. Rosenheim's idea for select ornamentation, that the Herman W. Hellman building has for the two lower stories a facing of native gray granite. Above that is gray pressed brick, trimmed with cream colored terra cotta.

The construction of the steel frame is somewhat different from the system ordinarily adopted, in that a sixteen-foot unit was used, which is probably substantially larger than the unit generally found in office buildings in Los Angeles.

Mr. Rosenheim showed additionally his architectural ability by making the Hellman building corridors on the main floor sixteen and twenty-five feet, and on all other floors uniformly eight feet. In these corridors marble is extensively used for decorative effect.

Nothing more effectively demonstrates the high station of Mr. Rosenheim as an architect, in a city constantly resounding with the implements of builders, than his appointment by A. Hamburger & Sons Co., to design and direct the erection of their gigantic department store at Broadway,



*Interior, Second Church of Christ, Scientist, Los Angeles*

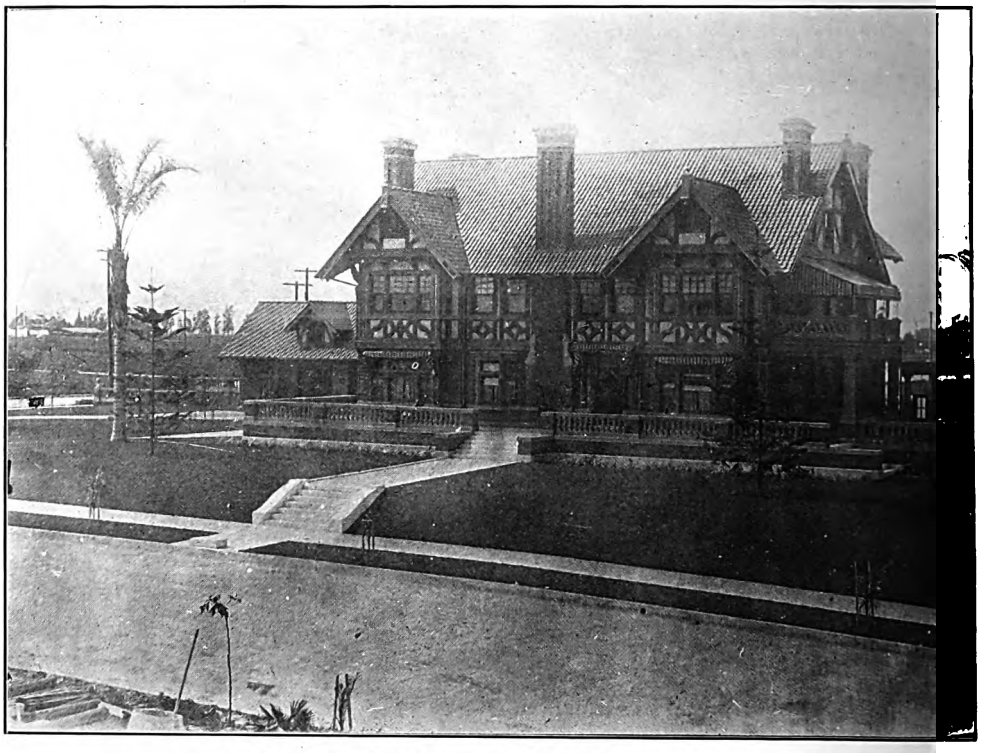
8th and Hill streets, work on which is now well under way and will be completed and occupied before the end of the present year.

This enormous structure will cost at least $2,000,000, will have a street frontage of about 800 feet, and an actual ground area of more than 80,000 square feet, making it the largest building of its kind west of Chicago. The frame is of steel, the floors will be of concrete and the partitions of porous terra cotta tile. The steel frame is so designed that two additional stories may be erected later to carry the building up to the 150-ft. limit prescribed in the Los Angeles ordinance.

Mr. Rosenheim has provided in the plans for all features of an up-to-date department establishment, including escalators, gravity package conveyors, hospital and rest rooms, restaurant and grill room, and a complete kitchen outfit. There will be an assembly hall for musicales, lectures and exhibitions and a spacious roof garden for the public and employes.

Even more notable among the features of Mr. Rosenheim's plans for this building is an underground package and heavy freight delivery system; a light, heat and power plant and elaborate arrangements for ice making and refrigeration.

Considering the eminently successful construction of the Herman W. Hellman building, and the indubitably excellent quality of the exten-



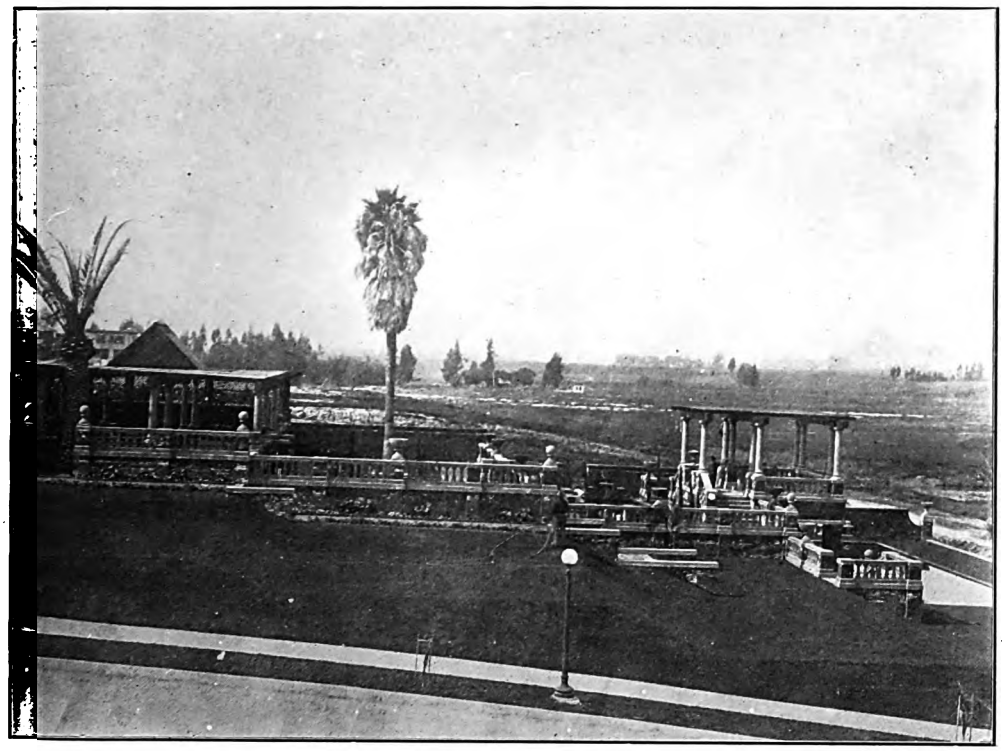
*General View of House and Grounds of Mr. Robert Marsh. Los Angeles*

sive work now going on in the Hamburger Department Store, Mr. Rosenheim may, without the slightest fear or error, be assigned a prominent place in the front rank of American architects. This enviable position has already been accorded him in Los Angeles, where his greatest work is well and favorably known.

In addition to this building Mr. Rosenheim is engaged in the preparation of plans for a large number of buildings to be erected during the present year, one of the most important of which is the Second Church of Christ, Scientist, the contracts having recently been awarded for upwards of $200,000, and the work started. This building is illustrated herewith and will be, when completed, one of the largest of this denomination in the United States, and one of the most important and costly west of New York City.

During his presidency of the Southern California Chapter of the American Institute of Architects, which position he is now filling for the third consecutive term, his earnest endeavors to arouse enthusiasm and develop a purpose among the members of the profession to aim at the highest and best in architecture, has been amply rewarded. The members of the Southern California Chapter have benefited by his suggestions and their work constantly tends toward a superior plane, so that they have, in many cases, won distinction beyond the limits of Los Angeles.

Mr. Rosenheim was a charter member of the St. Louis Chapter of the Institute and filled the office of Secretary continuously from the date of its organization up to the time he went to Boston, a period of eight years.



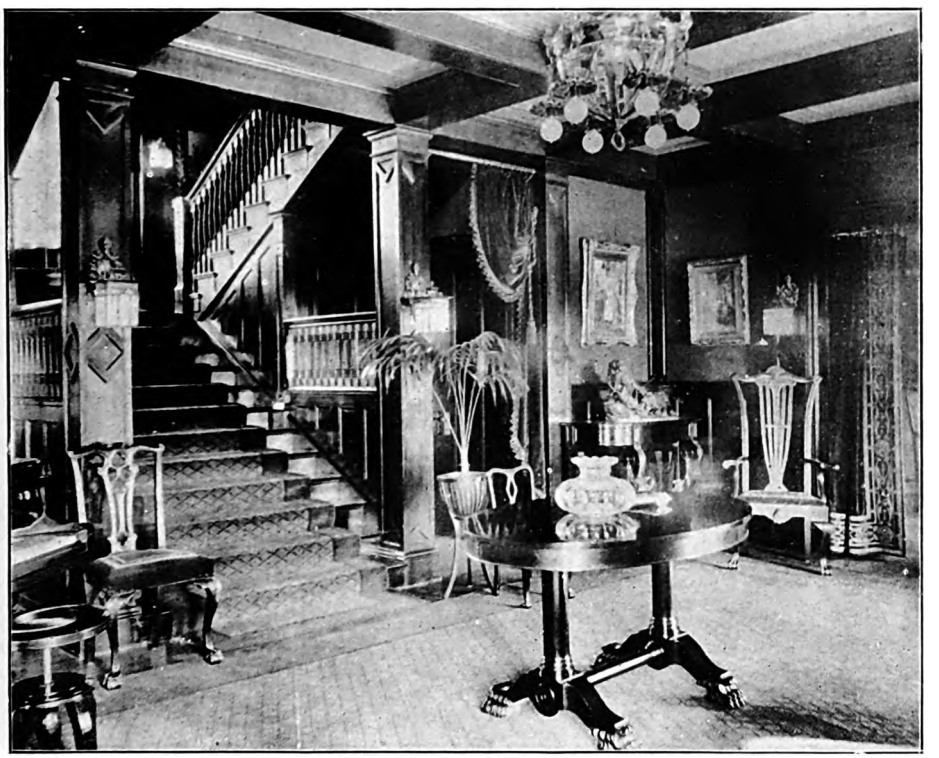
*A. F. Rosenheim, Architect*

He has also served as member of the Board of Directors of the Institute and frequently on important committees. He has for many years been a prominent figure at the Annual Conventions of the parent body. He is a member of the American Society for Testing Materials, and of the Engineers and Architects' Association of Southern California.

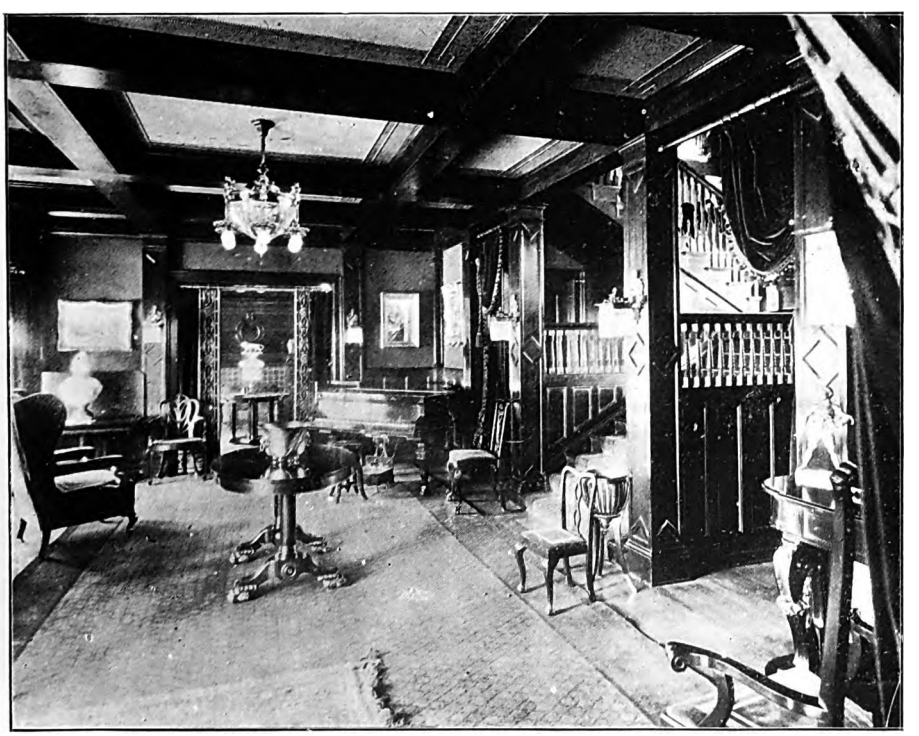
* * *

## Effect of Decoration

WALL decorations, according to a prominent club woman, have a large and far-reaching effect upon a person's life. "The color of our walls," she says, "has its influence upon us. The design of the wall paper can help attune us to the lofty harmonies of life, or subtly irritate and debase us, and so for their influence upon our lives our homes should be restful and sincere. In a house where there are so many rooms that some of them are entered only three or four times a year, the fancy of fitting them up with old-fashioned Louis XV styles, for instance, may pass. But to live constantly in such a room is a different thing. It is a sort of masquerade, which, in the long run, can do us no good in any respect. On the contrary, it must have an unfavorable effect on the man who adopts it. Such a fashion is in contradiction to the age we live in, and will only confirm people in the empty and hollow way of thinking and feeling wherein it originates. It is well enough to go to a masquerade as a Turk, but what should we think of a person who wore such a mask all the year around?"



*Hall in the Residence of Mr. Robert Marsh, Los Angeles*

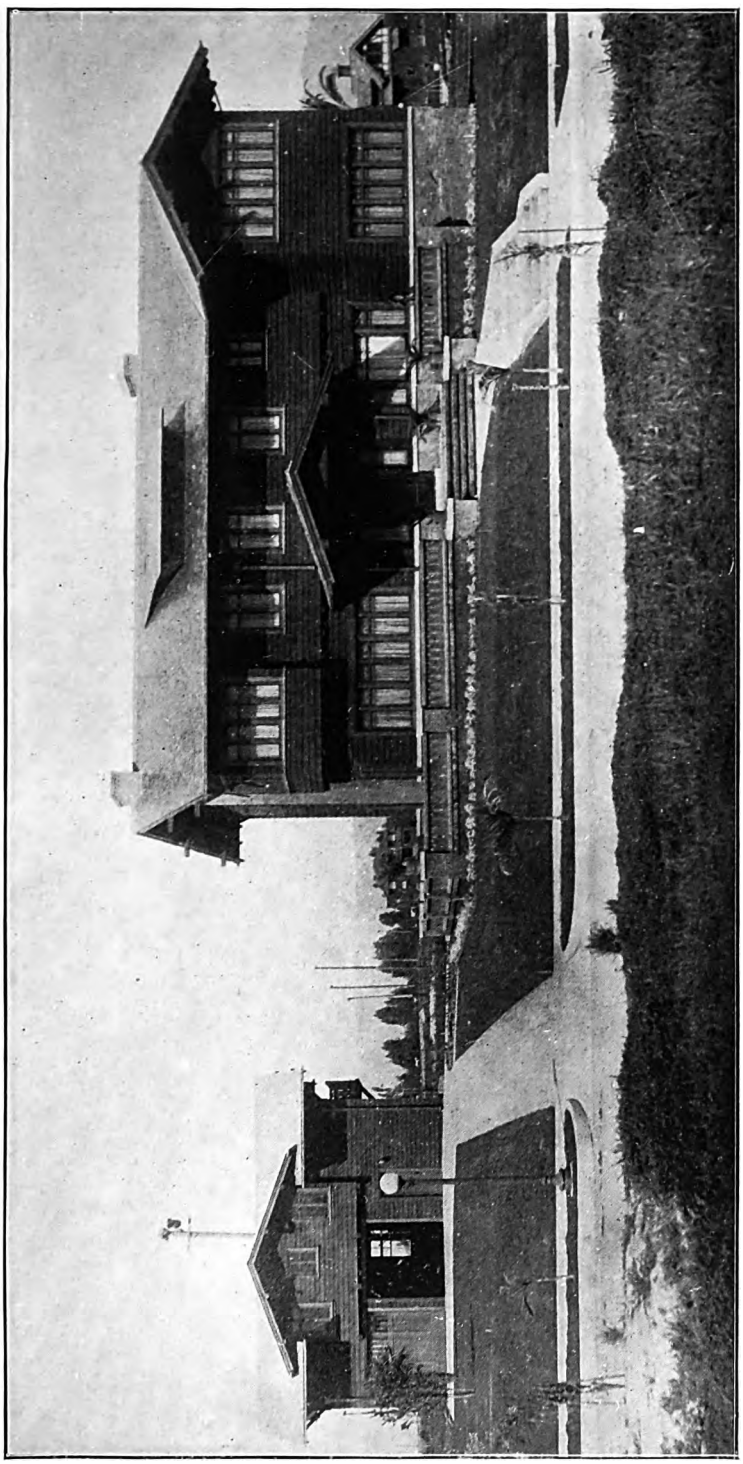


*Hall, looking towards the Library in the Residence of Mr. Robert Marsh, Los Angeles*

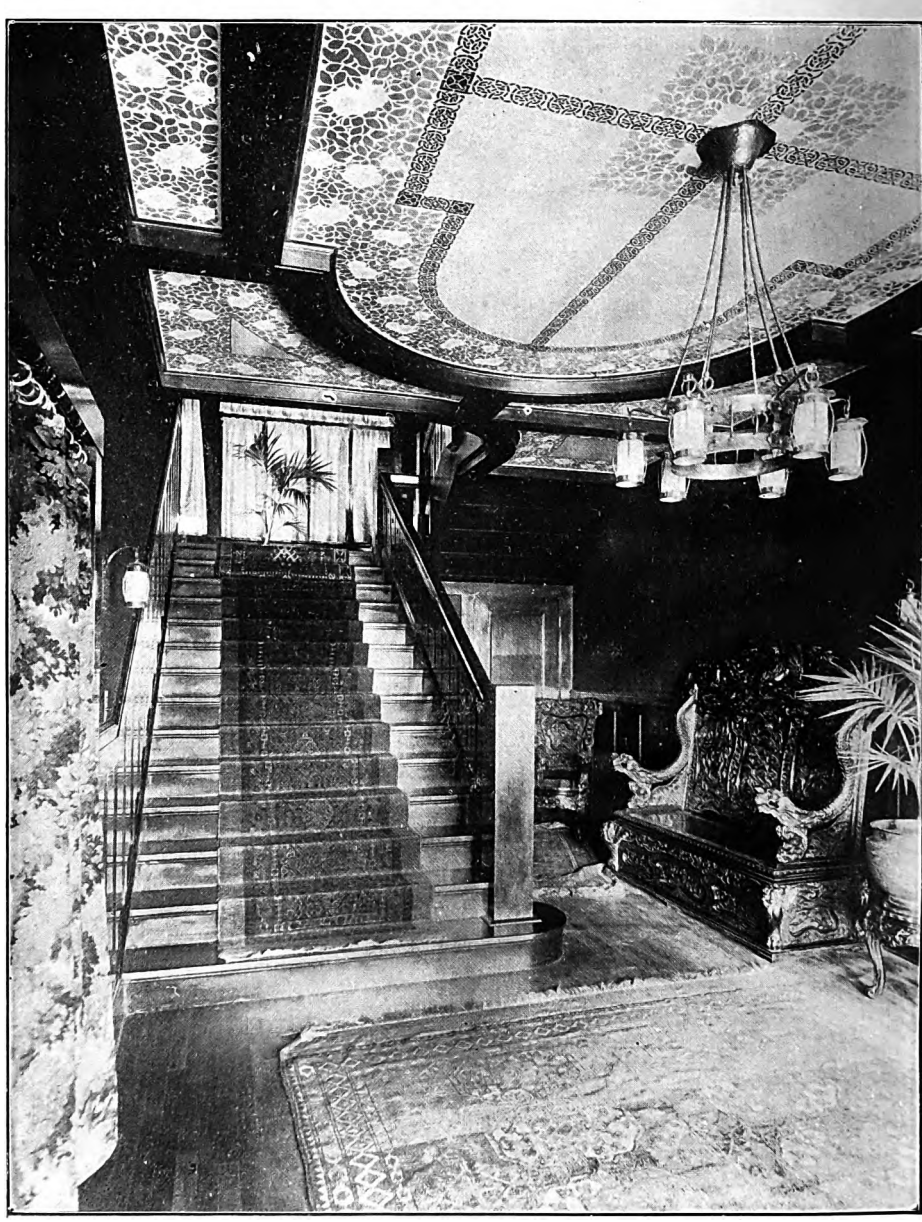
*Dining Room in the Residence of Mr. Robert Marsh, Los Angeles*

