

ABUSES IN ELECTRIC WIRING.

BY GEO. P. LOW.

WHERE recently appeared in these columns an article upon the wiring of buildings for incandescent lights, in which was pointed out the utter helplessness of the layman in securing the conformity by wiring concerns in specifications for electric work and particularly was it indicated that the placing of an installation at three per cent drop in potential instead of at the two per cent loss so generally specified, will frequently net the electrical contractor hundreds of dollars saved in copper yet generally neither owner or architect will be able to detect the fraud. So completely has the universal ignorance in reference to the technical details of electric work placed the public at the mercy of a trade that is all but demoralized by irresponsible competition that property owners have in this "drop in potential" matter alone, paid thousands and thousands of dollars to wiremen for material contracted for yet which was never furnished. Nor in many instances, did the electrician intend to furnish this material when he contracted to do so. To the shame of the trade—for the just suffer with the unjust—it is a fact that of the truth of these statements there is not the slightest doubt.

Another fraud, equally flagrant with that described and which is closely akin to it, yet which, owing to the ease of detection, is not practiced so freely as it has been, consists in the substitution of a cheap and inferior grade wire for the high grade insulation that must always be used in concealed work. In localities not under the constant vigilance of an underwriters' inspector and where consequently, electrical matters all but take care of themselves, it becomes the simplest thing in the world to wire all circuits located in concealed and inaccessible places with an inferior wire and to splice on to the ends an approved insulation at all points where the wire is exposed to sight. Every experienced electrician—if he will—can cite instances in which this *felony* has been practiced. The word *felony* is used advisedly. If an electrician deceives an architect and defrauds an owner into paying for goods he did not deliver and never intended to deliver, it is a crime, but if he wilfully carries the fraud to the extent that the property is endangered, that it may be burned from the wretched work and lives may be lost thereby, then the act is of that enormity that it should be treated as a felony. No one knows better than the insurance inspector that buildings have been so wired and that should he relax his vigilance, others would be so wired again.

Property owners suffer further great loss from the fact that sufficient judgment is not exercised in determining the proper voltage for which a building should be wired. Here again as in "drop," it is impossible to lay down a general rule that can be followed even for roughly approximate results. It may be stated however that except in buildings containing isolated plants, the voltage is determined from the nature of the plant or central station that is to supply the current. Should it be desired, the building may be so wired that the wiring may be occupied by any commercial low potential system of lighting, or to go still further, any building may be so wired that its circuits can be occupied by any incandescent system, whether for series or multiple lighting, but the last named scheme would be unnecessary, ordinarily.

The usual systems for which a building may be wired are known as the 50-volt, 100-volt, 110-volt and the three-wire,

or 220-volt systems. As to the hazard presented by these systems they are about equally safe, and as far as the public is concerned they may be considered as merely different methods of distributing electric energy for commercial purposes. In the end they each accomplish the same thing, that is, by means of each, about 50 watts of electric energy is delivered to each 16 candle power lamp. But 50 watts may be 50 volts and one ampere, or 100 volts and one-half an ampere or 200 volts and one-quarter of an ampere, for the energy of a current of electricity is expressed in watts, which are derived in the product of the volts and the amperes that constitute that current. All 16 candle power lamps require about 50 watts to burn them, but these 50 watts may be variously derived as above stated, hence the voltage for which a building should be wired depends upon the voltage of the source of supply and upon the lamps to be used. Since lamp makers now furnish lamps of all voltages, the second consideration is immaterial. Clearly then the lower the voltage the higher the ampereage and as ampereage—not voltage—is the factor of electric energy that requires cross-section in the wire along which it travels, it is equally clear that the lower the voltage used, the greater must be the size of the wire run.

The point of greatest importance in determining the proper voltage is to derive the system that will meet all contingents and yet cost the least, for as will be shown, a vast difference exists in the amount of copper wire used by the various systems—and copper costs nearly 20 cents a pound.

