

HUMBUG IN REINFORCED CONCRETE BUILDING

FEBRUARY 1907

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THE ARCHITECT AND ENGINEER OF CALIFORNIA

FEBRUARY FEATURES

- Depraved Building Business Practice in San Francisco
- Cause of Earthquake Shock and Its Effect on Building Foundations
- The Licensing of Architects
- The Cost of Reinforced Concrete Building Construction
- Concrete Ties for Railroad Use are a Success
- The Modern Lighting Fixture and Interior Decoration
- San Francisco's Famous Bohemian Restaurant
- Two California Homes with Attractive Pergolas

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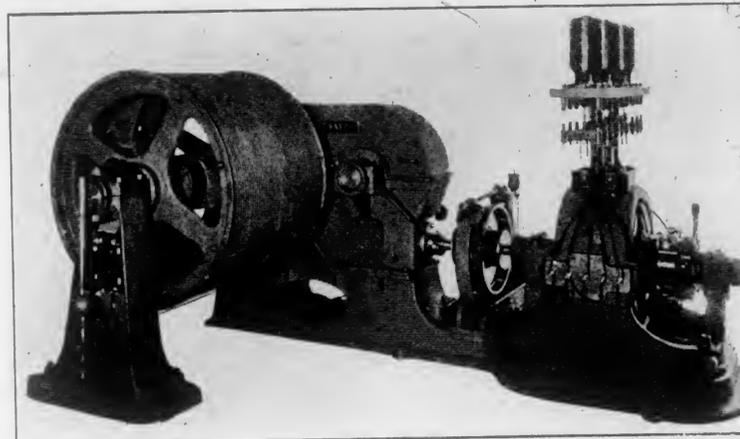
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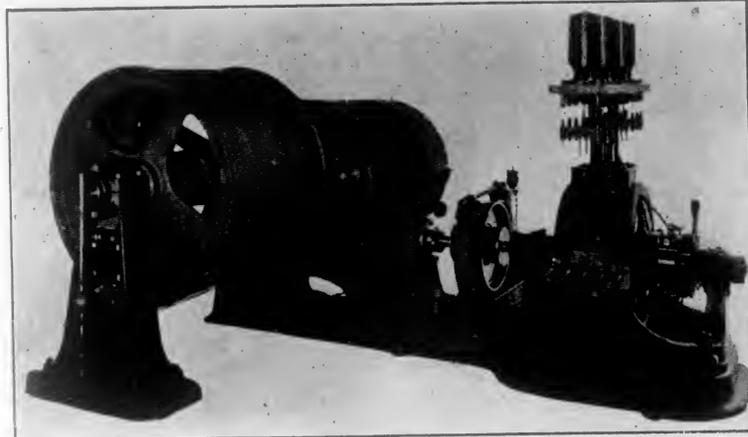
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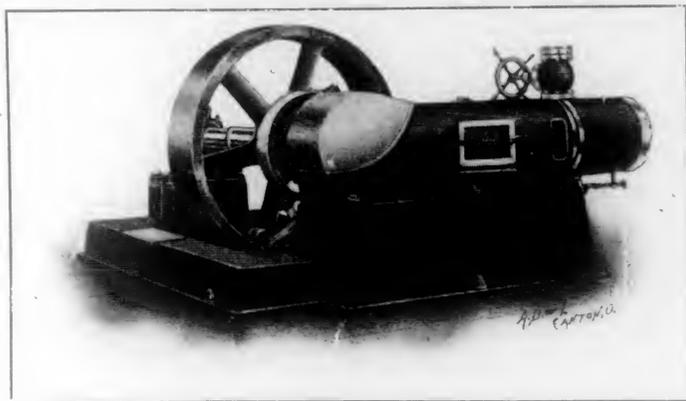
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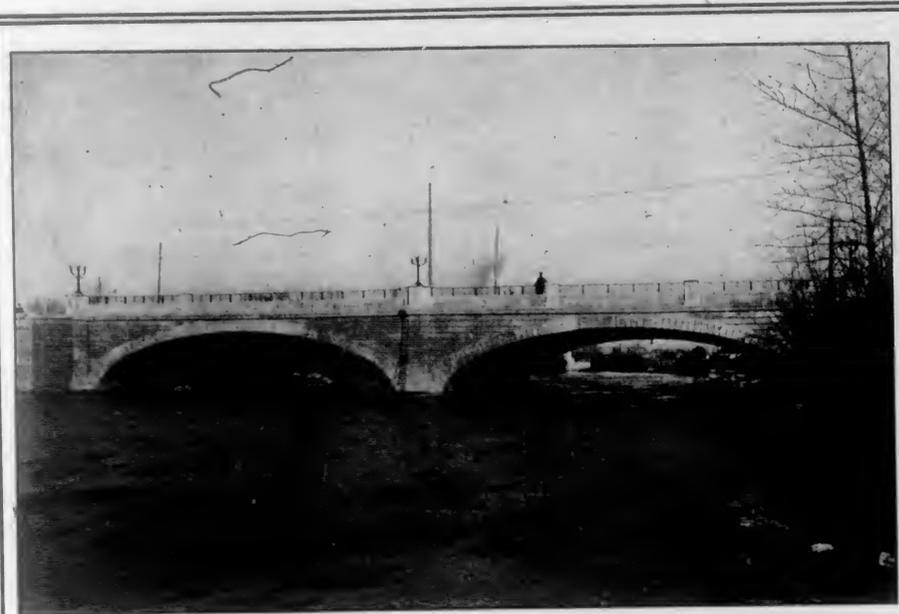
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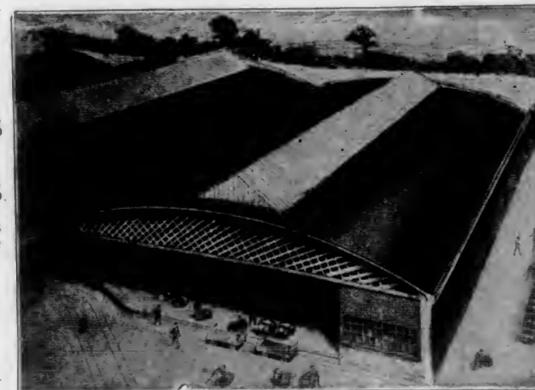
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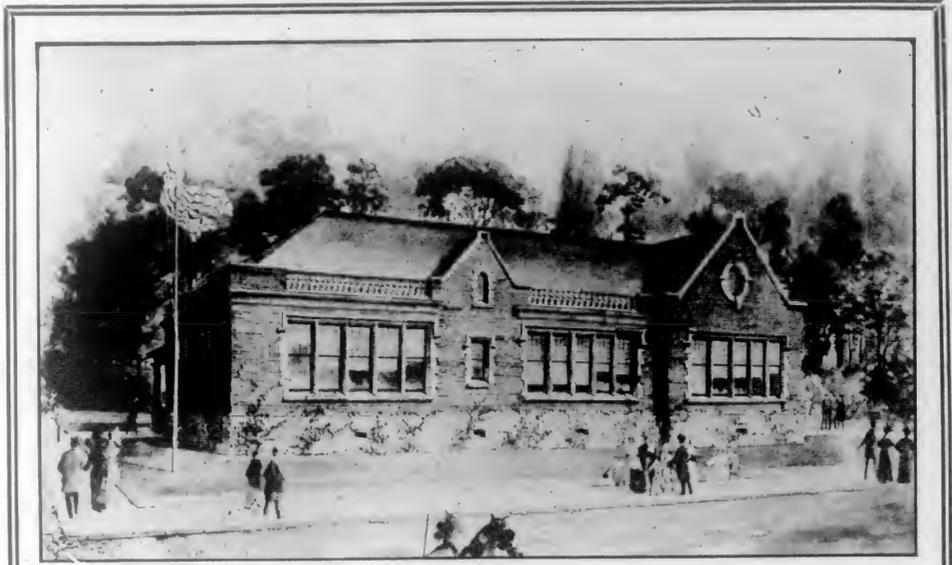
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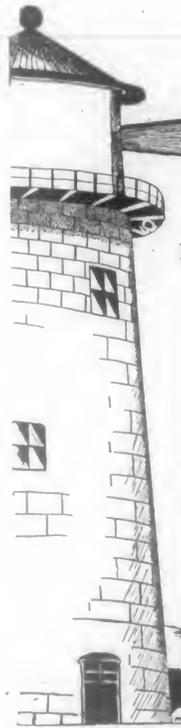
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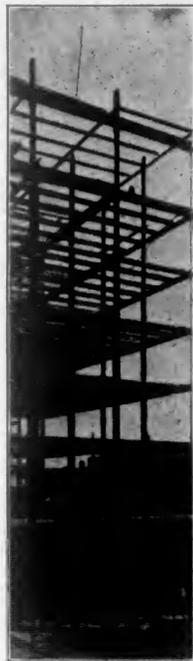
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Contents for February

	PAGE
Frontispiece—Wash Drawing of a Piedmont Home <i>William Knowles, Architect</i>	18
Two California Homes with Attractive Pergolas With Photos of Work by William Knowles and J. Cather Newsome.	19
Fiftieth Anniversary of the American Institute of Architects	24
Applied Arts and Sciences <i>Report of Committee Presented at the A. I. A. Convention</i>	25
Depraved Building Business Practice <i>William H. Hall, C. E.</i>	28
Cause of Earthquake Shock and its Effect on Buildings <i>Robert Morgencier, Architect and Engineer</i>	35
The Licensing of Architects <i>W. Garden Mitchell, Architect</i>	41
Cement and Concrete—Cost of Reinforced Concrete Building Construction <i>Louis H. Gibson</i>	45
Concrete Ties for Railroad Use	49
Fire Protection—Fire Resistance of Reinforced Concrete Buildings <i>James Sheppard, Chairman of the International Fire Library</i>	51
The Modern Lighting Fixture and its Place in Interior Decoration <i>John A. Brittain, President of the Pacific Gas and Electric Company</i>	54
Terra Cotta and Brick—The Ingenuous Bricklayer (a verse)	57
English Cathedrals	58
Brick Demand Grows Larger	59
Causes of Varnish Cracking	60
Interior Decoration—San Francisco's Famous Bohemian Restaurant <i>Mabel Croft Deering</i>	61
The Decorative Periods <i>C. Walter Tozer</i>	68
Ownership of Architects' Drawings	72
Among the Architects	73
Editorial—Concrete Failures—Must we have them?	76
—Signing Buildings	77
—Chimneys Made of Concrete	78
Publisher's Corner	79



Wash. Drawing of House in Berkeley for Mrs. Beaver — William Knowles, Architect

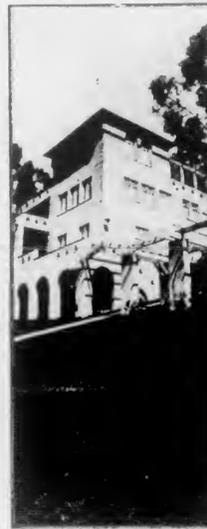
THE Architect and Engineer Of California

VOL. VIII.

FEBRUARY, 1907.

No. 1.

Two California Homes With Attractive Pergolas



THE pergola is coming to be a popular feature of residence building in California. Many of the fine homes recently constructed, or now being planned, are distinguished by the pergola, either in modest or pretentious form.

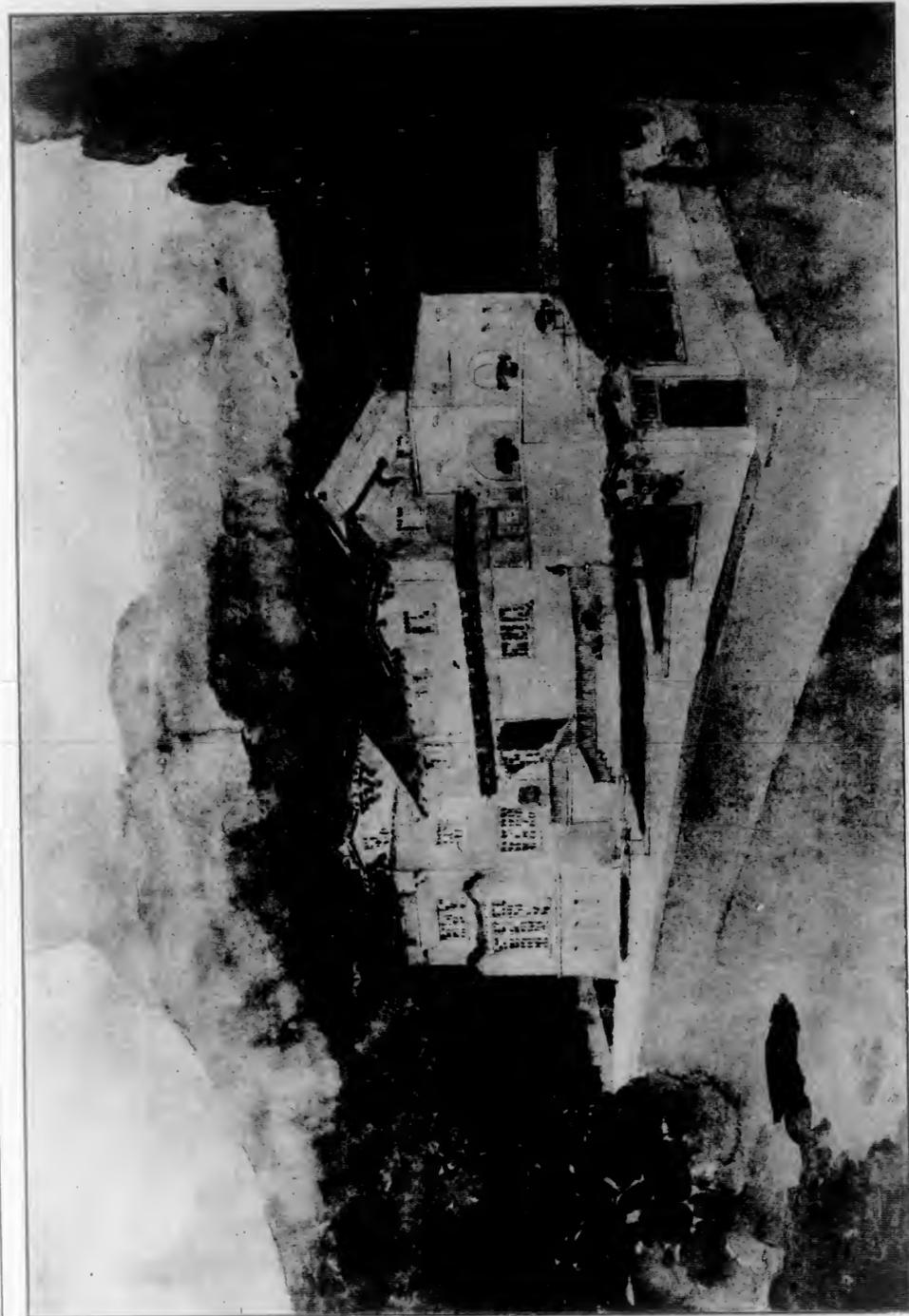
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The house is quite original in design, and the architect, William Knowles, has succeeded in accomplishing a feat in architecture not easily achieved. A lofty tower of five stories, which seemed at first impossible to treat architecturally on account of its extreme height, has been handled by giving it a good width and breaking up the facade with a series of balconies, and extending the pergola to the south, making a long horizontal base line that was needed in the composition.

Some Gothic detail in the windows and tower and the introduction of the trefoil detail on the buttresses of the piazza give the house quite a feeling of the Venetian Gothic.

The house is of frame construction with plastered exterior, and contains fifteen rooms. A feature of the interior is the music room with Gothic pointed windows projecting into a domed ceiling. The tower makes the dome in this room possible, giving space for the vaulted ceiling. The dining room is done in light yellow cedar and old gold paper with gold gauze hangings. The cost of the house was about \$15,000.

Architect J. Cather Newsome has introduced the pergola quite picturesquely in a Mission residence design. Several photographs of this house, which is in Los Angeles, are shown.



Wash. Drawing of House in Berkeley for Mrs. Beaver William Knowles, Architect

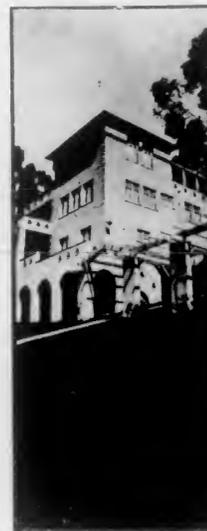
THE
Architect and Engineer
Of California

VOL. VIII.

FEBRUARY, 1907.

No. 1.

Two California Homes With Attractive Pergolas



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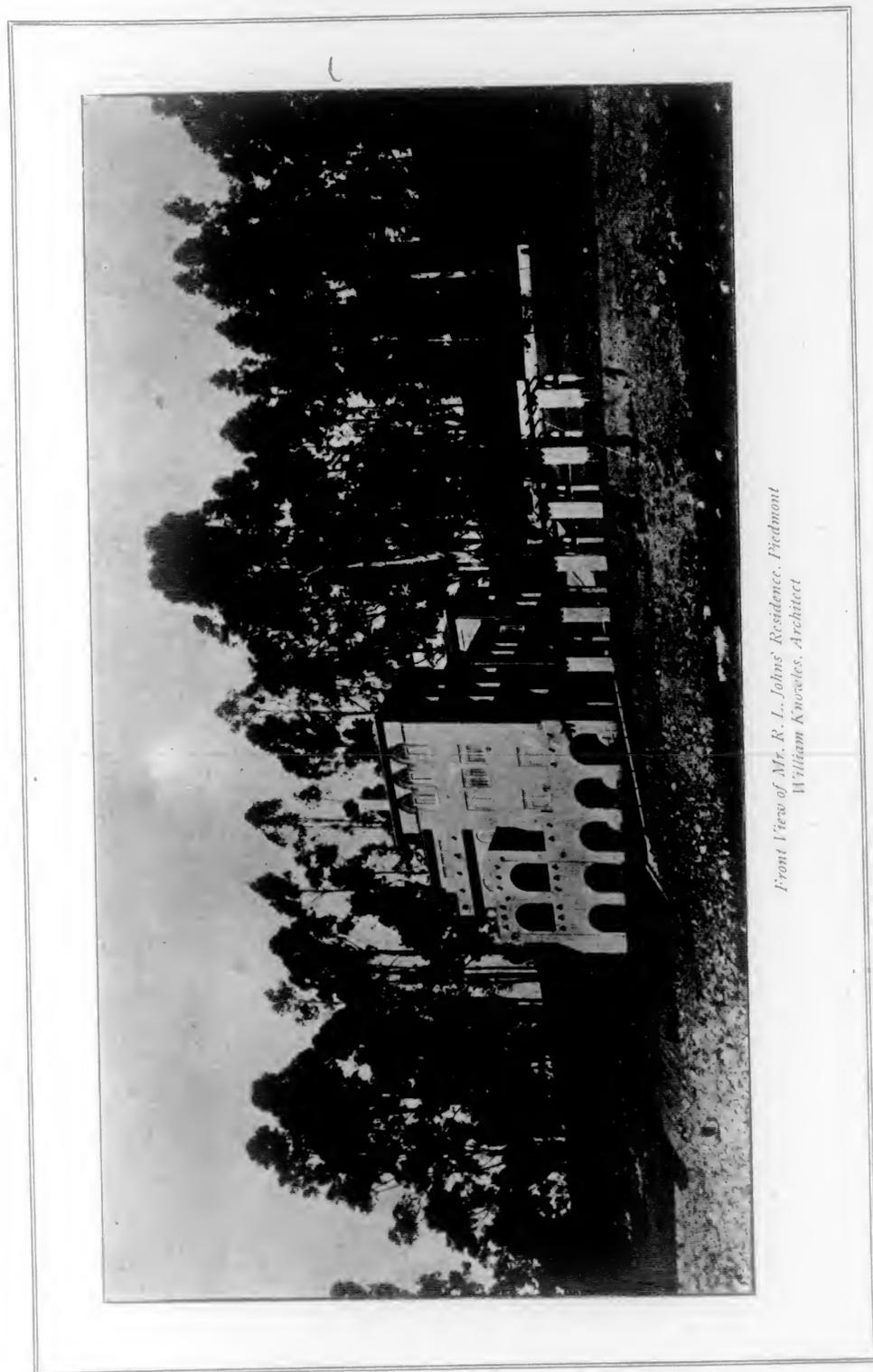
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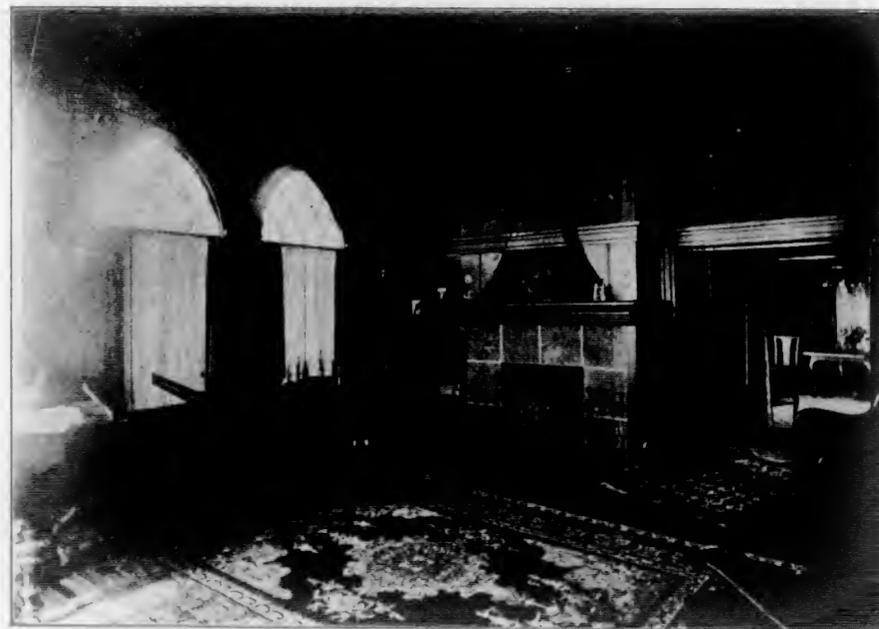
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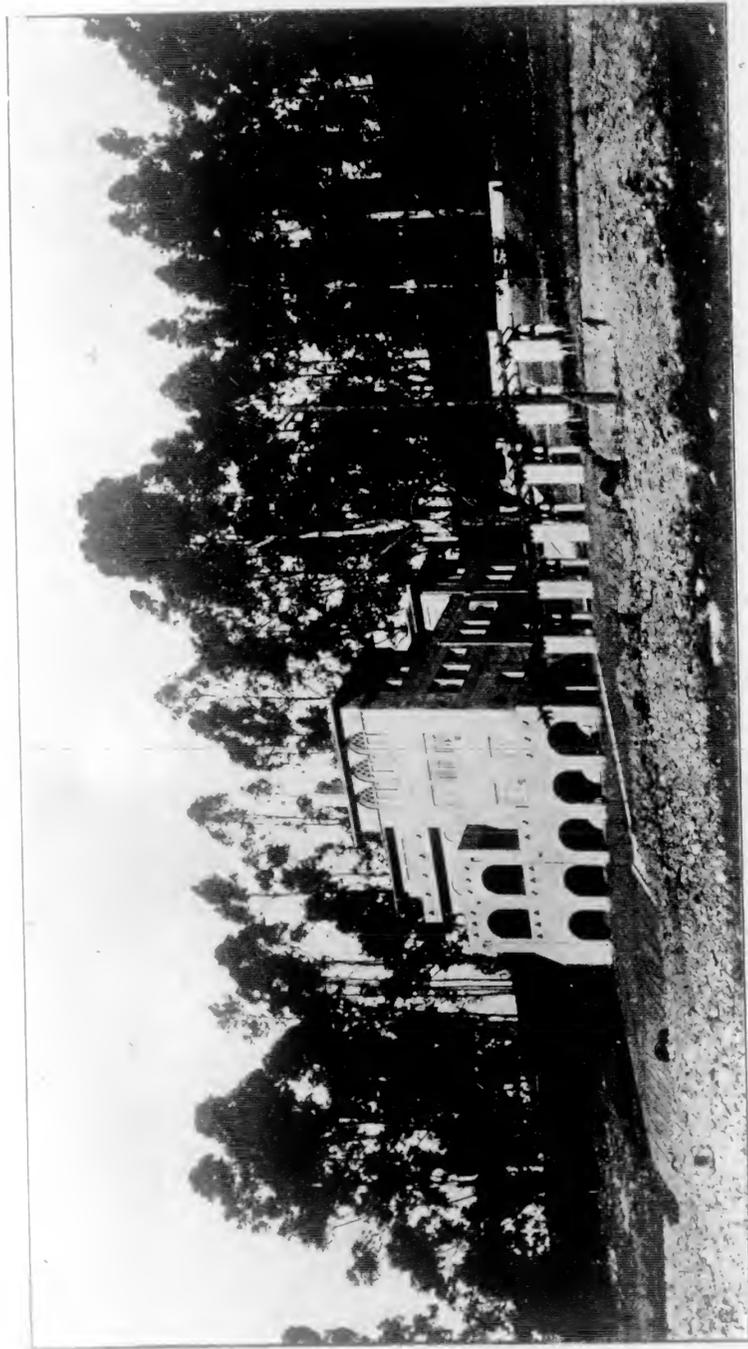
*Front View of Mr. R. L. Johns' Residence, Piedmont
William Knowles, Architect*