## Outlook for Cement Industry

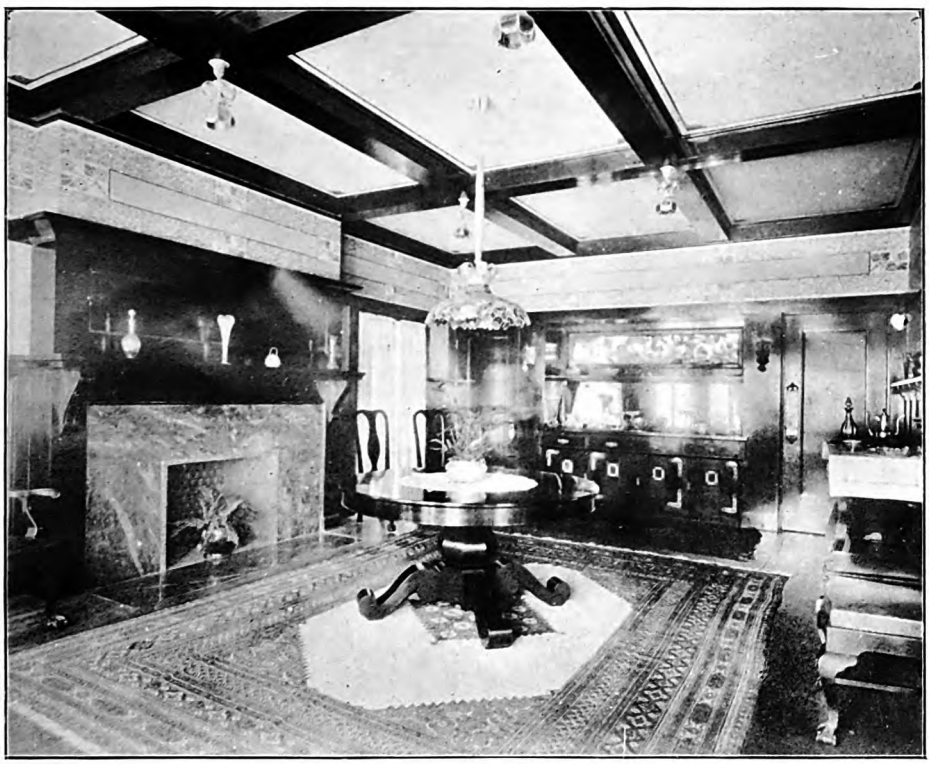
THE Portland cement manufacturers look upon the coming season as demanding practically 50,000,000 barrels of their output, and up to the present time they have never neglected a command of this kind. Even at this early date it can be confidently said that the cement manufacturer will take care of his corner of responsibilities of 1907, no matter what else may happen. There is no excitement, but calmly and deliberately they proceed to prepare for the rush by putting in extra kilns to increase their capacity, providing superior quarrying arrangements and all the minutae of such an enormous undertaking that is required to handle such a large quantity of heavy materials, and the purchaser and consumer only knows that when he asks for the product that the goods are ready for delivery. Their perfect organization and up-to-date methods are really a pattern for other industries to emulate. With becoming conservatism for those engaged in such an important industry it is practically certain that no great fluctuation in the price of this indispensable commodity will be noted in 1907 to discommode the steady progress of the season's operations. It is just as safe to say that cement will not go out of sight or, rather, out of reach, as it is to say that the product will not be over-manufactured to any large extent, and thereby bring a slump in the midst of a busy season. There is probably more intelligence and consequently more foreknowledge and preparedness attributable to the manufacturers of Portland cement than in any other line.—Rock Products.



*Residence and Garage of Mr. John Howze, Los Angeles*
*A. F. Rosenheim, Architect*



*Entrance Hall in Residence of Mr. John Howze, Los Angeles*



*Dining Room in the Residence of Mr. John Howze, Los Angeles*

## San Francisco Chapter, A. I. A.

THE San Francisco Chapter, American Institute of Architects, met at Tait's on Tuesday evening, February 19th, for the purpose of electing officers for the ensuing year and the transaction of business. The meeting was preceded by a well-attended dinner and an informal discussion of matters of interest to the profession and the growth and beautification of the city.

The following were elected to serve the Chapter as officers for the current year: President, Albert Pissis; Vice-president, William Mooser; Secretary, Sylvain Schnaittacher; Trustees, Henry A. Schulze, William Curlett.

A vote of thanks was tendered the retiring president and secretary, Messrs. Schulze and Curlett, for their services to the Chapter during their term.

Owing to the success of the evening, it was decided that the monthly meeting of the Chapter be held the third Thursday of each month and that each meeting be the occasion of a similar dinner.

Among those present were: Herman Barth, Frederick D. Boese, B. J. S. Cahill, William Curlett, Clinton Day, Lionel Deane, Chas. W. Dickey, H. Geilfuss, William Mooser, Matt O'Brien, D. F. Oliver, Albert Pissis, James Reid, P. Righetti. Sylvain Schnaittacher, Henry A. Schulze, C. Werner, E. J. Vogel, T. J. Welsh, and G. A. Wright.

# Forms for Concrete Construction*

By SANFORD E. THOMPSON, Consulting Engineer

RECENT failures in reinforced concrete construction cannot be cast one side and forgotten with the passing comment so frequently heard that the accident was due merely to poor construction or too early removal of forms. The reasons for every failure should be thoroughly investigated by experts to prevent recurrence of similar accidents.

"Forms," although frequently guilty, are by no means the only culprits. In fact, they are frequently blamed when the designer is at fault. Just so long as men who know nothing of the first principles of mechanics are permitted to design concrete structures, and just so long as irresponsible contractors are engaged to erect them, the list of accidents will increase in startling numbers. In every case it is the men, not the inanimate lumber and materials, who are to blame. However, granting its danger under ignorant hands, reinforced concrete as a whole must not be condemned for failures due to improper conditions any more than brick should be rejected as a building material for apartment houses because of the collapse of several unfinished buildings in New York City two years ago through disregard of frost action upon the mortar.

Failures in concrete buildings may be attributed to:

1. Imperfect design; especially through neglect of essential details in locating the reinforcing metal and through the adoption of too low a factor of safety.
2. Poor materials; such as cement which does not properly set up, or sand which is too fine or which has an excess of clay, loam or other impurities.
3. Faulty construction; from improper proportioning, mixing or placing, or too early removal of forms.
4. Weak form.

A disregard of such important principals is frequently criminal negligence, and yet in at least one case under my observation an examination of the structure and the materials, after a collapse in which a number of lives were lost, showed both the design, materials and construction so faulty that it was impossible to decide positively which of the four causes named above was the primary reason for the failure.

In this paper it is proposed to treat only of the design, construction and removal of forms.

## KIND OF LUMBER

The selection of the lumber must be governed by the character of the work and the local market. Although white pine is best for fine face work, and quite essential for ornamental construction cast in wooden forms; for ordinary work, however, even for the panels, white pine is apt to be too expensive, and spruce, fir, Norway pine or the softer qualities of Southern pine, especially North Carolina pine, must be substituted for it. Some of these woods are more liable to warp than white pine, but they are generally stiffer and thus better adapted for struts and braces.

Kiln dried lumber is not suitable for form construction because of its tendency to swell when the wet concrete touches it. Very green lumber, on the other hand, especially Southern pine, which does not close up

*Paper read at the Chicago Meeting of the National Association of Cement Users.

quickly when wet, may give trouble by joints opening. Therefore, the middle ground, or, in other words, partially dry stuff, is usually best.

## FINISH AND THICKNESS OF LUMBER

Either tongued and grooved or bevel edged stuff will give good results for floor and wall panel forms, and is preferable to square edged stuff. A smoother surface may be attained at first with the tongued and grooved stock, and there is less trouble with opening joints, but it is more expensive than bevel edge because of the waste in dressing, and if the forms are used many times there is greater tendency to wear at the joints. Even for rough forms plank planed one side may be economical to cheapen the cost of cleaning. Studs should always be planed one side to bring to size.

The thickness of lumber varies with different contractors, some using 1-in., others 1½-in., while a few employ 2-in. stuff even for panels. (These are commercial thicknesses measured before planing.) For ordinary walls 1½-in. stuff is good, although for heavy construction where derricks are used 2-in. is preferable. For floor panels 1-in. boards are most common, although if the building is eight stories high or over, 1-in. stuff is likely to be pretty well worn out before the top of the building is reached, and the under surface of the concrete may show the wear badly. For sides of girders either 1 or 1½ in. is sufficient, while 2-in. is preferable for the bottom of girders. Column forms are generally made of 2-in. plank.

Certain general rules are applicable to all kinds of forms. Strength, simplicity and symmetry are three fundamental principles of design. The necessity for strength is obvious, while economy in concrete construction consists in quickly erecting and moving the forms and in using them over and over again.

The design of the concrete members should recognize the forms. A slight excess of concrete sometimes may be contributed to save carpenter work. Frequently beams may be designed of such widths as to use dimension widths of lumber without splitting.

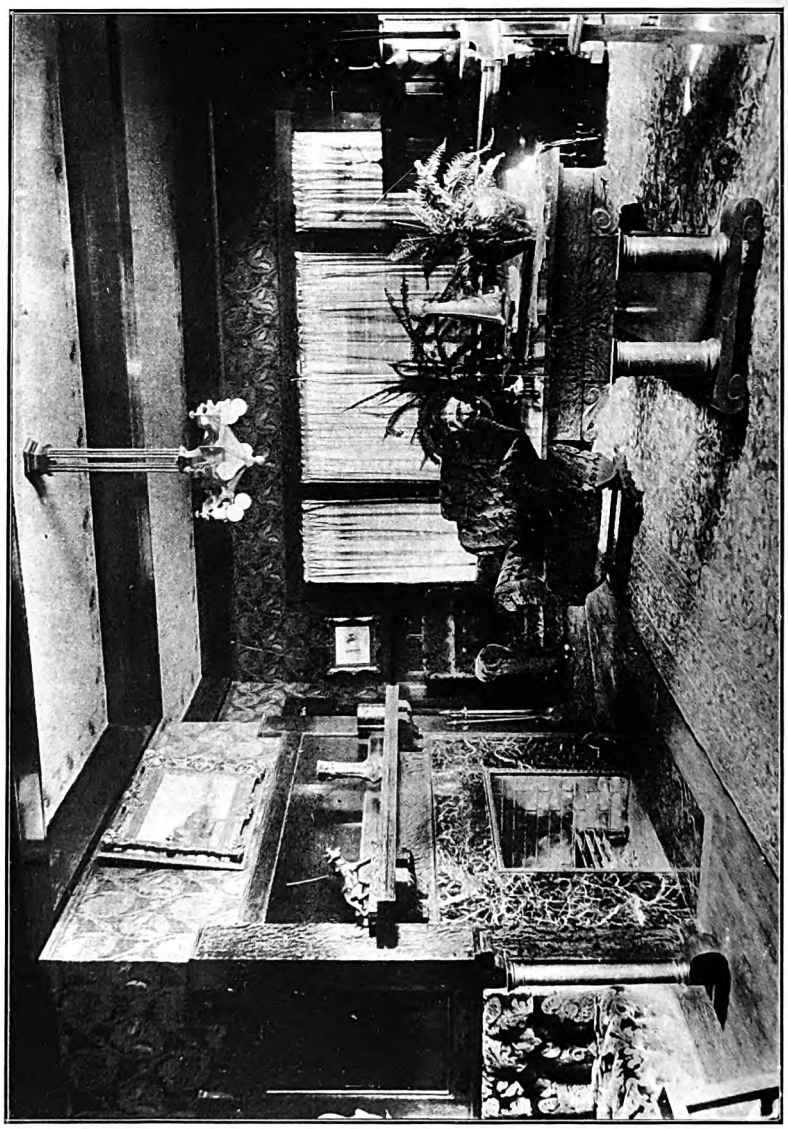
Columns may be of dimensions to avoid frequent remaking. Panel recesses in walls may be made the thickness of a board or a plank. To permit ready cleaning of dirt and chips from the column forms before laying the concrete at least one prominent contractor provides a door at the bottom of each of them.

## DESIGN OF FORMS

In building construction the forms must be designed so that the column molds and also the bottom of beam molds are all independent of the slabs. The forms may thus be left a longer time upon members subjected to the greater stress.

The sides of the beam molds should be held tightly together by wedges or clamps to prevent the pressure of the concrete springing them away from the bottom boards. At top or bottom of each strut hardwood wedges are useful when setting and removing it, and also permit testing to make sure that there is no deflection of the beam or slab. For this purpose some contractors loosen the wedges 24 hr. in advance of the struts. In general it is preferable to use comparatively light joists, such as 2 x 8 in. or 2 x 10 in., with frequent shores, rather than to use lumber which is heavier to handle.

If forms are to be used but once or must be taken apart when removed it is sometimes practicable to use only a few partially driven nails, so that they can be withdrawn without injury to the lumber. It is very difficult



*Living Room in Residence of Mr. John Howze, Los Angeles*

to convince house carpenters that the pressure of the concrete will hold temporary panel boards in place with scarcely any nailing.

Alignment is another item of importance since it is here that a great deal of time may be wasted by inexperienced or incompetent carpenters. Such workmen may err either on the side of poor alignment or more careful alignment than the structure requires. W. J. Douglas* suggests as a general rule the allowance of "⅜ in. departure from established lines on finished work and 2 in. on unfinished work."

In removing forms the green concrete must not be disturbed by prying against it. This seems so obvious as to need no emphasis, but I have known a first-class house carpenter to actually attempt to straighten a wall which was an inch out of line the day after the concrete was laid by prying the forms over. The wall was straightened, but by a different process from that proposed by the carpenter—the concrete was relaid.

Forms for facework should be tightly put together, it being advisable in some cases to close the joints and holes by mortar, putty, plaster of paris, sheathing paper or thin metal. This is not, as is commonly supposed, to prevent loss of strength by the cement which flows out with the water, but rather to prevent the formation of voids or stone pockets in the finished surface.

Crude oil is one of the best materials to prevent adhesion of the concrete to the forms, though linseed oil, soft soap and various other greasy substances are also employed for this purpose. The oil or grease should be thin enough to flow and fill the grain of the wood.

If the forms are to be left until the concrete is hard, there is little danger of the concrete sticking to them if instead of being greased they are wet thoroughly with water before the concrete is laid. In any case, if concrete adheres to the forms it should be thoroughly cleaned off before reseting; even then it is apt to stick again in the same place.

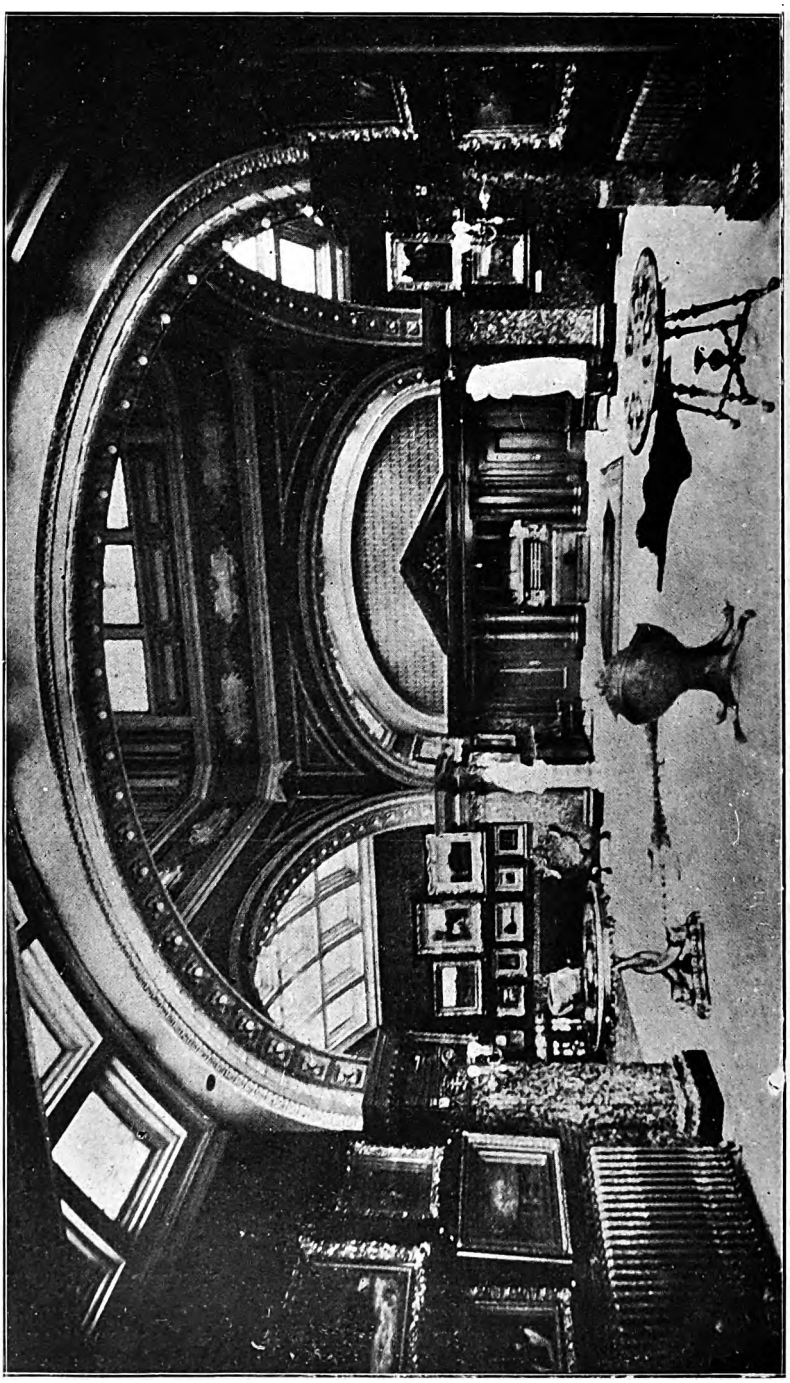
"Rule of thumb" layout of forms in the field is being superseded by design in the drawing room. In building construction where the forms form a large percentage of the cost of the building and where a failure in the forms may cause loss of life, it is especially necessary to treat this question from an engineering standpoint, and many of the best concrete contractors now design their forms as carefully as the dimensions of the concrete members.

If a minimum quantity of lumber is to be used consistent with the deformation allowed, it follows that the dimensions and spacing of the supporting lumber must be actually computed from the weight or the pressure against the sheeting. For columns and for walls where a considerable height of wet concrete is to be placed at once the pressure may be calculated as a liquid. W. J. Douglas** assumes that the concrete is a liquid of half its own weight, or 75 lb. per cubic foot.

In ordinary walls where the concrete is placed in layers computation is not usually necessary, since general experience has shown that maximum spacing for 1-in. boards is 2 ft., for 1½-in. plank is 4 ft., and for 2-in. plank is 5 ft. Studding generally varies from 2 x 4 in. to 4 x 6 in., according to the character of the work and the distance between the horizontal braces or walling.

Floor forms are better based upon an allowable deflection than upon strength, in order to give sufficient stiffness to prevent partial rupture of the concrete or sagging beams.

** Engineering News, December 20, 1906, p. 646.



*Private Gallery of Mr. John W. Kauffman. St. Louis. Link & Rosenheim, Architects*

In calculating, we must add to the weight of the concrete itself, i. e., to the dead load, a construction live load which may be assumed as liable to come upon the concrete while setting. Definite units of stress must also be assumed in the lumber.