In the accompanying table appear the ratios existing between the amount of copper used to effect any installation. In each instance, under the various voltages given, the results will be the same, each lamp will get the same amount of energy, the length of circuit is equal and the drop in potential is the same, yet it is plain from the table that for 50-volt work the amount of copper required will be 4 times that used in 100-volt work, 4.58 times that used in 110 volt work and 12.98 times that used in the three-wire system. Inversely the copper required if the installation was wired on the three-wire system, would be .077 of that used if the wiring was for 50-volts, .310 if 100-volts, and .375 if 110-volts.

RATIOS.

VOLTAGE	50 VOLTS	100 VOLTS	110 VOLTS	220 VOLTS
50	1.	4.	4.58	12.98
100	.250	1.	1.21	3.22
110	.218	.826	1.	2.66
220	.077	.310	.375	1.

It must be borne in mind that these figures are theoretical. They, however, hold strictly good in practice except in the smaller sizes of wires where the fire underwriters' requirements prohibit the use of wire smaller than number 14, B and S Gauge. The ratios which the smaller wires bear to the large ones vary very materially in each installation but it is entirely safe to say that the amount of wire uselessly placed can be measured only in tons. The writer has in mind one large western building in which nearly \$18,000 was thrown away absolutely, by reason of ignorance in selecting the proper voltage. Again as local electrical situations develop practices are becoming more uniform, and while only a year or two ago, owners were justified in wiring for 50-volts, at the present time the necessity for so doing is fast disappearing, particularly in large cities. Despite this many small and comparatively inexperienced electric wiring

concerns still maintain that the only safe course is to wire for 50-volts. Frequently it is true, but by far more frequently is it true that precisely the same results would be attained with the expenditure of from one-fourth to one-thirteenth of the weight of copper necessary to install 50-volt wiring.



To the Editor of the California Architect.

FROM the most remote period of antiquity the tower has been a distinguishing feature of architectural composition. The towers most conspicuous in history, have been located on elevated ground, either natural or artificial, presenting a wide and firm foundation. The tower may be taken as a typical illustration of the sentiments and feelings of mankind. Man has a sense of ambition and a desire to rise above his fellows, so also should the tower rise to a towering height above all surrounding objects. Burke says in his essay on the "Sublime and Beautiful" that "astonishment is that state of the soul in which all its motions are suspended with some degree of horror." This sentence describes our feelings upon seeing an illustration in a morning paper of the proposed design for the buildings and grounds intended for the Mid-Winter Fair, bearing the name of Leon Bonet. It seems to me that no architect would make such a burlesque as that shown.

Upon an examination of the proposed design it appears that the central portion of the space is to be excavated and leveled off, and the outer portions of the plot to be raised, and the buildings erected thereon. As appears by the published design, the buildings will be about fifty feet in height and the terrace will descend about one hundred feet to the level of the central portion. A tower is shown standing in this lower portion; by itself, and if erected upon elevated ground, this tower would make a creditable appearance, but when placed as shown in the design is suggestive of many things. The lowest section might be used as a crematorium, or else for the reception of a power house and electric plant, and the column above as a light beacon, but for the fact that it is too low, and the light would be confined to the inclosure. It might be intended as a monument, but the effect would be insignificant, if a person had to climb a hundred feet to get a full view of it; monuments are not generally inspiring when looked down upon; possibly some of our former enterprising citizens may take that view of the subject. If it was intended for use as a smokestack the situation is also unfortunate, as the wind sweeping over the surrounding buildings would be apt to cause a down draft. Many other possible purposes might be mentioned if space permitted.

In all seriousness is this design to be typical of the whole scheme?

Yours truly,

CRITIC.

FIFTH ANNUAL COMPETITION FOR THE ROBERT CLARKE TESTIMONIAL.

UNDER THE AUSPICES OF THE CHICAGO ARCHITECTURAL SKETCH CLUB OF CHICAGO.