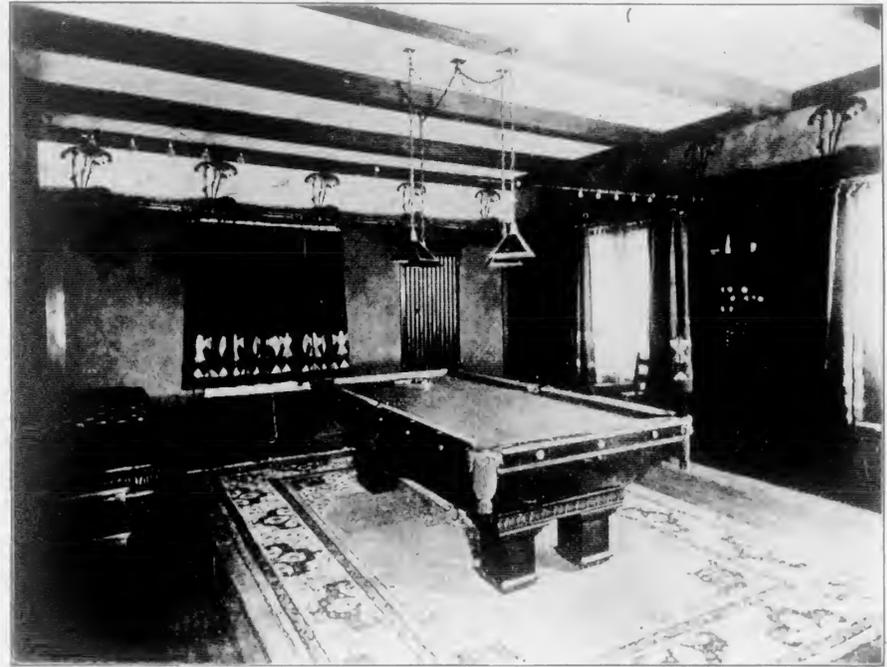
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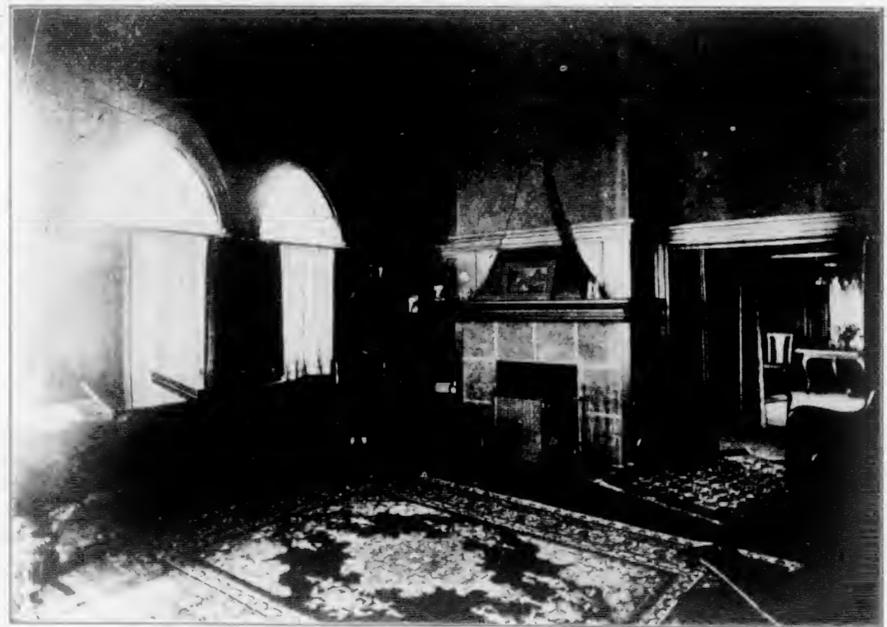
*Corner of Music Room in Residence of Mr. R. L. Johns, Piedmont
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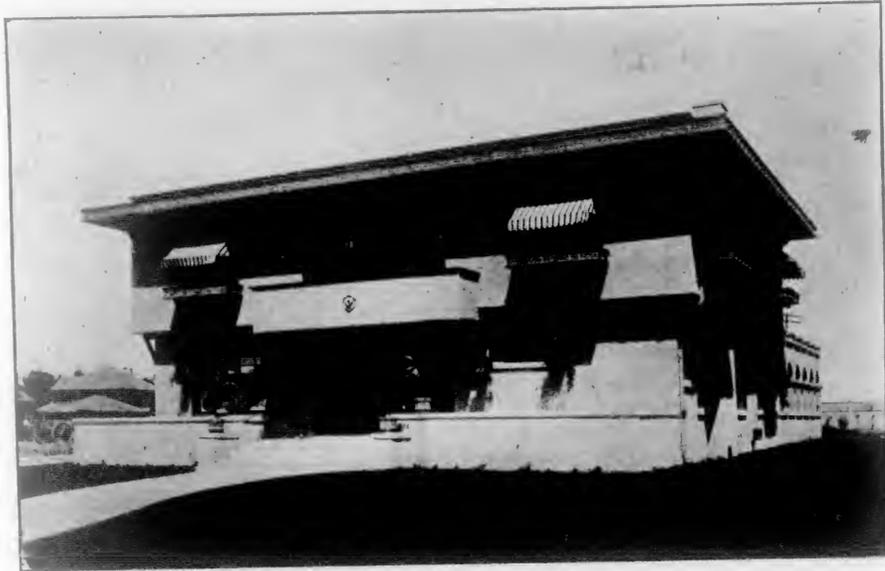
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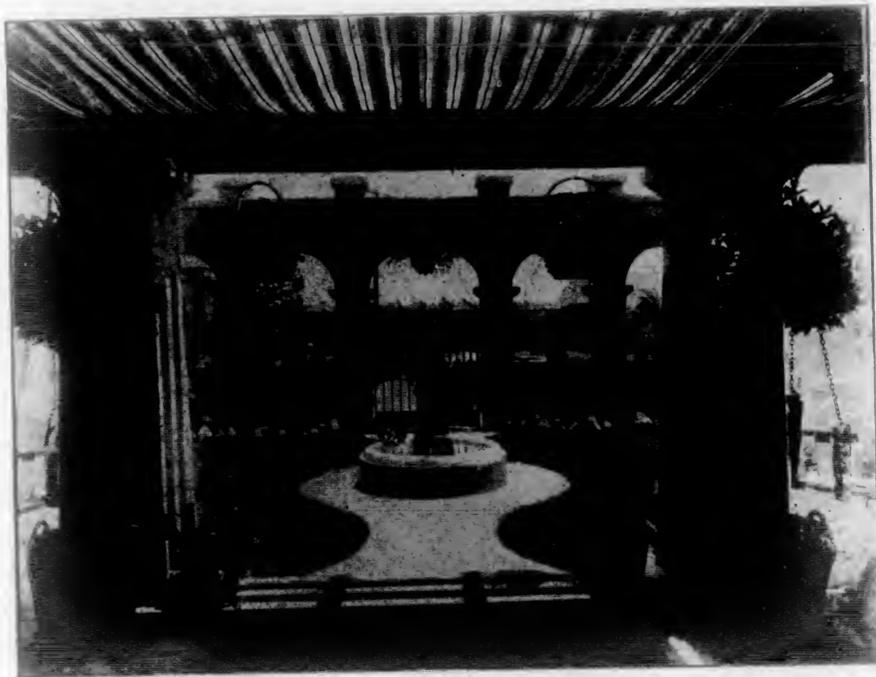
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Front View of Residence of Mrs. Joseph Faxton, Los Angeles
J. C. Newsome, Architect



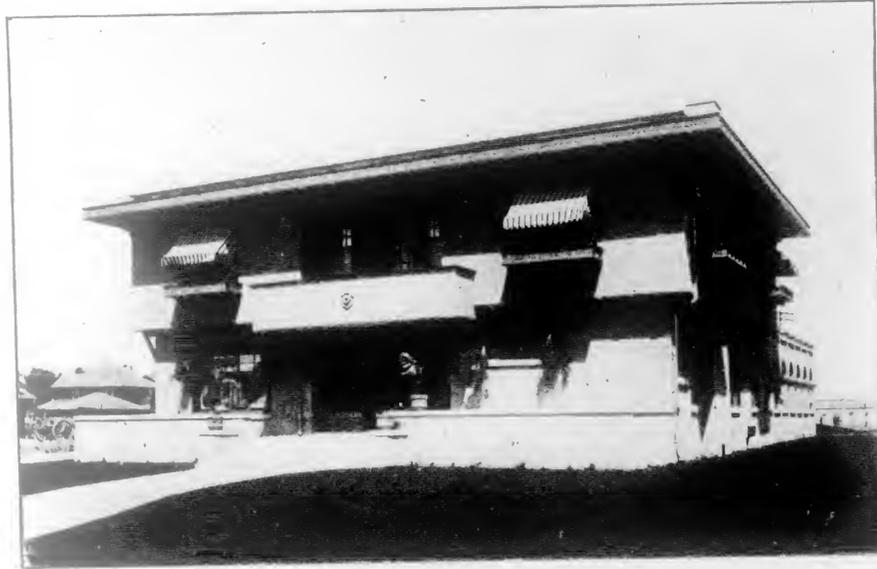
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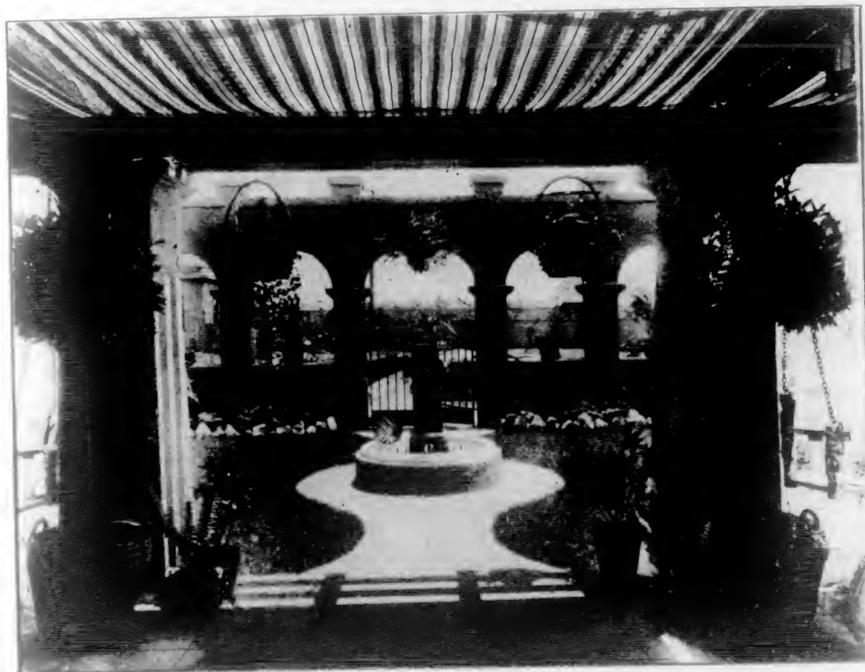
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Living Room, Residence of Mrs. Joseph Faxton, Los Angeles
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Living Room, Residence of Mrs. Joseph Faxton, Los Angeles
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Fiftieth Anniversary of American Institute of Architects



*Design of Menu of A. I. A. Banquet, by
Edwin H. Blashfield*

The fortieth annual convention of the American Institute of Architects held in Washington, D. C., January 7th, 8th and 9th, was a most interesting affair, and delegates from leading centers were present. A meeting of the board of directors was held in the Octagon on the afternoon of January 5th, and on Monday morning the members of the Institute gathered in the Assembly Hall of the New Willard Hotel and registered their names.

An address of welcome was made by Henry B. F. MacFarland, president of the Board of Commissioners of the District of Columbia, and the speaker was several times interrupted by bursts of applause. Numerous committees were announced by President Frank Miles Day; the board of directors made its report, as did also the treasurer and auditing committee, the various Chapters; numerous standing and special committees, etc. These occupied the morning and afternoon sessions and constituted an interesting feature of the golden jubilee, so-called because it marked the fiftieth anniversary of the foundation of the Institute.

An important matter considered with the reading of the reports was a form of competition contract authorized by the Institute, including general principles of competition agreement; the code, the judges, the procedure, the competition charges, schedule of costs and the ethics of competition.

In the afternoon a committee escorted from the railroad station to the hotel Sir Aston Webb, formerly president of the Royal Institute of British Architects, and upon whom at the reception at the Corcoran Art Gallery, on the evening of January 8th, was conferred the gold medal of the American Institute of Architects. The presentation address was made by President Day.

The sessions of Tuesday were devoted to the election of officers and directors, the reports of the committees appointed at the first session of the convention and the consideration of miscellaneous business.

The election of officers resulted as follows: President, Frank Miles Day, Philadelphia, Pa.; first vice-president, William B. Mundie, Chicago; second vice-president, R. C. Sturgis, Boston; secretary and treasurer, Glenn Brown, Washington. The directors elected for three years were Walter Cook, New York; Edgar V. Seeler, Philadelphia, and J. L. Maurin, St. Louis. The auditor chosen was Robert Stead, Washington.

The morning session of January 9th was devoted to miscellaneous business and in the afternoon there were exercises commemorative of the foundation of the Institute. In the evening was the annual dinner in the New Willard Hotel, at which 250 guests were present.

Applied Arts and Sciences*

THE committee on Applied Arts and Sciences was instructed "to consider on such questions as": First, "how to overcome the unsatisfactory conditions due to the severance of the intimate relation once existing between architect and the craftsman"; Second, "how to facilitate the delegation of design to craftsmen"; and Third, "how to secure some assistance to the architect in his work from the Arts and Crafts movement."

In order to know "how to overcome the unsatisfactory conditions due to" the cause above stated, it is quite necessary to understand the nature of the original conditions and the reasons underlying the changes which have led up to and still compel "the severance of that intimate relation once existing between architect and the craftsman." Even with a knowledge of the facts, power to do not always follows desire to do, and to overcome or to know how to overcome the unsatisfactory conditions is not within the power of a single committee, a single body, or a single generation. A partial knowledge, however, may suggest mitigations, where it can not effect radical change. The intense apathy of the great public toward art, the general lack of knowledge or care as to what constitutes art or how art touches life, the utterly commonplace and devitalizing attitude on part of public and designer, of seeking the line of least resistance, of harking back to something which is well known and can be recognized on the instant—all of this conspires against the elevating of art standards; and the architect, if he would, can not rise above the general flood of wilful and self-satisfied stupefaction. It seems perfectly demonstrable that in the great periods of art everybody loved and appreciated beauty, whether actual producers thereof or not. The power to create and the capacity to appreciate beauty sprang from the conditions of life and inhere in all classes—at least the capacity for appreciation was general. The artists themselves, until the Renaissance, were drawn mainly from one class and that not socially a high one. They were banded as brothers; their training was from within and was developed by association; their minds were of about the same caliber; and mutual sympathy in thought and ideal made for the best. Class distinctions in art did not exist in the lofty periods as they do now. Even in our great democracy these distinctions are most clearly marked. The doers, that is, the craftsmen, are of the lower classes, the designers are a grade higher in the social scale, the architects are coming more and more from the cultured class, and, unfortunately for art, many of independent means are seeking the profession because the work is genteel. The art patrons and they who may dictate the monumental art of the world are of the moneyed aristocracy. The assumption of knowledge and the possession of power in the upper classes begets in the mind of the worker a dull subservience which does not make for art and which on all counts is to be deplored. The general scheme of education is herein at fault, for it touches life but superficially and gives to "educated persons" a mere smattering of the non-essentials of art and to the workman a business knowledge, the sole end of which is its mintable quality. And life has not gained by that phase of modern education which devotes its energies to developing art producers. Once art was lived, now it is taught. "Schools of art" have

* Report presented at the Convention of the A. I. A., held January, 1907, by the Committee on Applied Arts and Sciences. Irving K. Pond, Chairman.

come to be considered necessary. But schools do not seem to have justified themselves, while they do seem in no small measure to justify the proverb—"When schools come in, art goes out."

An irrational system of general education, then, and closely drawn class distinctions, especially in the field of art production, would seem to be marked factors in this severance of ties between architect and craftsman. Realizing the great advantage to the art worker in the old intimate conditions, many great and rare minds have advocated an advance beyond the unsocial and wholly irrational tendencies of modern life, to an ideal existence under State socialism, viewing the matter as one falling in the range of political economy. It would seem that in this they have not been wholly justified, for the great creative periods of art and those referred to during which love and appreciation of art have been general, have occurred under varied forms of government and have been wholly independent of the nature of the governmental structure. The matter is largely one of social ethics, of mental development, and of social economics, and not at all of governmental forms. The socialism which shall bring joy in labor is not necessarily governmental, but it is greatly to be feared that the socialism which is governmental will operate to reduce humanity to one dead level of incentive, of capacity, of achievement, and may be of recompense, though that is of minor importance. The arbitrary apportionment of task which must almost of necessity accompany any system of State initiative and supervision of activities can not otherwise than stunt personality and individuality. But this phase of socialism will hardly endure, for the annihilation of the distinctive functions of the various members can no more prevail in the body politic than it can in the individual, the body natural. For by nature and design (if we grant to the great universe a directing force) certain individuals, as certain members, are appointed—not condemned, but consecrated—to do certain work, and the pleasure and profit to the individual need not necessarily be in the work he performs, except as that work is necessary to the wholesome life of the body general. In other words, the feet are not to take upon themselves the work of the hands; the heart finds itself in deep and troubled water when it takes upon itself the functions of the brain; the brain is incapable of doing the work of the heart. The effort of a new civilization should be, not to uproot individuality, not to smooth to a dead level the face of nature, the southern slope which catches the sun and the rugged eminence which shields it from the winds, but to make life tolerable where it has been intolerable, to make beauty bloom where no beauty has been, to minimize as far as possible the burden of irksome toil and to make the general conditions of life productive of the higher happiness. Through education and bettered environment the State may make the general life fruitful of sane enjoyment. A broader education, a wider sympathy, a deeper knowledge of the realities of life, a developed love of beauty in the mind of the race and a passionate zeal to express it, will reunite the sundered relation of intimacy which once existed between creator, interpreter, and laity; that is, architect, craftsman, and public.

Until an advanced state of art endeavor and of art appreciation has been reached, the architect need not seriously concern himself with the matter of delegation of design to craftsmen. The question is, rather how far shall the personal equation be allowed to enter in the interpretation of a sketch by the craftsman. No broadminded architect shuts himself off from the suggestions of draughtsman or craftsman. But unless there be a singleness of thought and purpose in the minds of architect, assistant

and interpreter, and understanding born of long seasons of sympathetic interchange of thought and idea, suggestions will tend rarely toward a unified expression. The wise architect will seek to have about him understanding and sympathetic assistants in all branches, but the architect need not seek to escape the travail of creation. Does the work bear down upon him? He must realize that beauty comes through stress, perfection through infinite pains, life comes even through death. The practical solution of the problem for today would seem, then, to be for the architect to bring himself as far as possible into the same relation with the craftsman that he holds with his assistant over the board, and failing that, should seek the craftsman whose work expresses a parallelism of idealism and motive, and, having found, employ that hand to execute the work and that mind to interpret the sketch.

The so-called Arts and Crafts movement, we must frankly realize, has not yet entered the stage in which it can be of much or of any assistance to the architect. The movement as such has not yet affected the great body of craftsmen. Artists and craftsmen connected with the movement have confined their thought and activity mainly to the design and execution of single and simple objects of use or beauty, such as pieces of furniture, household utensils, and bits of decoration. In most of this production the amateur spirit is manifested and not any of it bears upon the greater problems of architecture. Most of the artist-craftsmen have no intimate knowledge of architectural principles, which is to be regretted; and, too, they have had no architectural schooling, upon which they are to be congratulated, at least those of them to whom such schooling would mean the acquirement of an academic method and a frame of mind which expresses itself in the application of architectural details to the various simple objects, rather than in a lucid recognition of the limitation of materials and a frank adaptation of form to use. It is in the design and execution of stained glass for windows and ornamental metal work and carvings which the arts-craftsmen are called upon occasionally to accomplish, that the want of appreciation of architectural and structural lines most manifests itself. Now and then arts-craftsmanship has undertaken to impress its spirit upon some modest example of cottage architecture, and has succeeded; but these are sporadic cases, and do not affect in any way the general tendencies. The architecture of the cottage, of the lesser house, of the villa, of the mansion, of the palace, is but a reflection of the greater architectural spirit, and until architects have learned to handle the greater architectural problems, and to solve them on their merits without reference to conventions established in other climes, under conditions, the lesser architecture will suffer from and express the same want of capacity for freshness of invention and directness of thought, the same inability to more than rehash old *motifs* which expression in the greater and the monumental architecture of the day.

It were unjust to place upon the architect the entire blame, for blame there is, in all this abuse of tradition. It were better to attribute it in the large part to the lack of taste and of knowledge which exists because of the certain deficiencies in our civilization, the lack of correct methods in education which fosters the general ignorance of and indifference toward all forms of art. The germ of hope lies in the attitude of some of the lesser architects, and in the Arts and Crafts movement—not so much in what it has accomplished as in the spirit which animates it. The movement protends an awakening to art consciousness

Depraved Building Business Practice

By WM. HAM. HALL

[This third article of Mr. Wm. Ham. Hall's Architect and Engineer series is again the opening of a new subject and a separate set of papers which will soon appear in book form. These papers are addressed directly to property owners and citizens generally. The first set, of which the following is the second one, deals with the business relations of owners and contractors under the several forms of contract and of organization for the contracting business. They will be found of immediate practical interest and importance.]

It is the common custom to lay at the door of the building contractor by far the greater part of the blame for poorly built houses. The owner bemoans his fate at having to deal with contractors. The architect, shrugging his shoulders, tells you that there really are some trustworthy contractors. But common talk implies that there are not. The fact is that, barring a lot of scamps whom the great body of contractors themselves taboo, there is in the contracting business as large a proportion of trustworthy men as in other businesses. There is no necessity for an owner to deal with the scamps, and he will not if he goes about getting his building erected, in a sound and business-like way.

The contracting business in this country has until recently been almost wholly upon a radically unsound basis, which has put a premium on rascality and, in many cases, made petty trickery almost necessary to business existence. Of late years better systems for contract agreement have been brought forward, and although the contract business status is still far from what it ought to be, in the contractor's as well as the owner's interest, the public might, except for certain sporadic developments just now having a run of favor, be congratulated on an outlook promising cleaner contract relations and better contract work.

But however bad the conditions may be at any time, the underlying fault is not, by any means, wholly with the contractor. He cannot control the situation. The real fault is always in the system and the building conditions which it produces. It is not the contractors who make the business system what it may happen to be, but the system which makes the contractors whatever they are found to be. The property owners and money lenders to such owners are each as much responsible for the system as are the contractors. Thus it behooves owners to look a little into such matters, and to do their part toward making a clean contracting business possible, and it behooves lenders to put forth a strong hand to the betterment of that on which the value of their securities depends.

Without stopping further to talk in generalities, I come at once to the kernel of this article. I address it to all good citizens; property owners in particular.

Do not attempt to erect your building without the professional services of an independent architect. That is, do not make your builder your architect. You make a fundamental and dangerous business error if you do. The public would have grave cause for regret and even alarm if property owners in any considerable number should pursue such a course. Bear with me while I point out its bearing on you and the public welfare.

There is a lesson of life which it is good fortune to learn early, and that is the wisdom of discriminating between opposing and unavoidable evils, of seizing the lesser, and strenuously making the most of it—turning it to virtue, if you can.

If the architect looms as an evil in the path of your building intentions, take my word for it, further on you will encounter the builder, and from the earliest time he has been looked upon as the greater evil of the two. You cannot combine them, neither can they amalgamate themselves to your advantage. Quicksilver seizes upon gold and absorbs it into its substance, but the resulting amalgam as a flabby, and in itself, almost useless compound which has to be retorted back to its separate forms before it is fitted for human application.

Just so with builders and architects; when the architect is combined with the builder he is swallowed up in the less stable calling, which he does not solidify any more than the gold does the quicksilver, and the product is an amalgamated business being which is not suited to your service, as a property owner. This results from the very nature of things human.

Abandoning metaphor and "coming down to brass tacks," world-wide experience has shown, from time out of mind, that a building can but seldom, almost never, be erected without difference arising between the interests involved. A building is a thing capable of infinite variation, and complications unavoidably come about in the course of its evolution. The human mind is limited in its scope. The human heart is on one side only of the body. Neither party to this building contract can foresee all the differences which may arise in the course of the building's progress. Neither heart can be on both sides of the conflicts of interest unavoidably resulting.

These conflicts may not come to the surface as between the owner and the builder; but, as between the value of the building itself and the interests of the man seeking to make money by its erection, they are not to be avoided under the forms of contract thus far commonly used.

Courts are designed to settle the differences between men. But we do not assume that even half of those who are parties to litigation, are "crooks". Honest differences most often give rise to the litigations which crowd our courts. We all recognize how much better it were could our disputes be arbitrated and kept out of court. Custom, from experience in time, has provided in the architect, the arbiter between owner and builder. It is in this capacity wherein the architect is indispensable. Is it not curious that in this one relation between men, custom has provided a body of men to serve as arbiters. Why is this? Because while in every other relation men are prone to settle most of their differences out of court and without arbitration, man has been forced to realize that the relation between owner and builder demands special provision for arbitration to prevent the business world being swamped in their litigations.

It is no answer to say that the "Percentage", or any other, basis for contract work, explained in following talks, does away with the greater part of ground for conflicts between owner and builder. It is no answer to say that an engineer, architect or company operating on a we-make-your-plans-and-erect-your-buildings-for-ten-per-cent-of-cost basis, does not get into disputes with its clients. Of course it does not. Under such contracts on such conditions the client has slight chance to win in a dispute. He has not been able to get ground for a dispute. He is "down and out" from the start; the building cannot talk, and people who might know

of the rotten work which has gone into it, would not talk. What business of theirs, forsooth, in any particular case, to come to an owner's rescue who deliberately puts himself in such a position?

It is no rejoinder to the point I make, to say that under some forms of contract the owners and the builders interest are so nearly alike that it will serve the builder best to conserve his client's interests and thereby assure his friendship as reference. This might be so if the owner understood the building business as well as the builder, or if the building could talk, or if the client had a skilled professional representative, an architect, on the work, in his interest alone. But under an I-make-your-plans-and-do-as-I-please-for-ten-per-cent contract, that kind of talk is nonsense, too thin for any body who knows the building business to listen to with patience.

It probably never occurred to you that a most important part of an architect's service is in supervising construction of your building, in seeing that it is fairly treated in your interest, and serving as a shield between your purse and your builder. But it is. The making of plans and specifications by your architect is merely a function precedent to the more valuable service he renders in assuring realization, in the building, of the plans you have accepted. How can you possibly have any such assurance when you employ in but one man, one interest, or one aggregation, the persons who are to please you on paper and then to convert the picture into steel, wood, stone, brick or concrete?

Unfortunately, many architects themselves, overlook or slight this prime function of their calling, that of supervisor of constructions in their charge. These make you a series of satisfying drawings, select a builder, and leave much to him which they should personally or by competent associate, closely supervise. But even this loose practice, of which the best class of architects, it is hoped, are not guilty, is safer for you than the other, wherein your builder is your architect.

You may be an architect yourself and make plans and specifications for your own building, to suit yourself better than anyone else could, but you will probably feel the need of a brother architect as supervisor of its construction and arbiter between your builder and yourself as owner, before you "get the painters out of the house".

Or, not being an architect, you may place your job with a combination architect-builder or an engineer-construction company which undertakes to design as well as erect structures, and you may get a plan just to your liking; but if you sign a contract to have such an amalgamated concern both plan and erect your building, take my word for it, you will some day regret the step.

You will have made a fundamental business error. You will have struck a blow at the root of a system which world-experience has proven indispensable for your protection. You will have omitted the shield which all usage has shown to be necessary between your purse and him to whom you have engaged to pay its contents for services as to which he is expert and you are not. You will have contributed to put on its feet a building business system so widely open to abuse that the bulk of the building and architect businesses, in the course of time and not so very long either will pass into the hands of the veriest fakirs, and, of course, to the grave detriment of public as well as private interests. What is the use of railing against "graft," and "frenzied finance" and "trust corruption" when solid and staid business men and good-old-stand-by citizens, to whom we have looked for example of civic and business virtue, will thoughtlessly pursue a course contributory to such an outcome? This is no reflection on any

man or set of men, but only an endeavor to point out the dangerous unsoundness of a business and professional (?) fad of the times.

Not all missteps bring the swift retribution which they deserve, and because of this, your case might long go unpunished, and meanwhile you may think you have escaped. But your building cannot talk and no one will have watched over it solely in its interest or yours. The tongue which can persuade an owner to open his purse to its hands, "sight-unseen" (as boys used to say in trading marbles), for the purpose of planning and also of making his building, often may succeed in causing the owner later to think that he has in the result all he has paid for. But time, to say nothing of earthquakes and fires, will give another account of what took place under that Plan-as-I-please-and-do-as-I-please-and-get-paid-ten-per-cent contract.

There is no reason of professional propriety or business morality why engineers and architects should not become contractors, and there is every reason, making for clean business and good construction, why they should. When a man by years of professional contact with construction work, feels that he understands it, he owes it to himself to take it up, if he has good opportunity so to do, if he can better himself financially, and if circumstances allow of self-respecting occupation in it. He should have no compunctions at leaving his profession. But when he becomes a contractor he ought to show that he was an honorable engineer or architect, and intends to be a trustworthy contractor, by refusing to undertake professional responsibility on jobs he seeks to secure as contractor. Property owners should remember this in choosing the contractor who is to spend their money.

An engineer or architect who combines his professional business with a contract business, to the exclusion of engineers or architects in the service of owners, is either professionally short-sighted or morally blind, or he is an egotist, who should be put under a glass case as a curiosity. If he realizes the mission of the engineering and architectural professions to human society, he should know that he is trampling on that mission, to the public injury, to the detriment of those with whom he deals, and to the utter ruination of his profession. If he does not know this he is professionally short-sighted, at least, and it will be an act of kindness to supply him with correctional glasses. It might even be thought that he is without the high instincts of the professional man; though doubtless there are cases wherein this accusation would be unjust. Some good people are sometimes swept off their feet by commercial ambition, and later regret their lack of firmness.