I would suggest the following basis for computation, these being values which I have adopted after quite thorough consideration of the matter:

1. Weight of concrete, including reinforcement, 154 lb. per cubic foot.

2. Live load 75 lb, per square foot upon slab; 50 lb. per square foot in figuring beam and girder forms and struts.

3. For allowable compression in struts use 600 to 1200 lb. per square inch, varying with ratio of the size of the strut to its length. If timber beams are calculated for strength use 750 lb. per square inch extreme transverse fiber stress.

4. Compute plank joists and timber beams by the following formula, allowing a maximum deflection of 1/8 in.:

$$d = \frac{3}{384} \frac{W l^3}{E I} \qquad (1)$$

$$\text{and } I = \frac{bh^3}{12} \qquad (2)$$

in which

$d$=Greatest deflection in inches.

$W$=Total load on plank or joist.

$l$=Distance between supports in inches.

$E$=Modulus of elasticity of lumber used.

$I$=Moment of inertia of cross section of plank or joist.

$b$=Breadth of lumber.

$h$=Depth of lumber.

The formula is the ordinary formula for calculating deflection except that the co-efficient is taken as an approximate mean between 1-384 for a beam with fixed ends and 5-384 for a beam with ends simply supported.

For spruce lumber and other woods commonly used in form construction, E may be assumed as 1,300,000 lb. per square inch.

Formula (1) may be solved for I, from which the size of joist required may be readily estimated.

The given weight of concrete per cubic foot is somewhat higher than is frequently used, but is none too much where a dense mixture and an ordinary percentage of steel is used. For very rough calculation, however, it is frequently convenient to remember that 144 lb. per cubic foot is equivalent to the product of the dimensions of a beam in inches times a length of 1 ft.

The suggested live load, 50-75, is assumed to include the weight of men and barrows filled with concrete and structural material which may be piled upon the floor, not including, however, the weight of piles of cement or sand or stone, which should never be allowed upon a floor unless it is supported by concrete sufficiently strong to bear the weight, or by struts under all the floors below.

The units for stress in struts are somewhat higher than in timber construction because the load is a temporary one. The extreme variation given is due to the fact that when a column or strut is longer than about 16 times its smallest width, there is a tendency to bend which must be pre-

vented either by bracing it both ways or allowing a smaller load per square inch. For struts ordinarily used the following stresses may be assumed for different heights:

| Length of strut. | Safe strength of wood struts in form for floor construction.—Pounds per square inch of cross section.—Dimensions of strut. | | | |
|---|---|---|---|---|
| Feet | 3 x 4 in. | 4 x 4 in. | 6 x 6 in. | 8 x 8 in. |
| 14 | ... | 700 | 900 | 1,100 |
| 12 | 600 | 800 | 1,000 | 1,200 |
| 10 | 700 | 900 | 1,100 | 1,200 |
| 8 | 850 | 1,050 | 1,200 | 1,200 |
| 6 | 1,000 | 1,200 | 1,200 | 1,200 |

Bracing both ways will, of course, reduce the length of a long strut.

If the concrete floor is comparatively green the load must be distributed by blocking, preferably of hard wood. At the top of the strut provision must be made against crushing of the wood of the plank of cross piece. Ordinary soft wood will stand without crushing only about 700 lb. per square inch across the grain, so if the compression approaches this figure brackets must be inserted or hard wood cleats used.

The best contractors have definite rules for the minimum time which the forms must be left in ordinary weather, and then these times are lengthened for changes in conditions according to the judgment of the foreman.

Correspondence with a number of prominent contractors in various parts of the country, including the Aberthaw Construction Company, Boston; the Expanded Metal and Corrugated Bar Company, St. Louis; the Ferro-Concrete Construction Company, Cincinnati; the Trussed Concrete Steel Company, Detroit and the Turner Construction Company, New York, indicates substantial agreement in the minimum time to leave forms. As a guide to practice, the following rules are suggested, these following in the main the requirements of the Aberthaw Construction Company:

Walls in mass work: one to three days, or until the concrete will bear pressure of the thumb without indentation.

Thin walls: in summer, two days; in cold weather, five days.

Slabs up to 6 ft. span: in summer, six days; in cold weather, two weeks.

Beams and girders and long span slabs: in summer, 10 days or two weeks; in cold weather three weeks to one month. If shores are left without disturbing them, the time of removal of the sheeting in summer may be reduced to one week.

Column forms: in summer, two days; in cold weather, four days, provided girders are shored to prevent appreciable weight reaching columns.

Conduits: two or three days, provided there is not a heavy fill upon them.

Arches: of small size, one week; for large arches with heavy dead load, one month.

All of these times are of course simply approximate, the exact time varying with the temperature and moisture of the air and the character of the construction. Even in summer during a damp cloudy period, wall forms sometimes cannot be removed inside of five days with other members in proportion. Occasionally, too, batches of concrete will set abnormally slow, either because of slow setting cement or impurities in the sand, and the foreman and inspector must watch very carefully to see that the forms

are not removed too soon. Trial with a pick may assist in reaching a decision.

Beams and arches of long span must be supported for a longer time than short spans because the dead load is proportionately large, and therefore the compression in the concrete is large even before the live load comes upon it.

The general uncertainty and the personal element which enters into this item emphasizes the necessity for some more definite plan for insuring safety. The suggestion has been made that two or three times a day a sample of concrete be taken from the mixer and allowed to set on the ground under the same conditions as the construction until the date when the forms should be moved. These sample specimens may be then put in a testing machine to determine whether the actual strength of the concrete is sufficient to carry the dead and construction loads. Even this plan does not provide for the possibility of an occasional poor batch of concrete, so that watchfulness and good judgment must also be exercised.

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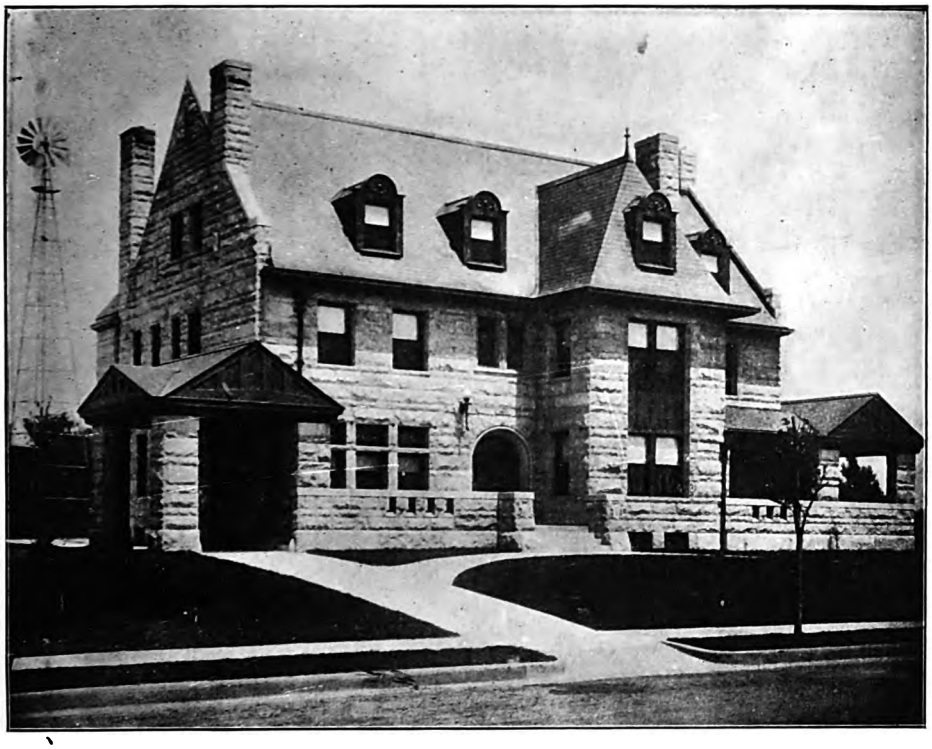
## Unconstitutionality of Architects' License Laws

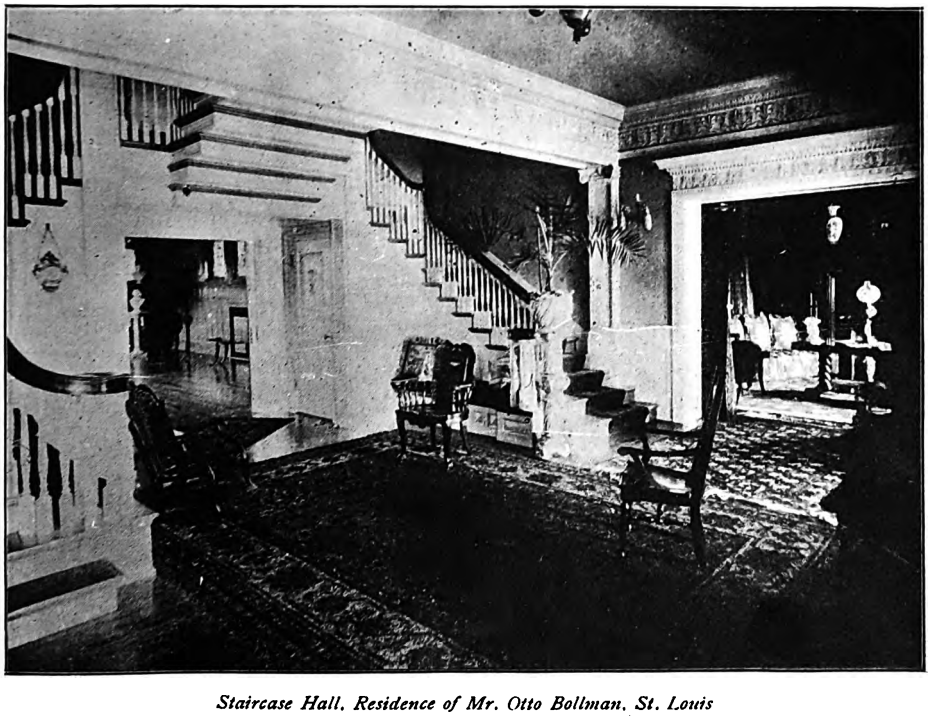
THE unconstitutionality of State laws requiring architects to practise under a license and forbidding those to practise who cannot procure one, is clearly affirmed by implication—since architects are explicitly mentioned—in the following ruling of the Supreme Court of the State of Washington, in which the unconstitutionality of the plumbers' license law is affirmed.

Judge Rudkin, who delivered the Court's opinion, said, in part:

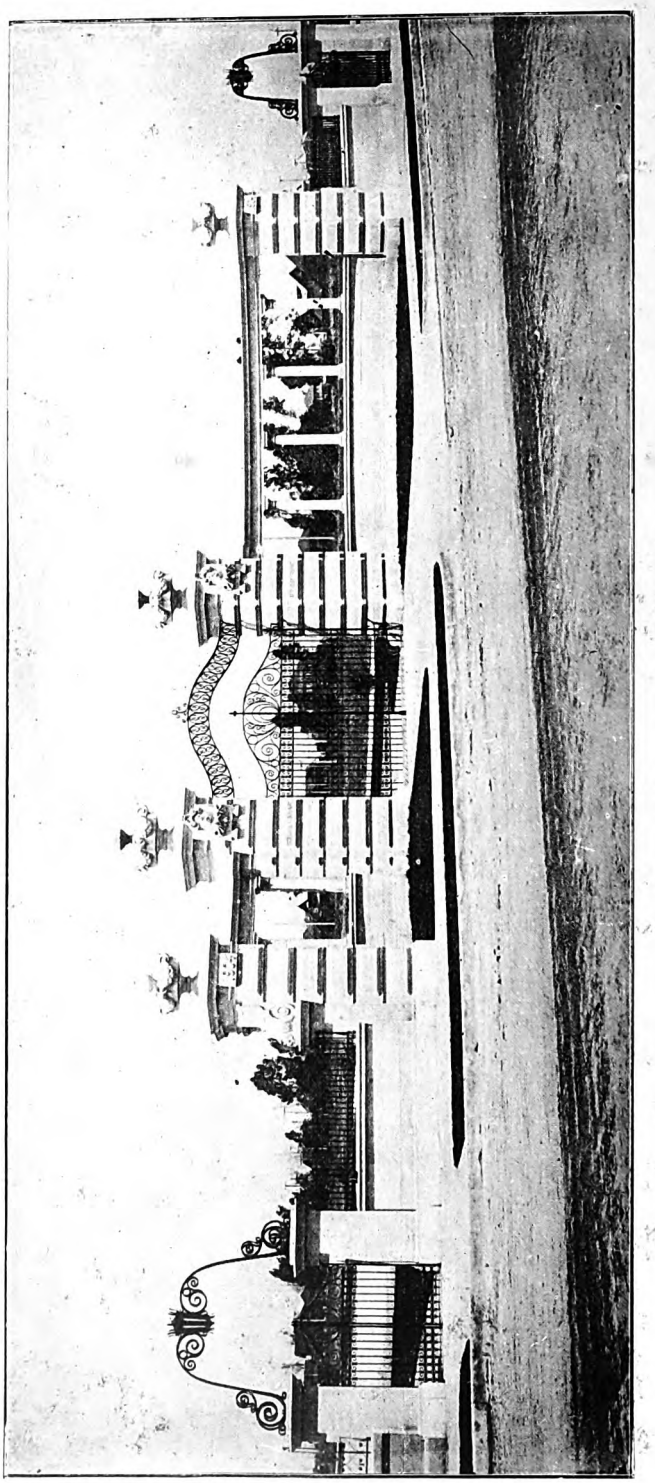
"The power of the Legislature to make all needful rules and regulations for the health, comfort and well-being of society can not be questioned, but there are certain limits beyond which the Legislature cannot go, without trenching upon liberty and property rights which are safeguarded by the State and Federal constitutions. As said by the court *In re* Jacobs, 98 N. Y. 108, 50 Am. Rep. 636: 'The limit of the power cannot be accurately defined, and the courts have not been able or willing definitely to circumscribe it. But the power, however broad and extensive, is not above the constitution. . . . Generally it is for the Legislature to determine what laws and regulations are needed to protect the public health and secure the public comfort and safety, and while its measures are calculated, intended, convenient, and appropriate to accomplish these ends, the exercise of its discretion is not subject to review by the courts. But they must have some relation to these ends. Under the mere guise of police regulations, personal rights and private property cannot be arbitrarily invaded.' And *In re* Aubrey, 36 Wash. 308, 78 Pac. 900, 104 Am. St. Rep. 952, this court said: 'It may be stated as a general principle of law, that it is the province of the Legislature to determine whether the conditions exist which warrant the exercise of this power; but the question, What are the subjects of its exercise? is clearly a judicial question. One may be deprived of his liberty, and his constitutional rights thereto may be violated, without the actual imprisonment or restraint of his person. "Liberty" in its broad sense, as understood in this country, means the right, not only of freedom from actual servitude, imprisonment or restraint, but the right of one to use his faculties in all lawful ways,



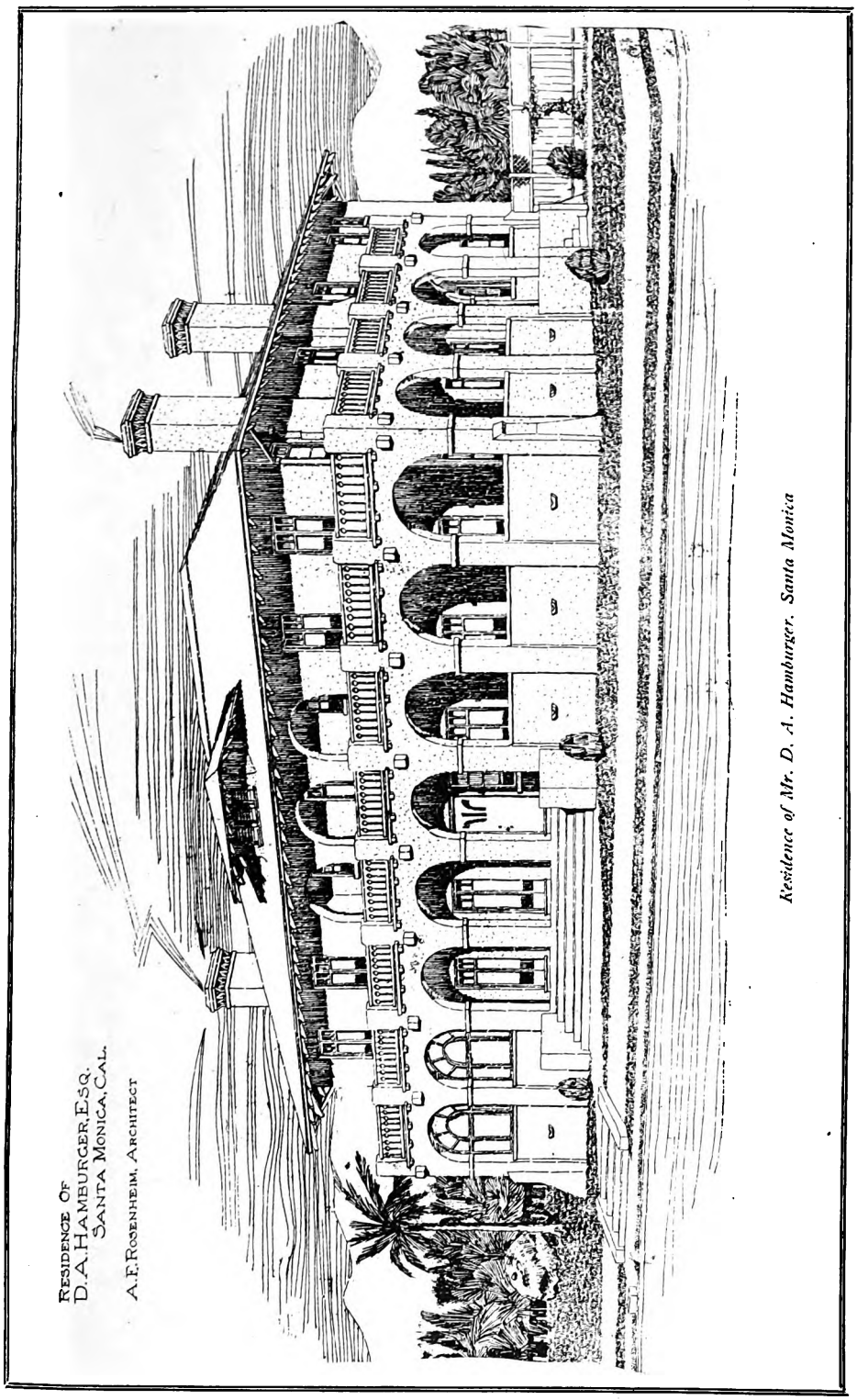
*Residence of Mr. Otto Bollman, St. Louis*
*Link & Rosenheim, Architects*



*Staircase Hall, Residence of Mr. Otto Bollman, St. Louis*
*Link & Rosenheim, Architects*



*Entrance to Berkeley Square, Los Angeles*
*A. F. Rosenheim, Architect*




*Residence of Mr. D. A. Hamburger, Santa Monica*

to live and work when he will, to earn his livelihood in any lawful calling, and to pursue any lawful trade or avocation. All laws, therefore, which impair or trammel these rights—which limit him in his choice of a trade or profession—are infringements upon his fundamental rights of liberty, which are under constitutional protection.'