CONDITIONS—The author of each design must execute all drawings without assistance, and non-adherence to these

conditions will cause the rejection of the design or designs in question.

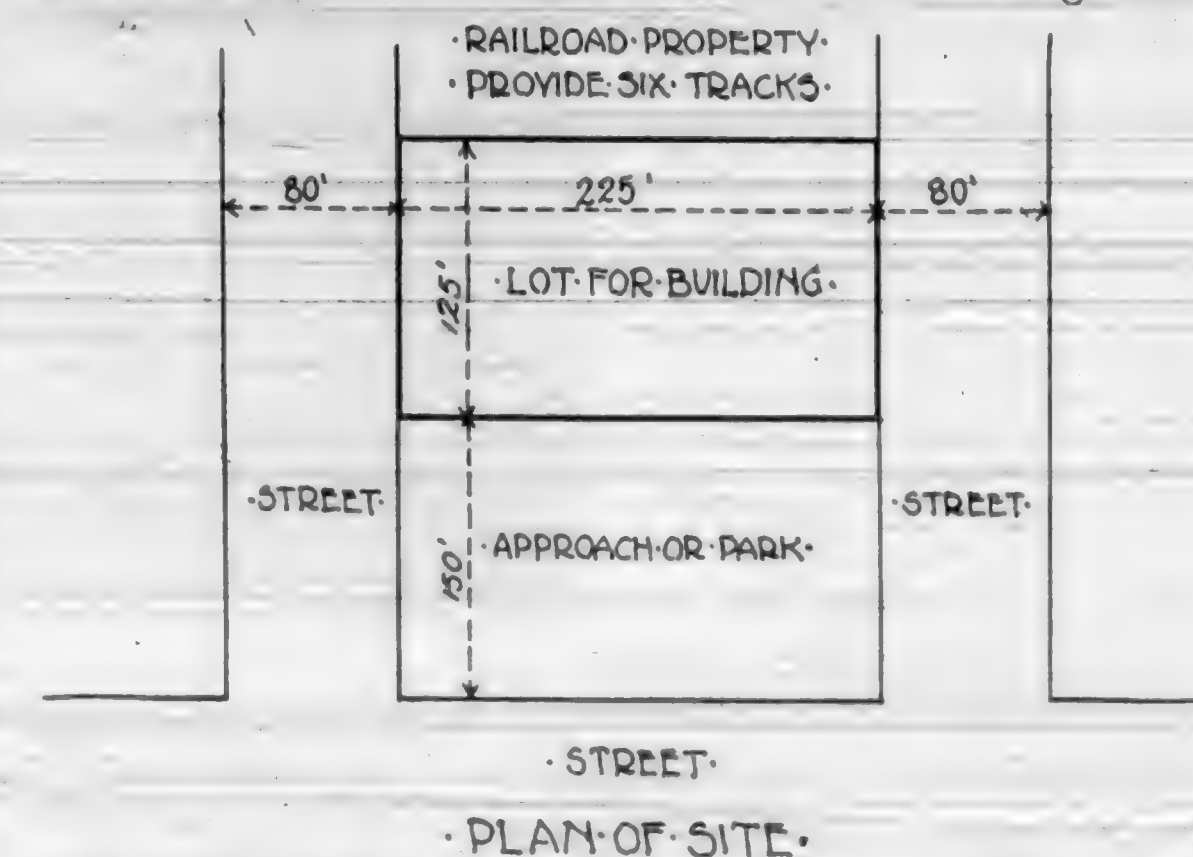
The competition is open to architectural draughtsmen under thirty years of age, residents of the United States and not practicing architects.

The awards will be made by the Adjudicating Committee on the "Robert Clarke Testimonial" competition, and are:

FIRST PRIZE	GOLD MEDAL.
SECOND PRIZE	SILVER MEDAL.
THIRD PRIZE	BRONZE MEDAL.

The prize drawings are to become the property of the Chicago Architectural Sketch Club.