If the professional man amalgamating himself into a designer-builder, does not realize that he is undermining his profession, or maintains that the profession should follow his course, in the interest of "progress" by the new way of getting your building builded, then we may assume that he can not see on the moral side of the subject. He does not see that his way of doing business is, practically, to say to the client: "Dispense with all time-honored safe-guards, Mr. Owner: permit me to put my hand into your pockets, draw out your money, expend it in a building for you, that I will design and supervise, and for which service you will pay me ten cents on each dollar I spend for you." If that is not an immoral proposition for one man to make to another in business, what is?

Surely, it is not based on any practice which heretofore has been proven sound and safe in the business world. It seems to presume on the owners soft-headedness, or his thoughtlessness, or lack of business

experience. If either of these, then it is immoral business to make such a proposition. Perhaps in some cases it may be grounded on self assumption of superlatively superior moral and business worthiness on the part of he who makes the proposition. Then it becomes a sort of honest "We-are-good-We-are-capable-We-will-take-care-of-you" proposition. If I thought the business world was ready for that sort of thing, I would have nothing to say on the subject.

It matters not that any particular individual or aggregation practicing in this way be both capable and honest. The business principle on which they operate is so unsound that the practice will surely and swiftly come to a stage of offensive decay. Meanwhile, some owners will have saved (?) a paltry five per cent in architects' fees; but they may later have the chagrin of seeing that they have contributed toward debauchery of an honorable calling, and have helped to open the way for tumble-down construction in the upbuilding of their city.

Neither does it matter that the commercial-professional man or his company offers owners every facility for watching and "controlling" the expenditure of their money, under this I-plan-and-build-and-take-care-of-you system. This particular tune which the trumpet of this advanced-way-of-building man plays is dangerous, for it appears to lull his own conscience as well as to soothe into business torpidity the client whom he secures. What good does that so-called "control" do the owner when he is incapable of exercising it himself and has no one in his service who as a specialist is thus fitted to protect him and the integrity of his building?

Finally, if we give the commercial-professional man credit for moral preception, we must at least convict him of indifference to the working of his unsound business system by others who may not be safeguarded by his brand of refined honesty. And, as a corollary, we must further conclude that he has such a high opinion of himself that he really believes he can long-continue to do full justice to his clients, and at the same time take care of his own interests, in a business, of dollars and cents, wherein he has all the advantage and his clients are, from the start, prostrate at his feet.

Property owner, think of this situation. Do not put yourself in it. Human nature has not been made over again in the person of this amalgamated business creature, the engineer-contractor or architect-contractor or company, working under an I-plan-and-build-it contract system, for your benefit. In the arena of life there are many battles. Enter with a shield those in which you are not expert with a sword. You are not a technical and business swordsman in matters of building. You are not expert in cut and thrust over questions sure to arise if your best interests and those of your building itself, are consulted in the business and technical details of its erection. You cannot serve as sentry over the channels of supply of all that will be necessary in the work. You cannot puncture with any weapon you have the bags of technical wind that might be substituted for sound sense material in planning your construction. Beware, in signing a contract, lest you are placed prostrate where you are helpless. Your engineer or architect-builder contract vis-a-vis is a skilled gladiator in these matters. He will have it all his own way. The arena of the only real conflict in your affair will be his inner conscience. He there has for an audience his own business interests and a bastard representative of your interests, through the fact of his being your architect born of your builder. When the time comes for decision of matters affecting the integrity of your building, is it not probable that his audience will, by a large majority,

as did the brutal Romans who wanted to see the fallen combatants in their arenas killed, present "thumbs down"? Will not his interests lead him to act in the interest of his interests? Of course they will.

It should not be necessary to assume that any particular party is not doing a legitimate building business. It should not be necessary to show that this engineer-contractor or architect-contractor way of conducting the building business is a way being resorted to in some places by building fakirs. To widely open the eyes of the intelligent person to the private and public danger in such practice, it should only be necessary to point out that it is based on an idea which from the viewpoint of world-wide business experience, is rotten.

If men of means chose to go into the building business as a money-making proposition, and employ an architect or engineer on salary or take him in as a partner, and thus secure his professional services to plan, supervise and erect buildings by contract, for their profit, they occupy a different position from their professional associate. They with their money chose to enter the engineer's, architect's and builder's callings, and they find a professional man who in consideration of the salary or share interest or both, is willing that his professional brains and experience be farmed out on speculation. That is all there is to it, so far as the capitalists are concerned. We cannot help noticing, however, that capitalized law-jobbing companies have not been similarly formed. There are probably attorneys who would farm out their services in such a venture for a good salary or a share of the profits. Necessity might offer an excuse for the lawyer in such a case. But no attorney recognized as trustworthy and a man of ability would put himself in such a position. The very capitalists who would do such a thing with an architect or engineer, would not think of doing it with a lawyer because they would despise an attorney who would join them on such a footing.

And so, they would look upon a doctor or a surgeon as a dangerous quack who would allow them as a company to sell his professional services in a job lot with his prescribed remedies and bandages prepared at their shop, together with lotions, pink powder-puffs and other things carried in stock by druggists such as they themselves would in that case be.

A property owner may choose to do his own building and employ professional men to plan and execute the work for him; or a group of owners may form a company to plan and erect their own buildings in like manner; and this would be absolutely legitimate for all concerned, only somewhat discouraging to independent professional men and builders.

Finally, the architect-contractor may say he has had such unfortunate experience in having his clients' buildings wretchedly erected by contractors, that he has determined to throw to the winds all professional considerations and protect his clients and himself by undertaking to erect as well as plan their buildings by contract. Such a course would be heroic. But many a hero has fallen through choosing the wrong horn of the dilemma by which he was confronted. The architect in such a case simply convicts himself of having failed as supervisor of his clients' former works, and of being deficient in firmness to face the contractor bogey for the future. There is nothing more to be said of such a case, except that all else in this talk applies to it.

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

It would be to the public good 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 building. The practice would conduce to perfect and purify the engineering and architectural professions having to plan and supervise such work in the client's interest.

Professionally-competent contractors, both individuals and companies, very properly submit plans prepared by themselves or their engineers or architects, by which they 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 peoples 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 for them 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 and undermine. 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 vaunted 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 and to the interest of the public, should reason with them, and property owners should, for their own protection, help to the end in view—the saving of the technical professions from the grasp of mere commercialism.

* * *

Painting Galvanized Iron

MUCH difficulty is generally experienced in getting paint to adhere firmly to galvanized iron, and various experiments are resorted to to overcome the trouble. The government has adopted a mode of procedure that seems to be satisfactory. Their specifications compel the use of vinegar for washing the surface preparatory to painting. This roughens or corrodes the surface, and gives the paint better adhesion.—Modern Painter.

* * *

Tall Chimneys

THE highest chimney in England is that at Barlow & Dobson's mill, at Bolton. It is 368 feet in height and the material used in its construction was 800,000 bricks and 122 tons of stone.

This big smokestack is excelled by at least two in Scotland—the St. Rollox chimney in Glasgow is 445 feet and the Townsend chimney in the same city is 468 feet high.

All chimneys vibrate, says Harper's Weekly, especially in a gale; it is a condition of their safety, but the oscillation at the top is a serious matter for any one at work there during a high wind, and the job is postponed to a calmer day.

Lancashire also boasts one of the crookedest chimneys in the world—a shaft at Brook Mill, Heywood—which is nearly 200 feet high and more than six feet out of plumb. It has been belted with iron bands and is considered safe.

Cause of Earthquake Shock and Its Effect on Building Foundations

By ROBERT MORGENEIER, Architect and Engineer

TO KNOW much of what has been said, written and observed on earthquake phenomena from the time of Leibnitz to Rudolph Falb, makes it somewhat easier to understand the nature and cause of the constant seismic tremors and occasional vivid shocks, which prevail in a certain part of the State of California. In addition to this knowledge, however, a close observation of the phenomena and a careful study of the field in which it is manifest, will give the investigator additional and very valuable information, and will above all convince him that all those general and wide spread causes, affecting whole continents more or less, are not as active here as some may be inclined to believe. Undoubtedly upheaval due to contraction of the mass of the earth is operative on the Pacific Coast, but its operation is so gradual and its climaxes so wide apart, that they are liable to escape the observation of all except the seismologist.

The one first fact confronting the investigator, is that the shocks as regards destructiveness are, and in every instance have been, confined to a certain limited territory, skirting the coast; and, secondly, the territory contiguous thereto is practically in constant repose, or in other words, that not only is the area of destructiveness within the limits of the State, but also the cause of such disturbance is within or at best very close to such disturbed area. The reports, examinations and surveys made since the destructive shock of April 18, 1906, coincide with those covering the shock of 1868, and the surface evidence in the way of scarps, cracks or faults are practically the same in both instances. These latter show the area of disturbance was limited, that it can be readily segregated and show relative to its position with the greater undisturbed area.

On Figure 1 is shown a diagrammatic or generalized geological surface map of the State, which I apprehend will suffice to make clear the various points to be herein passed upon. The diagram cross-sections on Figures 2 and 3, will serve to further elucidate the subject. It will be noticed that on Figure 1, and spreading centrally from the indenture of San Francisco bay, are shown four shaded zones marked A, B, C and D. This shaded part shows the entire area in which the destructive shock manifested itself in 1868, and again in 1906, and furthermore embraced considerable territory in which the shock was of a less serious nature. The zone of greatest destructiveness is A, the next B, and so on to D, in which destruction is rare or entirely lacking, the effect being more in the nature of a violent shaking, particularly heavy waves, being greatest in the zone A. Within the zone A are the counties of Sonoma, Marin, San Francisco, San Mateo and part of Santa Clara and Santa Cruz, and passing through these, as indicated on Figure 1, by the irregular line GG from F to H, is a new fault due to the shock of April 18, 1906. Along this fault disturbances of the surface formerly were not so manifest. Embraced in all of the zones from A to E are the above counties and the whole or fractional parts of the counties of Mendocino, Glenn, Colusa, Lake, Napa, Yolo, Solano, Sacramento, San Joaquin, Contra Costa, Alameda, Stanislaus, Merced, Fresno, San Benito, Monterey and San Luis Obispo. The

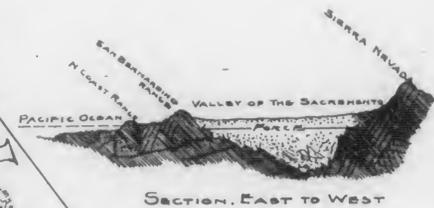
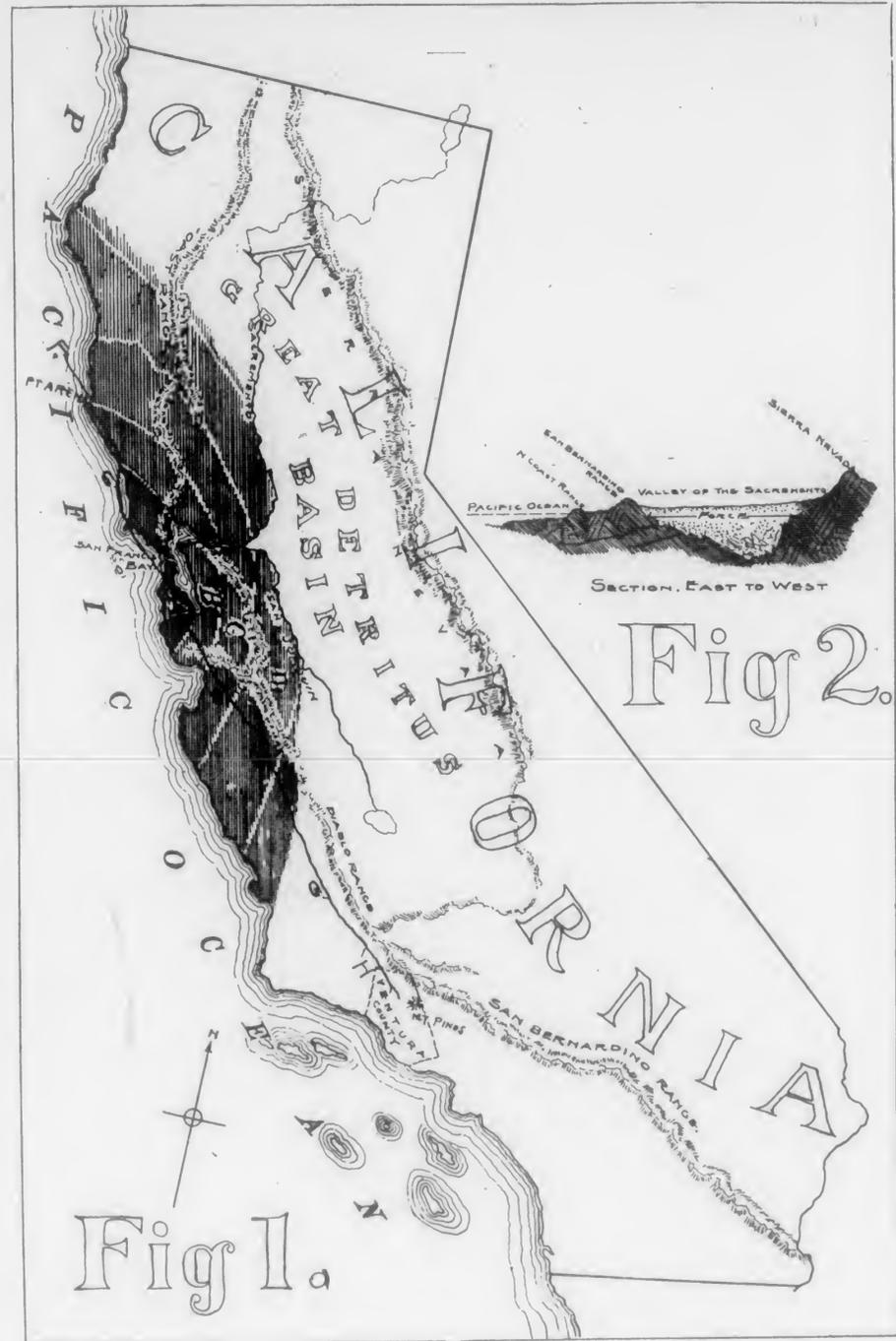
new fault just referred to starts at F on map 1 and coinciding with the location of Point Arena; and terminates at Point H, coinciding with Mt. Pinos in Ventura county. As shown, this line follows in a general way the old scarps, cracks or faults apparent on the surface and due to ancient tectonic quake, as attested by their great lengths.

The shock of April 18, 1906, was due to subsidence of undermined strata thrown out of equilibrium by a preponderance of stress, affecting it primarily, and supplanted by impact coming in a direction from easterly and westerly. The region of the fault proved the point of greatest weakness with the consequence that dislocations with attendant movement was felt more or less along the entire line.

For the limited purpose of this communication we may consider the area within the zone shown on Figure 1, as that part of California in which seismic shock prevails; and therein and adjacent thereto, seek answer to questions that directly interest us, viz: First, What causes shocks? Second, What is the general direction of the active force and the direction and extent of the earth waves generated? Third, What, if any, precautions can we exercise in the construction of buildings to safe-guard us against such shocks?

Avoiding all technical detail and exploitation, I submit that as regards the first question. The prime cause of subsidence being mass seeking equilibrium, therefore the lack of this in subsiding area can only be due to the progressive removal of supporting, underlying strata and assisted therein by an exterior force which overcomes the inertia of the mass. In this case the subsiding mass was the shattered, crumbling and faulted rim of crumpled and differing strata, verging on or underlying the ocean, as indicated by the fault line G, and forming the western boundary of two spurs, or natural wing dams, detached from the greater mass of the Sierra, and at the fourth and final upheaval, when so detached in the process of upheaval receding westerly to a lower level, thereby forming a primeval chasm 200 miles wide by 300 miles long and of stupendous and unknown depth. For a faint conception of this movement, or rather the results arising therefrom, see the diagrams Nos. 2 and 3. The chasm is again filled with subsided fault strata from the mountain mass, intermingled with sand, gravel, broken and disintegrated rock, the detritus of ages of erosion, floatation and local seismic rise and fall. Assuming that all changes in the crust of the earth are due to upheaval, due to the constant contraction of the mass of the earth and that simultaneously a leveling process, due to water and disintegration of the mass, is going on, then the great detritus basin and its geological function may be readily understood. The contents of the basin are really the connecting link between the mass of the Sierra and the Coast Range. It is as a huge wedge driven obliquely between them with its point under the lesser mass and by gravity and hydraulic pressure crowding westerly.

In illustration of the force of subterranean waters, when acting in conjunction with stress of matter seeking equilibrium, Figure 3 will prove instructive. The central line of cleavage between the Sierra and Coast Range masses are still somewhat surface-indicated by the beds of the Sacramento and San Joaquin rivers, and where these trend and open out to discharge their waters, either surface or subterranean, is located the head, the resultant of the total stress, which in the ages to come is destined to crush downward and again thrust upward and outward that region indicated by the shaded zone sections from A to D, Figure 1.



Figures 1 and 2

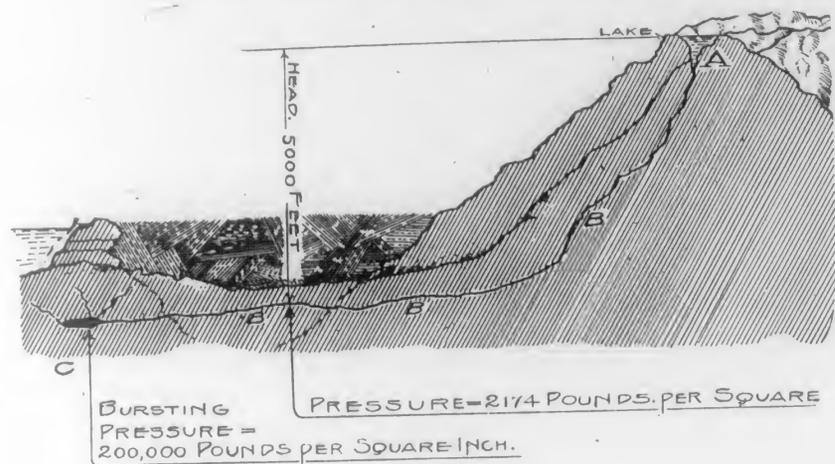


Figure 3

In the superior mass of the Sierra is found the immovable background of the force acting westerly, the accumulated stress is vented by the coast, which ruptures. Before such rupturing, a crushing and tilting of underlying strata, accompanied by subterranean erosion, has carried the weakened area, or some part thereof, to the verge of instability, hence the result. Of the great abysmal descent of the waters, the height and intervening distances of the respective masses and the angles of their slopes, give some additional information.

I am strongly tempted to offer a few figures on the ponderous force engendered in such depth by water along, but recall that I have promised not to intrude with technical information, and particularly because this is not intended for the laity, still a reference to the diagram Figure 3, will show what occurs at even much higher levels. In consideration of the proceeding, I assume that the general direction of the seismic wave is from east to west. That the power upon which it depends is accumulative and when so accumulated manifests itself in tremors often noticeable at the surface. The resultant may be at any point between the main masses and many, in transmission, impact, deflect and gyrate to every conceivable angle.

To the third question we can say, that, without taking up the more abstruse geological questions of the intensity of the shocks, in different locations, it may be safely assumed that as we recede from the coast, the effect diminishes, and that the small number and slight surface fractures and known earth cracks are an absolute assurance that we are not in any immediate danger of being engulfed even in the zone A. A knowledge of the effect of force acting on masses of various degrees of elasticity and also a knowledge of the effect of the shocks heretofore experienced, makes it self-evident that where strata protrudes or forms the surface, any building firmly founded thereon is safe, on the other hand on alluvial soil resting within the digressions of the rock, the building will be subjected to direct westward shocks, eastwardly rebounding, torsional twists, by the forming of couples, etc., and in such location, public buildings of magnitude should be constructed of iron or very thoroughly reinforced. On "made" ground, like the filling of the old Mission marsh, any building of any considerable height, should be anchored to piles sent down to a good,

firm foundation. Of buildings, which in the past were not so founded in this district, the "Valencia Street Hotel" was a terrible example.

Transversely of any surface faulted locality, the foundation walls should be of concrete and properly reinforced with steel, also corners protected in the same way. In San Francisco, as well as elsewhere in the zone A, the direction of the line of travel of the shock force should, if possible, be ascertained and the foundation, as well as transversely thereof, should receive thorough reinforcement to insure a certain degree of flexibility. The walls longitudinally with the line of force should be thoroughly constructed, and of material which will indurate by age. Naturally all footings should be on levels and the different "steps" tied with reinforcement.

These or similar precautions should be taken, if not for our own benefit, for that of posterity.

* * *

Jefferson as an Architect

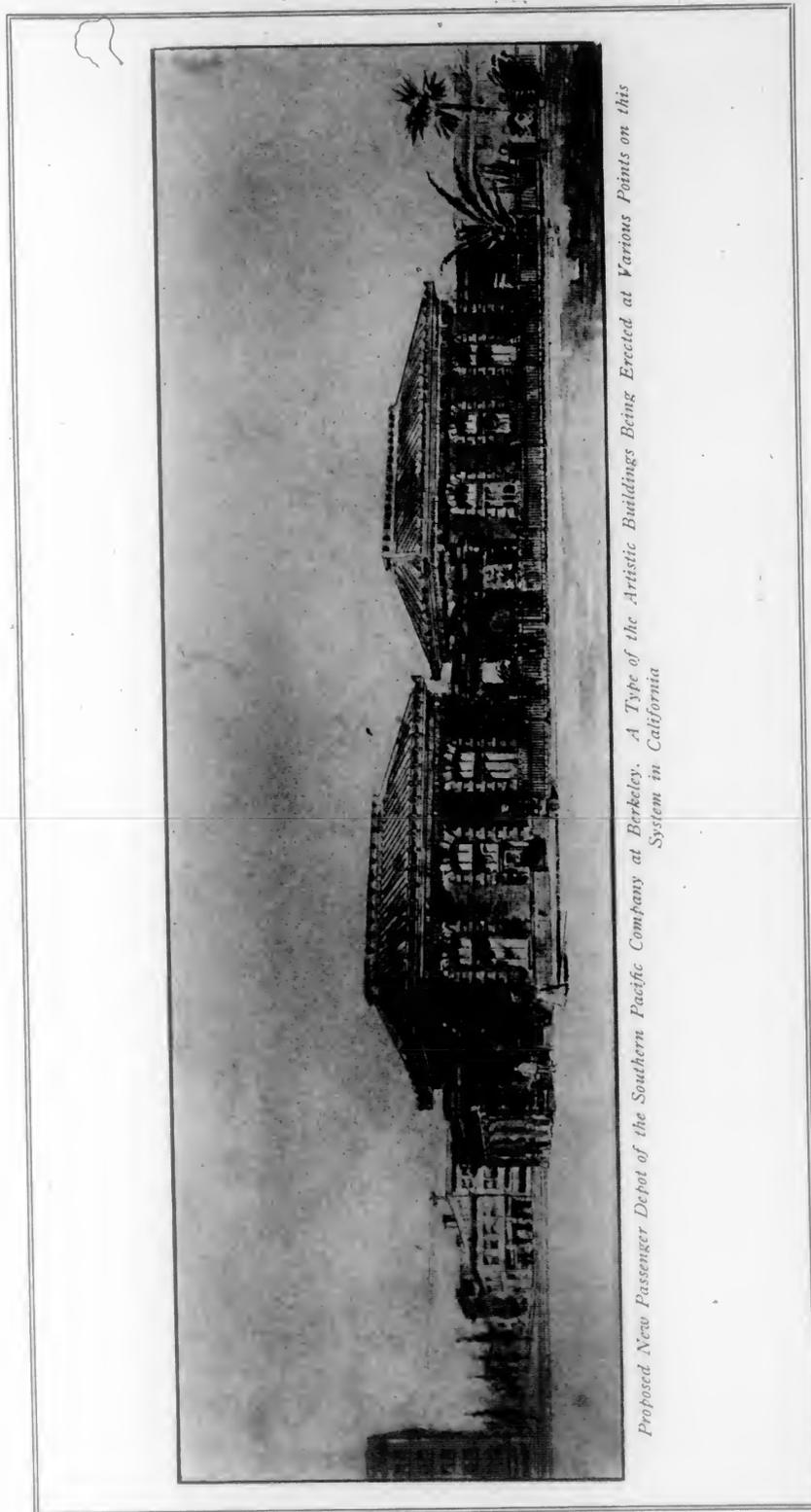
It is, perhaps, not generally known that Thomas Jefferson, the author of the Declaration of Independence, and twice President of the United States, in addition to serving as one of the leading architects for planning and building a great and free republic, was likewise an architect in the conventional sense of the word. Poplar Forest, in Bedford county, Va., was at one time the home of Mr. Jefferson, the estate coming to him through his wife. Jefferson built the house himself, after plans of his own drawing.

This old-time mansion which is very spacious, containing twelve large rooms is octagonal in form. The rooms are all very high for the time when the structure was erected, and excellently well lighted. The dining room and parlor are each twenty-eight feet long, with an open fireplace at either end. Like all southern residences of the time, and largely of the present for that matter, the front and rear are provided with long porches, or "galleries," which add decidedly to the architectural beauty of the house, while increasing its convenience and comfort. Every part of the 1100 acres which comprise the estate can be seen from the residence, which demonstrates the wisdom of the great statesman in selecting its site. Poplar Forest is today one of the finest places in Virginia.

* * *

Hollow Glass Bricks

The demand for hollow bricks and building blocks for house construction has induced glass manufacturers to put hollow glass bricks on the market, and they promise to be used extensively for novel and artistic effects. The first glass bricks, being solid, proved a failure on account of their cost, but the hollow glass bricks can be made at much less expense. They are lighter and stronger than clay bricks, and are such excellent non-conductors that walls built of them are proof against dampness, sound, heat and cold. The bricks are sealed hermetically when hot, and are placed in walls with a colorless mortar made of special glass. The bonding strength of the glass mortar is almost as great as the bricks themselves.—Ex.



Proposed New Passenger Depot of the Southern Pacific Company at Berkeley. A Type of the Artistic Buildings Being Erected at Various Points on this System in California

The Licensing of Architects

By W. GARDEN MITCHELL, Architect

HAVE in front of me an article from the American Architect on the licensing of Architects that, whether an advocate of the law or an opponent, I feel is so unfair that in the simple name of justice I am constrained to take issue with it.

The American Architect says that the license law has been passed by architects to protect themselves against competition and to make more easy the maintenance of rates and the accumulation of profits, and that any assertion that these laws have been made to insure a higher standard of professional ability is "the shallowest of humbug." Were these remarks read by only old stagers in the profession I would not consider them sufficiently serious to be worth disputing, but as there are many others, both in the profession and outside it, who might be misled by such statements, I think it right that the facts of the case should be set forth. The American Architect is at perfect liberty to oppose the license law, but if it so wishes we are at least entitled to demand that the objections be put forward in some reasonable manner. Improved emolument may or may not be a result of the license law, but in no place nor at any time has it been the substantial object. Base motives, such as a desire to reduce fair competition, may have been in the minds of a few, but the broad principle of licensing has always had in view the raising of the standard of architectural requirements. I have been living for a number of years in London and have only recently returned to San Francisco so that I have clearly in my mind the many discussions that have been going on there for several years past on this question of licensing or registration of architects. In England there are two prominent societies that represent architecture: The Royal Institute of British Architects and The Architectural Society. The latter society sprang into existence with the idea of correcting the faults that had been evolved and become venerated by the more fossilized and older society; it was a case of the younger genius and generation. The younger society promoted a bill (which so far has failed to pass through Parliament) for the licensing of architects. The Royal Institute opposed the bill or at least refused its support, but illogically enough this same institute permits of membership to its ranks only by examination, and just such an examination as is set by the California State Board of Architecture. The magic letters F. R. I. B. A. after an architect's name are considered desirable and honorable and to give to the public some assurance that the possessor has at least some capacity in his profession. There are however many good architects who do not belong to this or any society, and partly for the reason that as in times past the examination has not been exacting enough nor well set, the honor of membership, by the really clever, is questionable. If, however, it is necessary and desirable to qualify for membership in the Royal Institute, why not desirable to qualify for membership in the profession generally. Well, as an outcome of these many arguments and contentions in England, I could learn of only one substantial objection to the compulsory registration of architects.