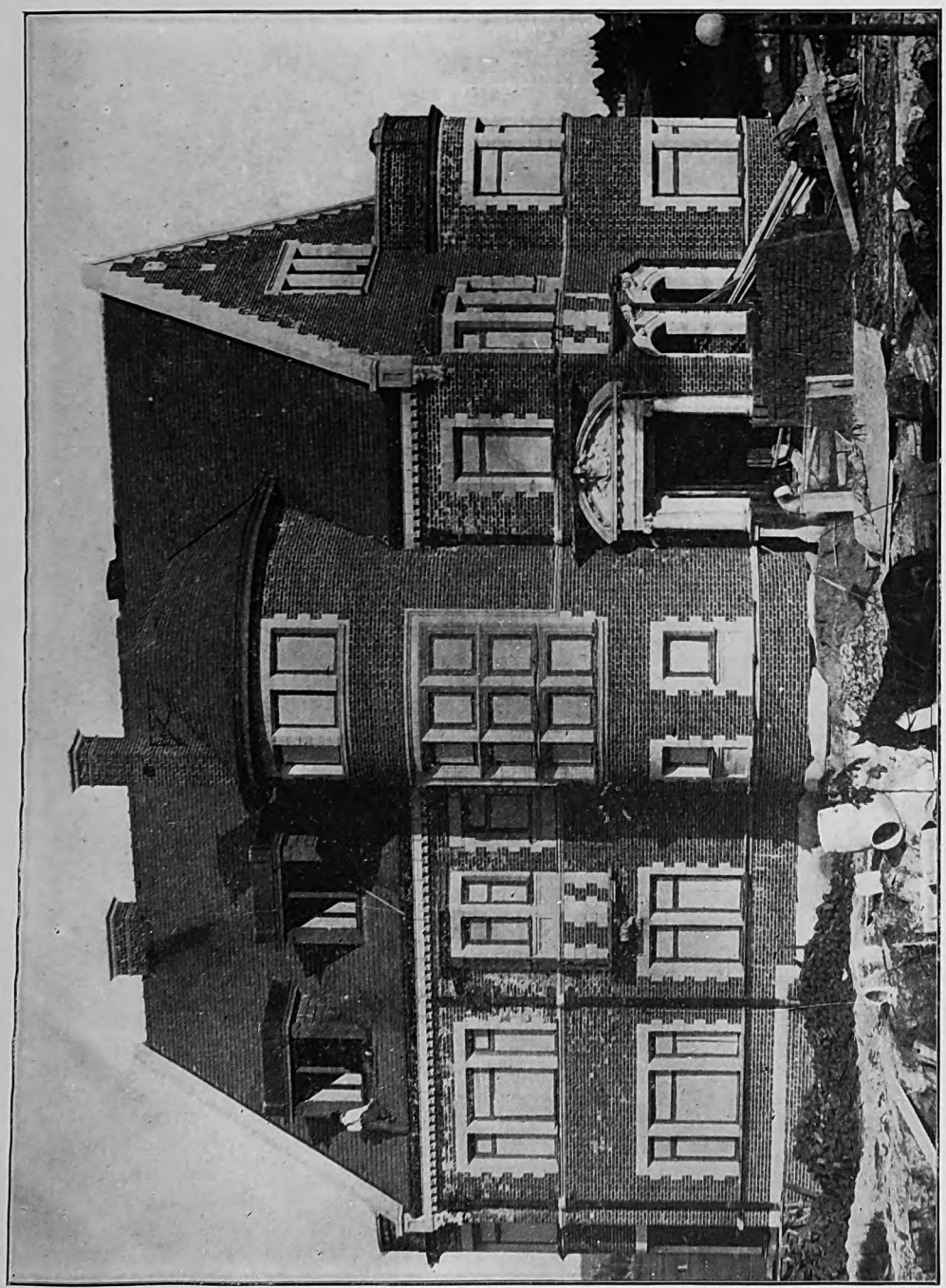
"We cannot close our eyes to the fact that legislation of this kind is on the increase. Like begets like, and every Legislative session brings forth some new act in the interest of some new trade or occupation. The doctor, the lawyer, the druggist, the dentist, the barber, the horseshoer, and the plumber have already received favorable consideration at the hands of our Legislature, and the end is not yet, for the nurse and the undertaker are knocking at the door. It will not do to say that any occupation which may remotely affect the public health is subject to this kind of legislation and control. Our health, our comfort, and our well-being are materially affected by all our surroundings—by the houses we live in, the clothes we wear, and the food we eat. The safety of the traveling public depends in no small degree on the skill and capacity of the section crews that build and repair our railroads, yet are we on this account to add the architect, the carpenter, the tailor, the shoemaker, those who produce and prepare our food, and all the rest to the ever-growing list? If so, it will be put a short time until a man cannot engage in honest toil to earn his daily bread without first purchasing a license or permit from some board or commission. The public health is entitled to consideration at the hands of the legislative department of the Government, but it must be remembered that liberty does not occupy a secondary place in our fundamental law. Under some of the acts to which we have referred members of the board of health form part of the examining board, but our act has not even this saving grace. By its terms two master plumbers and one journeyman plumber are constituted the guardians of the public health and welfare. We are not permitted to inquire into the motive of the Legislature, and yet, why should a court kindly declare that the public health is involved, when all the rest of mankind know full well that the control of the pumping business by the board and its licensees is the sole end in view. We are satisfied that the act has no such relation to the public health as will sustain it as a police or sanitary measure, and that its interference with the liberty of the citizen brings it in direct conflict with the Constitution of the United State.

"The judgment should be reversed, and the prisoner discharged; and it is so ordered."

Judge Root, concurring, also said:

"To the foregoing may be added this thought: The liberty and natural rights of a citizen—such as his privilege to engage in a lawful vocation for a livelihood—can be denied him by the Legislature only where such deprivation is necessary to accomplish a given result essential to the welfare of the public. If that result can be attained in a practicable manner without interference with such liberty and rights, there is an absence of that necessity which is an essential and prerequisite to the validity of such a statute.

"In the case at bar the only justification urged in behalf of the statute is that good plumbing is necessary to the health of people in cities having over 10,000 inhabitants. Avowedly it is sought to insure good plumbing by means of this statute. It is self-evident that the same, or a better, result can be obtained by means of statutes or ordinances requiring good plumbing, and insuring it by means of adequate inspection. Such a statute



*Residence of A. F. Rosenheim, Los Angeles, now being completed*

*Reception Room, Office of A. F. Rosenheim*

or ordinance would not interfere with the liberty or natural rights of any person, and would safeguard the health of the public as fully as or more so than the statute now in question. It therefore follows that the liberty and natural rights of the individual are infringed by this statute unnecessarily and consequently, unconstitutionally."

* * *

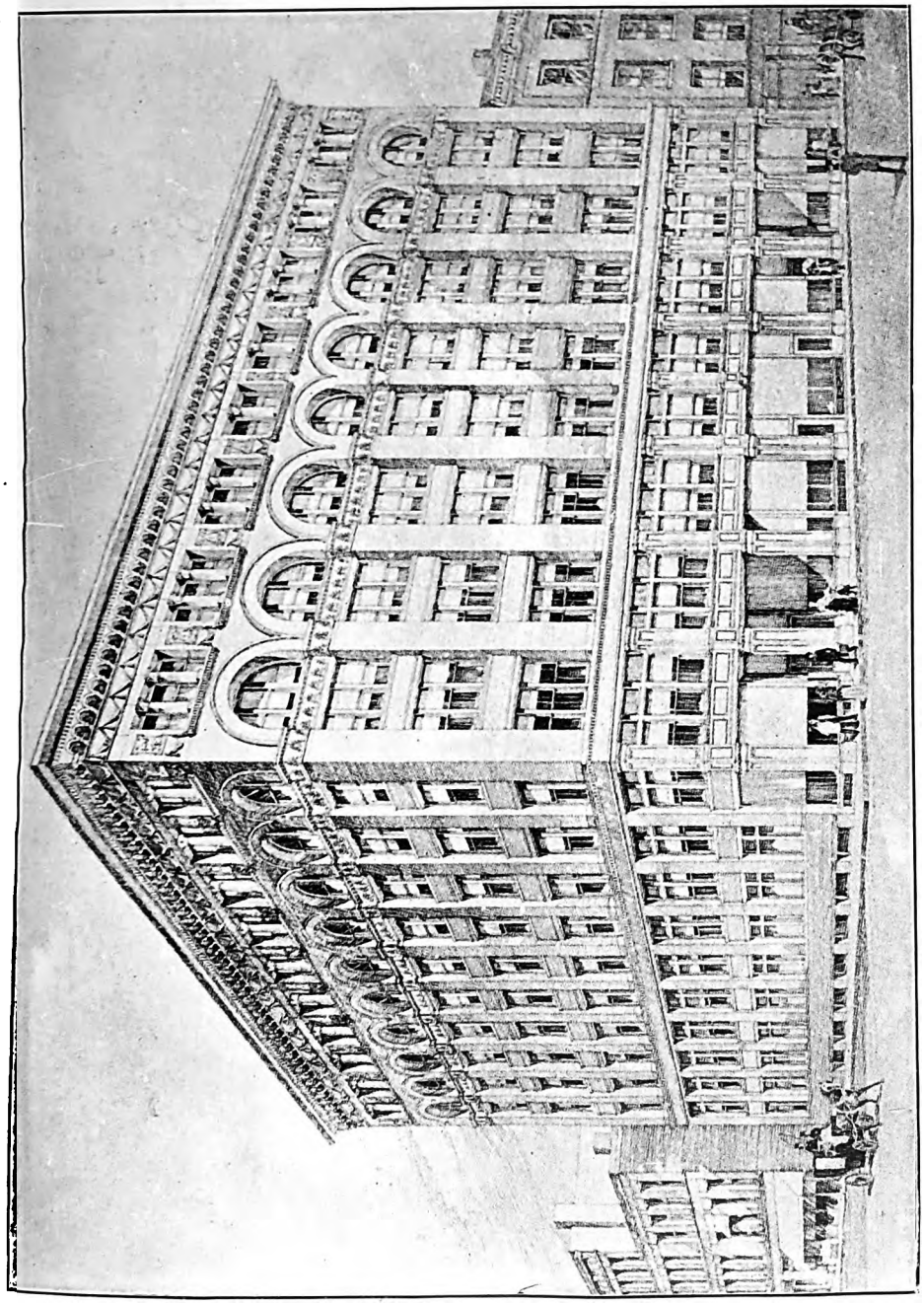
## Production of Lime and Sand Lime Brick

A PAMPHLET just issued by the Government contains much interesting data prepared under the direction of Edwin C. Eckel, relative to the production of lime and sand lime brick in the United States during the year 1905, the figures showing a valuation of products of $972,-064, as compared with a valuation in 1904 of $463,128. The number of operating firms reporting was eighty-four and the quantity of common brick manufactured was estimated at 119,131,000, with an aggregate value of $783,702, an average value per M of $6.58.

The quantity of front brick manufactured was estimated at 16,562,000 with an approximate value of $182,519, an average value per M of $11.02.

Fancy brick was manufactured to the extent of 198,000 with a total value of $4,338, an average of $21.91 per M.

Large building blocks were produced whose total value was $1505, a total value of all the products being $972,064. Comparing these figures with the reports of 1903 and 1904, there has been a steady increase in the number of operating plants, although not a phenomenal one. Furthermore, the ratio of development has been steady.



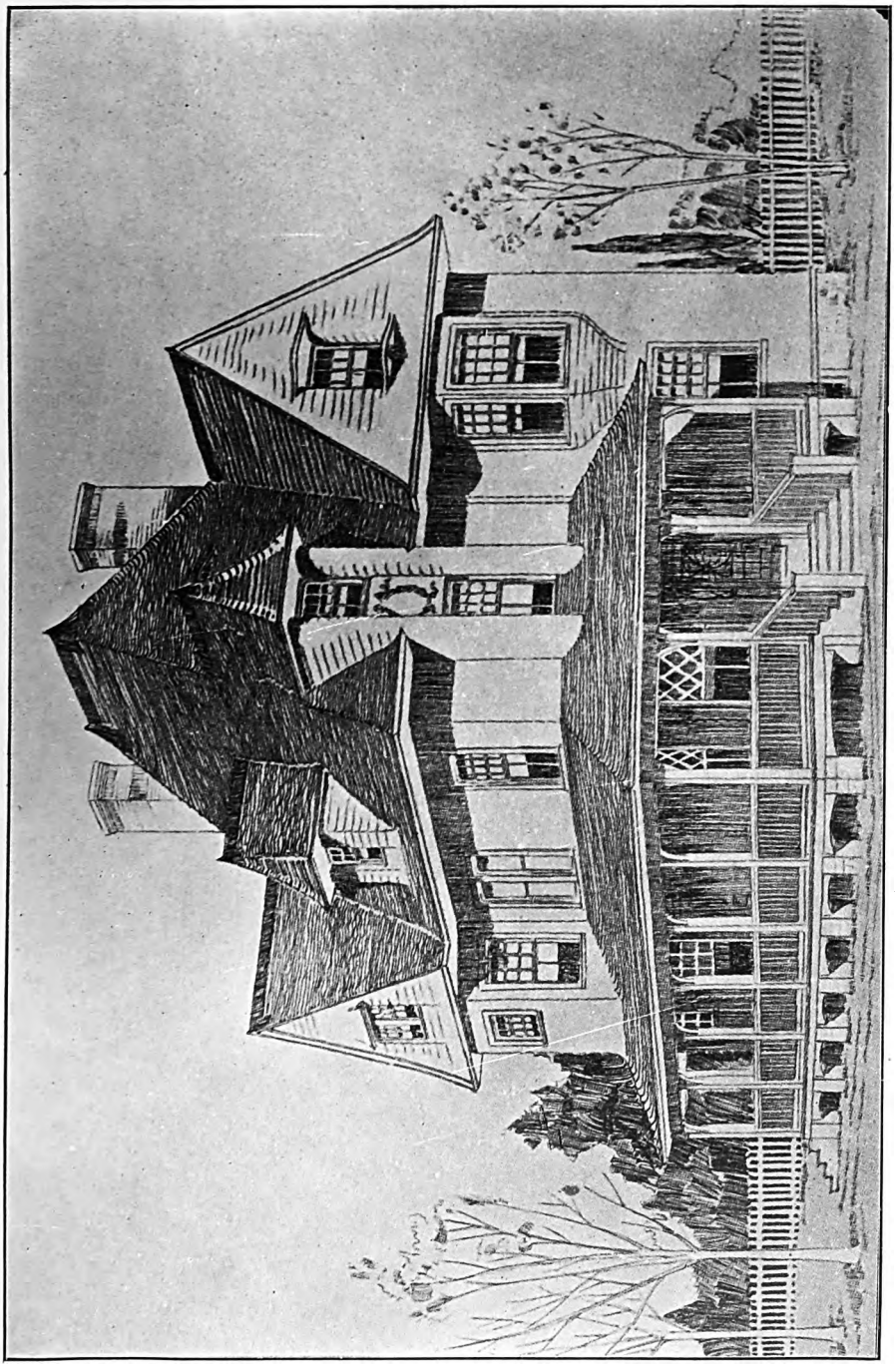
*Competitive Design for Store Building, St. Louis. A. F. Rosenheim, Architect*

*Store Building, Ninth Street and Washington Avenue, St. Louis*
*A. F. Rosenheim, Architect*

## This House One Huge Joke

John Baxter of Monrovia, Cal., is building a new house on the site of an old house and building the new house out of the material of the old house and living in the old house while the new one is being built. Once when a new jail was wanted in Dublin an Irishman proposed some such bill on the floor of the British Parliament and it was considered a bull and his bill was laughed down.

Baxter is taking advantage of an extra ten feet of land on the avenue side of his livery stable to build the outside wall of his new building, and as this wall goes up the rafters of the old structure are to be pieced out to the new wall and the boards in the old wall are used in making partitions. When the front wall is built in of brick the old wooden wall will be taken down.



*House at Chamberlain Park for Mr. N. Kaufman. A. F. Rosenheim, Architect*

# Answers Mr. Cummings

By W. F. BARNES

THE readers of your valued journal are certainly indebted to Mr. Cummings for the article on "Portland Cement" in your January issue.

The author of "American Cements" should be able to give a thoroughly scientific account of the making up of Portland cement; he does not follow me, however, in my more modest efforts to show that reinforced concrete, as a safe building material, has had no satisfactory demonstration in San Francisco.

There were many lamentable cases of failure of reinforced concrete floors, as even disinterested observers must know. I am absolutely certain, and I know many men who express the same opinion, that if there had been reinforced concrete skyscrapers in San Francisco, before the fire, they would have been utterly ruined. On the other hand, all of the first-class brick and steel structures stood the trial grandly. They are rapidly being refitted, and many of them are already occupied.

My contention has been that the present rage for concrete buildings, is largely the result of the excited condition of the public mind, and it is not based upon any legitimate evidence of earthquake or fire proof quality that the concrete adherents can offer. Men who have seen buildings of brick and stone suffer in the conflagration want to believe that reinforced concrete is indestructible. The reinforced concrete advocate had a believer before an argument had been offered; at length concrete buildings become the rage.

Nothing could better prove the fad nature of this craze than the inconsistency in the buildings that are now being put up. A structure, two-thirds of which may be brick, is given a concrete face. It can hardly be credited that this is done for appearances' sake, because the concrete face is undeniably dull and ugly, nor can there be any structural fitness in such a thing. It is simply a trick, playing to a popular whim, and it really disgraces materials that are used.

To my mind such construction as the new building at Market and Davis streets, and in a number of other places throughout San Francisco is dishonest, and such inconsistencies are what we would like to have explained, and not a treatise on the manufacture of cement from a laboratory standpoint.

* * *

Life consists not so much in what we want, but in what we get and making the most of it. "What's the use in my getting married," said an old maid. "I've got a parrot that swears, a monkey that chews tobacco, and a cat that goes out nights."

* * *

Miss Dubley—"She was braggin' about how successful her dinner party was. She said it wound up 'with great eclaw.' What's 'eclaw,' anyway?"

Miss Mugley—"Why, I guess that was the dessert. Didn't you never eat a chocolate eclaw?"—Philadelphia Press.

* * *

"Is that all the work you can do in a day?" asked the discontented employer. "Well, suh," answered Erastus Pinkley, "I s'pose I could do mo', but I never was much of a hand foh showin' off."—Washington Star.

# San Francisco Water Supply for Fire and Flushing Purposes

By ROBERT MORGENEIER, Architect and Engineer

OF the many present needs of the municipality of San Francisco, none, in my judgment, equals in importance and urgency, the need of an early, adequate and permanent supply of water for fire, sewer flushing and kindred purposes.

Such a supply must meet the requirements most forcibly placed before us by recent events, which events include the destruction of the greater part of the city by fire, and this for no other reason than the lack of water when and where most wanted. We can not hope to rebuild and progressively enlarge the city and at the same time ignore the urgent demand of a complete and perfect protection from fire.

A careful study of the requirements in connection with such protection will show them to be eight-fold, and condensed to statements of facts are as follows, viz.:

First—For fire and flushing purposes the supply of water must be unlimited.

Second—The source of supply must be unfailing.

Third—The supply must be free of cost.

Fourth—It must not draw upon the potable water brought to the city.

Fifth—The supply must be uninterruptable, continuing during severest earthquakes, or any disturbance whatsoever.

Sixth—The cost of its installation must be reasonable.

Seventh—The acquisition and use must be possible in a comparatively short time, and be capable of progressive extension.

Eighth—This installation must not interfere with vested property rights, and not interfere with business now or later on, carried on in the city, or the travel on its streets.

Now, a protracted investigation of these requirements leads to certain conclusions which, briefly set forth, are the following:

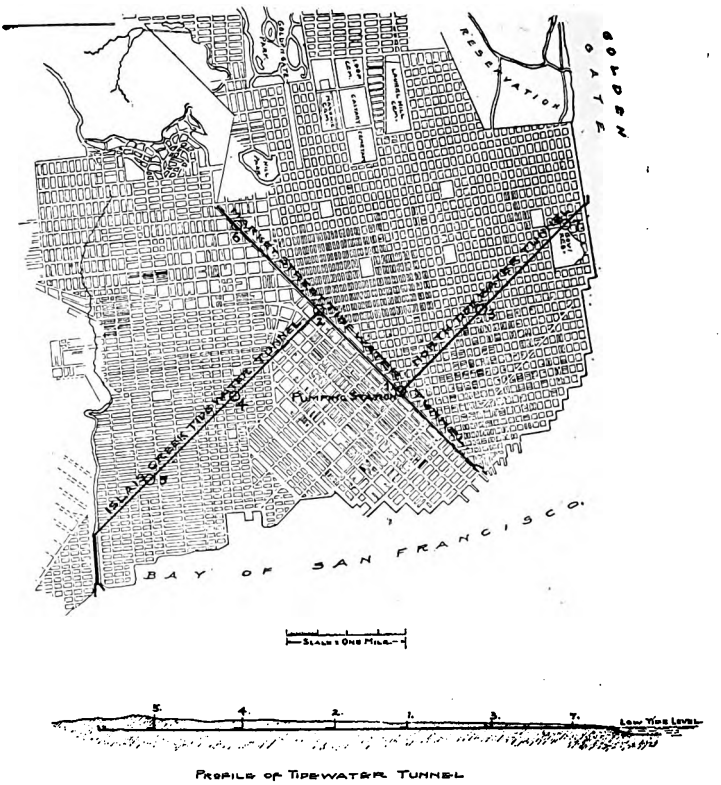
An unlimited supply of water for this purpose can not be obtained from the land surface, but it can be had from the sea, which practically surrounds the city. Also the sea is the only unfailing supply. Further, being at our doors, so to speak, it can cost nothing, and its use does not diminish the supply of potable waters. On the contrary, its extensive use, wherever possible, will tend to materially conserve it by reducing the demands thereon. All water carried in surface ditches or flumes in surface or entrenched pipes are liable to interruption at any time, and did fail us most miserably on April 18, 1906, when the earthquake touched them.