PROGRAMME—A design for an elevated railroad terminal station for suburban traffic, in business centers of large cities.



The building is to have three general stories, the first or ground floor to contain a lobby, stairways, offices and all necessary conveniences.

The second floor is to be on a level with the platform and to contain one general waiting room, one waiting room for women and one for men, toilet rooms, ticket office, depot master's office and necessary stairway to reach the Railroad Co's offices on the third floor.

The building can be smaller than the lot outlined on the accompanying diagram, and the space in front is to be used as an approach or park.

The drawings are to consist of the following, their arrangement and the number of sheets being left to the discretion of the competitor:

First or ground floor plan, second floor plan, front and side elevations, transverse or longitudinal section, perspective and block plan. Size of sheets to be 22x28 inches.

Plans, elevations and section to be drawn to a scale of 1-16 of an inch to a foot, pen and India ink rendering. The perspective to be drawn from an 1-8 scale plan, rendering optional.

The drawings are to be marked with a motto or *nom de plume*, and accompanied by a sealed envelope marked in the same manner, containing the name and full address of the author, with the place and date of birth, and must be delivered flat to HUGH M. G. GARDEN, Secretary, Chicago Architectural Sketch Club, at the Club Rooms, 913 Masonic Temple Building, Chicago, on or before Monday, October 2, 1893. Charges to be prepaid. All drawings other than those receiving prizes will be returned at the expense of the contributor.

The Adjudicating Committee on the Robert Clarke Testimonial:

W. L. B. Jenny, Chairman.
Samuel A. Treat.
Chas. A. Coolidge.
D. H. Burnham.
Lorado Taft.

CALIFORNIA SLATE.

VERY few people, unless it be the architects, are aware that located in our "fair State" is one of the largest deposits of slate in the world. Its quality is second to none being a beautiful dark steel blue in color, tough and easily worked; it improves by exposure, and will not change color. In fact a true slate in every sense.

A better idea may be obtained of the magnitude of this slate deposit when one considers that the ledge is over 2000 feet wide, 1600 feet high from the bed of the American River—very likely as deep below the bed, with a length of two miles. A great mass, indeed, of fine material, good for all purposes where slate can be used.

This deposit is situated in El Dorado County, about two miles from the city of Placerville, on the American River, at the bridge on the road leading to Georgetown. This deposit has been opened and worked in a small way for the past six years. Recently a company was incorporated who purchased the deposit, and has erected an improved plant of machinery for quarrying and manufacturing the material



PLATE NO. 1.

they are split into slabs. These slabs are then placed under the saw, which is made of wire 1400 feet in length, running over numerous sheaves and passes over the slate slabs to be cut, the wire being held down by an automatic appliance on the slate. During the passage of the saw, sand and water are dropped on the part to be cut. Thus the slabs are cut to any desired size. From the saw the slate is conducted on an inclined railway to the splitting sheds, is there split and trimmed ready for shipment. Slabs for billiard tables, tiles, and other purposes are cut to size in the same way, by the wire saw and sand. The sand used in cutting, is what is known as "Quartz Sand," and is at hand in great quantities. From the fact of its not having travelled but a short distance, the cutting edges are fully preserved. It is remarkable to note how fast the wire will pass through the slabs of slate.

The parties who first opened these quarries worked them by the old process of blasting with powder, and handling it by the system carried on in Wales for the past hundred years, destroying thousands of

tons of the finest material through the action of powder. But by means of the machinery erected by the new company, almost all of the slate taken from the quarry is saved, and turned into a ready market.

The accompanying illustrations give one only a partial



PLATE NO. 2.

into roofing slate, slabs, etc. It is now in full operation, turning out several thousand squares of roofing slate each month, besides slabs and tiling in large quantities.