There are in all times and in all places a few geniuses. Now, most geniuses do not pass examinations, for if they did they would become commonplace in the process of acquiring the general knowledge necessary.

It is equally true that there are many, I might say fools, who can pass examinations. This is sad, but it is still more sad to contemplate this one isolated genius who might give to the world something worth the combined efforts of his contemporaries, frustrated by a license law or obliged to become the ghost or under dog of a less capable associate. Most laws in an imperfect world bear severely on some one. To save the discomfiture of this one genius, the opponents of registration have fought in England. Of course, if the examining body were really astute, they would let the genius slip through, but the perspicacity of examiners is not to be depended on, and genius is not always recognized at first sight. So much for the arguments against licensing. Now for the other side of the picture. Lawyers, doctors, dentists, druggists, plumbers all have to pass their examinations, but it was argued by the Institute of British Architects, that the architect is too much of an artist to be measured by examinations. At the same time the institute admits members to study in its school and finally to membership by this same process. Now, personally, I hate examinations, and do not take ten cents worth of interest in the man who can simply pass an examination. I care nothing about him—he frequently is a stick. The man we do like to meet, of course is the genius. But it is not the object of this examination to leave in the profession only the very clever. Why, if that were done, there would be left only a few architects for each large city, and none for the country towns. No, the object of these examinations is simply to determine that the individual has made a study of his subject and has a moderate and necessary knowledge, so that the public may not be led blindly by the blind. Under the system of non-licensing of architects, every Tom, Dick and Harry, including construction companies, is allowed to design buildings. In planning, they are generally poor, in construction, weak, and in the disfigurement of our streets and countrysides, they are triumphant. Choose between two evils: A stray genius, incommenced because a dull State Board is not smart enough to pass him at sight, and a whole army of incompetents let loose upon the public. Men, who in place of years of study and scholarly training or native genius, forge ahead by hustle and audacity and an unbridled conceit born of ignorance. No, rather than modify the license law I should like to see it made more comprehensive. In Mexico, not only are architects required to pass an examination, but no one is allowed to build, except the plans have been prepared by a duly qualified architect. No plans would be even looked at, if not so signed. This, I think, in our country, should be made to apply to all towns having a population of more than 20,000. But contrary to the assertions of the American Architect, the license law does wish to promote the cause of true architecture and to this end we must educate the public mind. Now the public cannot and never has been able to easily discriminate between good and bad architecture and good and bad architects, and the granting of a diploma at least helps them to discriminate between those who have *some* qualifications and those who have none.

The American Architect asserts that it is on principle that a number of the architects in this State, have failed to take out a license. Now, from considerable experience I should say that is nonsense. Some, I believe, who have been duly licensed and are quite competent have been disqualified simply because they refused or failed to pay certain dues. On this point, they may have stood out on principle, but not on the license law generally, but such cases are the exception. Most, who do not take out a license, fail to do so because they fear they may have difficulty in

passing the examination. Now about the examination, I can speak from experience, for although I had practiced in this State previous to the passage of the Act, I was compelled on my return to take the examination, and I can say with assurance and after over twenty years experience among architects and draughtsmen, that the examination as set at the time in which I was subjected to the ordeal was not only a very well thought out examination and a good all around test on thoroughly sensible lines, but was quite the opposite of that, which almost any one could pass, as one might infer from the American Architect. In truth, it was an examination that without previous special study 50 per cent of the architectural profession could not have passed, as two out of four days were devoted to problems that could only be solved by carrying in one's memory formula that I am confident 50 per cent of the profession do not memorize. Space is too short to comment on this or other examinations. Sufficient to say that if an architect could solve all the problems in design, construction, detail and general knowledge in the four days allowed, and do so really well, he would be what is known as a crackerjack, to gain 100 per cent, I think would be the lot of one in a thousand.

I am presuming that the placing of the marks was done with as much judgment as the setting of the papers. Well, contrary to the suggestions of the American Architect, we insist that the object of the license law is to raise the standard in the profession and at the same time public taste and discrimination.

Let us look forward with the eye of imagination to the time when all states will have as one of their proudest boasts—a monumental building dedicated to the teaching of architecture and the kindred arts. Once a year, the golden-mouthed herald will be sent forth to make the annunciation, once a year, under the great dome, the dignitaries of the state and the learned in art, architecture and engineering will assemble and there in presence of a great host of the people, confer on such as may have won the distinction, the diploma of architecture. Teaching the people thereby that the distinction is one difficult to attain; that architecture is not house building, nor the honorable business of bricklaying, but a distinct and separate cult, one which demands and gives scope for as high qualities as any and in the following of which success (I do not mean monetary) is just as difficult to achieve as that high standard of ideality which with the eye of imagination, we may place before us, but may never hope to overtake.

* * *

The Reaper

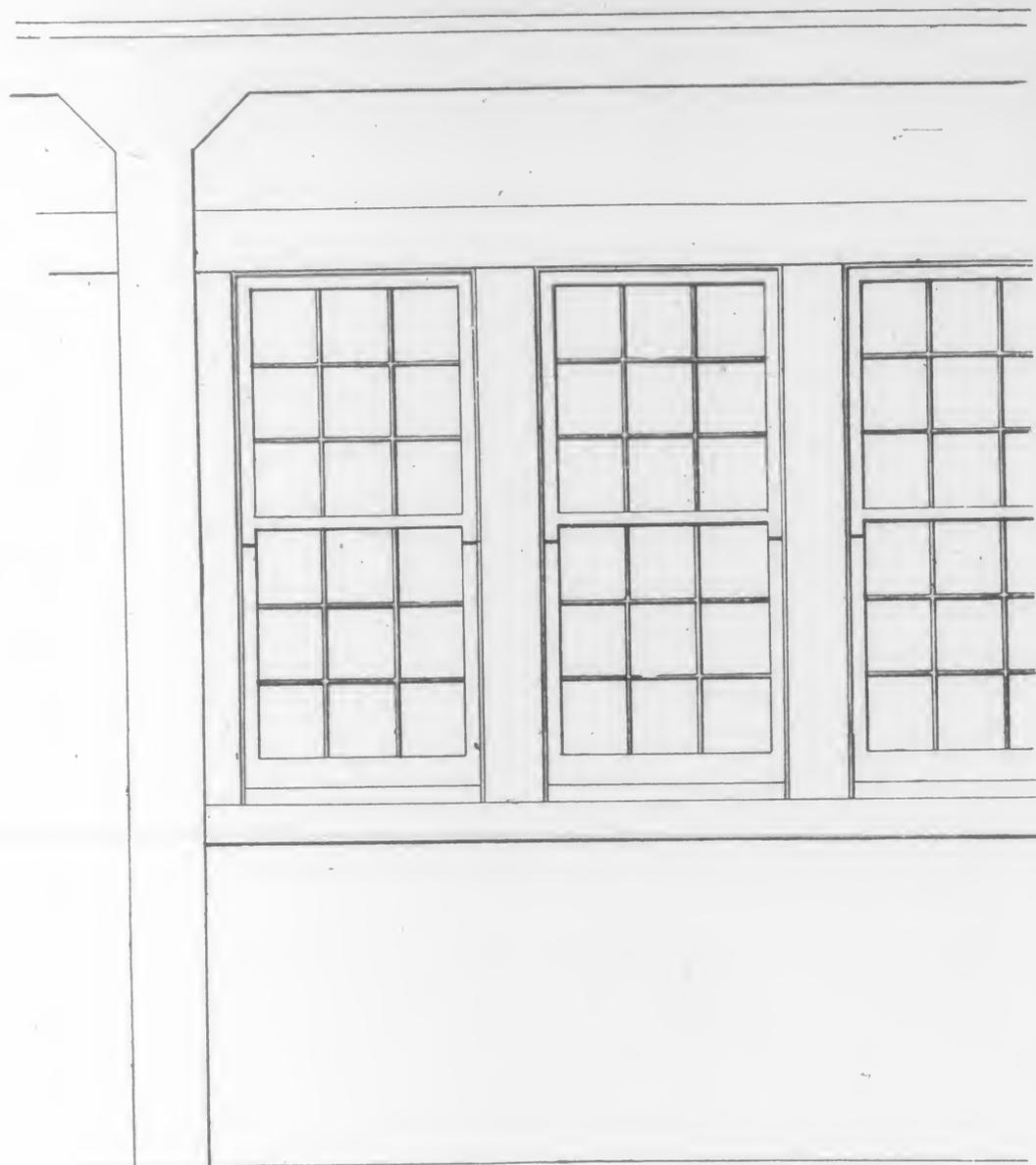
The youth who sows wild oats, 'tis true,
Must reap as he has sown;
But then his father ought to do
Some thrashing of his own.
—Philadelphia Press.

* * *

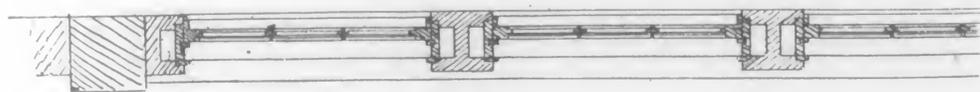
"I have three times as many applicants for apartments in my new flat building as I can accommodate," said the owner.

"How do you account for it?" asked the real estate agent.

"There isn't a room in the building large enough for a piano," explained the owner.—Exchange.



ELEVATION.



PLAN

Concrete Factory Wall, Showing Window Construction

Cement and Concrete

Cost of Reinforced Concrete Building Construction

By LOUIS H. GIBSON, Architect, in Municipal Engineering

JAMES J. Hill, of the Northern Pacific Railroad and withal a great economist, statistician and brilliant writer on subjects of interest to the commercial world, has said that the end of fifty years will see the "Ironless Age." Maybe, but may not that period when there will be no metal be postponed through the use of cement? Mr. Hill, a very wise and very efficient man, may not have realized the possibilities in the use of cement as an economical agent and its relation to the saving in the use of metal. Many structures are built with cement and metal which do not consume more than three per cent of the metal that would be required if steel alone were used. Be this as it may, we find ourselves at the beginning of the "Cement Age," and near the beginning of a "Woodless Age."

The price of framing lumber is now such that one may well consider the question of the use of concrete and steel. There are conditions where the concrete-steel structure will cost less money and it always costs much less than steel with fire-proofing other than concrete.

This statement with regard to the relative cost of the materials named is not loosely made. It is based on an extensive practical demonstration. Some months ago the writer was employed as the architect of a large factory—a building 500 feet long and 187 feet deep at its wings. The material recommended to the owners was concrete-steel. The preliminary estimate from the office of the architect indicated slow-burning construction of wood to be more expensive by five per cent and the actual bids on the work by contractors indicated a greater difference than that shown by the preliminary estimate. The owners of the property, in their eagerness to be fully convinced that they were getting not only the best but the cheapest, had drawings and specifications made for joist construction with wood girders and posts, joist construction with steel girders and posts, slow-burning construction with planking, beams, girders and posts of wood, slow-burning construction with wood planking and beams and with girders and posts of steel. In connection with these various combinations, walls of brick and cement blocks were considered. In every instance, the comparison not only resulted favorably to the concrete construction in the matter of cost, but bred in the minds of all a determination that, from every point of view, the concrete-steel construction was superior. That is, concrete-steel is not only the best, but the cheapest. So it must be when a relatively new medium, structural or otherwise, comes into being, it must not only have superior merit, physically, as compared to other good

things, but, in order to receive early recognition, it must be obtainable at a cost as low as or lower than the best competitive material. No product intended for the market can make rapid progress on any other basis.

It is not necessary to go into absolute details as to the cost of this structure in order to make a clear showing. It is sufficient to say that in the first figures the cost of this structure, as a concrete-steel building, approximated \$42,000, in slow-burning construction of wood \$45,000, and steel frame construction went well beyond this figure and this without fire-proofing.

The work of taking these figures and considering and making plans and specifications was educational not alone to the owners of the structure, but also to the architect. It gave him freedom and courage that he would not otherwise have had in dealing with a new client. So it was that from an early determination to contract all the work, it was eventually decided to do it by the day; to bring all of the material and put it in place by local labor under competent supervision. The result has been not only a high grade of workmanship, but at a cost well below that of any contract proposition. Broken stone, gravel and sand were obtained locally and the steel members purchased on the basis of specific requirements.

Before explaining structural details, it may be well to consider the question of insurance which was considered as one of the determining factors as to material of construction.

In this structure, the cost of insurance was considered before a shovelful of dirt was moved, and with astonishing results.

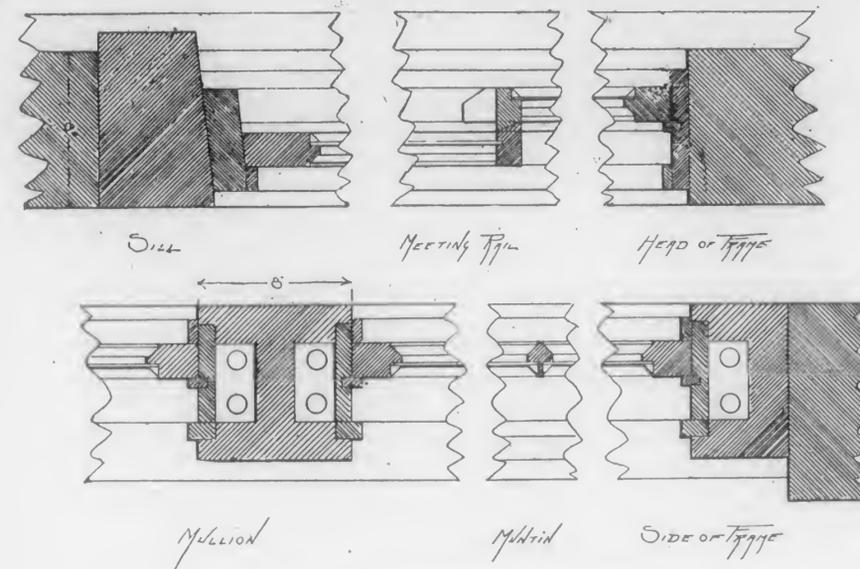
It is well to bear in mind in building that there are two elements in the insurance question, one of which relates to loss of property by fire, and the other which relates to loss of business. Again, it must be observed that there is a definite relation between the cost of insurance on the building and on the stock which it contains.

The owners of this property and their architect took no chances as to what the result would be. They met the managers of various mutual organizations with the purpose of having plans carefully examined and criticised from the underwriters' standpoint. The result showed that the insurance bugaboo is a bugaboo indeed, in so far as it relates to factory risks.

Estimates were made by the various organizations and indicated that it was up to the owners and the architect as to just what the insurance would cost. Under certain conditions of protection and construction the estimate was forty cents per hundred dollars at risk, and under certain other conditions, eight cents per hundred dollars at risk. The latter estimate was made by the Boston Manufacturers Mutual Fire Insurance Company, of Boston, Massachusetts, and was on a protected cement-steel structure. The actual disposition of the insurance has not yet been made, but here again the educational results of investigation through right sources was apparent. The owners of this property have determined to carry very little insurance on this risk and that largely on the stock. Here is a saving not only in the percentage cost of insurance, but also on the amount to be carried. This company has had the experience of being burned out before and is not apt to be indiscreet in this matter.

In this structure there was involved the work of the structural, mechanical and insurance engineer, and not the least of these was the insurance engineer.

In Indianapolis, the fire tax is twice as large as the municipal tax. The fire tax is made up of insurance and protection costs. It may be



Details of Concrete Setting of Window Frames

assumed that Indianapolis is not an exceptional instance but rather a typical one. This city is mentioned because the writer took the trouble to go to the city records and get taxables represented by improvements, and stocks in buildings and relate it to the insurance premiums and the cost of the fire department.

The fire loss in Indiana to the insurance companies alone and without relation to the insured or to the protection cost is about fifty-seven cents per \$100 at risk. This, when compared with possible rate of eight cents per \$100 at risk on a hazardous risk, shows that our immense fire tax is as unnecessary as it is wasteful. The fifty-seven cents loss to the insurance companies in Indiana is probably typical of the average loss in the United States.

It must not be assumed that cement-concrete construction alone is responsible for this saving. It was a very helpful factor, but is associated with protective apparatus. Again, this saving in cost is not wholly in terms of percentage, but as well by volume of insurance to be carried, which latter saving is largely owing to the use of cement. The Boston Mutuals have \$225,000,000 at risk and their fire loss within the last five years has been less than four and one-half cents per hundred dollars at risk.

As said before, the labor work on this structure was done by the day. This gave an opportunity for careful analysis of results, and a chance to experiment which would not have been possible or desirable under contract conditions. The work of making concrete was particularly satisfactory in its results. There were no arbitrary standards of proportions of broken stone, gravel, sand and cement.

The voids were reduced to a minimum in the mixture of the aggregate, i. e., in the stone and sand, and the voids therein and proper excess was taken as the volume for cement. This made a particularly strong concrete as only the necessary amount of cement was used. The concrete was not weakened by using an excess of cement.

The voids were first determined in the broken stone or gravel and then the volume of the voids therein was supplied by fine gravel and sand, the voids remaining being the basis for the determination of the amount of cement.

Not only was the quality very satisfactory, but the cost was less than it would have been under the usual rough and tumble method of making concrete.

Before the engineering possibilities of concrete-steel work will have been determined, we must realize that the proportion of cement in concrete must be the lowest normal amount possible, and that the mixture of the inert material, the gravel, stone and sand in a manner to reduce the voids is quite as important as any other single process. The addition of cement may be normal or abnormal. There may be too much cement or not enough.

The walls of this structure are of concrete blocks. The window frames, as indicated by the drawing, are made with cement and wood. The advantage of a cement block in a window frame is twofold. It reduces the amount of wood to a minimum and gives a maximum amount of glass.

In the design shown, the separation is only eight inches. With a different design of frame, the separation would be at least ten and one-half inches and with an exposure of that much wood to the action of fire.

It will be seen that the weights for the sashes run up and down in the box formed in the cement. The cement box frame has great insurance value over wood or metal. An eight inch mullion of brick for box frame windows would not be possible. Again, the form of the cement part of the frame is admirable as a supporting column for superimposed weight.

The pully style and sash might be made of galvanized metal and in this way still farther reduce the fire hazard.

The cost of an all-wood frame and mullion and the combination of wood and cement is, under normal conditions, the same.

* * *

Advantages of Concrete

THE advantages of concrete on the mechanical side are these: It is proof against fire, wind and water, rats, insects and dry-rot and the danger of electricity. It needs no painting or repair. Fire or water overflow inside can do only local damage to the contents of a room and no more. It becomes stronger and harder with age. There are no leaky roofs, no damp or cold east or north rooms. There is great economy of heating. Being a firm mass throughout, like a house made of baked clay, there is no vibration, and in case one spot of the foundation should be undermined the well-knit structure might not show so much as a crack. It is practically earthquake proof. Concrete is healthful. It leaves no fissures for dust or for insects which spread disease. It is cool in summer and warm in winter, and with a minimum of exertion can be kept sweet and clean.

* * *

"Genius is the ability to take infinite pains!" Not a bit of it. Anybody can take pains, if he will. Genius is the ability to apply your pains in the right way and along the right line. Genius is the ability to discriminate.

Humbug in Reinforced Concrete Building

By WM. HAM. HALL, C. E.

The following is the first paper of a second series of "Talks to Property Owners," by Mr. Wm. Ham. Hall, apropos of the building situation throughout the larger cities of the United States, and specially applicable in San Francisco at this time. The title well tells what it is about. The matter will be eagerly read by those having civic pride and interest, as well as by those having buildings to erect, or who are in the building business.

THE scoring administered to San Francisco last April was opportune for the introduction of a new class of construction into this city; namely, reinforced concrete.

This type represents the long step forward made of late years in the building art. It is one of the two practical growths in building which have been along scientific lines. It stands for development of the building business on a higher plane. And it is, at the same time, the convenient stalking-horse of the building fakir.

Reinforced concrete is selected as the subject of these talks to property owners and citizens, not only because it is a comparatively new thing in building practice, and consequently a stranger to them, but because it is a good thing, peculiarly capable of being grossly abused and thus being made into a bad and dangerous thing, and because it is being so abused in many places throughout our country.

No other class of buildings can be made more safe and lasting than those of reinforced concrete. No other class of buildings may be so deceptively and utterly unsound and sure to have but short lives in proportion to cost, as those of reinforced concrete.

No other class of buildings, when well designed and constructed, will preserve their integrity so wholly and completely under earthquake stress, as those of reinforced concrete. No other class of buildings, being poorly designed and constructed, will tumble down so completely and disastrously under earthquake shock, as those of reinforced concrete.

No other kind of building of equal cost can be made so nearly fire-proof, as one of reinforced concrete. No other kind of building with right claim fire-proof quality may be more utterly worthless after a fire has roasted it, than one of reinforced concrete.

In no other class of construction are incompetent people so apt to be cock-sure that they know it all, and so impressive in making others believe so, as in reinforced concrete. In no other class of construction may the property-owner be so grossly deceived by those with whom he may have to deal in the erection of his building, as in reinforced concrete.

Conditions in San Francisco are such as to invite the presence in the building industry of those who are apt to do this sort of thing. The outcome of such practice cannot be otherwise than dangerous to life, harmful to business interests and depressing to property values.

We seem to be entering upon a very carnival of reinforced concrete building. The work thus far is not all good. Some, at least, of it is distinctly bad.

In this regard San Francisco is not different from other cities in our country where such construction has been introduced, except in amount

going on at one time. But we have only commenced our building carnival. If it develops as expected, it will become a wild rush. What then?

There is a consideration which we must not lose sight of. We have the reputation of being an earthquake city, and we are. We cannot move San Francisco away from the great earth fault not far to the west of us, which made our quake of last April; and sooner or later it will make other such shakes.

A notable reinforced concrete failure in San Francisco would attract much attention and do much harm not only to the cause of construction in concrete, but to the City as well. It is not enough that it might not be your building, Property Owner, which you think you have committed to competent and reliable hands. If there be failures of such buildings here, and it is the general opinion of architects, engineers and contractors now engaged on the work, that, in some cases, it will not take a very severe earthquake to cause them, they will cast doubt upon the integrity of other buildings of their kind, for a reinforced concrete building cannot readily be proven for what it is worth or shown up for what it is not worth, after it is built.

Abject, prostrating failures of reinforced concrete building are occurring now and again elsewhere, without the aid of earthquakes. Our technical papers have given details and illustrations of half a dozen such failures within the past few months.

The public does not have its attention centered upon these lessons. Consequently, it does not learn them. The property owner, as a rule, seeks to build cheaper than he ought to, for the result demanded. Consequently, he is often an easy mark for some one who will deceive him as to the prospective cost, and the integral value of the proposed construction.

For a quarter of a century engineers have been preaching the merits of reinforced concrete. For that quarter century architects, in gradually diminishing numbers, to be sure, have opposed its introduction into building practice; while builders, as a rule, set their backs against it. Little by little; here and there; now and again, it has been advanced in public favor and use.

Its extreme adaptability and structural value were shown by engineers applying it in very thin and flat span bridges, very light and economical retaining walls, and dams and other structures. The position of those who were fighting its battles in city building practice was thereby upheld and justified. The art was much perfected. Engineering societies discussed carefully prepared papers as to its theory and practical application. Engineering periodicals gave space to accounts of its use. Architects became converts. Notable buildings were erected of the newly favored type. Public demand for its use grew. The spirit of commercialism saw its opportunity.

And now, after these long years of fighting, experimenting, demonstrating, on the part of the professional civil engineer; after volumes of accounts of details of practice, success and failure, which he has prepared; after other volumes of carefully worked out theories based on experimentation and practice, to guide future design, which he has produced; after the profession has had its attention centered on this subject, in theory and in practice, in good construction and in bad, in its various systems, parts and details, until to many civil engineers it is as a household word; the so-called "practical" man, the commercial man, and the patent-right man, the unprofessional amalgamated engineer-contractor and architect-builder, and

the professional upstart assume to know more about this way of building than anyone else. These are they always who are most assiduous and frequently most successful in getting the ear of the man who has the money to put into buildings.

The art of building in reinforced concrete is a civil engineering development on a high plane. If designing and supervision in the practice is turned over to people not capable in, or not implicitly faithful in such art, there will be disastrous results.

The official door was long closed against reinforced concrete building in San Francisco. There was strenuous opposition to its being opened, thought to come from interests involved in other building materials and methods. The architects as a rule were indifferent to the use of reinforced concrete. The builders, except a few concrete workers, opposed it or did not want to bother about it. Only a few engineers took active interest in the subject, though many appreciated it. The public knew nothing of it, and cared not at all. Were we not solidly and well built in brick and stone; and was not steel being well introduced and applied? The great earthquake, in shaking down brick and stone, shook the official door ajar for reinforced concrete. A small number of professional men, engineers mostly, stepped into the breach. The concrete workers were there also. The opening was effected. The new building ordinance, allowing reinforced concrete construction, was passed. And, forthwith, there appeared a multitude of reinforced concrete advocates, experts and specialist builders.

A number of these seem to have come from elsewhere, the new comer has an advantage in connection with a new thing. He can claim, whether truthfully or not, to have been practiced and expert in it elsewhere. He has no antagonisms among prominent local people, such as are unavoidably made by every engineer or architect who does his duty. The local public is not familiar with his shortcomings. He is received with special courtesy and attention just because he is a newcomer, introduced from some more advanced city, and vouched for by some local person of good standing. People under a great affliction are prone to look for a prophet. The prophet always comes from some other city. He usually is stoned if he sets up for one in the place of his home.

It is difficult for the layman to understand how local professional people could know anything about reinforced concrete, for instance, seeing that such buildings had not been constructed here. The layman often is guilty of not knowing the difference between a thorough engineer, who knows his subject as part of his profession and is a practiced man in that profession, from the mere technical worker, who knows his art only from the teaching of labor in it. The layman may forget that local engineers may go and by observation on works in a number of places become particularly proficient in a wide range of experience and practice in reinforced concrete or any other specialty.

The veriest fakir might come into a city as an amalgamated engineer-construction company, for instance, and victimize a number of prominent citizens by imposing upon them under contracts to plan and build for them. He might misrepresent, not only as to his own achievements elsewhere, but as to the practical knowledge of local engineers and architects of the subject he takes as a specialty. He might claim to control some patent device which he does not control. He might assert special worth as to some system whereby he builds, but which is known to the engineering profession to be grossly defective. He might show photographs

of his creations in his last stamping ground; but how is the beholder, especially if non-professional, to know whether the structures are good or very bad, and likely to fail wholly or in part? He might show letters of satisfaction from clients he has built for; but how were they to know, not being professional, whether their buildings were structurally well or ill planned, or whether sound or rotten jobs? He might show complimentary press notices of his worth as a builder; but such ads are frequently bought. He would not show, of course, notices which had denounced him as a fakir, if such there were, nor would he show, if such was the fact, that the engineering profession knew him to be a shallow humbug. All these things might be done by a newcomer into a community, especially a city in business confusion and grasping for straws to float on. No one, of course, would feel called upon to expose such people, individually, merely to save individual property owners from being victimized. But after a while this sort of thing becomes a public menace.