With an uninterruptable supply of water, the fire department could have prevented the conflagration following the earthquake.

There is one uninterruptable supply namely the sea, and consequently this should be allowed to flow subterranean of the city by way of a tide level water tunnel, or tunnels. Tide tunnels can be readily constructed, progressively extended and branched off and equipped with piping and pumping station units, reservoir units, and private unit connections where asked for.

A tide level tunnel can be rapidly constructed without surface disturbance, and put into use, block by block, as the work progresses.

Having read the requirements and conclusions as above stated, it may interest the engineer to examine the appended two sketches. On sheet




PROPOSITION.

FOR AN UNLIMITED AND UNINTERRUPTED WATER SUPPLY FOR FIRE AND FLUSHING PURPOSES. FOR

CITY OF SAN FRANCISCO.

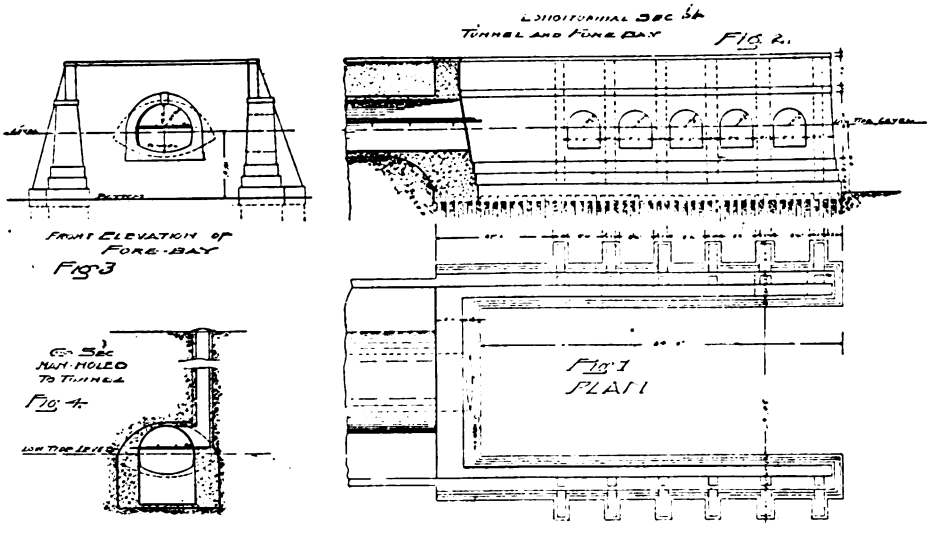
MORGENSEN & DREW, ENG'S, SAN FRANCISCO, 40 CAL. STR. OAKLAND, 1066, 10TH AVE.

TITLE-SHEET.

No. 1 I have laid down the general course or direction of the main stems of a tide level water supply tunnel with head works as indicated, consideration being taken for its effectiveness in every known condition of land and tide. Heed is also taken of the present need of fire protection.

On sheet No. 2 are shown in general arrangement a few features of such tunnel construction, particularly one of the fore bays or intakes. Gate, pump and piping equipments are not shown.

On sheet No. 2 is shown a tunnel bore of 12 feet 2 inches. This diameter applied to the entire tunnel shown on sheet No. 1, plus pits, manholes, approaches and reservoirs, shows a total yardage of 225,280, and the cost of such tunnel complete may be estimated at $5.00 per cubic yard, or $1,126,400.




The tunnels completed, including a general pipe distribution to reservoirs at high elevation, pumps therefor, and of unit connections thereto, such units ranging from a single large pumping station to a single large reservoir, down to unit deep well pumps at manholes, will cost on completion, less than $5,000,000, and will be an effective factor in preventing conflagration upon an expenditure of one-half that amount.

The tunnel contour shown is for a self-supporting section in unstable ground. This contour to be contracted to a six-inch shell of slightly reinforced concrete, where the soil or rock encountered permits it.

In passing it may be stated that the tunnel is to accommodate a depth of four feet of water at low tide. It is not proposed to make the construction of greater strength than that required by the load, for in case of an earthquake its location subterranean affords considerable protection, and so long as there is a city above it will perform its functions of leading water where required. Earthquake shocks might divide it into any number of parts, but the sea would traverse these parts about as well as when the tunnel was intact. To imagine this water supply entirely cut off, would include an engulfing of the territory in which it was built, and consequent thereon, an end of all things human, as pertains to such territory.

The main purpose of this communication is to awaken an interest in a feasible project to thoroughly safeguard San Francisco against fire, now and for all time to come, and in addition give it a flushing water supply so abundant that it will also be the cleanest, healthiest, and most attractive city in the world. If there are any other plans as comprehensive or more feasible, then let them be forthcoming, but let us spend neither time nor money in Lilliputian efforts at surface ditching, entrenched or surface piping. Their doubtful efficiency sinks to zero at the first keen shock of earthquake, or ceases entirely when the parched earth awaits long hoped-for rain.

# Color in Concrete Construction

IN the mad rush for the almighty dollar which we as Americans are apt to engage in, is it not well to pause, if only for a moment, and consider the beauty, or the lack of beauty, of our work from an artistic standpoint? I think it worth while, for, after all, it is the things that are pleasing to our various senses and that make life pleasant for others, that count in this world, and so I will take up a few moments of your time and try to tell you something about color, said L. A. Moore before the National convention.

Concrete, so far, has been used almost wholly for what is termed "warehouse construction," and we must concede that in its natural state, while it may be "a joy forever" it can not be called "a thing of beauty." But as the price of lumber goes higher, and it is sure to go still higher, concrete will be used more and more for that class of buildings which call for more or less artistic effects, such as dwellings, schools, churches, etc., and it is well to be prepared for it. The question of color is, of course, a matter of taste, but due consideration should be given to the harmonious contrasts. Red with green, black with a warm brown or green, deep red with gray, green with buff, brown with a light pea green, are in my estimation some of the most pleasing effects.

The most important thing to consider in color is its permanency. Think for a moment of the effect of investing, say $10,000, in a building, and in one or two years the color has faded out or partially faded out. There is no remedy for this condition, and the effect can be imagined.

In order to secure permanency in color it should be selected from the natural pigments, and by natural pigments I mean such as are furnished us by mother earth, and not chemical compounds. In other words a color should be prepared especially for the concrete manufacturer and not for the painter. As an illustration of the goods the painter uses, I would say that the so-called English Venetian red sold in the paint store is made by burning copper so as to produce a red oxide of iron. Then about ten pounds of this is taken and ninety pounds of some of the lime products, such as gypsum or whiting, and this is added as a "filler." This product while all right for the painter who mixes it with linseed oil is not suitable for the manufacturer of concrete, for the reason that it will not only not stand the action of the cement, but the lime will cause efflorescence. This is especially true on faced brick where the lime is on the exposed side.

After making your selection of color, the next and most important thing to consider is the mixing. On this authorities differ. Most authorities advise mixing the cement with the color first. Personally, I do not agree with them, unless the sand is wet, in which case it is liable to lump. My reasons for my opinion are, first, that the full strength cement will act directly on the colors and sometimes change their nature, and again you can not rub out the small particle of color as well with a fine cement as you can with sand. My preference is to mix about equal proportions of sand and color, first, then rub out the small particles of color with a rubbing motion, not a stirring one. Whichever way you do I want to emphasize this, mix it thoroughly, otherwise you will not only not develop the full strength of the color, but you will have a nice imitation case of smallpox on your brick or blocks.

As to the effect of color on the strength of your concrete, or the hardening of it, if you will consider it as so much sand, that is a neutral

consistent, it will do no harm when used in any reasonable quantities, say not to exceed 5 per cent.

No specific formula can be given for producing a given shade, so much depends upon the quality of the cement, the grade of sand and even the analysis of the water, and above all the thoroughness with which it is mixed. The only way to secure the desired shade is to obtain your colors and experiment with them.

The pigments should be finely ground. While a coarse pigment does not injure the concrete it is obvious that you do not want to pay for sand. You can get this product cheaper at home. To test it, rub the color with a palette knife on a piece of glass or even between your thumb and finger; if it is gritty you will know you are buying some sand in place of color

A word as to the cost. While this question can not be determined accurately, one authority has figured it out as follows: The figures are given per thousand brick: Gray or drab, 75 cents to $1; buff, $2.25 to $2.40; red, 90 cents to $1.60; brown, $1.20 to $1.35; green, $25. This for coloring brick solid. If faced only, the cost would be only about one-tenth of this amount, so you will see that a little beauty added to the building is not very expensive. In buying your color it should not be figured on the basis of the price per pound, but on the cost per thousand brick or cubic feet on blocks. A color costing ten or fifteen cents a pound is sometimes cheaper than one costing one-tenth of this amount. For estimating the cost of coloring blocks reduce the dimensions of brick to cubic inches and figure on that basis.

* * *

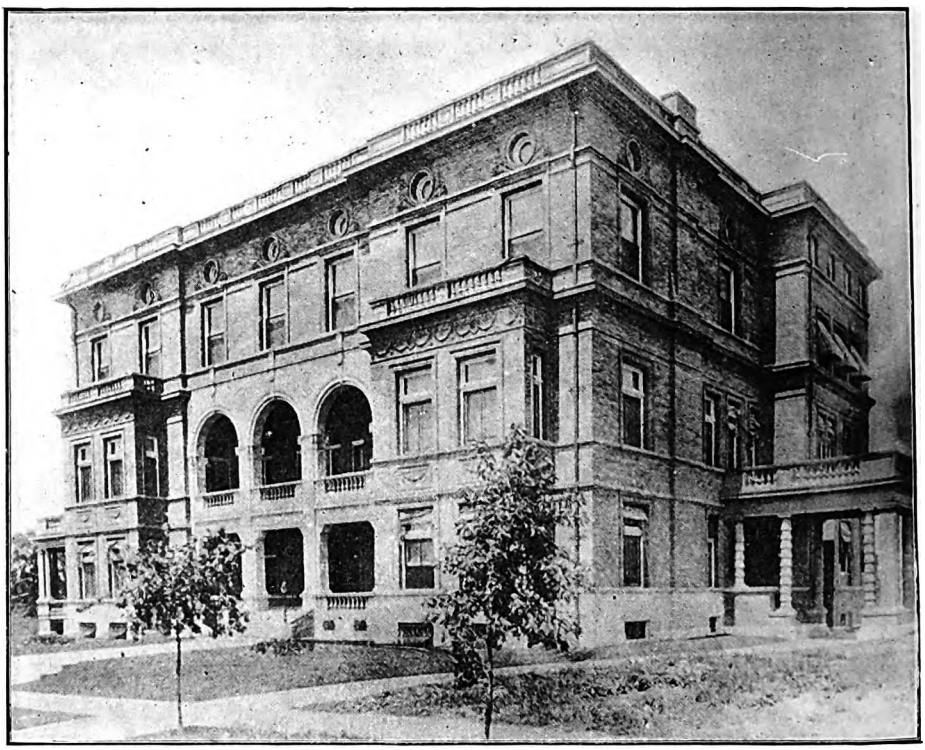
## Heating by Hot Water

HOT water systems for heating have their earnest advocates in large numbers. Theory and experience have brought into existence many inventions and improvements which, by their practical application, have advanced this method of heating to a high state of perfection. The distinctive advantages claimed for hot water heating are its economy of fuel and the more satisfactory degrees of temperature attainable.

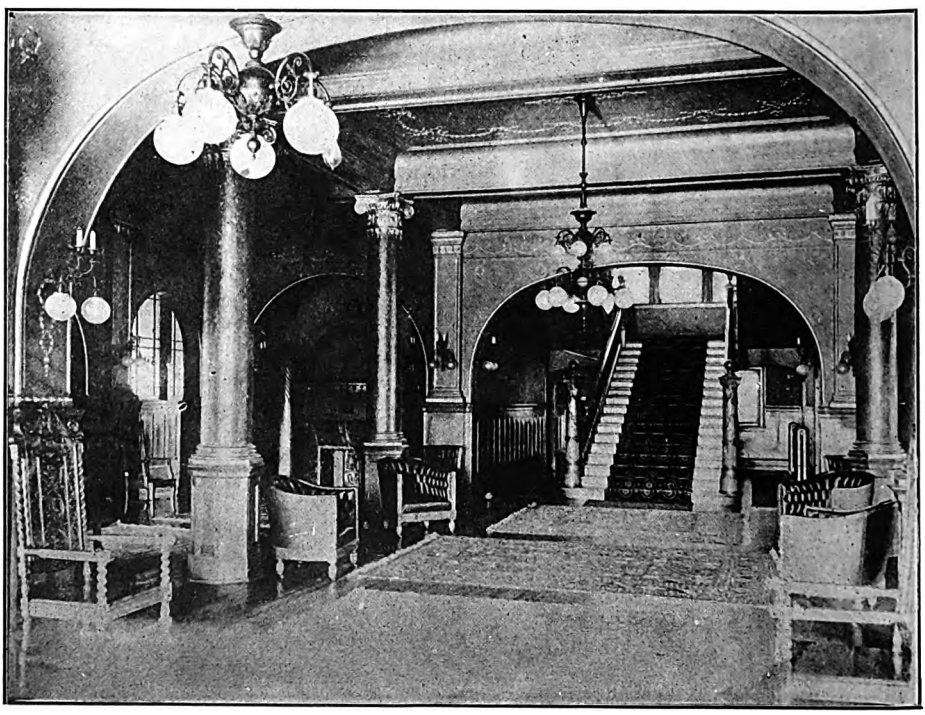
In a general way the hot water system is a duplicate of the steam heating plant, with such variations as are made necessary by the slower movement and greater weight of the water. The hot water system is more expensive to install, requiring larger pipes and more of them, and a far greater area of radiating surface. It is also less responsive than the other systems, requiring a considerably longer time to warm the house, but once in action it maintains a steady heat at a fixed temperature so long as it has reasonable attention. It is probably the least exacting in its demands for attention of all systems, and therein is one of the dangers. We are sometimes apt to expect too much. A radiator in a remote part of the house may be turned off inadvertently and allowed to freeze, bursting a section, a flood following. An air valve may become slightly disarranged and flood an upper room with water. No system is without its defects or its exactions in the matter of attention.

* * *

"Our Henry's doin' real well in town," said Mrs. Wayback, proudly. "He's runnin' a hotel now an' it's a big one." "Land sakes!" exclaimed Mrs. Korntop. "Yes. Got a letter from him this mornin', an' he sez: 'I'm a hotel-runner now, an' it's a real swell place.'"—Philadelphia Press



*Columbia Club Building, St. Louis A. F. Rosenheim, Architect.*



*Main Lobby, Columbia Club, St. Louis A. F. Rosenheim, Architect*

# Practical Interior Decorations

THE main object in furnishing and decorating an apartment is to produce perfect repose; and such repose is produced by the mutual harmony of the proper combinations of shades and colors in whatever a room contains. Some very popular treatments, from which results both pleasing and decorative can be obtained, are wall-papers with crown frieze, dyed and painted burlaps, tapestries and silks, also frescoed and tinted effects. The style and situation of a room often make it difficult to get the desired result without going to a seemingly unnecessary expense and labor.

Strictly speaking, there are no laws for interior decoration, with the exception of the law of good taste, which must indeed be intuitive to be felt and appreciated. A true feeling for the artistic is a gift of faculty not possessed by all; yet it is possible to give many useful hints and suggestions to the average man or woman, for guidance and direction in the matter of selecting decorations, that the home may be rendered pleasing and artistic in appearance and arrangement.

The proper way to decorate a room is first to consider well the size, shape, and relative location, then the greater or less degree of light in a room, then color and design. The color should not be chosen arbitrarily, but for a definite and obvious reason.

The purpose and character of an apartment will often determine what are the most desirable colorings; but the degree of light and the dimensions of a room are perhaps the chief factors in solving the problem of its most appropriate color. In rooms facing the north, the light varies from whitish to bluish in color, and requires the decoration to be luminous tints, ranging from an orange yellow to a warm red. On the other hand, rooms with a southern exposure should be decorated in tints varying from greenish yellow to blue, because the south light has both yellow and purple in it. In apartments facing the east or west the best effects are produced when yellow tones are used, as the light from these cardinal points has both yellow and purple in it.

The hall is what we usually come to first in entering a dwelling, and should be decorated in strong colors. In some cases dark colors are preferable, while the rooms leading from the hall may vary from the strong to the lighter tones. Reds, dull yellows, browns and tans are suitable for hall decorations, while libraries should partake of the same colors, with the addition of olive greens and deep blues.

In dining-rooms, warm, soft reds, bright greens and browns are very desirable, if we are using wall-paper as a decoration. Tapestry effects are very pleasing, and scenic or perspective tapestries are very suitable for these rooms.

Drawing-rooms are best decorated in bright shades, yellow, ivory, rose and greens being suitable, while reception-rooms may be similar, with a rather deep tendency.

Bedrooms and dressing-rooms should be in light, soft shades of various tints, in floral and stripe designs. These rooms should be decorated so as to have an airy and cheerful appearance.

In rooms in which the walls are going to be used as a background for pictures, I should consider a plain red or green effect the most desirable. Of course, I would take into consideration the style of the pictures. If the majority of the paintings were in oil colors, with gold frames, red would

make the best background. The subjects of the pictures, also, should be taken into account, and the background chosen accordingly.

Passing on now to the woodwork of the house, drawing-rooms and bedrooms are most appropriate in a flat, white finish, and in some instances a white enamel is preferable.

The woodwork of a hall looks best in walnut, or antique oak, in the dining-room and library, mahogany, red oak, or butternut, gives an appropriate finish.—Exchange.

* * *

## Value of Automatic Sprinklers

SOME valuable information has lately been published which tends to show that the automatic sprinkler system as a means for fire prevention is of far greater value than is really supposed. It appears that for the twelve months ending October 31st the fire losses in the city of Boston for thirty fires in warehouses and manufacturing establishments equipped with automatic sprinklers aggregated only a little over $5700, or an average of about $190 per fire. Not one of the buildings or the property was valued at less than $50,000, and in fact the insurance on building and contents amounted to hundreds of thousands of dollars in a number of instances. It will be acknowledged, of course, that the type of the construction of the building has much to do with these highly satisfactory results, and their specialization in relatively large size risks under competent and single handed management, but that the sprinkler system was a leading factor in the low ratio of losses is indicated in still other information in the report of the business of the so-called mill mutual insurance companies. For ten years, with risks amounting to over $1,700,000,000, the fire losses of these companies have amounted to an average of 3.8 cents on every $100 of risk assumed since November, 1896. Contrasted with this figure are the records of stock insurance companies reporting to Albany, New York. During the year 1905 these companies wrote insurance to the amount of nearly $25,600,000,000. If their losses had been in the same proportion as those of the mutual companies the total would have been a little over $10,000,000 instead of an amount actually nearly ten times as great. The managers of stock companies state that their ratio of loss has varied in the past ten years from 39 to 52 cents, with an average of about 45 cents, while the average with the mill mutuals is less than one-tenth of this. This astonishing ratio exists notwithstanding the fact that the mill mutuals make a specialty of hazardous risks, such as cotton and woolen factories and knitting and pulp mills; and while, as stated, the relatively good results they have achieved is due in a measure to the fire resisting character of the buildings insured, it is also due to the installation of automatic sprinkler systems. A feature in this connection is, however, that the mill companies make it a point to inspect their risks periodically, with the result that they are assured that the fire protection systems are always in the proper condition for operation, and it is understood that so extensive is their system of inspection that the cost of it is greater than the amounts involved in their fire losses. The point to be drawn, says Carpentry and Building, is doubtless that automatic sprinklers are good, but supervision is as essential as installation.