The accompanying plate No. 1 shows the largest of the quarries, there being two in operation. The machine

idea of these quarries. Plate No. 2 shows the quarry as it appeared when worked under the old system. Men may be seen in the act of drilling holes by hand in the slate to take the blast. Plate No. 3 shows the vast dumps of waste slate. These dumps are made up of the finest material broken into pieces, and almost worthless by blasting. But with such a



PLATE NO. 3.

mountain of slate the former owners of the quarries gave no thought to the material wasted. After a blast they selected the largest blocks or slabs, and the rest was consigned to the dump. Plate No. 4 shows the Channeling machine and one of the benches started by the new owners. This is in the largest quarry, which is an opening in the face of the hill, 250 feet in height, and over 400 feet in width. By the use of the machine, the quarry will present a series of steps or benches from bottom to top, six feet each in height.

It would be hard to estimate the value of this immense deposit. In Wales and the eastern states thousands of men are employed in the slate industry, some of the quarries in Wales employing from three to four thousand men each. Let us hope that ere long we may see as many employed in the slate quarries of El Dorado county.

Surveys and estimates have been made for an overhead rope-way to be erected by the new owners, to transport the slate to the railroad at Placerville, a distance of about two miles.

THE MINISTER—"Do you ever think of a higher life, Miss Emma?"

MISS EMMA—"No! papa is so much afraid of fire we always take the first flat."—*New York Herald.*

THE WESTINGHOUSE ELECTRIC COMPANY'S PROPOSED WORKS AT BRINTON, PA.

THE plans for the Westinghouse Electric Company's new plant at Brinton are nearly ready, says the *Electrical Review*. Of the 222 acres owned by the company, 23 will be covered by the works. The machine shop will cover a space of 750 feet by 250 feet; the warehouse 750 feet by 25 feet; the foundry 700 feet by 250 feet; and the boiler house 150 feet by 40 feet. Including other buildings, the area of the ground floors will be 7 3/4 acres, and including the second floors, 15 acres. The structure will be fire-proof stone and steel on the latest methods, and labor-saving devices will be employed to the fullest extent. Electricity as a motive power for labor-saving machinery will be utilized. It is estimated that the saving from the consolidation of the plants

will not be less than \$250,000 a year. Two hundred houses for the employees will be built at once.

MR. EDISON'S FUTURE WORK.

WHAT tireless inventor, Mr. Thomas A. Edison, has been again heard from as regards the problems he has under-