By the close of 1906 over fifty permits had been issued, nearly all within the four months preceding, for erection of reinforced concrete buildings or large parts of buildings, under the new ordinance, and located within that part of the burned-over area, only, bounded by Van Ness Avenue, Eleventh and Channel Streets and the Bay front. This number is rapidly being added to.

About that time several engineers and architects called upon the Chairman of the Board of Public Works, and in a friendly way drew his attention to conditions with respect to reinforced concrete work being executed in the city, which they thought he should take cognizance of. The Chairman courteously acknowledged the truth of what they said, but feared he would not be able, under existing conditions, to correct matters. He promised, however, to do all he could toward ensuring good construction, which he desired as much as they.

At the same time, he reminded his callers that the Board of Supervisors, of which he formerly was a member, had acted on the recommendation of a committee of architects and engineers, in adopting the reinforced concrete part of the building ordinance, and he implied that if it did not work aright, those who had urged it, might be chiefly to blame before the public.

The Honorable Chairman's ground was not tenable, of course, for the best possible building ordinance may not work aright if it is not duly and efficiently administered. The object of such an ordinance is to vest in the city a supervision of such matters, and to lay the basis and provide the means for exercise of that supervision.

Already, some of the local opponents of reinforced concrete are predicting failure for it, and consequent expunging from the building ordinance. That ordinance is quite full in specifying what reinforced concrete shall be, how designed, how proportioned and how put in. Though the ordinance is far from perfect, if its provisions were even nearly complied with, under efficient expert supervision, the result would be safe and lasting work.

The Board of Public Works, whose duty it is to see that specifications in the ordinance are complied with, have not a nearly sufficient force of examiners and inspectors to do the work of this kind which the law and public safety demand shall be done. One inspector, only, is employed to see that the law is not violated in the process of construction of over

fifty reinforced concrete buildings, spread over a wide area, wherein he has also several hundred other buildings, of brick, stone and steel, to in like manner inspect. He cannot keep track of, much less efficiently supervise the work in progress in his field. He has the duty of at least four or five men imposed upon him, at least two of whom should be professional experts.

The situation in this regard is bad. It may be difficult to make it much better. It is a situation not unknown in other cities; only, it is accentuated here. The Honorable Chairman of the Board of Public Works says that he desires to do all he can to enforce compliance with the building ordinance, but the facts speak for themselves.

His records show that he has for months collected between ten and twelve thousand dollars per month as fees for building permits. This money, under the law, is collectible for examination of building plans and inspection of building work, and for no other purpose. It is a tax levied on owners who build houses, to be used for their mutual protection, as well as that of the public. The salary roll and expenses of the force employed on this examination and inspection duty, apparently cannot exceed ten to twelve hundred dollars per month—about one-tenth of the amount collected for the permits issued. The other nine-tenths seem to be devoted to some other purpose for which it was not collectible.

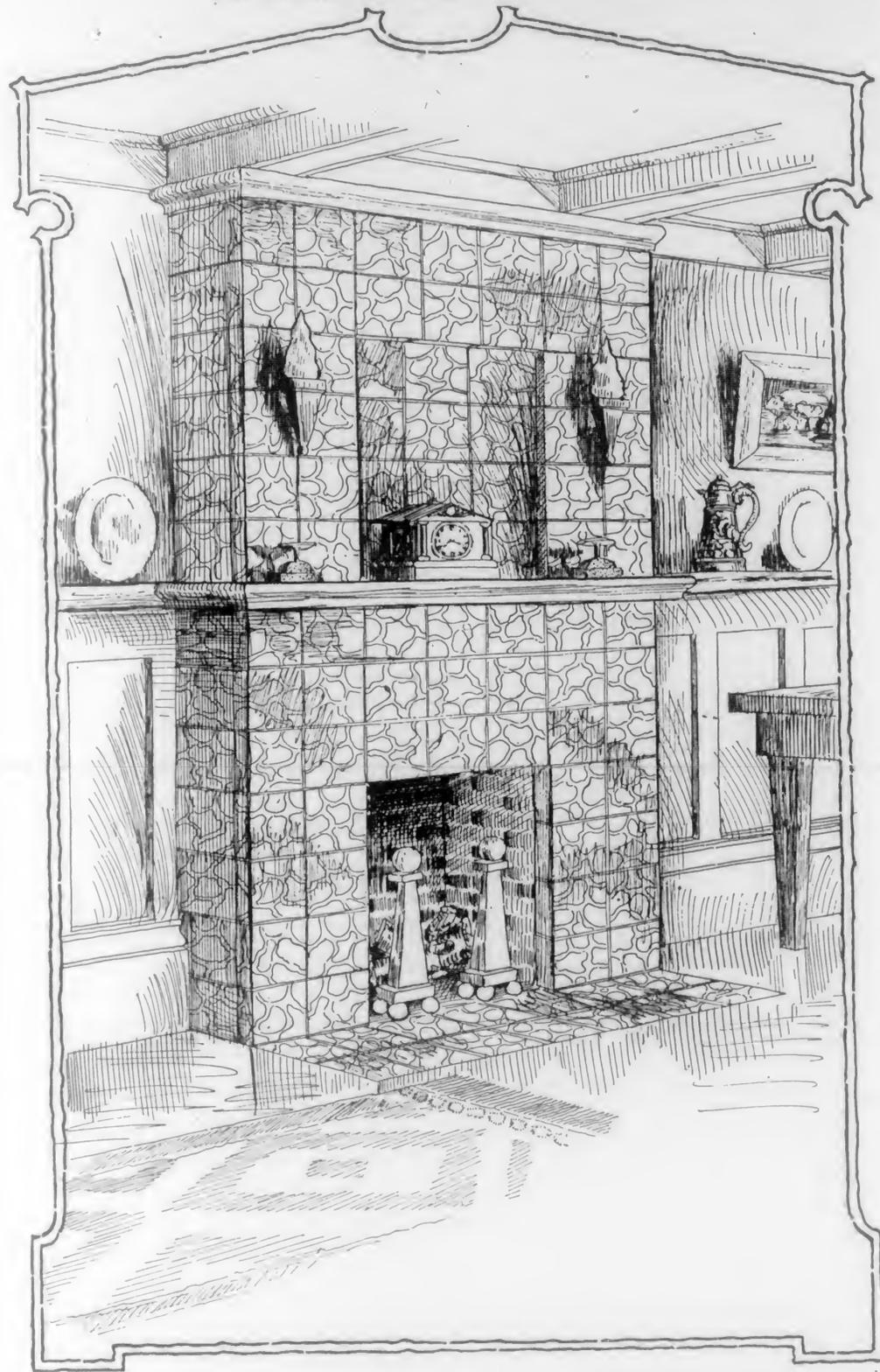
Before the passage of the present building ordinance, nearly all of the leading architects of the city were indifferent, if not quietly opposed, to the admission of reinforced concrete construction. In one way, the outcome to this time has shown they were right. The practical weakness of the system is in getting the work planned aright and executed well, and in getting an adequate municipal supervision of it.

A San Francisco can be built of reinforced concrete which would not be, at all materially, injured by an earthquake that would shake a brick and stone San Francisco as harmful as did the one of last April. A better brick, stone and steel San Francisco can be built than the one which we had. But it does not seem that a new San Francisco will be built under present conditions, of any material, that will be any safer under earthquake stress, or even as safe as the old. Something must be done.

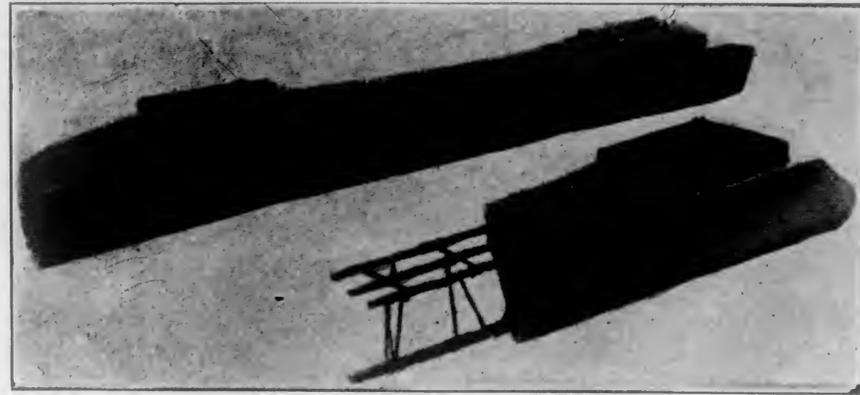
Possibly, publicity might make for a better outcome. The owner, after all, is the party directly at interest, in each case. If he wants a safe building and pays enough to get one, the chances are that he will get it; that is, if he knows how to avoid humbug. If he has in mind to get the cheapest building which will serve his purpose, regardless of the building ordinance and public safety, possibly he might be influenced for good if his neighbor or any other passer-by were enabled to detect violation of the ordinance, or of good practice, in the building being erected on his property.

There are enough books specially for professional people in building practice. Possibly one for the owners and the public may not be amiss. There are enough books which show engineers how to build in reinforced concrete. Possibly, one which points out also how not to build in it may be of value to them.*

*This is the first chapter of an attempt at such a book. It will not deal in personalities, but will, without specifying buildings, tell of and illustrate bad as well as good work. W. H. H.



A Mottled Tile Mantel



The "Percival" Concrete Tie

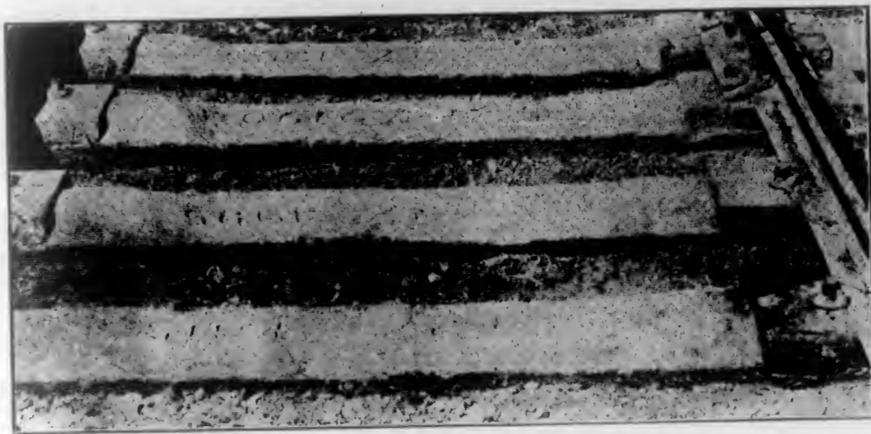
Concrete Ties for Railroad Use

DURING the past year no less than a dozen patents were granted to inventors of concrete railroad ties. There is much significance in the present activity of designers and inventors along the line of attempting to hit upon some form of tie which shall be better than the present wooden tie, more lasting and at least as cheap as those which are still in general use. It indicates a realization of the field which is already open for new forms of ties. Concrete in almost every conceivable form and combination has been suggested, but it seems to be the general feeling that the reinforced concrete tie is the type that will eventually be adopted.

A number of serious problems present themselves to the manufacturer who contemplates turning out a concrete tie for railroad use. One of the most important considerations is the matter of securing an absolutely reliable means of securing the rail to the tie. Even the long-tried and familiar spikes in wooden ties have by no means a clean record in the matter of holding, and spreading rails are still a source of uneasiness to every roadmaster and trackwalker. The rapid deterioration of wooden ties is a large item of expense and the cost of employing some means of wood preservation is open to the same objection of high cost. Reinforced concrete scientifically assembled, and with some reliable method of rail-holding, seems to be the thing sought.

One of the most successful types thus far made available is the "Percival," manufactured in Galveston, Tex., but capable of manufacture all over the country. It is made of reinforced concrete, the reinforcement consisting of four corrugated steel bars, weighing twenty-four pounds in all. These are made by the Expanded Metal and Corrugated Bar Co., of St. Louis, Mo., and are of the familiar type of product turned out by this house. As the cut shows, the body of the tie is in the shape of a triangle, with three bars across one face and the fourth at the angle opposite the heavily reinforced face. Each end of the tie is thickened for about 3 feet, giving an average bearing of about 5 inches. The central portion, however, is a true triangle.

Accommodation for the rail is provided for by a hardwood cushion, $1\frac{7}{8}$ inches thick, 9 inches wide and 14 inches long. - Sockets to receive the



Concrete Ties After a Year on the G. H. & H.

cushion are cast in the tie as it is made and this socket is filled with a rigidly connected composition of galvanized cut wire and Babbitt metal. A screw spike, $\frac{7}{8}$ x10 inches, screws down into this composition and holds the rail firmly to the cushion.

Practical demonstrations of this tie indicate not only its practicability but its permanence as well. Tests that have been made as severe as possible have shown the most satisfactory results. In the case of the Galveston, Houston & Henderson Railroad Company, the ties were put in the main line track at Forty-third street, Galveston, where all incoming and outbound traffic passes and where an enormous amount of heavy switching is done. After a year of service, giving the ties as heavy usage as possible, they were inspected and found to be in perfect condition.

* * *

Some Drawbacks to 100-Story Sky Scrapers

An eminent New York engineer and practical builder, who has to his credit many of the finest sky-scrapers of the metropolis, states that a one-hundred-story building, built of reinforced concrete and towering more than 1000 feet from the ground, may yet be seen by people who are living and even reached middle life. The fifty-story buildings, which are now being seriously considered as a future possibility, will constitute but a stepping stone to the seventy-five-story buildings and then to the one-hundred-story buildings. The principal drawback which now presents itself is said to be the impossibility of providing elevator accommodations for even a fifty-story building, for the reason that the weight of the cable to support the car in the numerous thirty-story buildings now in commission is enormous, and some other method of utilizing the upper floors will have to be invented and introduced before the sky-scraper can be built any higher. The limits of the elevator, as understood at this time, have been already reached.

* * *

The spirit of looking on the bright side of things is all too rare in this day and age; hence all praise to the old lady who was so old that she had only two teeth left, but said, "Thank God, they hit!"

Fire Protection

Fire Resistance of Reinforced Concrete Buildings*

By JAMES SHEPPARD, Chairman of the International Fire Library

ALL practical fire fighters will, in view of their own experiences, unanimously agree that the fullest success in fire fighting can only be secured by vigorous attacks at close quarters inside the burning building. Unless in some measure such close attacks on the discovery of a fire can be made with ample volume of water at efficient pressure the building involved, especially if of large extent, will probably with its contents be destroyed, and the prevention of the spread of fire to the surrounding property may become both difficult and dangerous. Buildings erected to meet these requirements have lamentably failed under the tests of actual fires, chiefly owing to noncompliance with conditions obviously necessary to secure success.

To avoid such disasters, buildings effectually separated into compartments of moderate extent, planned without unprotected floor openings and constructed so as to give ready and secure access for firemen to every part, for the longest period of time possible after an outbreak of fire, are required, both in the interest of the public and of the chief officers of fire brigades and salvage corps and the men under their command. Buildings constructed with reinforced concrete, properly prepared with suitable aggregates, sand and cement, ample thickness of such concrete being continued in front of all metal rods or network, will satisfactorily meet these requirements if the conditions as to extent and other provisions referred to are duly observed.

So-called Fireproof Buildings

Experience has repeatedly proved that large buildings constructed with incombustible materials only, but without due protection against the inevitable action of heat, fire and water on the metal and other materials used, although called "fireproof," are during the burning of their contents of a most treacherous and dangerous character, defying all reliable calculations as to the time and manner of their certain collapse.

Why architects and engineers continue to waste their client's money on the erection of dangerous buildings of this character and proclaim them "fireproof" is a mystery which firemen fail to comprehend. It cannot be too strongly asserted that it is false economy of the worst description to

* Extracts from paper read at the Milan International Fire Congress

omit efficient protection against the action of fire for all structural metal work used in important warehouse and factory buildings.

In view of the experience in the case of buildings constructed with unprotected metal columns and girders the use of timber in posts and beams of large size, with thick plank floors made air and water-tight, has been extensively employed with considerable advantage, especially where protected with an efficient system of automatic sprinklers. Further advantage would be secured if the timber used is made thoroughly and permanently flameproof, but effective processes with this object appear at present to be too costly for general use.

The term "reinforced concrete" is used to describe systems of construction in which iron or steel, in the form of rods, bars or network, is embedded in concrete, both horizontally and vertically, so as to take all tensional strain and offer resistance to shear, leaving the concrete to resist compression, thus uniting both materials, so that each is applied to the best advantage.

Previous methods of fire resisting and slow burning construction, especially for warehouses, trade and manufacturing premises, are now rapidly giving place to reinforced concrete systems, used either alone or in combination with hollow reinforced concrete or porous terra cotta blocks. These systems, it is hoped, will enable architects and engineers to meet conditions necessary to obtain resistance to fire.

A Safe Structural Material

Reinforced concrete is claimed by its advocates to be a safe structural material, but this can only be conceded so long as normal conditions continue, which many users of these new structural methods appear to consider will always be the case, and therefore make no provision against possible if not probable changes resulting from fire amongst the goods stored in buildings of this construction.

The materials employed in reinforced concrete acquire no new fire-resisting qualities, and although they may be made effectively to assist each other in this respect and offer every facility for providing a building of the character needed in the interest of the public and of firemen before mentioned, it is necessary to secure such qualities duly to consider and provide against the effect of heat, fire and water on the materials employed, using only materials and methods proved from actual experience under various known conditions to be effective. This is equally necessary with reinforced concrete systems, as with other methods of construction, if satisfactory resistance to fire is expected, and the avoidance of disasters that have occurred with other systems desired.

The city of New York Building Code, 1901, provides that all systems of floor construction used in buildings required to be "fireproof" shall be submitted to an official test for four hours under a distributed load of 150 pounds per square foot placed on bays four feet wide between steel beams ten inches deep, weighing twenty-five pounds per foot run, having a clear span of fourteen feet, these beams being protected in the manner adopted by the system under test, the temperature to average not less than 1700 degrees F. for the whole period of the test. At the end of this four hours' heat test a stream of water through $1\frac{1}{8}$ inch nozzle, under sixty pounds pressure, to be applied to the under side of the floor for five minutes; the top of floor to be then flooded with water under low pressure,

and the stream from the $1\frac{1}{8}$ inch nozzle, under sixty pounds pressure, again applied to the under side of the floor for a further five minutes.

A load of 600 pounds per square foot to be then placed between the beams equally distributed.

If during these tests any flame has passed or any part of the load has fallen through, or if the maximum deflection of the beams, having a clear span of fourteen feet, exceeds $2\frac{1}{2}$ inches, the use of the system is prohibited in any building required to be "fireproof." Similar test regulations are also applied to partitions.

Experts in reinforced concrete buildings agree that to obtain the best results (considered only from a structural point of view and under normal conditions) reinforcing rods must be placed near the outer surface of the concrete, a thickness of one inch in front of the rods being generally adopted; but this thickness is altogether insufficient for the protection of metal rods against a serious fire, and the aggregates, sand and cement, for the concrete used to protect the metal rods are of the greatest importance.

It has been conclusively proved that concrete having gravel aggregates is especially unreliable under the action of fire, and the same may be said of other dense material. Aggregates that have passed through fire and are of a porous nature, such as broken stock brick, clinkers, clean coke breeze with fine ground, high class Portland cement and sand, offer the greatest resistance to fire, but even with these materials a thickness of at least two inches in front of all important metal members is essential for reasonable security.

There would be no difficulty in applying a thickness of two inches of concrete of this description for the protection of all metal work, while the central portion of the concrete might be of different material.

It is to be feared that some of the large buildings already erected with reinforced concrete will fail when subjected to a serious fire amongst their inflammable contents, especially in cases where the building chiefly consists of extensive galleries round large central vertical spaces passing through all floors. Such buildings certainly involve the possibility of very serious consequences, as proved in numerous instances, and even reinforced concrete construction can do but little to lessen this evil.

The method adopted for protecting columns and other parts of reinforced concrete structures against mechanical injury during the making and deposit of merchandise is of the greatest importance. With this object, in many large public warehouses constructed in reinforced concrete, steel angles of considerable size and weight are partly embedded in the concrete flush with its outer face at each corner of numerous square columns supporting very heavy loads; these steel angles are held in place by riveted eyes passing into the concrete. In the event of a serious fire amongst merchandise stored round these columns these steel angles would twist, displacing portions of the concrete, leaving important reinforcing rods exposed at most critical moments. Any mechanical protection needed should be held in position independently of the concrete and be placed against its outer face only.

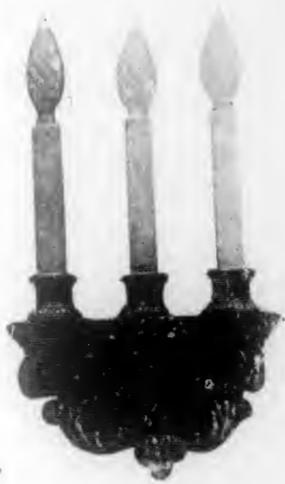
Divisional walls relied upon as fire stops in warehouses and similar buildings should not be less than nine inches thick.

Combustible goods against a reinforced concrete wall less than nine inches thick would be liable to ignition by heat from a fire burning on the opposite side of the wall.

The Modern Lighting Fixture and Its Place in Interior Decoration

By JOHN A. BRITAIN, President of the Pacific Gas and Electric Company

"A dim light say you? I faith, my lord, 'tis that, but should the King so honor us, we have no better."
—Shakespeare



WHAT exclamations of surprise and admiration would have burst from the writer of the above had he the opportunity today of visiting even the humblest homes and noting the abundance and in many instances, the extravagant use of artificial illumination.

Nothing in history is more interesting than to note the progress in artificial lighting and it is a noticeable fact that as the nations of the world advanced in civilization their lighting appliances kept pace with them. Notice the pine torch giving way to the candle and in succession to the oil lamp, gas lighting, electric lighting and this latter illuminant striving, today, to excel its strong competitor, the incandescent gas light, as discovered by Auer Von Welsbach.

It is not our desire to trace the advancement as above noted but rather to consider the means of artificial illumination placed at our disposal today and study their best uses for residence and commercial lighting, not only from the standpoint of efficiency and economy but also have a thought for the decorative effect.

The first gas fixtures were pieces of gas pipe bent in the shape of a T with no thought of beauty. A little later we note the addition of applied ornaments to "dress them up," as it were. After this, the pipes were incased in brass tubes and later, at the introduction of electricity, the wires were fastened to the exterior of the fixture and today we have the combination gas and electric fixture, with both gas pipe and electric wires concealed. At the introduction of the incandescent gas light an obstacle presented itself, as far as the beautification of the fixture was concerned, on account of the ugliness of the porcelain reflecting shade. This fact is itself evident today but it is being corrected by the introduction of the "Bunsen Fixture," a chandelier made expressly for incandescent gas lighting and which obviates the use of what has heretofore been considered an ugly necessity. The socket burner, and ingenious gas burner that looks like an electric socket, did much to improve the appearance of the gas fixture as it made possible the execution of beautiful designs heretofore confined to the realm of electricity.

Within the past year a lighting magazine has made its appearance in New York and is



doing much to fill a void in the field of illumination by furnishing to the architect, decorator, gas fixture salesman and others interested, helpful suggestions as well as giving scientific experiments and enabling them to lay out a lighting scheme much more intelligently by showing the result of various types of illuminants under stated conditions. It is also encouraging to note the fact that a few men have taken up the practice of the New York magazine and are prepared to give us the benefit of their research which shows that our Eastern friends are beginning to realize the importance of the subject and will profit by the employment of these men from an economical standpoint, to say nothing of the pleasure of having properly lighted stores, offices and homes.

The lighting fixture of today should be an ornament rather than a self-evident ugly necessity. It is this feature of the subject I should like to lay particular stress on.

The best results in lighting are obtained by those, who, in planning their homes, give the subject proper consideration, by trying to picture in their mind's eye, the room as it will appear when furnished, noting where the strongest light is needed, arranging their outlets so the greatest efficiency can be obtained at the least possible expense, bearing in mind that a few dollars spent in wiring will be repaid tenfold by the saving in the monthly lighting bill.

There are so many conditions that effect the amount of light required in any room, such as color of wood work, wall covering, height of ceilings, to say nothing of the needs of the occupants, that it is impossible to make a rule to meet all conditions but if a 16 candlepower lamp burning with its full efficiency is allowed for every 1000 cubic feet of space it will cover the majority of cases, bearing in mind that the efficiency of a light at any point decreases as the square of its distance increases, in other words you get but one-quarter of the light at four feet as you do at two feet from its source.

If architects, when about to write specifications for the lighting of any building, store, office, theater or residence would before placing outlets, divide the illumination into two parts: First, General Lighting; second, Special Lighting; and give each ample consideration, much better results would be obtained. To make this point clear let us consider a few examples.

Theaters.—General illumination best obtained by lights concealed so that the light is reflected from the ceiling and the filament of the lamp not seen by the audience. This can be obtained by putting them in a trough in the arches with their backs to the audience.



Special Lighting.—Foot-lights, orchestra lights, boxes, etc. Offices: General illumination, ceiling fixture or chandelier in center. Special illumination: Desk lights, typewriter lights, etc.

Residence.—Living room: General illumination, ceiling fixture in center. Special illumination: Reading lamps, reading brackets, book-case lights, etc. Dining room: General illumination: Side brackets are much better than arms, outside of center dome. Special illumination: Dome with diffusing plate much better than using fringe.

Before passing, let us call attention to two errors generally made in residence lighting. The first is the placing of an overhead light to illuminate a carriage porch, as it places the step of the carriage in the shadow while a side light would illuminate it nicely. This also applies to an overhead vestibule light, as it casts a shadow over the countenance, while a bracket light would overcome this difficulty and the advantage of this is self-evident. The second error is the placing of a light on either side of a mirror where it is desired to get a good light for dressing purposes. Much better results would be obtained by an overhead light placed about ten inches in front of it and just high enough not to interfere with the person using the mirror.

All the above refers to the practical side of lighting but much more could be said of the artistic.

From a lighting standpoint the most successful installations are those where you feel plentifully supplied with light and the source of it is no more conspicuous than any other part of the furnishings.

What better time to consider this important subject than now when we are about to rebuild the city. What vast opportunities to get the benefit of all our past experiences and profit by our errors!

This can only be brought about by the hearty co-operation of our architects with the people making a study of this work. If the power companies would place at the disposal of the architects, or any one interested, the services of a man who is competent to advise them on this important subject they would be doing much to rebuild San Francisco on the right lines. I say the power companies could do this as they would be acting from a purely unselfish motive and would be repaid by the appreciation of a satisfied clientage. San Francisco is going to be rebuilt nobler and grander than ever. Why not light its homes and buildings consistent with their construction?

* * *

About Smokeless Furnaces

NEVER has greater interest been shown in the kindred subjects of smoke abatement and fuel economy than at the present time, and this brings to mind how surprisingly ignorant some men are as to the requirements of a smokeless furnace. It is not a difficult task for any fair engineer to build a furnace in almost any plant, which will not smoke, but in most cases the cure is worse than the disease. The difficulty lies in the construction of a furnace which will not only be smokeless but economical; in securing the proper combustion so that the elements which produce smoke will be consumed without the introduction of too much air or the use of other agencies which would tend to reduce economy. In buying a smokeless furnace see that it not only prevents the emission of dense smoke but does it with a minimum loss of economy—Ex.

* * *

High Ground

The moral ground some men are found
To take is high enough;
But, after all, the highest ground
Is frequently a bluff.

—Philadelphia Press.

The Ingenuous Bricklayer

Some Builder's Laborers once waxed hot
About the Hardships of their Lot,
And with Abuse did thickly plaster
Their grinding and despotic Master.