# Expert Supervision of Building with Reinforced Concrete Necessary

ALFRED O. CROZIER, of Little Falls, N. Y., writes to explain the reason for occasional failures of concrete and reinforced concrete buildings during construction and the method of preventing the failures. So few failures occur after the building is entirely completed, centers removed, concrete fully set and load put on that the number is negligible and gives additional strength to the position which Mr. Crozier takes:

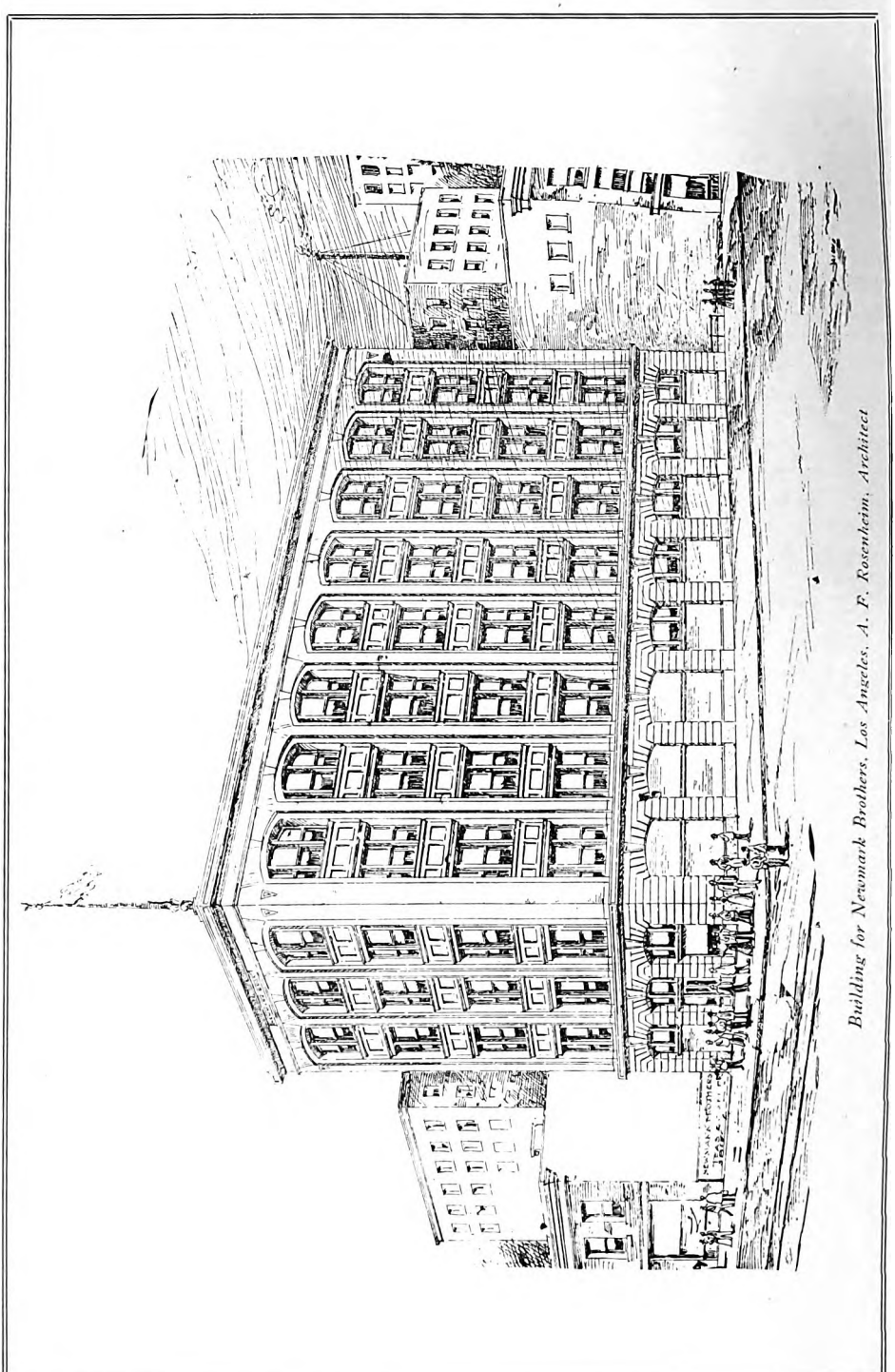
"The trend of public favor toward concrete is shown by the increase of the Portland cement production of the United States from 200,000 barrels in 1880 to 35,000,000 in 1905 and about 45,000,000 in 1906. Its superior fireproof character, greater durability and less cost and the advance in the price of lumber and skilled labor are factors which will cause the demand for concrete to continue its enormous growth. But the interest of the public and of concrete itself demands plain discussion of failures that their recurrence may be avoided.

"Most of the various 'systems' use individual steel bars or pieces—plain, twisted, corrugated or sheared—imbedded in the concrete for its reinforcement. If through false economy or ignorance insufficient steel for the load is used, or if the steel is put in faultily so as to leave one weak spot, failure is certain. This makes necessary the presence constantly of careful and thorough expert. It is impossible to find enough experts to man the multitude of big and little concrete structures now building. Consequently foolish economy puts much work in the care of novices, and with inefficient or careless inspection by public officials it sometimes results in accident.

"Concrete construction must be reduced to the same mathematical basis as steel and brick construction, with concrete-steel engineers or architects to prepare plans and specifications which any builder can read and follow without deviation, and thus obtain the infallible results in every detail desired and figured out in advance by the trained expert. The reinforcing members cannot safely be left to be laid in separate pieces in a haphazard manner by unsupervised and unskilled hands. These steel bars and rods should be fabricated together into structural units as in steel and brick construction, with sizes according to the load carefully figured out, so that with the least possible amount of metal a sufficient and uniform strength will be insured at every point throughout the entire structure. The engineer or architect doing this must have his draftsmen prepare one set of blue prints to guide the shop which fabricates the steel pieces into the designed reinforcing members, and another set for the builder, showing these various members suitably numbered, so they can be quickly set in their precise positions with relation to one another in the building, ready to be imbedded in the concrete, without the constant supervision of a trained expert. When the building is completed the steel therein is all tied together and each piece related to the others as scientifically as in a steel and brick structure and thirty stories can be built as easily and safely as one story. It will be superior, because the steel reinforces the concrete and the concrete reinforces the steel and protects it absolutely against the ravages of time.

"The only other method of concrete construction which seems suited to insure absolute safety and certainty is to form the ordinary wet concrete into bricks and blocks of desired sizes and shapes, with heavy automatic machinery, and when set or hardened and thoroughly tested, lay them up in the usual way.

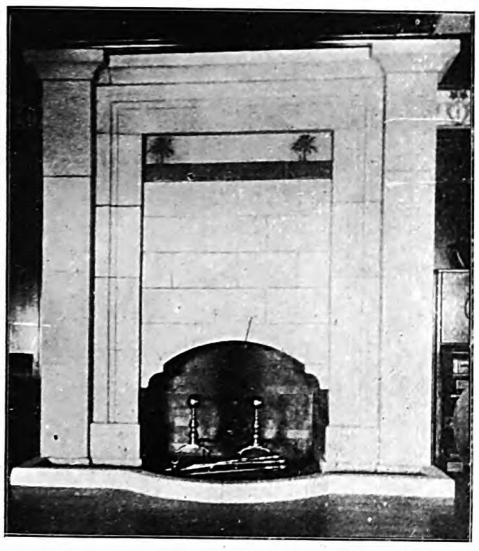
"This does away with expensive forms and delays incident to hardening of the walls and insures a more beautiful, uniform and impervious structure at much less cost.



*Building for Newmark Brothers, Los Angeles, A. F. Rosenheim, Architect*

# The Fireplace a Neglected Part of the House*

By CARL ENOS NASH



*Hall*

LITTLE do we realize the unconscious influence of our surroundings. Harmony in the furnishings of the house promotes refinement and culture.

Perhaps the most important and most neglected part of the house is the fireplace. It is said that the best dressed men are those who attract the least attention. So it is with the fireplace. It should be so designed that it becomes part of the room—not strikingly conspicuous in its beauty nor glaring in its ugliness.

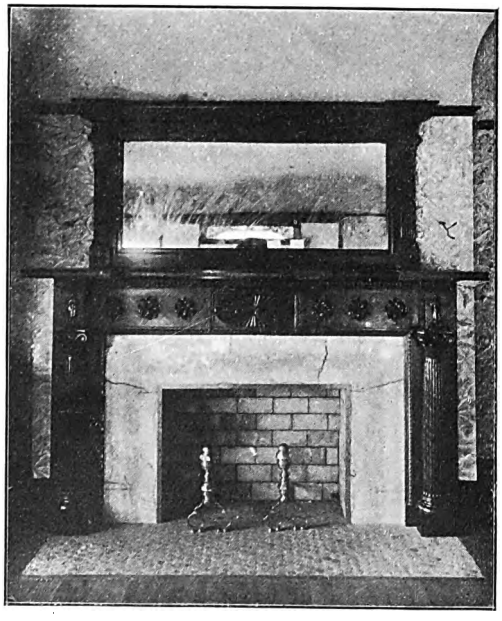
As we sit meditating, watching the leaping flames and listening to the crackle of the fire, what can be more conducive to perfect contentment than a well designed fireplace?

As we lounge before the fire in drowsy comfort what can be more suggestive of nightmare than a poorly designed fireplace.

The design of the fireplace depends upon the character of the room. It is impossible in this short paper to go into elaborate description of the various styles, therefore we can only make a few suggestions.

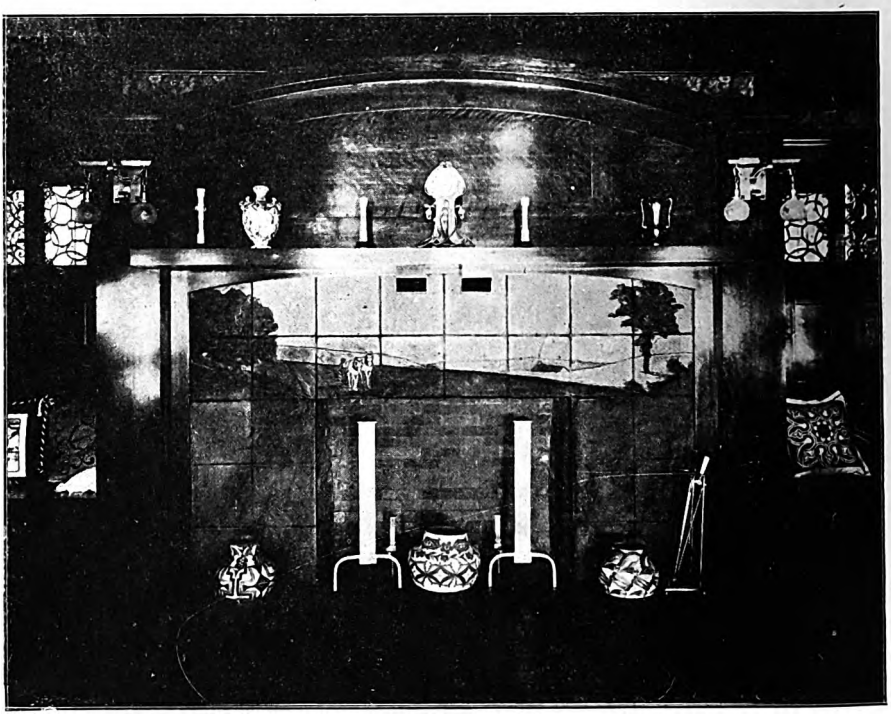
Let us first consider the hall as the first impressions are gained there. The hall as we consider it in our day is simply an entering place, not a place to tarry long. Therefore, the treatment may be rather heavy, stiff and conventional. Here large dull tiles, stone or brick can be used in the fireplace with good effect. The accompanying illustration is a large sand stone mantel, brownish gray in color and rather classical in line. The desert scene at the top is Grueby tile in soft browns and greens and pale blues. The hearth is in dull green tile.

The reception room or parlor should be dainty, and light; more formal than the living room but



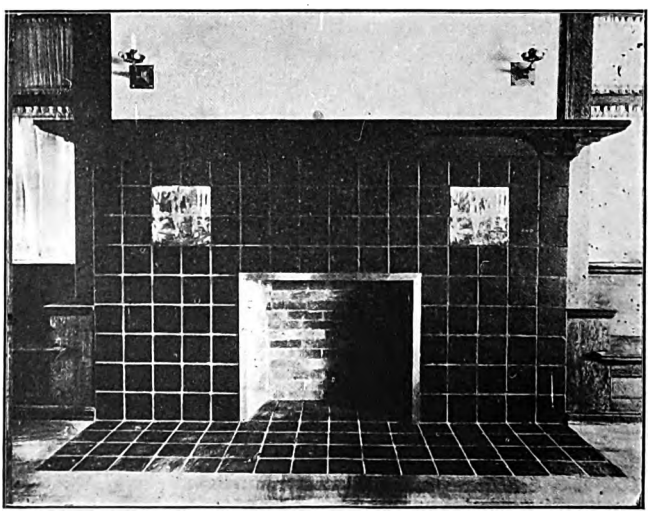
*Parlor*

*The illustrations for this paper were all designed by the writer.

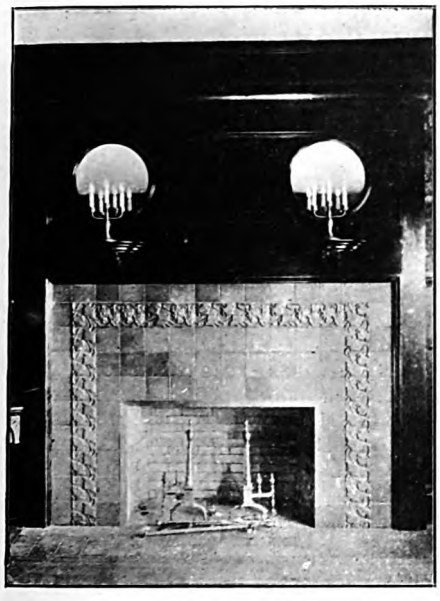


*Living Room*

none the less inviting. A heavy effect in the mantel is decidedly out of place here. Brick and stone should be avoided. The mantel in the illustration has a facing of Mexican onyx, soft in color and beautifully marked. The carving is cut by hand from the solid and is skillfully executed. The mirror over the mantel enhances the light effect and



*Library*



*Dining Room*

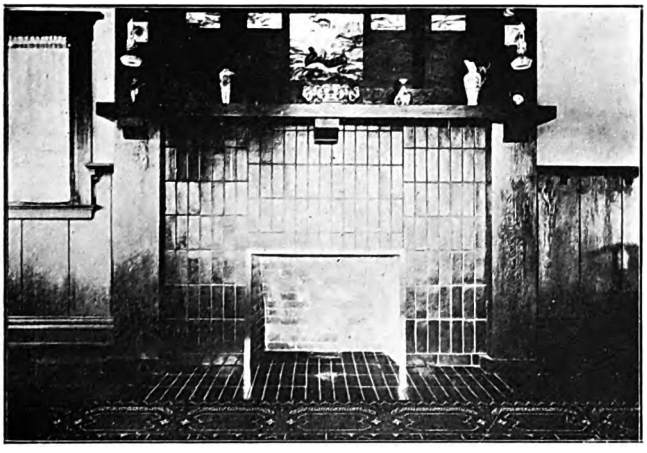
forms an excellent background for bric-a-brac.

The living room as the name implies, is where we live, and should be quiet and restful in treatment. The fireplace should be large and spacious. The mantel in the illustration has a facing of large twelve-inch tiles. The picture is a peaceful farming scene in restful colors. The body of the facing is in soft Grueby green. The hills in the foreground sparkle with sunshine while the hills in the background take on the blues and purples of distance.

These tiles were executed by the Grueby Faience Co. of Boston from the designs of the writer.

The living room treatment applies to the library—quiet and restful. The ornamental tiles in the library illustration suggest the jungle and add a pleasing touch of color to the otherwise plain facing. The tiles are mitered at the corners and return to the wall about six inches.

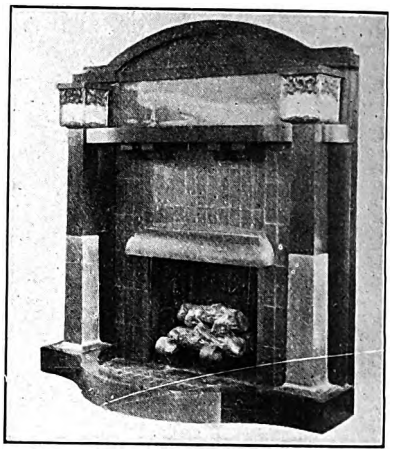
The dining room assumes more the aspect of the hall, but should be less stiff and conventional. The mantel should not be as heavy in treatment as the hall. The illustration shows a facing of plain green Rookwood tiles and an ornamental border of grapes and vines in three colors, modeled well in relief.



*Billiard Room*

The billiard room and den should be less formal than any of the other rooms. The panels above the mantel here shown are in glass mosaic, rather striking in color but toning in nicely with the green of the woodwork.

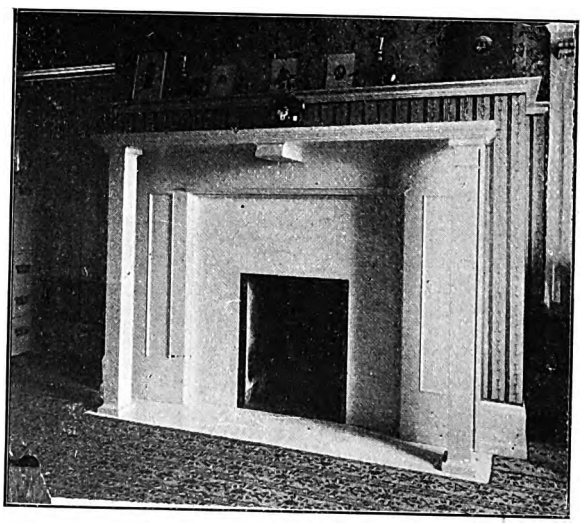
The den mantel illustrated is in mahogany, natural color. The base of the posts, the hood, and the hearth rail are beaten copper, natural color. The peafowl in the upper panel is executed in tile. On either side of this panel at the top of the posts are electric lights.



*Den*

The bedroom is quite as important as any room in the house. There is more expression of individuality here than in any other room. It should be bright and cheerful in winter and cool-looking in summer. The illustration shows an attractive bedroom mantel, very simple in line but pleasing.

We have approached the subject of fireplaces only in a general way, but these suggestions may be applied to the various styles and periods.



*Bedroom*

## Hollow Tile Has Stood the Test

Hollow tile was first used in this country in the Vancorlear flats, New York City, erected about thirty years ago, says an exchange. It was the first tile of that style made in the United States. The experiment was successful, and in 1877 there were 100,000 tons of hollow tile fireproofing material sold in the United States. Today, the output exceeds 2,500,000 tons a year, a plant at Perth Amboy alone having a capacity of 20,000 tons a month.

# Among the Architects

**American Institute of Architects**
(ORGANIZED 1857)

**OFFICERS FOR 1907:**

PRESIDENT.....*FRANK M. DAY Philadelphia. Pa.
FIRST VICE-PRESIDENT.....*WILLIAM B. MUNDIE Chicago. Ill.
SECOND VICE-PRESIDENT.....R. CLIPSTON STURGIS New York.
SECRETARY AND TREASURER..*GLENN BROWN Washington. D. C.
AUDITOR FOR TWO YEARS.....ROBERT STEAD Washington. D. C.

**Board of Directors for 1907**

For Three Years—Walter Cook, New York; Edgar V. Leeler, Philadelphia; J. L. Mauran, St. Louis, Mo.