'Twas Jones, a Layer he of Bricks,
Most fierce denounced that Tyrant's Tricks,
And cursed the Wretch Who'd have them lay
Eight hundred Bricks (Oh! Shame!) per day.

"Say, let's agree to lay no more
Henceforth, my Mates, than Hundreds four."

Now Jones, who this Suggestion made,
Was still a Novice at the Trade,
And *then* four hundred Bricks a Day
Was just as much as he *could* lay.

But as the Months progressing ran,
Jones, who's a quick and handy Man,
Outstripped his Mates and soon could lay
Four hundred Bricks in half a day.

'Tis now the Wish our Friend did take
Double his present Wage to make;
So he the Limit would rescind
Which stringent thus his Efforts pinned.

But lo! His Mates, who—sad, but true!—
Were still a lazy, unskilled Crew,
With Insolence and loud Derision
Declined to hear of such Rescission:

"What next? The Compact—Truth to tell—
Us Duffers suits amazing well,
Nor do we mean such Fools to be
As now to cancel it for thee,
Just 'cos thee's gotten extra Skill
And wants thy private Purse to fill.
Naw! Thee *shan't* rise above our Level,
And if thee tries, we'll raise the Devil!"

Then Jones, with rueful Face, did see
The Vice of forced Equality:

"I know—alas! too late—such Rules
Protect but Lazybones and Fools.
And, leveling up the unskilled Clown,
His Mate more skillful level down!"

MORAL:

'Twi'x Right and Wrong, 'twixt False and True,
How much depends on Point of View!

—Truth.

English Cathedrals

THESE is nothing among all the many beauties of England that appeals so strongly to man's poetic nature as her cathedrals. Indeed, there is no other land where the cathedrals and churches are so beautifully and distinctly a dominating feature in the landscape as in England, and the English people love them.

"Each in its little plot of holy ground,
How beautiful they stand,
Those old gray churches of their native land."

Unlike the cathedrals of continental Europe, most of which are hidden from view by shabby shops, and overwhelmed by the mercenary war of a great city, there emanates from the English cathedrals the peace and calm spirit of the Christ, and they beget a reverence in the soul of the beholder that softens the voice so near to silence that the soul seems hushed in prayer, and reverently awaits the benediction of its Maker.

Nothing as an accessory is so beautiful as their setting amid the peaceful surrounding of the "close," for the very peace of God abides there. Visit Wells; pass up from the railway station, following the main street to near its end, then turn to the left and pass through a low, deep arch of ancient masonry. Step out upon the cool green beauty of the "close," and there bursts upon your vision the wondrous beauty of the west front of Wells Cathedral. Instinctively, you remove your hat and can scarce refrain from falling on your knees in reverential worship.

"And 'tis for this they stand,
The old gray churches of their native land."

But through the passing centuries "the walls have crumbled, the stones decayed," and it creates a feeling of sadness to look upon their fading beauties amid the decay caused by their lengthened years, and the time has come when they must either be repaired or be closed to worship.

* * *

Poorly Lighted Hallways

MANY buildings make the mistake of having their halls poorly lighted. Light costs money, but it is poor economy to try to save it by darkening halls. A well lighted hall presents a more cheerful appearance, makes it easier to find names and numbers on the doors, prevents possible accidents in entering elevators or descending stairways, while dark, poorly lighted hallways will have an opposite effect.

Some properties which are very well lighted during the day turn off too much light after business hours. The only thing to be considered here is the matter of safety. So long as there are people in the building there should be enough light to enable them to find their way to and from their offices without difficulty. One case comes to mind of a tenant who worked in his office until after the elevators had shut down and was obliged to descend the stairs. The halls were poorly lighted and he slipped on a banana peel which had been carelessly dropped on a stair ledge with the result that when he reached the bottom he was sore in body and spirit and considerably used up. The remnants of his watch, spectacles, etc., figured prominently in the damage suit which followed.

Brick Demand Grows Larger

AN authority on building materials has made an investigation to determine if, as generally claimed by many advocates of reinforced concrete construction, concrete has superseded burnt clay in modern building operations. The investigation covered current building operations in many states, and the facts gathered show that as yet concrete has made no inroads on the demand for bricks, tiles and other burnt clay materials. Concrete in its best form is admitted to be a desirable building material, but is unsuited for many types of construction. Wood because of its increasing cost is being slowly eliminated as a building material, and to a large extent brick and concrete must supply the place it has previously held in building operations. In the increasing demand for a substitute for wood the products of the modern clay working plants will stand more than an even chance.

As was pointed out by many of the delegates to the congress of architects, recently held in London, concrete is still an unknown quantity. It may be anything from one part cement to two parts gravel or cinders or one part cement to twenty parts of other materials. There are no recognized standards in concrete today, and we have an unprecedented record of failures in its use. The mere relative cost of the two materials will not, we believe, be a serious factor one way or the other, for there is really little difference between the cost of good concrete and of good brick work, the odds being on one side under certain conditions, and on the other under different ones, although it is pretty safe to say that first-class concrete would be fully as expensive as brick work. It is, therefore, merely a question of choice of materials.

Notwithstanding the unprecedented and well-directed efforts made by the concrete interests to secure a demand for their materials, and the very liberal employment of concrete by architects and builders throughout the country, it is nevertheless a fact that this year has been the largest in the matter of production and sales ever known in the burnt clay industries.

Nearly all of the pressed brick manufacturers of the country have been running their factories night and day to keep up with their orders. The output of architectural terra cotta has nearly doubled. Burnt clay fireproofing plants are doing more business than ever before in the history of this industry. Single factories are now producing as many enameled bricks as put forth by all of the factories combined a few years ago.

The use of roofing tiles has grown far beyond the experimental stage, and is a thriving, growing business, while one need only follow the illustrations in the architectural magazines to appreciate how rapidly faience for both interior and exterior work has grown in favor among the best architects in the country.—Clay Worker.

* * *

Mrs. Firstfloor—"I called to speak about your daughter's playing. I—" Mrs. Secondflat—"Now, look here; she'll play just as loud as she likes. See?" Mrs. Firstfloor—"That's what I was going to ask for. You see, I'm going to give Willie a whippin', and I don't want folks to hear him holler."—Chicago News.

Causes of Varnish Cracking

"TECHNO" in writing upon the subject of the cracking of varnish in the Decorator says: "So much has already been said on this subject that it will only be necessary to summarize here the causes and their avoidance. Various causes produce cracks of distinct character. The addition of terebine to a varnish for hardening will often cause cracking, especially when exposed to direct sunlight. These cracks at first give the varnish a silky appearance, due to their hairlike fineness and great numbers. Subsequently many of the cracks open out wider under atmospheric variations. But the crack due to terebine is always sharp and clean, and mostly straight, as though cut with a razor edge, crossing the work in all directions. Terebine is sometimes used in graining color and in other undercoats prior to varnishing. In such cases the cracks will show their origin to be in undercoats by the depth of every crack, while if the varnish only be at fault the undercoats will in many parts remain unaffected.

"The application of any hard quick drying coat of paint or varnish on a soft undercoat is liable to cause cracking, and would affect any supercoat likewise. This may sometimes be traceable to a glaze coating prior to varnishing, to a goldsize and turps flattening coat on an oily ground or to a hard drying varnish on a soft groundwork. Goldsize cracks are distinguishable by their usually lying in the direct line of the brushwork, and having soft round edges, turning inwards, the cracks being less numerous but more open than terebine cracks.

"The application of a coat of size upon a hard non-porous ground prior to varnishing, such as sometimes occurs when re-varnishing old work in cheap jobs, if the size be fairly strong, will sometimes result in cracks, the cracks being notably of polygon shape and the edges having a tendency to curl outwards.

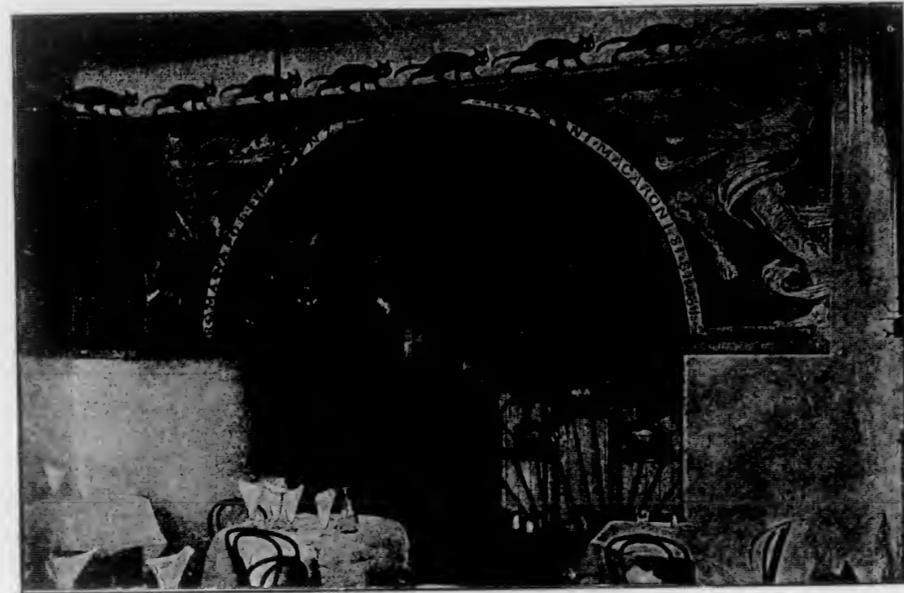
"Cracking sometimes occurs only where knots exist in the woodwork. That is generally due to the preliminary use of too much shellac or patent knotting, destroying the porous key of the wood, leaving no hold for the priming coat. As no affinity exists between the shellac and the oil paint, the latter cracks by irregular contraction and expansion of the paint and the wood. The remedy is to scrape down to the bare wood and to paint again without fresh knotting, or after a thin coat of reduced strength, in case of new woodwork.

"To avoid tendency to cracking, there is no better course than to take care that every coat prior to varnishing be thin, and allowed to dry hard before applying the following coat. It is important also that no quick drying medium, such as goldsize or terebine, be employed in painting over a coat mixed with ordinary linseed or boiled oil, though the reverse order may be employed without danger, and in case of quick drying paint being necessary, employ no oil at all, excepting for the priming coat on new wood, and the finishing varnish may then be elastic or hard as desired without danger of cracking. A hard varnish may be used as an undercoat, and an elastic finishing over varnish over that. But the reverse order may give rise to the fault under notice."

* * *

Sleep and the world sleeps with you. Snore and you sleep alone.

Interior Decoration



Decoration by Robert Aitken

San Francisco's Famous Bohemian Restaurant*

By MABEL CROFT DEERING

Eeny, meeny, minee, moe,
A fig for Care and a fig for Woe.

IMAGINE two attenuated figures sitting at a table, one of them holding up two fingers, not for Zwei Bier, alas! but for two figs which a waiter bears aloft on a spinning tray—all that poor Care and Woe can afford!

In such delightful foolery have the wall frescoers at Coppa's, San Francisco's famous Bohemian restaurant, been done. There is no central idea; there is no general scheme of decoration. Everything was done just by chance and on the spur of the moment, and no panel has anything at

* Written for and published in The Critic, to whom we are indebted for this interesting description of the unique mural decorations of this famous restaurant. The restaurant is still in existence, the building surviving both earthquake and fire.

all to do with any other panel. On the one next to dull Care, for instance, is a very rotund man eating macaroni underneath the legend, "Paste makes waist."

The mural decoration of Coppa's is a delightful illustration of the amateur spirit, for the entire work was a labor of love. The story of it is interesting. Coppa is a fat and locally famous chef who learned the divine art of feeding in Turin, with a postgraduate course in Paris. He came to San Francisco years ago by way of Guatemala, where there are many good appetites. For a while he cooked at Martinelli's, the Italian cafe in San Francisco's Latin Quarter, where many gourmets gathered in an older day, and where Paderewski always dines when he visits the far West. From there Coppa went to the Old Poodle Dog, and at last set up in business for himself. Though a past master of the cuisine, his business was not as successful as his ragouts. Something seemed to be the matter.

In all his wanderings through other men's kitchens, however, there was one faithful little coterie which followed Coppa, and when he finally settled in a tiny place of his own these faithful ones became the nucleus of his trade. They were artists and writers for the most part, many of them members of the Bohemian Club, and though they were not rich they were appreciative.

One day about a year ago the Bohemian Club gave an exhibition of fine photographs, which were displayed on a screen of fine cartridge paper twenty-five feet long by ten feet high. The day after the pictures were removed from the screen a number of Bohemians worked far into the night ornamenting this virgin surface with grotesque caricatures of club members. Some of these were pleasant and some of them were not, but they made a sensation. The material used was kindergarten chalk in various colors.

That night at Coppa's one of the artists remarked to Felix, Coppa's young and good-looking partner, "It's fearfully dark here, old man. Why don't you have some light?"

"We're going to," said Felix. "We are going to have new paper and more lights and be fixed up fine."

"Great," said one of the fellows. "Get gray paper, Coppa, and we'll fix it up for you. Like the screen," he remarked to his table companions.

One Monday when the faithful came to dine they found the little Montgomery street cafe lined with hideous bright red paper with an impossible molding of red and gold, and Coppa rubbing his plump hands with delight.

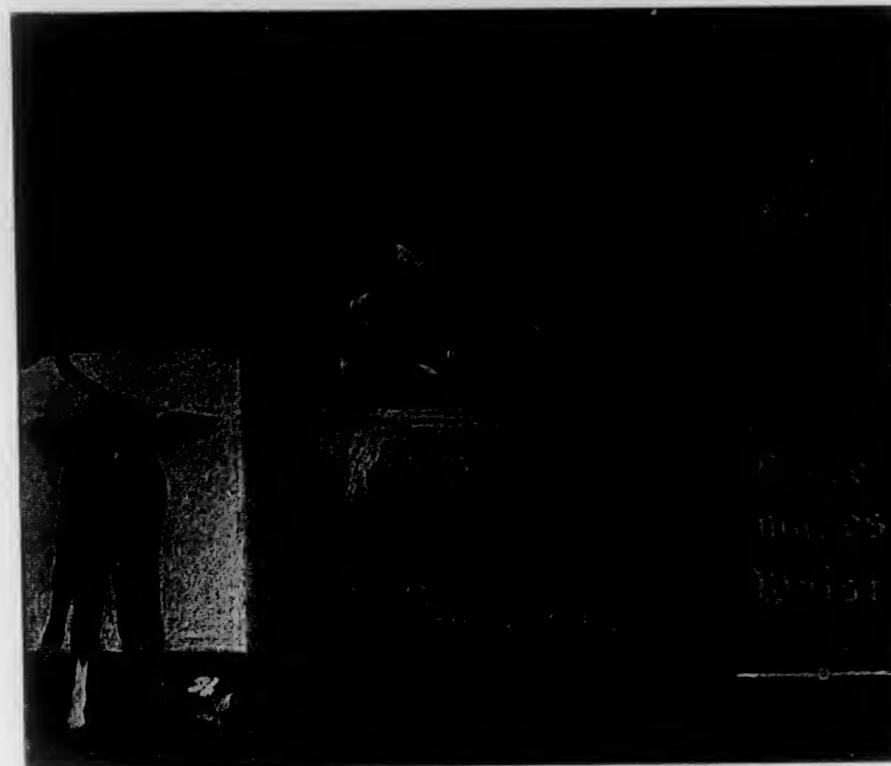
"Awful," said the artists, while Coppa's face fell. Only the arrival of the ravioli restored the *status quo*.

So Coppa was told to provide kindergarten chalk, which he did in abundance, though not without anxious inquiries as to what they proposed to do to his beautiful red paper.

"Never you mind," they said. "It will be all right. You'll like it when it's done."

Queerly enough, Coppa is closed on Sunday. It is an oddly un-Bohemian custom, and results in much loss of patronage, but Coppa likes one day a week in the country.

The first Sunday three men worked. They were Porter Garnett, of the Argonaut staff, who writes and draws with equal facility; Perry Newberry, a newspaper artist, and "Bobby" Aitken, the best-known sculptor of the West, a number of whose statues ornament San Francisco streets



Unique Mural Decorations at Coppa's

and squares, to say nothing of the Spreckels marble music-stand in Golden Gate Park, though his best-known work is probably "Art Lured by Bohemia," which ornaments the Jinks Room of the Bohemian Club.

Coppa had spread a cold luncheon for the willing workers, and, with a touching trust not confined to wall-paper, had left the sideboard open. For the three men it was a lark, like the famous publication of that name which was intended merely as a hoax on the public, to last for one issue, and whose year of life made such a stir in the literary world. The three decided to have fun with the Philistines and to let their fancies run away with them. The most inconsequential fooleries began to cover the wall. Nothing had anything to do with anything else, and if you attempt any sort of orderly progression you end in despair.

The first cartoon placed on the wall showed a large continent surrounded by water, and on it a huge red lobster offers a claw to a long-haired man in a corduroy jacket, while a winged head, which looks like Shakespeare, hovers above. The picture was Porter Garnett's, and the idea is that the lobster and the poet meet on common ground in Bohemia. Mr. Aitken decorated the arch which faces the entrance in fine bold strokes, and the spandrels show two nude figures, one of which bears aloft a smoking fowl and the other a fish. A green frog, very much flattened, forms the keystone of the arch. Literal-minded people gravely survey these figures and say they are out of drawing, which is part of the joke. Underneath the figures is the refrain of a Bohemian song known only to the elect.



More Mural Decorations in the Coppa Temple of Fame

That same first day Mr. Newberry contributed two figures, arms about waists, wandering up Telegraph Hill in the moonlight. As Coppa's is in the very shadow of the Hill this bit of realism may be considered as reminiscent of transient after-dinner affections.

After the first tremendous burst of energy, the frescoes languished, the artistic enthusiasm leaked away, and Coppa thought he was destined to go through life with only part of his beautiful red wall-paper spoiled by pastels which wouldn't wash off. The spring and summer, when all grasshoppers wish to dance, came on, the beautiful California country beckoned to the artists and poets, and it was some time before they worked again. One day the enthusiastic fit came back. Xavier Martinez, a picturesque-looking, impressionist-painting Mexican artist, returned from his native country where he had been sketching, and, being an old patron of Coppa's, he fell in enthusiastically with the idea. One of the best panels at the left of the entrance had been reserved for Martinez, and his first work showed two figures, typical of the Latin Quarter of Paris, where Martinez spent five years, during which time he was the favorite of Whistler and Carriere and, among other things, did illustrations for Gil Blas. These typical figures, a man and a woman, are at either side of a

big mirror of the conventional sort, but there is nothing conventional about the next panel, which is also the work of Martinez. It is called "Before the Gringo Came," after Gertrude Atherton's novel, and shows a table at Coppa's in the good old days before conventionality came to sample Coppa's dishes and to ogle the Bohemians.

A number of men appear in the picture, all portraits. There are three women, but these are said to be "just anybody," though some might wager something and not lose. The men are Martinez, Newberry, Garnett, Sterling, who wears a laurel crown for his "Testimony of the Suns," Gelett Burgess, Lafler, editor of the *Argonaut*, and Maynard Dixon, painter of Arizona scenes and frontier life. One man clasps a girl about the waist, not noticing that her free hand presses that of another man. A girl with a crown of Titian hair smokes a cigarette with Maynard Dixon. It all suggests Mimi and Musetta.

All this freedom and easiness have disappeared. The place is proper enough now if it ever were anything else. "We used to sing and talk, you know," the Bohemians say regretfully. It is their own fault; their pictures made Coppa's one of the sights of the town and put the place in the class with Madame Begue's in New Orleans, and the Parisian cafe decorated by students of the Latin Quarter under the direction of Florence Lundborg. You are likely to be turned away from Coppa's unless you have bespoken a table, and Coppa beams as he counts the shekels his pictures and his shabby friends have brought him.

The gulf between those who go to Coppa's because it is "the thing" and those who have always gone there form the theme of another cartoon by Garnett, in which a lady with a lognon says to her evening-coated escort, "Freaks?" He replies, "Yes, artists," to which the long-haired ones at a neighboring table are saying, "Rastaquoueres? Oui, cretins." Rastaquoueres, in the Latin Quarter, it may be explained, meant originally a Philistine who hailed from southern countries.

In July, Gelett Burgess arrived from the Eastern States and the decorations at Coppa's received a new impetus. Burgess added several Goop panels in his characteristic style. He also contributed the "Josephine est morte," after a Latin Quarter song. Josephine is, of course, a Goop. Burgess also suggests a number of quotations.

These quotations, which dot the walls but have nothing to do with the pictures, range from heaven to hell and back again. They are intentionally cryptic and "designed to keep the Philistine guessing." As a matter of fact they range from Rabelais to Alice in Wonderland, taking in Kant by the way, and the best-read in the world would be puzzled by some of them. There is, for instance, the "Something terrible is going to happen," from Oscar Wilde's "Salome," and Whistler's famous retort when classed with Velasquez, "Why drag in Velasquez?" "It is a crime" is from Martinez's unpublished conversations, and the literary miner may dig up for himself, "O love, dead, and your adjectives still in you" and "You cannot argue with the choice of the soul."

The blue-eyed vampire, sated at her feet,
Smiles bloodily against the leprous moon—

is from an unpublished poem by George Sterling, and is not likely to be in demand as a motto for the ordinary *salle a manger*.

Besides these, there are numberless bits from Villon, naturally popular with these unconventional diners, from Verlaine and other vagabond

poets, many of them in the picturesque French of other times. One of the ideas was to have as many languages represented as possible—also to the bewilderment of the stranger—and beside Hebrew there appears in the Greek character above the clock, "Business tomorrow." The clock, by the way, is supported on the soles of the feet of Father Time, who, lying on his back, spins an hour-glass on one hand, a Chianti bottle on the other.

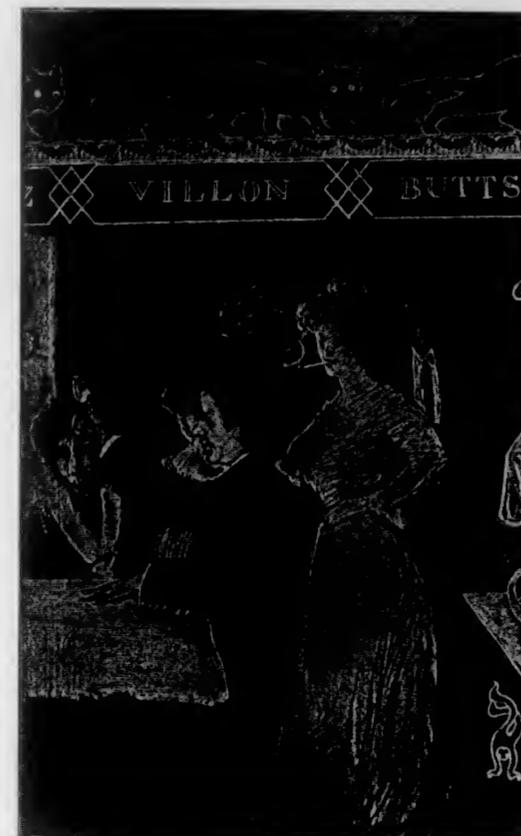
The Goop who represents the muse of nonsense, placed there by the author of the Purple Cow, beams across the room at a baby in a high chair. The baby has the tangled black mane of Martinez and his flaunting red tie. His milk bottle contains Martinez's favorite tipple, absinthe, and the infant is bawling lustily, "I want my Tagliarini."

Above all this miscellany of quotation and illustration is a frieze of prowling black cats, all headed in one direction. 'Tis queer how these figures seem to be moving, as though they walked on a roof, looking in through attic windows at Pierrot and Columbine. As a matter of fact, the cats were designed by Martinez, a stencil was made, and the cats were appliqued on the wall. In spite of the strong similarity each cat seems to have an individuality, and several have eyeballs painted in. These cats are all to have golden paper eyes some day. Below the cats are a string of names—the Coppa Temple of Fame. The delightful thing about these names is the juxtaposition of the past great with the shifting present. The names follow in their order: Aristotle, Newberry, Velasquez, Isabel I, Dante, Martinez, Villon, Buttsky, Rabelais, Garnett, Goethe, Maisie, Nietzsche, Burgess, Whistler, Lafler, Sappho, Sterling, Verlaine, Aitken.

Could anything be more grotesque than the juxtaposition of Maisie and Goethe? Of course it is to be expected that the eternal feminine would press close to the famous lover, but "Maisie" is such an inconsequential name—such a legacy from a sentimental mother. "Maisie" is the "Christian" name of a young woman who does magazine work in San Francisco, and who is a great favorite with the little group which has made Coppa's famous. "Buttsky" is the nickname of the wife of one of the decorators, and Isabel I was a well-known San Francisco newspaper woman now in New York, who was known during her Western sojourn as the queen of Bohemia. She still lives as Isabel the First. In the Temple of Fame Nietzsche was misspelled, but in the claws of the cat above, taken out by force, no doubt, may be seen the missing "Z." The cat above Dante's name casts most languishing eyes at the Italian poet below, and has been christened "Beatrice."

I said that one must secure a table in advance if one would not be turned away from Coppa's, but there is one table at which there is always room. It is a rectangular table, almost in the middle of the room, and at it the original patrons of the place dine. There may be ten persons standing up and but two Bohemians at this table, but the other seats remain sacredly empty. At this table are often to be seen the men who decorated the wall, including Spencer Wright, who does bookbinding, and who contributed "Eeny, meeny, minee, moe"; Anna Strunsky, who collaborated with Jack London in the Kempton-Wace Letters—an enthusiastic little Russian nihilist—London, himself, Lafler of the Argonaut, and a few newspaper men who have been admitted to the inner circle. They and they alone may add to the company at the "Round Table."

Straying in by chance you might think that you had discovered the original of Du Maurier's Little Billee or the prototypes for Rudolpho and his friends from La Boheme, so strange are the clothes, so unfamiliar



Section of Panel. "Before the Gringo Came." by Xavier Martinez

the talk. If you glance at the ceiling you will see black footprints there—footprints which approach the Bohemian table at an orderly pace. Apparently the owner of the feet sees something interesting, for his steps suddenly lengthen, and, in a trice, his feet are cuddled beside a much smaller pair of soles and you see the marks of chair-legs drawn close together. The prints of the chair-legs ornament the ceiling at a point which is just above the Bohemian table.

If you be too polite to stare, you may listen to the conversation at this interesting table.

Sometimes the talk does not scintillate, because the worry of daily bread sits on the Bohemian brow; but suddenly the cloud lifts, glasses clink, and some one proposes a toast and all goes merrily again.

* * *

The Mother-in-law Again

Smith—I never could understand all these mother-in-law jokes. I've always considered Mrs. Smith's mother a heaven-sent blessing.

Jones—You don't mean it!

Smith—Surely. She died when my wife was a baby.—New York Times.

*One of the New Friezes*

The Decorative Periods*

By C. WALTER TOZER

ARTICLE II.

Egyptian—Babylonian—Assyrian—Persian.

Egyptian—Old Empire, 4000-3000 B. C. Middle Empire, 3000-2100 B. C. New Empire, 2100-324 B. C. Graeco-Roman Revival, 324 B. C. to 300 A. D.

Egypt—332 B. C., became a Greek kingdom; 30 B. C. became a Roman province until the Mohammedan invasion, 640 A. D.

Assyrian—Colonized probably from Babylonia, 1900 B. C. Height of Assyrian influence in art, 1300 B. C.-625 B. C. The inhabitants of Media, Persia and Babylonia were subjects of Assyria. In 640 B. C. the Medes revolted and established the Median Empire.

The Assyrian Kingdom ended 608 B. C., when the Empire of Babylon was established and the Persians also became independent.

In 558 B. C. the Medes were conquered by the Persians and the Persian Empire was established.

Old Babylonian—4000 B. C.

Persian—In 538 the Babylonian Empire was incorporated by the Persians—thus, the Persians inherited the arts of Assyria, Media and Babylonia.

BY A careful analysis of the above brief history, the similarity between the Egyptian, Assyrian, Babylonian and Persian characteristics of design will be apparent.

Egypt and Assyria owed much to Babylon, whose artistic influences were widespread, and strongly exercised in decoration 1800 B. C. to 538 B. C.

Assyrian art was practically a branch of Babylonian art and its influences were not only supreme throughout Western Asia, but bore directly upon Greek art, and also survived in Persia. A chaos of decorative expression was created through interminable wars and the interchange of commerce between the early nations, followed by the Greek influences, the Roman influences and the Mohammedan influences. Time has failed to obliterate certain characterizing details.

The fleur-de-lis of French heraldry sprung from the Egyptian lotus, like many other motifs. The lotus in decoration has been used in three principal forms. The bud form, the full blossom, and the bud and pod.

* All tables in this article taken from *The Decorative Periods*, by Clifford & Lawton.

Of ancient Egypt we know but little, except from what still remains as evidence of its former greatness: the Pyramids, the Labyrinth, and the Catacombs. Egyptian art was at its height 3000 years ago, and its most distinguishing features consist of hieroglyphics, nude human figures, winged globes, the ram, the sparrow, hawk, dung beetle, symbolic animals and foliage, especially that of the palm and the lotus, the latter a symbol of fecundity and life; for the lotus was the first flower to spring up after the waters of the overflowing Nile had subsided and came as a harbinger of promise and prosperity.

The lotus plant is frequently used as a symbol of immortality. The palm has been handed down to the Greeks as a symbol of victory, and the Christian church today regards it as a token of peace.

Frequently we find the so-called Sacred Tree, or the winged male figures, symbolical of the soul; the winged griffins, lions and bulls with human faces. The Assyrian form indulged in geometrical figures, interlacings, zig-zag lines and rosettes, but they all bore more or less the impress of Egyptian art.

Chinese—Japanese

Chinese—3500 B. C. Mythic Period, 3500 B. C.-2200 B. C. First Emperor, 2200 B. C.; Confucius, 500 B. C.

Japanese—1200 B. C. Empire Established, 660 B. C.

From the above table, it will be seen that the Chinese decorative arts date back many centuries. We find in Chinese art many details, that were used in later periods, hundreds of years later. In the floral work of the Chinese, we can note a great deal that is similar to the early Indian work.

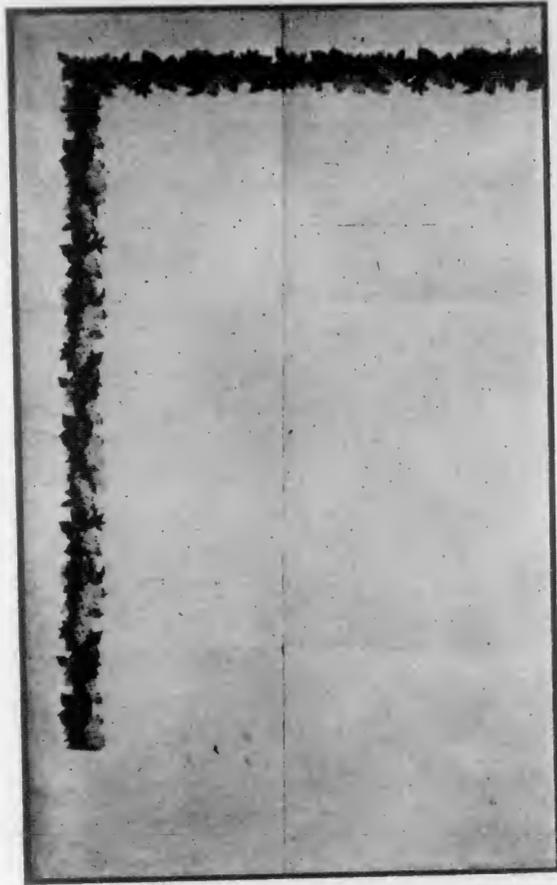
As religion has always had a great deal to do with the formation of the Decorative Periods, so the Buddhist religion was responsible for the close affinity between the design workers of India and China. It permitted the introduction of animal details.

It is a difficult matter to exactly define the distinguishing features of the Chinese and Japanese productions. There was an active commercial intercourse kept up between the two countries for many years, and this in conjunction with the result of their mutual teaching and learning, resulted in a uniformity of taste as well as technical practice. This was a very natural condition, as there was so much in common in the flora, religion and customs. Japan, however, was more partial to the geometrical figures, requiring a nicety of construction and a precision of drawing which was not always found in the Chinese work.

Both countries used symbolism in their design work almost entirely. All their lines expressed the earth, the heavens and the ocean, and all forms of art, either plant or animal, were considered as the products of heaven and earth.

Man was the crown of the creation, and it was therefore the representative of life. Heaven was called the position or male principle, while earth or water stood for the negative or feminine principle. The universe was the phenomenon of these principles according to the idea of the ancient Japanese.

The grotesque features which enter into the Chinese decoration are very seriously accepted by the people. The ludicrous attitude of the human figure is necessary to the philosophy of the symbolism. Hence one must be versed in the philosophy of the design to see any beauty in it.



Panel Treatment for Chamber. Cretonne Matching Lilac Border

The Chinese life is one much given to superstitious practices, and around these practices the decorative work is based. Certain rites are laid down in the code of the Empire. For instance when the Emperor worships heaven he wears a robe of blue, and from this fact, blue is the color depicting celestial matters. During his worship of the earth his robes are yellow, and thus yellow is the color used pertaining to all worldly affairs. His robes for worshipping the sun are red, and for the moon, white.

In their decorative work, the Chinese employ an endless list of deities, demons, monsters and animals of all sorts.

India—Persia—Arabian—Moorish—Turkish

India—2000 B. C. First Period, 2000 B. C.-1525 A. D. (Brahma, 1400 B. C.-500 B. C.; Buddha, 500 B. C.); Mogul Empire, 1525 A. D.-1748 A. D.; English Control, 1748 A. D.; English Empire, 1858 A. D.
 Persia—558 B. C.—Persian Empire, 558 B. C.; Extending with some interruptions to 641 A. D.; Conquered by the Saracens (Arabs), became Mohammedan 641 A. D.

Arabian—571 A. D.—Mohammed Born 571 A. D., died 632 A. D.; Saracens Dominion 571-1258; Turkish Dominion 1258.
 Moorish—711 A. D.-1610 A. D.—Conquest of Spain 711; Moors expelled from Spain 1610; Alhambric Period 1200-1300.
 Turkish—1298 A. D.—Asiatic Empire established 1298 A. D.; European Empire established 1453 A. D.

The above five forms of Oriental design have many characteristics in common, but at the same time it is not a very difficult matter to differentiate between them.

Persian art was founded upon mythology and copied much from the Assyrian and Egyptian. Animal life was commonly depicted until the conquest of Persia by the Saracens, when the Mohammedan creed forbade the use of animal figures.

Turkish design plainly follows the arts of Phoenicia and the Holy Land, Assyria, Babylonia and Chaldea.

Early Indian design was naturally pure as they were united by a common faith, Buddhism. It showed a fantastic temperament, profuse in richness and ever-recurring motifs, principally found among the native plants and flowers. It was also replete with mythological motifs. The Mohammedan tendencies naturally showed themselves in Indian art at a later period. They presented in good decorative spirit the juxtaposition of scroll, floral and mythological suggestion with religious symbolism and the depiction of animal life. Birds in life-like plumage, flowers and animals, verdure conventionalized design were all utilized.

The spirit of mythology also saturated the Persian Empire, prior to its conquest by the Arabians. The fabled animals, serpents and birds, had their deep religious significance and were extensively utilized in designs.

After the conquest of Persia by the Arabians, it was natural to find the Arabian characteristics introduced. Hence we find the mythological features of Persian design disappearing, together with the life form, and the floral, arabesque and strap character succeeding. The Mohammedan influence on Persian art is noticed in the conventionalized florals.

The Mohammedan bible or the Koran, forbade the depiction of life forms. So in the strict Arabian, which was Mohammedan, in which the depiction of animal forms was forbidden, developed a style of design pompous with elaborate Arabesques, scrolls and sweeping lines intervening. The inhabitants of Roman and Greek descent, after the conquests of Northern Africa, adopted the Mohammedan faith, and with the Arabians, amalgamated under the name of Moors. Shortly after this the Moorish government was established by the Moors crossing over to Spain. Hence their arts were of Arabian characteristics, but were developed to extraordinary magnificence and grandeur. More details of strapwork were introduced, being interlaced most ingeniously. The floral and geometrical details, ignored by the Arabians, were ornamented with unusual skill by the Moors. The Moorish treatment gives one the idea of one pattern interlacing another. Colors, much used, were gold, red and blue. They used inscriptions decoratively and hieroglyphics ornamentally. The Alhambra gives us the best examples and the walls there were covered with inscriptions.

The Turks adopted Mohammedanism in the Seventh Century, and their dynasties reigned in Palestine, Syria and Egypt. Seven centuries later all Christendom felt great anxiety over the power of the Turks in Asia Minor and the wonderful expansion of the Mohammedan faith. The

crusade movement brought about an alliance between the Greeks at Constantinople and the Turks, but this alliance did not result well and terminated in the surrender of Constantinople to the Turks. Thus was established the Turkish Empire in Europe. The Turks then converted Christian churches in the conquered countries into mosques or charged Christian artists with the erection of new buildings. The Turkish ornamentation became very much confused, because of the Byzantine and Arabian modes.

Strange to say, the Mediaeval art was largely Christian, and after the Mohammedans established their European Empire in Constantinople; Christian symbolism and Mohammedan symbolism were merged.

Apparently meaningless, were the geometric forms so much used in Mohammedan design, but they not infrequently represented conventionalized animal life, as the Koran forbidding any direct representation, the artist used the life form conventionalized.

* * *

Ownership of Architect's Drawings

In discussing the above subject in a recent issue of one of the Western architectural papers, H. H. Statham writes as follows:

The question is distinct from that of architectural copyright in designs, with which it must not be confounded. It turns on the question whether the drawings and specifications made by the architect in order to carry out a building are to be retained in his custody or to be handed over to his client. In France and Germany no legal question is raised on the subject—the architect retains the drawings as a matter of law. In England, though, custom has been almost universal in the same sense. But in the case of *Ebby v. McGowan* (1870), the court ruled that, the building not having been carried out, the drawings must be handed over to the client on his paying for the time expended on them. In the case of *Gibbons v. Pease* (1904), the court, to the surprise of architects, ruled that the precedent of *Ebby v. McGowan* covered all cases, whether the building had been carried out or not, and that the client had a right to demand all the drawings, the court refusing to hear any evidence on the side of the architect, whose drawings and specification can, therefore, in England, be legally claimed by the client, although he already has what he really paid for, viz: the building itself.

It is pointed out that an architect is not paid for making drawings, but for producing a building, the drawings being only his necessary instructions to the workmen; under some circumstances he might even dispense with drawings altogether. To require him to hand over to the client drawings and specifications, which represent the result of his professional experience over many years, for the client to use as he pleases, is a manifest injustice to the architect. Moreover, the custom in the profession of handing over the drawings to the client when the building has been planned, but not carried out, is a mistake on the part of the profession; as in such a case an unscrupulous client has only to say that he has changed his mind in order to get possession of the drawings and use them as he pleases, with no further compensation to the architect. The wording of clause I of the institute scale of charges is most unfortunate, as it appears to state (though not so intended) that the architect's commission is for producing drawings of a building. The wording of this clause should be amended.

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April, July and October.

San Jose Schools

The San Jose school board has selected five well-known California architects to draw plans for as many new school houses to replace those destroyed by the earthquake. The fortunate ones are:

S. F. Allen of Pasadena, to be architect of the High School building.

Wolfe & McKenzie, San Jose, architects of the Grant school; cost \$50,000.

Binder & Schumacher, San Jose, Lowell High School; cost \$70,000.

G. W. Page, San Jose, Longfellow school; cost \$80,000.

Stone & Smith, San Francisco, Horace Mann school; cost \$85,000.

All the buildings will be erected with special regard to safety from both fire and earthquake. Metal lath and steel partitions will be used wherever possible. All will be supplied with modern heating and ventilating equipment, lighting and sanitary arrangements.

The High school will represent an outlay of \$175,000. The style will be mission. There will be two wings connecting a central edifice with two square towers in the center. There will be an assembly hall with a seating capacity of 1200.

Contractors and material men should get in touch with the above architects without delay. There will be considerable mission tile used on the buildings, also cement, metal lath, etc.

Palace Hotel Plans

It has been decided to build a hostelry to cover the entire site of the old Palace. The former plan did not contemplate the construction of a main building to extend from Market street to Jessie, but an open palm garden, between narrow wings, facing on the latter thoroughfare, was considered.

Arrangements have been made to put up a main building of nine stories, with a two-story extension on Jessie street, which will contain a ballroom, reception, banquet and dressing rooms, similar in arrangement to those of the old Palace, but on a more magnificent scale. Especially notable will be the Louis XV reception room. There will be several dining and reception rooms as successors of the famous Maple Hall and Marble room.

The palm court will be rebuilt in the old location, but will be larger than the former historic lounging place. About half of the space will be devoted to a cafe. Another difference in the new court will be in the roof of ornamental glass, which will cover the area at the second story. This will provide an open court above for furnishing light and air to the hotel rooms.

The architects are still busy with the plans, and there may be further minor changes before work is commenced. The hotel and site will represent an investment of \$5,500,000.

Pioneers Building

From time to time information has been given to these reports regarding the new home of the California Pioneers Society. It has been definitely decided to make the building six stories, and it is to contain 350 rooms. Righetti & Kuhl are the architects, and the building committee is composed of H. L. Byrne, G. H. Luchsinger and H. P. Gibbs, who have the say in awarding all contracts.

A feature of the building will be a large assembly hall, where the Pioneers will hold their reunions. Probably movable seats will be installed. The

building is to be elaborately furnished and decorated. There will be a hotel in connection with the building which will cost \$300,000. The Lindgren-Hicks Company are the general contractors.

Olympic Club's New Home

The greatest rush job in the rebuilding of San Francisco is the work started a week ago on the reconstruction of the Olympic Club's home on Post street, near Mason.

Day and night, Sundays and holidays, the dismantling of the ruins is going on. A force of 200 men and thirty debris wagons working in two shifts are engaged in the task of removing the foundations and the huge cement swimming tank in order to make room for the enlarged salt-water bathing reservoir that is promised for the regular use of the club's members by June 1st.

Where the old swimming tank was sixty feet long the new one is to be 100 feet, which it is claimed, will make it the largest tank in any swimming club in the world. The old tank was practically on a level with the street floor. The new tank is to be at the basement level, which will be thirty-three feet and four inches below the sidewalk line.

The old site of the Olympic Club covered a ground area 137.6 square. The building upon it, constructed of stone and brick, was three stories and a half high. The new site has been enlarged to a frontage of 170. The old depth of 137.6 has been retained. The new building will be six stories high and will have a sub-basement. The entire building will be devoted to the uses of the club members, of whom there are now about 3000. It is the present intention to have the entire building ready for occupancy by March 1st of next year. Henry A. Schulze is the architect.

Willis Webb Polk

The death of Willis Webb Polk, a Kentucky architect, in San Francisco, on November 30, at the age of seventy, is noteworthy, as it recalls the fact that there really was a considerable number of private soldiers engaged in the Civil War over and above the officers who have been glorified in history and immortalized in bronze. Mr. Polk more than once declined a commission, on the ground that it was easier to get good officers than good men of the rank and file. After an unusually strenuous career in the Confederate Army, he began life over again as a

builder and architect in Louisville, where he built up a considerable practice, extending it later in life in Jeffersonville, Cincinnati and St. Louis. About a dozen years ago he moved to San Francisco to join his son Willis, who had established himself there some years earlier, thus bringing about that confusion of identities which always afflicts father and son of the same prenomens engaged in the same pursuit.—American Architect.

These Architects Are Busy

One of the busiest architectural firms in San Francisco today is Meyers & Ward in the Kohl building. The following work, representing an outlay of close to \$1,000,000, is on hand in this firm's office, and on many of these jobs bids are now being taken:

Building for Keil Estate Co., Mission street, between Third and Fourth streets, \$110,000.

Building for Keil Estate Company, Third street, between Market and Mission streets, \$60,000.

Building for Ruby Hill Vineyard Company, corner Mission and Annie streets, \$45,000.

Building for Ruby Hill Vineyard Company, on the east side of Mason street between Eddy and Market streets, \$28,000.

Building for C. F. Kohl, west side of Third street, between Market and Mission streets, \$150,000.

Building for Hyman Bros., west side of Third street, between Market and Mission streets, \$180,000.

Building for Baruch Bros., corner Third and Stevenson streets, \$85,000.

Building for Phillips Estate Company, southeast corner of Second and Mission streets, \$75,000.

Three story brick apartment house, Shattuck avenue, Berkeley, \$60,000.

Class A office building in Stockton, for the Stockton Savings and Loan Society, \$130,000.

\$40,000,000 for New Buildings

The total cost of the new buildings begun in this city between May 19, 1906, one month after the great fire, and January 31st, last, is stated by Chief Building Inspector John P. Horgan to be \$40,128,753.

Of the total mentioned \$25,984,598 represents the cost of buildings for which permits were issued and on which work was begun between May 19, 1906, and November 19th of the same year. The remaining \$14,217,296 represents the showing made between the latter date and the end of last month.

Of the total cost of all the buildings

\$3,050,000 represents Class A structures, \$2,194,100 Class B, \$14,198,549 Class C, and \$16,387,902 frame structures, while the remaining \$4,298,202 represents the cost of alterations and repairs.

Plans for New Hotel

Competitive plans have been called for from architects all over the United States, for the new million dollar hotel which the Bankers' Syndicate is to erect in Oakland. The committee has under contemplation the offering of a bonus of \$25,000 to the architect whose plans are accepted. Architect Walter J. Matthews of Oakland is to act as supervising architect in the construction of the building.

New Oakland Buildings

A permit has been granted J. P. Edoff to build a three-story brick structure on Broadway just north of Seventeenth street, Oakland, and which will be occupied by the Braley-Grote Furniture Company. The plans have been prepared by Bakewell & Brown of San Francisco, and the cost is to be \$50,000. C. M. McGregor has the contract.

A. V. Feight will erect a three-story apartment house on Grand avenue, near Webster street. Plans for the structure, which will contain eighty-eight rooms and cost \$30,000, have been prepared by Architect Thomas D. Newsom.

Southern California Chapter, A. I. A.

The Southern California Chapter, American Institute of Architects, after the usual dinner at Levy's, January 8th, endorsed the work being done in large cities of the United States by the National Industrial Peace Association.

The request for endorsement came from P. H. Scullin, general secretary of the organization, who told the architects of the endeavor being made to establish State boards of arbitration for the prevention of antagonism between employers and employees in the form of lock-outs and strikes. The association's work was commended in a letter from Secretary Glenn Brown, of the American Institute, which President Myron Hunt of the Chapter read.

The remainder of the meeting was devoted to consideration of voluminous committee reports submitted by Architects Hudson and Rosenheim. The members present were Messrs. Myron Hunt, Fernand Parmentier, August Wackerbarth, J. Lee Burton, Thomas Preston, R. B. Young, John P. Krempel, Arthur Benton, F. A. Rosenheim, Harrison Albright, Frank Hudson, P. W. Ehlers and W. Reeves.

Red Mens' Home

The plans and designs for the Red Men's Home, by Architect W. H. Weeks of San Francisco and Watsonville, which is to be erected at Vista Del Rey, a suburb of Monterey, have been accepted by the Red Men's Building Association. The structure will be of the mission style of architecture and cost \$50,000. Articles of incorporation of the building association have been filed.

Portland Association of Architects

At a recent meeting of the Portland Association of Architects the following officers were elected for the ensuing year: President, Emil Schacht; vice-president, C. C. Robbins; treasurer, Edgar M. Lazarus; secretary, Otto Kleeman; trustee, Carl Leick. The association has been in existence about five years, and has done a great deal in revising building laws in the interest of better construction.

Scottish Rite Cathedral

Several of the prominent San Francisco architects have been invited to compete in preparing plans for a \$500,000 Scottish Rite cathedral, details of which will be published as soon as the competition ends. The building will probably be of stone and concrete and will be elaborate in all its details.

W. L. B. Jenney, Architect

As we go to press the press dispatches state that William le Baron Jenney, formerly of Chicago, the originator of steel construction in building, is dying at his home, 6616 Thorne avenue, South Pasadena. He is known throughout the architectural world as one of the foremost men of his profession, and will leave many magnificent monuments as the result of his application and accomplishments.

Jenney, who was born in 1832 at Buzzards Bay, Mass., located in Chicago as an architect in 1867, and was burned out in the great fire of '71. Before the ashes of his office cooled, he went to work on the first plans for rebuilding the city, and put up the first brick building after the conflagration. It still stands.

Jenney's first building, in which steel was applied, was the Home Insurance Company's office, Adams and LaSalle streets, reared in 1885. More followed fast, principal among them being the New York Life, Fort Dearborn, National Life, Central Association, Isabella, Fair, and many others. Horticultural Hall, at the World's Columbian Exposition, also was Jenney's design.

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JULIUS BEEMAN	Manager at Portland

From this time on there are likely to be some records broken in rush jobs in reconstruction work in San Francisco. A few buildings have already been put up in remarkably short time. Just how thorough has been the workmanship remains to be seen. We know there has been some very bad reinforced concrete construction, but this cannot be laid to rush work so much as to incompetent workmanship and lack of proper engineering supervision.

Architects make a mistake in not hiring a competent engineer or superintendent to plan and supervise their concrete work. Especially is the architect deserving of censure if he is not well informed upon this type of construction. And there are quite a few who are not. If a concrete building fails—and there surely will be some that will the way a few are going up—the first inquiry that will be made will be for the architect. If he has designed and superintended the construction personally it will be “up to him” to explain the causes for the failure and if he hedges there will be experts who will get at the facts and the public will be advised. This to the injury, perhaps the undoing, of the architect.

On the other hand, if the architect has employed competent engineering advice and has left the supervision of the work in skilled hands, his conscience need not trouble him. He need have no fear of failure or professional criticism.

The Architect and Engineer has for over two years championed the cause of good reinforced concrete construction on the Pacific Coast. It repeats what it has said many times before that a properly built reinforced concrete structure cannot be beaten, at least from fire protective and economic standpoints. But a poorly built structure is a menace

to the community in more particulars than one, and unless drastic measures are taken to prevent failures, concrete construction will receive a set back from which it will be no easy matter to recover.

Good engineers and reliable contractors know this, and it behooves them to protect their own interests. We suggest that a committee be appointed to inspect all reinforced concrete buildings under construction in San Francisco, and wherever weaknesses are found the building should be reported to the municipal authorities with a recommendation that the structure be condemned. It is safe to say that if one or two owners or contractors were forced to stand the cost of tearing down a building and rebuilding it they would be more careful in the future.

We do not like rush jobs, although it must be admitted that some of the grandest and most successful achievements in building construction have been accomplished in a hurry. Day and night shifts are generally employed on rush jobs and it sometimes happens that in the haste to get through seemingly little things are overlooked. Its the little things that count, even in putting up a building, so gentlemen, be careful when you undertake a rush job not to overlook the little things, for we want only honest, well constructed buildings in the new San Francisco, be they of concrete, brick or frame.

* * *

Among the subjects which came before the members of the American Institute of Architects at Washington, D. C., in January was that of architects signing their names to buildings. The committee appointed to report on the question was heard from but its findings failed to elicit the enthusiasm that some of the other reports evoked. The report, it must be admitted, was lacking in positive conclusions.

The committee lamented the fact that it was able to find only a small amount of material with which to base its arguments in favor of the architect signing his work. The fact of the execution of an architect's design by others than himself is, we believe, one reason why the architect has not taken seriously to the signing idea. On this point the committee says:

“Even the best of painters will probably sign in some manner a rough pen-and-ink sketch. Let us not therefore hasten to do the same. The pen-and-ink sketch is completely the author's work no matter how unimportant, while the architect's stable may be so largely infused with the practical reasonings of a somewhat unimaginative coachman, that it becomes difficult to determine how much of the result belongs to his genius and how much to that of the designer. Clearly at one end of the scale the architect will have no desire to immortalize himself. If, on the other hand, the work is important and of a public character, the practice would probably be recommended without argument.”

It seems to us that the question is one which the architect himself should solve. If he wants his signature to appear on some effort of which he is especially proud, all well and good. There can be nothing unprofessional in his doing so provided, of course, the signature is made in an unostentatious manner similar to that adopted by painters and sculptors.

The committee concludes that if the custom is to be taken up it should come gradually and not by proclamation. If any piece of work is good and very good, both in design and execution, the architect deserves to have his name placed upon it. It would be impractical to have the exercise of this right passed upon by proper and competent committees, so, as we said before, he must decide for himself.

Under the caption "Another Concrete Failure," an Eastern brick journal devotes much space to describing and illustrating the collapse of a reinforced concrete chimney at Peoria, Illinois. The cause given for the so-called failure is overweight. No official report, however, has been made, and until such is given we shall not attempt to form any conclusions.

We think it opportune at this time, however, to call for a discussion on the durability of concrete for smoke stacks. The point has been raised that the sulphur and corrosive acids in coal smoke will slowly decompose the portions of concrete exposed to their action and cause the inside of the chimney to crumble in the form of dust, and that this process will continue until the chimney will be in danger of collapse from its own weight.

Doubtless some of our readers have had occasion to watch the changes that take place inside of a cement chimney and the results must necessarily be valuable to concrete advocates. Therefore we invite contributions on the subject and quote from a recent issue of Concrete the following interrogations:

"First.—Is cement concrete, composed of Portland cement, sand and gravel, or of cement, stone-dust and crushed stone, either or both, suitable and durable material for building chimneys, and something that will not be injured by coal smoke or other usual products of combustion?"

"Second.—If cement concrete, made as above, is not proof against smoke, what aggregates can be used to make it so?"

* * *
Position Wanted

Reinforced concrete superintendent, having constructed high reinforced concrete buildings. Also experienced in design of members, desires a position. Address or call at office of the Architect Engineer, 621 Monadnock building, San Francisco.

A Short Talk on Advertising
(Domestic Engineering.)

To advertise or not to advertise seems to be the great question of the day and on this subject, as all others, there are "many men of many minds." To anyone who makes a careful study of the matter, however, there can be but one answer and that is—ADVERTISE—, with a big A. In proof of this one has only to look through the various trade papers as well as the numberless magazines of all kinds published each month and note the advertisements that are being put forth by the leading houses of all lines until the names of some of them are household words.

It is also a well-known fact that all progressive manufacturers now read the advertising pages of their trade papers with as much care as its reading columns, because they are constantly on the watch for the latest improvements in their particular line, and it is the man who presents the merits of his article in the most convincing manner who will get the business.

Another thing—one advertisement cannot be expected to produce great results. There must be a continued effort steadily maintained. Advertising must be looked upon as an investment, not an expense, and if one will follow the writer's plan of charging advertising with all expenses of any kind connected with it and giving it credit for all new business obtained, one can soon see the result and it will be practical proof of what advertising does.

The whole matter resolves itself, therefore, into the following: Good advertising matter plus good trade papers equals largely increased business.

She—That Mr. Planz, the architect, has a funny way of pronouncing things, hasn't he?

He—I haven't noticed it.

She—Why, yes. Didn't you hear him allude to a sore throat?

He—A sore throat!

She—Yes. I heard him mention a gargoyle several times. We always call it gargle, you know.—Cleveland Plain Dealer.