For Two Years—Alfred Stone, Providence, R. I.; Irving K. Pond, Chicago, Ill.; Ralph Adams Cram, Boston, Mass.; Merritt J. Reid, San Francisco, Cal.

For One Year—W. A. Boring, New York; J. M. Donaldson, Detroit; Frank Miles Day, Philadelphia.

*Executive Committee.

**Next Convention at Chicago, Illinois**

**San Francisco Chapter of American Institute of Architects**

PRESIDENT.....ALBERT PISSIS
VICE-PRESIDENT.....WILLIAM MOOSER
SECRETARY.....SYLVAIN SCHNAITTACHER
TRUSTEES.....HENRY A. SCHULZE, WILLIAM CURLETT

## First National Bank Building

The First National Bank has made application for a permit to erect a twelve-story reinforced concrete building at the northeast corner of Montgomery and Post streets, San Francisco, at a cost of $800,000.

There was at first some difficulty over the granting of the permit, as Chief Building Inspector Horgan, to whom the plans were referred, was governed by the ordinance which prohibited the erection of a building exceeding in height one and a half times the width of the streets it fronts upon.

At a recent meeting of the San Francisco Supervisors, however, it was voted to revoke the limitation and in the future there will be no restriction on the height of a building in the business section.

Other applications made the past month were by Annie M. Regan for a permit to erect a three-story brick building at the southeast corner of O'Farrell and Powell streets at a cost of $130,000; Sanford Sachs to put up a building to cost $117,500 in Geary street near Grant avenue, and M. Flood to expend $108,000 on a new building in the west side of Polk street near Ellis.

## $1,000,000 for Almshouse

Architect William H. Mooser has been appointed to draw plans for the new City and County Hospital to be erected in the Almshouse tract under the bond issue. Mooser has been given four months' time to complete the plans and he will receive 3½ per cent of the estimated cost of $1,000,000, or $35,000, for his work. City Architect Shea will receive 2 per cent, or $20,000, for supervising the plans.

The building committee of the San Francisco Supervisors has been instructed to ascertain how soon the plans for the new school houses will be finished.

## San Jose Church

There is a hitch in the plans for the new First Presbyterian church in San Jose. It was announced some weeks ago that J. Cather Newsome's plans had been accepted. This appears to have been an error, as the church people say no decision has been reached. A mission style edifice to cost about $12,000 is planned. Dr. C. K. Fleming of San Jose is a member of the building committee.

## Masonic Temple for Fresno

The Fresno Masons have decided to erect a temple, and competitive plans have been submitted by Architect H. F. Starbuck, of the Macdonough building, Oakland. The building will be patterned after the Santa Rosa temple, which was

designed by Mr. Starbuck. It will be of brick, three stories, and will cost about $45,000. The final plans have not yet been approved.

### Mills Building

The reconstruction of the Mills Building at the corner of Bush and Montgomery streets, San Francisco, has begun. This is a ten-story structure which it was at first supposed would have to be largely removed, but a careful examination discloses the fact that practically all of the steel frame can be used again and that a good portion of the brick walls are in good condition. The building will be fitted up as before as a modern office building.

### San Jose Labor Temple

Articles of incorporation of the Labor Temple Association have been filed in San Jose, giving legal form to the local movement to erect a large structure in this city to cost probably $100,000, which is the amount of the capital stock. The directors are E. J. White of Santa Clara and John Standley, R. L. Telfer, F. J. Hepp, H. S. Burlingame, D. W. Gish and John F. Mecklem, all of this city.

### Proposals Wanted

Treasury Department, office of the Supervising Architect Washington, D. C., March 4, 1907.—Sealed proposals will be received at this office until 3 o'clock p. m. on the 8th day of April, 1907, and then opened, for the extension, remodeling, etc., including plumbing, gas piping, hand elevator, heating apparatus, electric conduits and wiring of the U. S. Post Office and Court House at Denver, Colorado, in accordance with drawings and specifications, copies of which may be had at this office or at the office of the Custodian at Denver, Colorado, at the discretion of the Supervising Architect. James Knox Taylor, Supervising Architect.

### May Have New County Buildings

Architect W. R. Miller, of Oakland, has been employed by the Alameda County Supervisors to estimate the cost of erecting a new court house and other buildings. A report will be made to the Supervisors probably today. Mr. Miller expresses the opinion that Alameda County should at once follow the example of Los Angeles and erect entirely Courts should be erected on the east

"It appears to me that new public buildings should be erected here, and that the courthouse should be constructed on the site of the present Hall of Records. The old buildings should be torn down and new ones for the accommodation of the Supervisors, the Auditor and the Treasurer should be erected on the west side of Broadway. The Superior Courts should be erected on the east side of Broadway, and with them should be the offices of the County Clerk. The latter office is the only one in the present buildings that is in any way modern, but it should be constructed in connection with the Superior Courts. All the offices through which money is paid out or received should be constructed on one floor, and this I believe can be done by moving them to the west side of Broadway, as I have suggested."

### Redwood City Court House

Six plans have been submitted in competition for the new court house at Redwood City by the following architects: Martens & Coffey, Glenn Allen, McDonald & Dean, Diamond W. Mohr, Will D. Shea, all of San Francisco, and Preston Seehorn of Los Angeles. No selection has been made as yet.

### An Armored Building

One of the strongest structures now being built in San Francisco is the Viavi building on the north line of Pine street, extending easterly from Stockton street. Dr. Hartland Law and his brother, Herbert E. Law, are the owners. The building will be of the Spanish style of architecture, both within and without. It is of reinforced concrete throughout, and, in order to make it extra strong, there is fully double the quantity of steel rods in the walls, columns and girders which is ordinarily used in Class A buildings, in fact, the net work of steel is so extensive that it is in reality an armored building. The slope of Pine street is such that at the easterly end the building will be three stories in height, the top of the third story being level with Stockton street. On this will be a one-story superstructure, with arched windows on all four sides and glass dome roof, its elevation and red tile cornices making it prominent above all the surrounding structures. For the purposes for which it will be utilized it is to be complete in every detail. The rear portions of this structure have been built into the solid rock of the hill, and there are two spacious fireproof vaults in the hillside, with front facing the interior of the building. The cost will be something over $125,000, and it will be completed early in the summer.

### New Transport Docks

The quartermaster general has appointed Howard C. Holmes consulting engineer to act with Captain B. Frank Cheatam, consulting quartermaster at San Francisco in the building of the new transport docks at Fort Mason.

Captain Cheatam and Holmes held their first meeting at the Presidio to discuss the plans which the Government has had prepared by a firm of architects in Philadelphia. The main feature of the new docks is to be a breakwater or seawall 100 feet in width, which will be run out directly north from the foot of Laguna street, near Beach street, and extend 700 feet into the bay. On this will be built a roadway and railroad track, and on the east side two piers will be built, running easterly, 100 feet in width, and separated by an interval of 200 feet. This will provide absolutely safe dock room for three transports, and a fourth may be docked on the north side of the outer pier when occasion requires.

The construction throughout will be of the most durable character. The breakwater will be of stone and the superstructure of the piers will be of indestructible material—steel and reinforced concrete. They will rest either on steel piling or on concrete cylinders, such as have been used here with much success.

A force of draughtsmen is at work at the Presidio on the plans, but it is stated that there is much preliminary work yet to be done before actual construction work will be begun, as the plans drawn in Philadelphia are of doubtful value.

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### Changes in Palace Hotel Plans

Several important changes in the plans for the new Palace Hotel have just been decided upon. The main entrance is to be thirty feet in width and it will be on Market street, where the old main entrance was located. Instead of the office being placed back toward the south end of the building, as formerly, it will be located close up against the New Montgomery-street entrance. The latter will have a carriage drive in form of a half-circle, as was the case before the fire. The office will take up part of the space formerly devoted to the barber shop, the rooms of the Transportation Club and the east end of the court.

The structure is to be nine stories in height and the new palm garden or court will be larger than the old one. Its glass roof will be placed at the second story, instead of at the top of the building, as was the case before the fire. This will have the effect of making all the rooms about the second story outside rooms, with plenty of light and air. Another innovation is the decision to have two large ball-rooms instead of one. The grill room and ladies' cafe are to be on a much larger scale than formerly. Stores or offices will take up most of the ground floor along Market and New Montgomery streets, as was formerly the case.

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### Spokane Building Notes

Spokane, Wash.—M. S. Bentley announces he will erect a three-story business building, 50x140 feet, at Third avenue and Post street, to cost $30,000. It will be of white pressed brick, fitted with modern appliances and electric elevator. It will be occupied by the Northwestern Business College.

J. P. O'Brien, vice-president and general manager of the Harriman lines in Washington and Oregon, announces that the Oregon Railroad & Navigation Company will begin work within 90 days on improvements on the Jenkins tract, north of the Spokane river, where the warehouse district will be established at an expenditure of $216,000. Six warehouses, each 100 by 160 feet, platforms, trackage, and switch lines will be built, the latter to connect with the main line. The warehouses will be built by contract and bids are to be invited within 30 days.

Improvements costing $30,000 will be made at the Kaiser Hotel, Main avenue, Charles J. Kapps announcing that an additional story and an annex 57 by 50 feet, will be built at once. The present structure is 50 by 85 feet, three stories high, and was built last fall at a cost of $28,000. The enlargement will give the hotel 150 rooms.

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### Concrete Freight Depot for Fresno

The Southern Pacific Railroad Company is planning extensive improvements at Fresno, Cal., at an estimate aggregate cost of $100,000. The freight yards are to be enlarged and it is said that a new freight depot will be erected of concrete.

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### Order Repairs to Schools

The Oakland Board of Education has approved a report of the schoolhouse committee which calls for $50,000 to be expended in repairs on the Washington, the Franklin and the Prescott schools, which were damaged in course of construction by the earthquake.

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**Architect and Engineer**
OF CALIFORNIA

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Vol. VIII. MARCH, 1907 No. 2



**HAVE YOUR WORK INSPECTED**

The necessity of inspection of materials and workmanship used in construction, cannot be too strongly urged at this time when so much building is being done, and such a vast amount of old material is lying about to be had almost for the asking. Hundreds of tons of old steel beams, columns, etc., most of which have been very materially weakened and some of them damaged beyond hope by the fire and the temblor, are now being hauled to various shops or storage-yards, and some of it cleaned of rust, straightened and painted, with a possible intention of turning them out again as new material. To one not familiar with this class of work, it is almost impossible to distinguish it, by the outward appearance, from first-class material, but if subjected to proper inspection and tests, by those skilled in this line of work it will be found wanting in most cases, fit only for the junk-pile in others, and should by no means be put back into a building where it may endanger the lives of a great many people and cause great loss. This kind of work is known to have been done at various times before the fire, on buildings, in and around San Francisco, and the inducements now are certainly greater than ever, with the hardships experienced, and uncertainty of getting new material.

A great many owners or concerns, about to build, when approached on the subject of inspection, simply reply: "See my architect, he has entire charge of the work." It is almost useless, in many cases, and a waste of time to see the architect, as many of them appear, in a way, prejudiced against inspection, and seem to think if their work is let to a so-called "reliable" concern, everything is sure to be all right. The percentage of architects, in these parts, who consider inspection, and see that their work is properly inspected, is very small, but they number among the best, and their

work is their strongest advertisement. Others do not have, as a general thing, any one to look out for poor material or workmanship at the place of manufacture, but simply oversee the work in a general way in the field, during erection, and many of them do not even do this.

The writer has in mind an instance which happened some time ago in one of San Francisco's well-known structural shops. In building some columns and girders for the steel frame of an office building, certain parts of the workmanship were very poorly executed. The inspector insisted on having the work done properly and referred to the specifications, whereupon the shop-owner replied: "Why, we never looked at the specifications; I don't think we have any, we always do our work the best way we know how, and think that should be good enough for anyone." This remark after 80 per cent of the work had been fabricated! The statement was later made in the office of the architect, who had previously furnished the specifications, and he can vouch for its accuracy.

Another instance might be mentioned where a modern steel frame sky-scraper was put up, and the erection superintended by a local firm of well-known architects. After the steel frame was up and finished, the owner came to the conclusion that it might be a good idea to have an inspection made of it. This was accordingly done, to somewhat of a disadvantage, as all the staging and scaffolding had previously been removed, but there were found to be about 1000 defective rivets, 85 per cent of which were loose, 500 open holes from which rivets had been omitted entirely, six girder to column connections, from each of which 70 per cent of the rivets had been omitted, several columns ½ inch out of plumb in 30 feet, 30 per cent of the columns in wind from ⅛ inch to ¾ inch filler plates omitted, broken connection angles, etc. To correct this work and put it in the best condition possible, under the circumstances required the services of six men three weeks, and held back the other trades just that long. I might add that the erector of this steel claims to be equipped with the most modern appliances and up-to-date methods of handling same, and tried to make it appear that the work was first-class in every respect. Throughout the older parts of the country, there is scarcely a structure of any size erected in which all materials used in the construction are not thoroughly tested and the workmanship inspected in every detail, and I firmly believe the same state of affairs will prevail here in the near future, when architects and engineers in general become more thoroughly acquainted with the errors made and poor workmanship turned out at times by the different shops, through the carelessness or neglect, as the case may be, of superintendents or incompetent workmen. Good workmanship by competent labor neither costs more nor requires more time. The only requisite is care in preparing in shop details and specifications and the employment of competent and honest inspection by the owner to see that he gets what he pays for—nothing less.

E. O. RITTER.

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**NEXT CONVENTION IN CHICAGO**

On the return of the delegates and members of the Illinois Chapter from Washington, steps were taken to secure the influence of the Western chapters for Chicago as the next meeting place for the A. I. A. A letter rehearsing the claims and advantages of that city was sent to these chapters with the request that they petition the Board of Directors of the Institute to select Chicago for the next convention. It is re-

garded as certain that the Windy City will be chosen.

The Chicago idea for the next convention is to depart radically from the rather luxurious program that has prevailed at the recent meetings in Washington, however enjoyable and advisable these may have been. Chicago has an established record as a generous host, and is in the position to advocate a return to simplicity when this seems most desirable, as at present. Many important reports and questions were continued from the last convention and these will have final action at the next meeting.

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**CHEAP PAINTS**

In an analysis of samples of paints made by the Experiment Station at Fargo, North Dakota, we learn that all packages of white leads and bogus leads tested fall short in net weight, most of them by 10 per cent or more. Several brands of ready-mixed paints appear to be not only honestly made of good goods but of full weight and measure. In great contrast to these are numerous points put out by catalogue or mail-order houses. One big Chicago house puts out a paint the liquid part of which contains as high as 24 per cent of water and is 15 per cent short in volume, while another big Chicago house is a close competitor for the swindling badge. Perhaps this will be carried off by a St. Louis house, which makes paints "especially for the job to be painted," comments the Western Architect.

A can of this tailor-made paint, size 3.37 quarts, contained 2.42 quarts of materials—and such materials! Of the liquid part 11.8 per cent was water, the balance mostly a very poor quality of linseed oil. No white lead appeared in the colored part, the ingredients of which are mainly selected for their cheapness. This bulletin is a good one for architects to have on file.

**WOULD TEAR DOWN THE PROFESSION**

There are legitimate fields for engineer-construction companies and architect-contractors but the planning and erection of buildings independently of professional service solely in the interest of the owner, is not one of them.

It would be to the public interest if all high-class construction work were handled by such combinations or companies, but, as constructing contractors, merely, the influence would be toward cleaner contract business and better construction. The practice would conduce to elevate the engineering and architectural professions having to plan and supervise such work in client's interests.

Professionally-competent contractors, whether individuals or companies, very properly submit plans prepared by their engineers or architects, by which they would propose to carry out works, or erect buildings or engineering constructions, under contract, for owners who have professional men separately engaged to advise them and otherwise safeguard their interests. But when such companies or amalgamated people represent to owners or allow owners to conclude that it is a useless expense to employ an architect or engineer, seeing that they stand ready to furnish plans as well as to build for them, their first move is to tear down the profession which is the very corner-stone of their alleged extra worth over the ordinary contractor, whom they, at the same time, belittle. Thus, on the one hand, they place themselves, professionally, in the shoes of fakirs, and, on the other hand, they minimize the value of the practical side of their being.

It is much to be regretted that some good and worthy engineers and architects seem to be blinded to the inevitably disastrous outcome of this course. Their fellows who are

still loyal to their professions in the interest of owners and the public should reason with them, and property owners and the public should, in their own interests, help to the end in view, the saving of technical employments from the grasp of mere commercialism.

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**MORE FIRE-PREVENTION NEEDED**

An impetus to self-protection against fire is the significance of the past year—so says a writer in the last issue of Fireproof Magazine. Insurance companies have had to realize that their capacity for providing indemnity was taxed to the breaking point and fire departments have been compelled to admit their inability to protect life and property, once a fire reaches a certain stage. With these two agencies no longer capable of assuring the property owner the security he needs, he is forced to, whether he wants to or not, fall back on his own resources. He must protect himself. In constructing new buildings he must make them virtually undamageable by fire, he must build of steel protected with brick and hollow tile; he must have wire glass in his windows; he must close off his elevator and stair wells so as to make substantially separate buildings of each story and he must use the maximum of incombustible materials in the fitting and furnishing of his building.

But that only applies to new buildings. For instance, there are in New York but 2000 structures that can be classed as incombustible and about 293,000 others, that are more or less fire-traps, with which to deal. That is the problem that confronts us. To safe-guard those buildings to at least a moderate degree is an engineering problem that taxes the ingenuity and skill of our greatest fire-prevention experts. The International Building Inspectors' Society has issued much data upon the subject and is at present at work upon the State Legislatures with a bill to compel people to minimize the fire danger in old buildings. The Society's contention is that no man is justified in maintaining any construction that endangers the safety of his neighbors' property and that it is the State's duty to make him eliminate that danger to as great a degree as possible and the Society's experts have formulated a scheme for the re-vamping of old buildings that means the maximum of protection at the minimum of cost to each individual. As things are now our fire waste is costing us in the neighborhood of $2 per capita per year. In Europe the cost of fire averages but about 30 cents per capita. Incidentally, the entire cost of operating some of our municipalities only reaches six or seven dollars per capita, from which figure it may be seen what a grinding tax fire has become.

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**Southern California Chapter, A. I. A.**

The regular monthly meeting of Southern California Chapter A. I. A. was held at Levy's March 12th.

A committee was appointed to investigate and report on the advisability of incorporation, in order that the Chapter may handle its real estate and undertake to improve it with a building.

The Architectural Club received the endorsement of the Chapter for their proposed exhibition of competitive designs which will be exhibited in this city during May. It is expected that some of the work shown at the big exhibition to be held at Chicago in April will be forwarded to this city to help along the local exhibit. Leading members of the profession in San Diego, Santa Barbara and other points in Southern California will participate.

The presiding officer at the meeting was Architect Alfred F. Rosenheim, and Architect Fernand Parmentier was present as secretary. Other members at the table were Architects R. B. Young, George H. Wyman, Julius W. Krause, Thomas E. Preston, Octavius Morgan, John P. Krempel, Frank D. Hudson, Timothy Walsh, Elmer Grey, Theodore Eisen, Percy Eisen, J. N. Preston and G. A. Howard, Jr.

# The Publisher's Corner

### Suction Sweeping Plants in Demand

The suction sweeping plants being installed by the Sanitary Devices Manufacturing Company in nearly all the new office buildings, hotels and apartment houses on the Pacific Coast, are giving perfect satisfaction.

Their machinery is so constructed that it produces the greatest vacuum with the least power, and this means that every particle of not only dust, but heavy dirt, is removed instantly from the surface cleaned to the dust tanks in the basement.

Plants have been installed in the new Post Office, United States Mint, Chronicle building and Hale Bros.' store, and they have contracts to install plants in the Monadnock building, Fairmont Hotel, St. Francis Hotel, Grand Hotel, Stewart Hotel and Palace Hotel, the Grant, Crocker, Shreve, Humboldt Bank, Union Trust, and numerous other office buildings.

The company's works at Sixteenth street and San Bruno avenue are a scene of busy activity, about fifty hands being employed.