Wants Back Numbers

T. T. Davis, architect, 341 E. Second South street, Provo, Utah, will pay twenty-five cents for each back copy of the Architect and Engineer dated January, February, September and October, 1906. A complete file from January to October, if left at this office, will be paid for at the same rate.

An Index to the Advertisements

New Advertisers Not Noted Here Will Be Classified Next Month

	Page		Page		Page
Adams & Hollopeter.....	80	Gladding McBean Co.....	8	Pacific Rolling Mills	124
Allen, Irving C.....	88	Gregory Hardware Co.....	123	Pacific Surety Co.....	110
American Construction Co.....	101	Harron Rickard & McCone....	8	Pacific Typewriter Company...	115
American-Hawaiian Engineer- ing Co.....	11	Hardwood, Interior Co.....	122	Palace Hardware Co	123
American Pacific Construction Co.....	93	Haskins, Arthur R.	12	Paraffine Paint Co	106
American Steel and Wire Co....	128	Hassam Paving Co.....	103	Parcells Safe Co.....	120
American System of Concrete Reinforcing	9	Healy Gale Co.	13	Petersen, H. L.	126
Art Metal Works	103	Henderson, Walter	120	Pettus, T. A.	95
Badger Chemical Extinguish- ers	12	Hendy, Joshua, Iron Works... 95		Ralston Iron Works.....	12
Baker & Hamilton	2	Henshaw Bulkley & Co.....	9	Redwood Manufacturers Co....	92
Barker & Walsh.....	88	Hercules Gas Engine Works... 95		Reed & Co.	128
Barnes, W. F., Commercial Co.....	113	Hercules Manufacturing Co....	105	Reilly, J. F. & Co.....	114
Barneson Hibberd Co.....	13	Hewitt Machinery Co.....	85	Richards-Neustadt Construction Co.	125
Bass Hueter Paint Co...2nd Cover		Hipolito Screen and Sash Co...112		Richter Mfg. Co.	111
Bay City Iron Works.....	110	Holt and Habenicht.....	120	Roberts Bros. Co.	128
Benicia Iron Works.....	15	Hoyt Bros.	115	Roberts Combination Water Heater	7
Bennetts Petroleum Burner Co.3rd Cover		Hydrex Felt Co.....	83	Roebbling Construction Co....	16
Birk & Wegmann	106	Ingerson & Glazer	14	Roebbling, John A., Sons Co...118	
Blume, C. A.	15	Inland Floor Co.....	122	Rulofson, A. C.....	16
Boesch Lamp Co.....	94	Inland Architect	110	Russell & Erwin Manufactur- ing Co.....	98
Boyle-Lucey Co.....	83	Interlocking Stone Co.....	126	San Francisco Cornice Co....	99
Bowring & Co.....	13	Johns-Manville Co.....	86	Sanitary Devices Mfg. Co....	89
Brant, Paul	88	Jurgewitz, J. Fred	92	Schastey & Vollmer	83
Breite, W. W.	84	Kahn System of Reinforced Concrete	96 and 97	Schofield Co.	99
Breslauer, A.	91	Kehoe, William E.....	115	Skinner, Theodore H.....	96
Brittain & Co.....	14	Keuffel & Esser Co.....	81	Smith Rice Co.	121
Buff & Buff.....	115	Keystone Boiler Works.....	94	Solar Heater Co.....2nd Cover	
Burnett, J. H., Iron Works .. 12		Klein, F.	91	Southern Pacific Co.....	108
Burrell Construction Co. 3rd Cover		Knickman & Nocenti	90	Spencer, H. T.	122
Butcher's Boston Polish	95	Leonard, John B.....	6	Standard Brass Casting Co....	107
Cahill, James & Co.....	88	Lindgren-Hicks Co.....	102	Standard Electrical Construc- tion Co.	100
California Art Glass Works...111		Lloyd, Gilbert & Robertson...112		Stanquist, Victor & Co.....	99
California Brick and Clay Co...113		Long & Hoyt.....	121	Steger Electrical Co.....	120
Carnegie Brick and Pottery...124		Los Angeles Pressed Brick Co.....	15	Steiger Terra Cotta and Pot- tery Works	94
Chubbuck & Harris	123	Maldonado & Co.....3rd Cover		Strong, Belden & Farr.....	110
Clarke, D. Ross	122	Manetta, J. E.....	111	Sunset Lumber Co.....	110
Clinton Fireproofing Co. 8		Mangrum & Otter.....	16	Tamm & Nolan	109
Coles, Charles P.	13	Marshall & Son	125	Taylor & Sinclair.....	3
Co-operative Artificial Stone Co.	123	Marshall & Stearns.....	106	Tibbetts Roofing Co.	88
Continental Fireproofing Co...121		Meufer's Metal Spanish Tile.. 10		Tozer, L., & Son Co.....	86
Corwin, H. G.....	106	McGuigan, John	85	Tucker, W. W.....	124
Couchot, M. C.	84	McMurtrie, T. A.....	5	Union Lime Co.....	103
Cotton Bros.	4	McNear, Geo. W.	91	Van Emon Elevator Co.	1
Decker Electrical Co.....	10	Monash-Yunker Co.....	7	Watson, W. J., Roofing Co....	1
Demolith Co.	103	Montague, W. W., & Co.....	2	Wallace Hoists Co.	105
Dennison, A. D.	85	Moynihan & Co.	111	Wellington, George J.....	106
Dietzgen, Eugene	85	Nash, Carl Enos, Co.....	93	Westcott, C. A., Paint Co....	115
Dunleavy & Gettle.....	120	Newcomb, C. L., Jr.....	88	Western Building Material Co. 4th Cover	
Dunn Petroleum Burner.....	118	New Pedrara Onyx Co.....	109	Western Builders Supply Co... 7	
Empire Plaster	90	North American Dredging Co.. 11		Western Expanded Metal Co...110	
Enos Co.	93	Olson & Richardson	88	Western Inspection Bureau...127	
Fancher Creek Nurseries...114		Pacific Alamo Manufacturing Co.	119	Western Iron Works	120
Finn, John, Metal Works...114		Pacific Blower and Heating Co.	109	Western Roofing Materials Co. 88	
Flexo Roofing	90	Pacific Coast Art Marble	125	White Bros.	84
Freeman, J.	15	Pacific Coast Paper Co.....	5	White Iron Works.....	92
Fuller, W. P. Co.....	105	Pacific Concrete Machinery Co. 16		Whittier Coburn Co.....	14
Fulton Construction Company...100		Pacific Construction Co.	104	Wieland, C. F.....	110
Galassi, T. V., Masonic Co...109		Pacific Fire Extinguisher Co...100		Witt, G. E. Co.....	81
Gilley Schmid Co.....	107	Pacific Mantel and Tile Co....	84	Worswick Street Paving Co...107	
Girvin & Eyre	114	Pacific Paint and Varnish Co...122		Woods & Huddart	101
		Pacific Plymouth Plaster Co.. 87			
		Pacific Portland Cement Co. 1st Cover			

The Publisher's Corner

Scofield Company Changes Name

The Scofield Engineering & Construction Company, of San Francisco, has changed its name to the Scofield-DePalo Company. L.M. Scofield is the president and M. DePalo the chief engineer. The company has moved its general offices from the Kohl building to the new Flannery building at the corner of Market and Geary streets. Among the notable contracts taken recently by this company is one for the erection of a four story and basement fireproof hotel for Mrs. Charlotte Clark on Turk street near Larkin. The building, which was designed by Architects Meyer & O'Brien, will be of reinforced concrete and 137½

feet square. The company also has under construction a five story and basement office building of reinforced concrete for the Anglo-Californian bank at Sixteenth and Mission streets. The plans for this building were drawn by Sylvan Schnaittacher.

Fulton Construction Company

The Fulton Construction Company with offices in the Stover building, corner of Eighth and Market streets, San Francisco, has been incorporated with Delmar Smith, president, H. R. Fulton, general manager and Duncan Davis, secretary and treasurer. The

Company will make a specialty of boiler settings and general brickwork. Among the important contracts already taken by the Company along this line are the following: Ovens and boiler settings, Standard Biscuit Company; boiler settings, American Biscuit Company, Boyce Lumber Company, Globe Milling Company, Finley Wood Company, John Hoy Company, Harmon Lumber Company, Warner Bros, Lorden Milling Company, Speck Machinery Company, American River Power Company of Stockton, and Taylor and Company, Alameda.

A contract has been secured for the entrance of the new Elks' Hall, now being erected in San Diego.

In San Francisco the company has put in, through the Brunswick-Balke Colender Company, a small but very fine job in onyx for the Ferry Cafe.

In its factory in San Diego the company is turning out a line of fine pedestals, the first of which have been shipped to George Borgfeldt & Co., the immense importing firm of New York. Satisfactory connections made with other first dealers in high grade lighting fixtures will eventually result in a large business in this line. Shades made from Onyx are not only unique and beautiful but are equal in every way to light diffusing globes such as the well known Halophane and other globes of this class.

One company has shipped twenty-five carloads of Onyx in the rough squared blocks to eastern manufacturers and has orders for six more carloads which will be shipped on arrival of the next cargo from the quarries.

Altogether the New Pedrara Mexican Onyx Company is very well pleased with its first year's business and the prospects for the future are bright indeed.

Increased Sale of Peninsula Onyx.

This beautiful decorative stone has been coming to the front very rapidly, as Mr. Lew C. Black, the agent for the company in this territory, states that his company has secured a number of contracts, the largest of which is the interior finish and fixtures of the First National Bank of Long Beach.

The company is putting in 162 feet of counters, the check desks, ladies' waiting rooms and the President's reception rooms and office. This will be, when completed, one of the most elegant banking rooms on the coast.



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American Construction Company Clearing Debris from Basement of Hearst Building, San Francisco

The American Construction Company Wrecking Chronicle Building

Manager Reis of the American Construction Company reports enough contracts on hand to keep his men busy the rest of the year. The company has begun to wreck the old Chronicle building which is quite a delicate job owing to the heavy traffic on that corner. When the walls have been taken down the structure will be rebuilt to harmonize with the new building now being completed. Other work undertaken by this company is the removal of the debris from the basement of the old Examiner building at Third and Market streets; setting the steel for the California Wine Association's big building; also the History building, removing the steel from the ruins of the old Odd Fellows building at Market and Seventh streets, and numerous other smaller jobs. The company besides making a specialty of steel wrecking and construction work does considerable pile-driving and wharf and bridge building. The main office is at 896 Eddy street.

Carnegie Plant Enlarged

M. A. Murphy, manager of the Carnegie Brick and Pottery Company, says that his plant has considerably increased its output during the past year. The many improvements and extensions in the various departments have placed the company in a good position to do a large part of the work in its line that will be required in connection with the great rush of building work consequent to the rehabilitation of San Francisco during the next few years. The entire State of California, and for that matter, all the other Coast States, are also doing a great deal of building. The products turned out at the company's plants near Tesla are face brick, enamel brick, fire brick and sewer pipe. The demand for all these has been extremely heavy ever since the San Francisco fire. While a great deal of fine architectural terra cotta will be required, the erection of so many reinforced concrete buildings will make the total required much less than would have been the case if all the large buildings were to be of brick. Many of these reinforced concrete buildings have a

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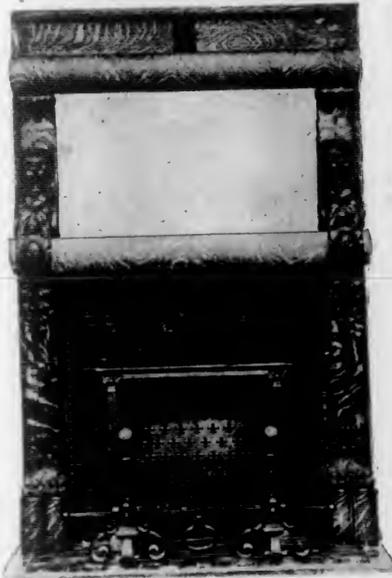
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cement exterior finish and do not require a great deal of terra cotta on the inside, as compared with the amount used in the buildings formerly erected here.

While the use of second-hand brick from the ruins of the city has somewhat reduced the demand for common brick, as compared with what it otherwise would have been, Mr. Murphy finds that the pressed brick manufacturers have had and will have plenty to do. There are four large factories in and around San Francisco, which produce large quantities of face brick and terra cotta. In Mr. Murphy's opinion, these plants can take care of the new year's demands in fair shape, although, if nothing occurs to interfere with building construction, the year 1907 will far eclipse all previous records in the demand for building materials. This company has now erected a large frame



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OAKLAND - - CAL.

warehouse at its new San Francisco yards, on Tenth street, between Mission and Howard, where a large stock of its products is carried. The general offices are still located in the Montgomery block, on Montgomery street.

Los Angeles Pressed Brick Company.

The Los Angeles Pressed Brick Company, which is now arranging to increase the size of its plant at Point Richmond, California, by 50 per cent., has contracted for 1000 additional horse-power of electric energy.

The Pacific Blower and Heating Company is rushed with orders.

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1527 PINE STREET, (NEAR VAN NESS)

In New Quarters

The Hewitt Machinery Company (Inc.) has moved from the Monadnock building to more commodious quarters in a new building just finished at 37 Second street. A stock for immediate delivery will be kept on hand and this will enable the company to fill all orders promptly. Several large machinery contracts have lately been taken in addition to a number of hurry orders for Atlas engines and boilers. Besides the Atlas goods the company is handling the Blaisdell air compressors, Kilbourne & Jacobi's ore cars, Chalmers & Williams' mill and mining machinery, the Shaw "Eclipse" air hammer rock drills and the Jeffrey "Badger" rock drills.

Alfred G. Webber has taken the management of the Roberts' boiler and Hamilton grate and has opened an office at 179 Twelfth street, Oakland.

The Western Building Material Company will supply the cement for the new Flood building, at the corner of Fourth and Market streets. This building will be the largest of its kind in the world. It will be of reinforced concrete. Charles F. Whittlesey is the architect.



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THAN ANY OTHER ROOFING because it is composed of a practically imperishable material.

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Are Shipping Many Brick

Since the first of the year the California Brick and Clay Manufacturing Company has completed more than one-half of its new building at Antioch and the waste heat dryer system is now in shape so that all orders can be filled promptly in spite of the wet weather. The company reports many orders on the books for sewer pipe, chimney pipe and hollow fire proofing of all kinds. Some large shipments of material have recently been made to San Francisco and interior points.

The company has its plans all worked out for the new kilns it is going to erect as soon as the weather clears. It is proposed to build at once two large circular down draft kilns, and one brick kiln which, in addition to the present capacity, will make the company rank among the large producers of the coast.

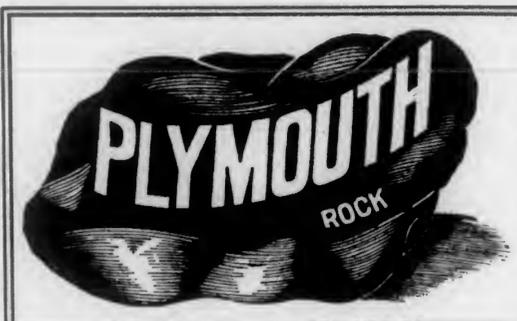
The Redwood Manufacturers Company at Oakland is one of the most successful enterprises across the bay; thanks to the tireless efforts of Manager W. A. Boscov. Business with this company has more than doubled the past year. There is a great demand for redwood, pine and cedar doors, a large stock of which the company always keeps on hand.

Cement Work Causes Comment

D. Ross Clark, the well known cement plasterer, did the ornamental plastering and cementing on the new Flannery building, and Mr. Clark is being complimented for doing such a creditable piece of work. He is also doing the plastering and cement front on the three story building planned by Architect Frank Van Trees for the Enterprise Real Estate Company on Market street. The ceiling and wall panels in Kilbourn & Hayden's Ferry Cafe were decorated by Mr. Clark and from an artistic standpoint it is as fine as anything to be found in that section of the city. Mr. Clark is a member of the San Francisco Builders' Association, where he may be reached any day during the noon hour.

Four Stories

The Mutual Cold Storage Company, recently organized, is planning to erect a four-story brick building on East street, near Sansome, which will be one of the largest and best equipped cold storage plants in the West. Construction will begin as soon as architects' plans can be drawn up and approved by the directors of the company.



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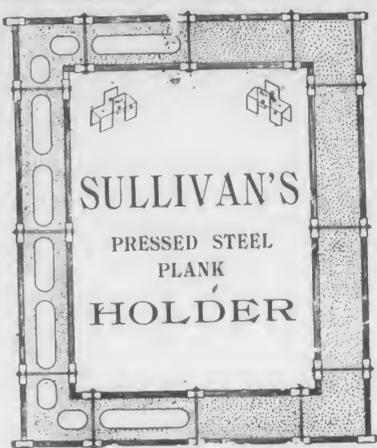
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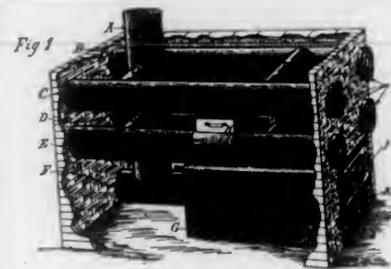
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"American System for Reinforcing for Concrete Construction" is the title of a neat, well gotten up little booklet now being distributed by the Pacific Concrete Machinery Company of San Francisco and Los Angeles. The book includes about fifty pages of illustrated matter showing and describing the

various buildings on the coast and elsewhere built according to the American system. C. F. Wieland, the well-known San Francisco engineer, is the resident consulting engineer of the system which should be sufficient guarantee of its worth. Among the illustrations shown are several progress photographs of the A. Schilling plant.



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The Steel Situation in San Francisco

The well known firm of Woods & Huddart, selling agents for the Lock bar steel pipe, writes as follows concerning the steel situation on the coast:

"We notice by the newspapers that certain parties are delaying placing orders for structural steel until such time as they can do so with any degree of certainty of delivery.

"To the best of our knowledge some of the very largest producers of structural steel are considerably behind hand in their deliveries, but this does not apply to all of the mills and structural shops. We might say in this connection that we are the representatives here of Levering & Garrigues Company of New York, and they are prepared to make prompt deliveries of structural steel fabricated ready for erection. In further substantiation of our statement we can inform you that we recently took a contract for a small steel frame, for a building to be erected on Market street, and made shipment complete in forty days after receipt of drawings, and we really feel that such a record is one to be proud of when everyone knows the present general conditions of the steel market.

"We know that considerable work has been delayed on reinforced concrete buildings, the builders claiming that there is great difficulty in obtaining bars for reinforcement promptly. We have supplied round, square and twisted bars for a number of buildings, among them the new building for the American Biscuit Company, which we believe is about the largest reinforced concrete building that has so far been planned here. On this contract we have supplied approximately 850 tons of bars, and were able to make very prompt shipments.

"On new business for bars we are offering at the present time to ship within two weeks from receipt of order at mill."



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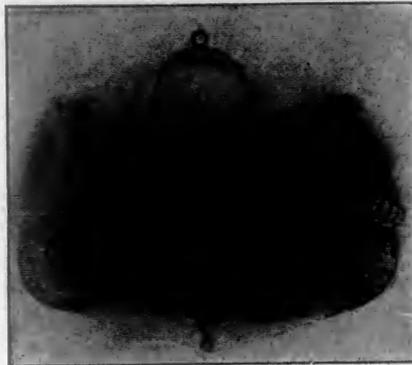
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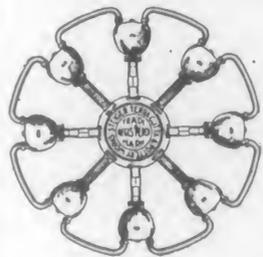
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Brick Mantels; Tile Mantels; Urns and Vases : : : :
Laundry Tubs; Kitchen Sinks; Flush Tanks : : : :
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OUR No. 3 REVIVER
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WORKS AT
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TESTS made upon the floor construction of the Bixby Hotel show remarkable strength and excellent design. In these floors and beams only the KAHN SYSTEM was used. This building is now being added to and the great success of the use of the KAHN TRUSSED BAR, as shown by these tests, especially as compared with the twisted bar or plain bar reinforcement, have led the architects to specify the Kahn System exclusively in these additions. The architect, J. C. Austin, has expressed himself as being so well PLEASSED with the Kahn System of reinforced concrete, that in the future he will use it in preference to any other system.



TONS of sacks filled with sand were placed on the floors of the Bixby Hotel, causing a super-imposed load of 240 pounds per square foot. This load is six times the load for which these floors were designed, and is equivalent to the weight of three tiers of heavy men packed together as closely as possible, and one tier on top of another.

Trussed Concrete Steel Company

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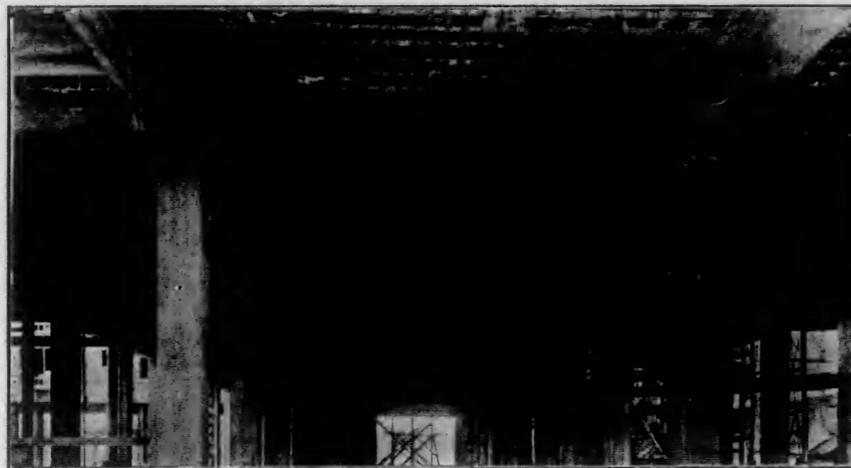
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CEILING construction under the load shown on preceding page. The clear span of these ceilings is 17 feet 8 inches. Note that the concrete joists spanning between the girders carry all the load, thus making it a true reinforced concrete construction. The rows of hollow tile are merely used to fill the spaces between the joists, which would ordinarily be vacant and unattractive in appearance. As far as strength is concerned, all of these tiles may be removed without any injury to the construction.

THE KAHN SYSTEM

OF REINFORCED CONCRETE is the HIGHEST TYPE OF CONCRETE CONSTRUCTION, not the cheapest but the MOST ECONOMICAL. It aims first for SUPERIORITY IN RESULTS, and second for economy in price.

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**STEEL AND REINFORCED CONCRETE
BUILDINGS**

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Estimates furnished on any plans and specifications. Our electrical engineering force will gladly give advice, without charge, to architects, builders or owners, on any contemplated improvements.

The Standard Electrical Construction Co.

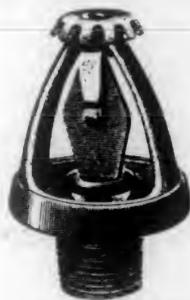
has done a great portion of the important work in its line in San Francisco and vicinity, including St. Francis Hotel, Mercantile Trust Co., Jas. L. Flood Building, Crocker Estate, Stanford University Buildings, University of California.

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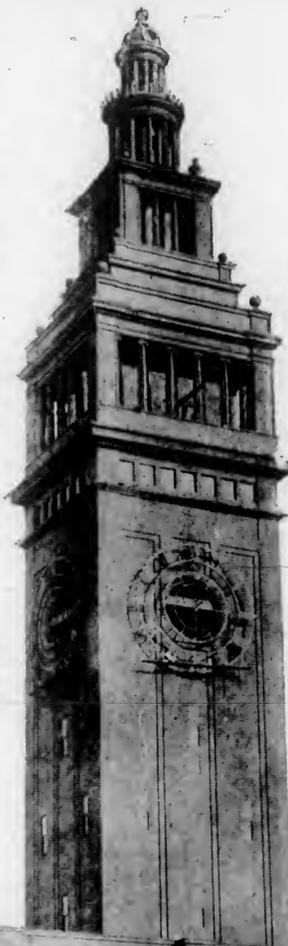
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Large Stocks of Cement
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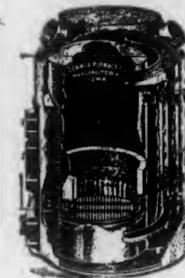
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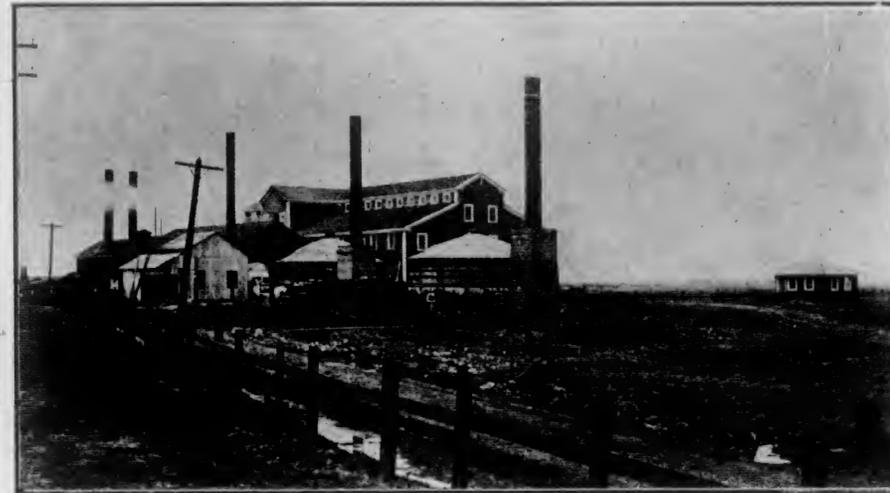
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- Heber & Thayer, German Building, Los Angeles.
- Victor Stanquist & Co., 65 Landers St., S. F.
- High Carbon Steel Bars, Woods & Hubbard, S. F.
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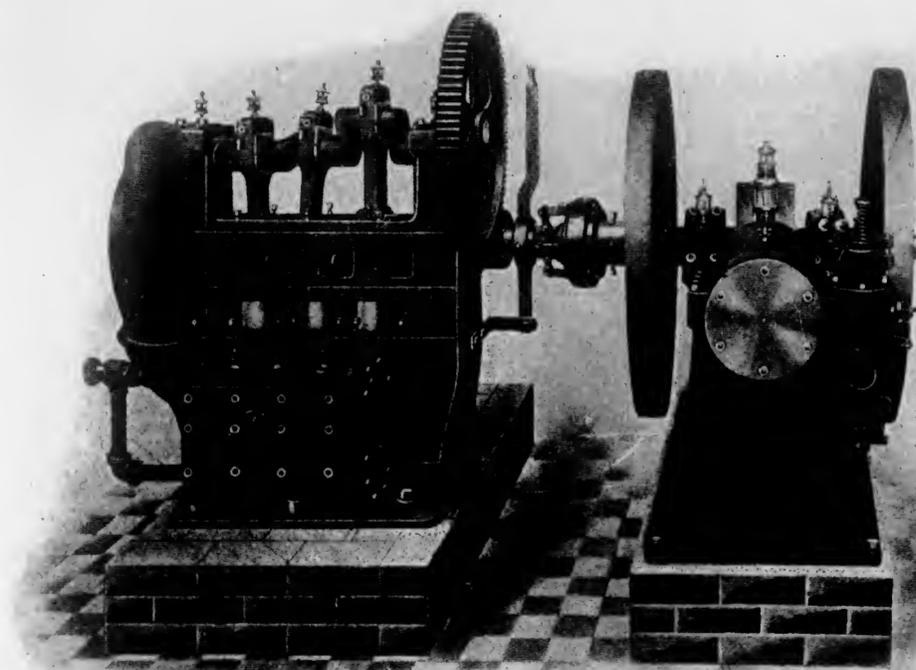
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