Plants have recently been shipped from here to the Philadelphia Mint, Mormon Temple, Salt Lake, Carson, Pirie, Scott & Co., Mandell Bros. and the Fair, Chicago. They are also in daily use in all the principal cities.

This company has just sold a Thirty Sweeper Vacuum Cleaning Plant to Marshall Field & Co., of Chicago.

### Hardware for Big Building

All the hardware for the equipment of the new Tribune building in New York City has been furnished by the Russell & Erwin Manufacturing Company, whose main office in New York is at No. 26 West 26th street, and whose Pacific Coast office is in the Monadnock building, San Francisco. The firm has a large factory at New Britain, Conn., where the finest designs in locks, hinges, letter slots and other equipment for an up-to-date office building are made by skilled workmen.

The equipment of hardware used in the Tribune building is of bronze, of designs approved by the architects. The work is of the most substantial character, and suited for such a modern office building as the Tribune building.

The reputation of the Russell & Erwin Manufacturing Company in its line of production is such that it secures contracts for supplying the hardware for many of the leading structures under way in this and other cities. Among the contracts the firm is now filling, besides that for the Tribune building, are those for fitting up with hardware the new Plaza Hotel, at Fifth avenue and 59th street; the new building for the Trust Company of America, in Wall street; the spacious United States Express Company's building, in Church street, overlooking Trinity churchyard; the new Bourne building, and a great number of new office buildings, hotels, and the finest private residences in all parts of the United States.

The fact that the company guarantees all the material used in its hardware to be of the best assures the character of the work, and makes certain increasing satisfaction with it as years go on. The fine character of its work done by the Russell & Erwin Company is shown in the equipment of the Tribune building, to which especial attention has been given, and the results speak for themselves.

### A Good Floor Polish

While a hardwood floor is the thing to be desired, it is a thing that requires more attention than it usually receives to bring out its beauties and render its peculiar advantages striking and lasting. For this kind of a floor a polish is indispensable, and Butcher's Boston Polish, manufactured by the Butcher Polish Co., 356 Atlantic avenue, Boston, Mass., meets every requirement. The company makes three lines of goods: Butcher's Boston polish or wax finish, No. 3 reviver and liquid polish. They also manufacture a line of weighted brushes for applying the polish. This polish has

stood the test of years—the real crucible in which to try things—and is in no sense an experiment. Those wanting perfect floors that can be kept clean with little exertion and prove ornamental as well as useful will do well to investigate this polish. Illustrated booklet upon application.

### Praise for Solar Heater

The following letter is self-explanatory: Solar Heater Company, 342 New High Street, Los Angeles, Cal. Dear Sirs: I take great pleasure in saying that after a thorough trial extending over a year and a half. our solar heater continues to give just as much satisfaction as when first installed. I am ready to admit that we were unreasonably prejudiced against the heater, and feel that by refusing to let you install one in my house for so long a time after you first approached me upon the subject, we lost a great deal of comfort and convenience. It looks to me that all your company needs is a little judicious advertising to increase your business beyond your greatest expectations. Of this we are sure, that every person having a heater will in a way become an advertising agent for your company, for so great will be his satisfaction that he cannot help talking about it.

Kindly accept best wishes for your future prosperity, and permit me to remain, Yours very truly, (Signed) J. J. Backus, Sup't of Buildings.

### Roberts Bros. Get Contract

The Roberts Bros. Company, with offices in the Central Bank building, Oakland, have been given the contract for erecting the new telephone building for the Pacific States Telephone Company on Forty-fifth street, Oakland. The plans were by C. W. Dickey, architect in the Macdonough building. Oakland. The contract price is $43,459. This is one of several large contracts recently secured by the Roberts Company.

### The S. T. Johnson Company

The S. T. Johnson Company, contracting engineers' and manufacturers of air, steam, gas and retort oil burners, has just completed and shipped two fine oil burning plants for the Nevada Railroad Company. Mr. Johnson has also installed oil burners in the Hotel Savoy, Bennett's Restaurant, the California Cafe and a number of other places. The Company manufactures its burners at its plant at 1334 Mission street, San Francisco, which is also the office and sample rooms address. The Johnson systems are coming to be recognized as unexcelled for neatness, durability and economy.

## GOOD BRICK FOR GOOD ROADS


*Charles H. Frost*

IN CONNECTION with the good roads movement now being waged throughout the State of California the Los Angeles Pressed Brick Company is coming into prominence as the manufacturer of a superior paving brick which is said to make a road unexcelled for automobile, carriage and general traffic. Only a few days ago the company received an order for 100,000 paving brick from the Sacramento Electric, Gas and Railroad Company. The same type of brick is being used extensively by the Los Angeles Railway Company and other electric railway corporations which find them superior in many ways to the common paving stone.

Charles H. Frost, the popular president of the Los Angeles Pressed Brick Company, has long been a good roads enthusiast, and because of his prominence in the movement the Los Angeles News recently printed a cartoon of Mr. Frost which is reproduced herewith for the enjoyment of his Architect and Engineer friends. In addition to being president of the Brick Company Mr. Frost is vice-president of the American Olive Company, a member of the Jonathan Club and an Al Malaikah Shriner.

### Specifications for Sidewalk Lights

John McGuigan & Co., sidewalk, light and fire-proofing contractors, write, giving a few timely suggestions regarding the specialty of sidewalk lights. They

advocate the use of solid cast iron for the construction part of the work and call attention to the fact that many architects now specify only cast iron with 2½ inch round lights: The following specifications are offered.

The sidewalk lights will cover spaces as outlined on plans.

The frames or bottoms to be of cast iron.

Frames to be properly set on the steel beams or arches placed for that purpose by other contractors.

All metal work to be painted on the exposed surfaces with two coats white lead and oil.



*Louis XVI Chair, from Palace at Versailles*

Lenses to be 2½ inch circular-plain.

The concrete filling between the lights to be done in the most approved manner with the best materials.

All the work to be pointed up at completion and guaranteed water-tight for one year.

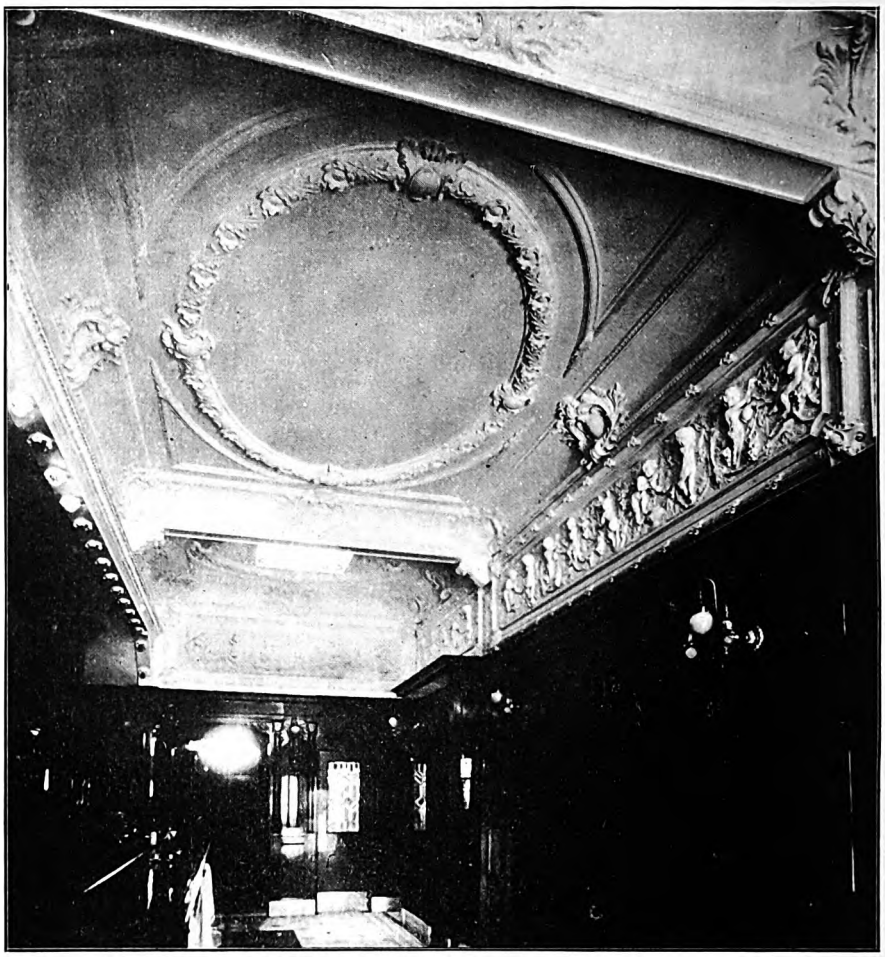
If extra heavy plain lights are required, then insert. Lenses to be 2½ inch circular by 1¼ inch thick.

If part refracting lights are required then insert. Lenses to be 2½ inch circular, one-half plain and one-half pendant, prismatic, refracting, placed so as to obtain the best results.

If all refracting lights are desired then insert. Lenses to be 2½ inch circular, pendant, prismatic, refracting, placed so as to obtain the best results.

# An Index to the Advertisements

## New Advertisers Not Noted Here Will Be Classified Next Month



*Interior of Ferry Cafe. San Francisco. Ornamental Plastering and Stucco Work by D. Ross Clark*

### Interlocking Stone Company

The Interlocking Stone Company, office No. 563-9 First street near Clay, Oakland, is making great progress and pushing ahead rapidly. They have just completed their Universal Mixing and Grinding Machine, the principles of which are on entirely different lines from any other concrete mixer on the market, being the only concrete mixing machine that gives a thorough and uniform mix. It can also be used for mixing other ingredients, and for grinding mortar, spices, paint, etc. Mr. Peterson, the manager of the company, is getting the designs ready for a block and pressing machine and when completed will give this company the greatest labor-saving machines for making concrete stone for building purposes to be found in the country.

The company is erecting a large machine shop in the rear of their office, for the purpose of manufacturing all necessary machinery for the production of reinforced interlocking concrete construction. In an interview Mr. Peterson said:

"We challenge all competitors to truthfully contradict the assertion, that we have the best, cheapest and quickest investment proposition owing to the fact that we produce the strongest and most durable stone reinforced and interlocked; also sole owners of the most modern labor-saving machinery for its production.

"If you wish to solve your own financial problem, make an investment in the Interlocking Stone Co., for it will give you the key to the solution of all your difficult financial affairs. Small amount of stock will be offered for sale to the public for a short time only. This will be a quick dividend payer. Come and inspect the greatest labor-saving machinery in the concrete building inndustry."

### Hardwood Floors for Fairmont

The Hardwood Interior Company, Percy Meyer and H. S. Meyer, managers, has secured the contract to lay and finish the maple and oak floors for the Fairmont Hotel. About 20,000 square feet including the ball room, dining room, ladies' and gentlemen's retiring room and other rooms, will be required. The contract is one of the largest of the kind let since the fire.

### Electroliers are Popular

Oakland is well satisfied with its experiment of lighting the streets with Electroliers, similar to those which have been in use for some time in Los Angeles. Berkeley and San Jose are both planning to follow in the foot steps of their two sister cities. The Oakland lights were installed by H. A. Smith of 651 Mariposa avenue, Oakland. The old arc system of street lighting is now considered antiquated, as the even distribution of Electroliers is considered far more practical; and at the same time more artistic, yet no more expensive. The first lights to be installed were on Washington street and Broadway. It was in the nature of an experiment.



### Automatic Air Valve

The accompanying illustration shows an air valve with an air escape tube.


This valve on the interior is built the same as the Monash Improved No. 6 four-way-drain Perfected Duplex valve, so well known. The improvement on this valve lies in the air escape tube, shown on the exterior of the valve, which is made to conduct the foul air from the radiator into the basement or where otherwise desired, and not allow it to be discharged in the occupied apartment.

You have often experienced offensive odor coming from radiators through the valve. This obnoxious odor can be overcome through the use of this valve. For samples and further information we refer our readers to the manufacturers, Monash-Younker Co., Chicago, New York.

### Otis Elevators in the Rosenheim Buildings

Two of the prominent buildings designed by Architect Rosenheim are the Herman W. Hellman building and the new Hamburger store at Broadway, Hill and Eighth street, Los Angeles.

The Otis Elevator Company built and installed the elevator plant in the Herman W. Hellman building, consisting of four double screw or tandem worm type electric passenger elevators equipped with the full flash light signal system and one electric freight elevator. These machines are all located on the roof and so arranged that no valuable space is taken up by the machinery. This is a very busy elevator plant and is a thorough demonstration of the fact that the Otis Electric Elevators are perfectly reliable for the most severe office building service.

The plant that the Otis Elevator Company is now building for the Hamburger store will be one of the most complete equipments on the Pacific Coast. This consists of eight electric passenger elevators with car speed of 200 feet per minute, two electric passenger elevators, car speed 275 feet per minute, two electric freight elevators with car speed of 150 feet per minute and capacity of

6000 pounds, one two-spiral package conveyor and one Otis Escalator, or moving stairway. The elevator machinery is all to be located on the roof and so arranged that the cables lead direct from winding drums of machines to cars without intervening sheaves, thus reducing friction to the minimum. The package conveyor will be a great convenience for the rapid collection for delivery of packages of all descriptions, as it is so arranged that packages may be deposited in the conveyor at any floor at any time and are instantly delivered

to the receiving tables in the basement.

The Escalator, or moving stairway, is the most efficient device ever built for a department store as regards inducements to customers to visit the upper floors of the store. While the customer is traveling on the escalator the entire display of stock is in sight and many customers who would otherwise be contented to visit the first floor only, are, through the advantages of the escalator, induced to visit the upper floors. It is interesting to note that the escalator to be installed in the Hamburger store will be the first on the Pacific Coast, but it is a safe prediction that this will be followed by many more, as department store proprietors realize the marvelous efficiency of this type of apparatus.

The Otis Elevator Company, whose Los Angeles office is in the Herman W. Hellman building, is in a position to furnish anything in the elevator line, and their product has been the standard for more than fifty years.

### Heating and Ventilating a Hotel

Few firms in Southern California are doing a larger business than the Machinery & Electrical Company, Heating and Ventilating Engineers with main offices at 315 North Main street, Los Angeles. The company has the exclusive agency for the famous B. F. Sturtevant & Co's heating and ventilating systems. All the Los Angeles schools have been equipped with systems by the Machinery & Electrical Company in addition to many of the large public and office buildings including the Auditorium, Polytechnic High School, Hayward Hotel, South Pasadena High School, Fulton, Redondo and San Diego High Schools and the Sherman School.

The blast system put in by the Machinery & Electrical Company, is especially suited for hotels and hospitals.

The requirements of the hotel and

the hospital, while being somewhat similar are still essentially different. In the hotel building heat only is aimed to be supplied with the incidental ventilation that comes from the use of fresh, pure air as a heating medium. That incidental ventilation only is required is due to the fact of the small number of occupants to be found in the ordinary hotel room used for sleeping purposes only; so that the amount of air that is required for heating will furnish extremely good ventilation for the number of persons present to vitiate it. The Machinery & Electrical Company has installed a very good example of this class of apparatus in the Hotel Hayward in Los Angeles. This is an eight story, reinforced concrete building and the heating system is installed in the attic of the building. A very carefully designed system of concrete ducts was provided to reach each room, and through these galvanized iron hot air ducts were installed with suitable registers, so that the galvanized iron ducts supply hot air, and the space between the galvanized ducts and the concrete ducts was available for vent ducts.

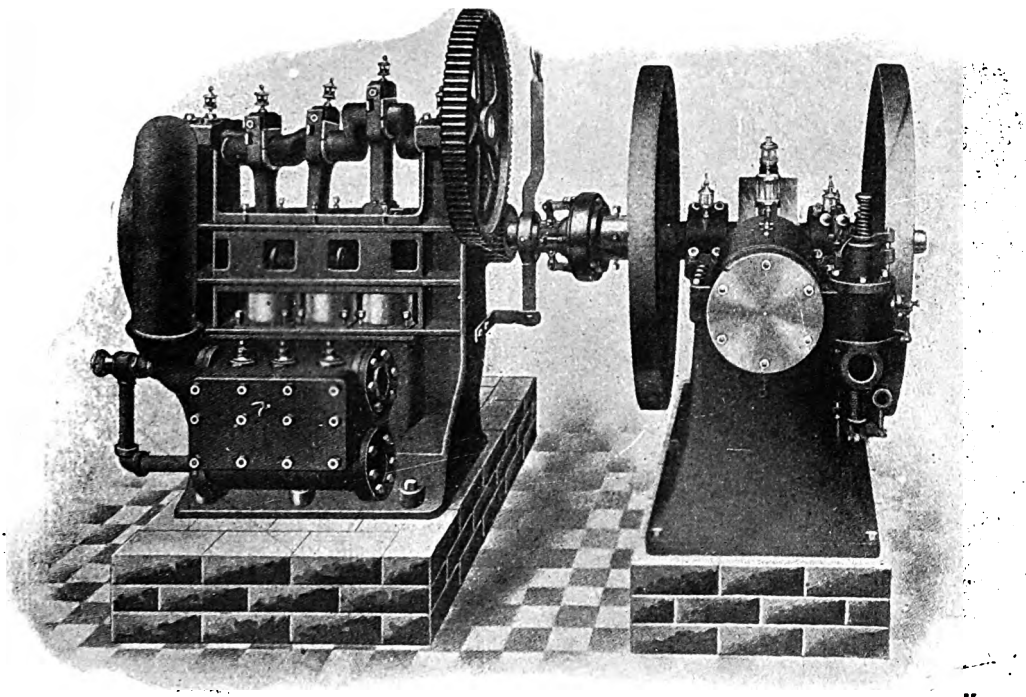
In the attic of the building is installed a 120 inch Sturtevant Fan, with the necessary heating coils arranged so that the temperature can be controlled from the engine room. The steam distribution is facilitated by the use of the Paul System of steam distribution. The air supply is taken at the level of the roof and passes through an improved type of Coke Air Washer, so that the air supply is thoroughly washed and purified, and is then heated and delivered to the various rooms. The system of heat regulation is not automatic, but is controlled by hand regulation only.

When writing to Advertisers mention this Magazine.

# Los Angeles Planing Mill Co.

The Los Angeles Planing Mill Co. enjoys the double distinction of being a pioneer industry of Southern California and having today one of the most modern plants on the Pacific Coast. The present prosperity of this enterprising Company is due in a large measure to the progressiveness and industry of its president and manager, P. J. McDonald. The concern started out in a very modest way in a small frame building on San Pedro street. That was nineteen years ago. Today the Company has the second largest plant in Los Angeles. It occupies 300 feet front on Industrial street, the main building being two stories high and of brick construction. The Company has over 60,000 square feet of floor space. The equipment includes an up-to-date dry kiln of 50,000 feet capacity. Everything that goes through this machine is guaranteed to be kiln dried. The Company makes a specialty of bank, store and office fixtures and has shipped large orders of goods not only to all points in Southern California as far north as Bakersfield, but to Arizona, New Mexico and Old Mexico. The Company is incorporated for $200,000 of which $120,000 is paid up.


General View of Our Plant



# Straight to the City come our Building Materials


Offering Uniform Material at Reasonable Prices and Prompt Delivery. When you are Promised Deliveries we see that you are Not Delayed.

NOTE OUR SOURCES OF SUPPLY

**CEMENT** Standard Portland Cement. Santa Cruz Portland Cement. Excelling in tensile strength and fineness.

**LIME** "Holmes'" "Santa Cruz" "Alabaster" and "Colfax". None better for brick work and plastering.

**PLASTER** "Marbleite" Hardwall Fibred, Wood Fibred and Finishing. Easy spreading, rich working. Makes a perfect wall.

**BRICK** Carnegie Brick & Pottery Co's Architectural Terra Cotta, Pressed, Fire and Paving Brick, Sewer and Chimney Pipe. Flue Lining and Drain Tile, Central Brick Company's "Keystone" Brand Wire Cut Common, Stock and Klinker.

**SLATE** Eureka Slate Company. Equal to the best product in the United States.

## Western Building Material Co.

First and Market Streets, OAKLAND  340 Steuart Street, SAN FRANCISCO

PRESS OF THE HICKS-JUDD COMPANY
SAN FRANCISCO