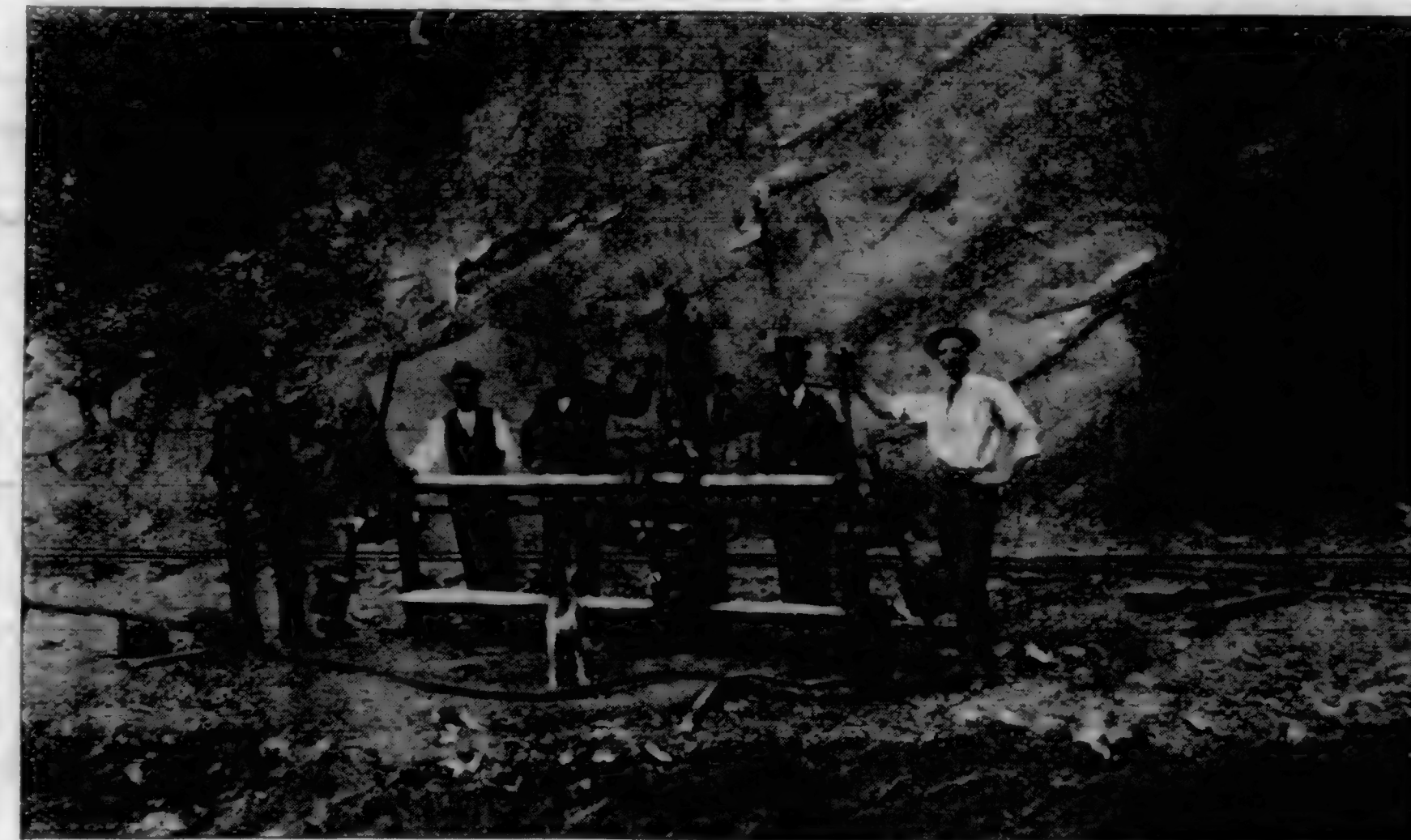


PLATE NO. 4.

taken to solve. He has not, by any means, given up his idea of devising ways and means of obtaining the energy of coal in a manner more direct than the present wasteful methods, and he promises to soon resume experiments along this line. He has had enough of the machinations of Wall street, however, and what he does hereafter, will be through his own enterprise entirely. He proposes to control all his future inventions himself, without the aid of Wall street.—*Electrical Age.*



The management of this journal desires to extend a cordial invitation to all architects on this coast and elsewhere to contribute designs for publication.

Drawings should be made with perfectly black lines on a smooth white surface. Good tracings, if made with black ink, answer the purpose.

The designs selected will be published without charge. All drawings, whether accepted or not, will be returned to their authors, who must bear express charges both ways.

THE Tower for the New City Hall, is by architect Frank T. Shea.

THE Kern County Land Co's Building at Bakersfield is by Henry A. Schulze, architect.

A residence for Mr. Wm. T. Garrett in Alameda, is by architect Fuller Claffin.

ACCIDENT IN THE BUILDING OF RECORD AND PENSION DIVISION, WAR DEPARTMENT, OLD FORD'S THEATRE, WASHINGTON.

LACK OF INTELLIGENT SUPERVISION OF UNDERPINNING.

FORD'S old theatre situated on Tenth street between E and F streets was erected by John T. Ford in 1857. Mr. James Gifford was the architect. After Lincoln's assassination the Government took possession of the building and arranged the interior for the Army Medical Museum. The back wall was, and is, considerably out of plumb. The interior, with probably the exception of the roof, was replaced, the floor being supported on cast-iron columns carrying iron beams with four-inch brick arches sprung between them. The back wall, which was out of plumb was strengthened by the addition of an interior wall and anchors tying the wall to the system of interior beams.

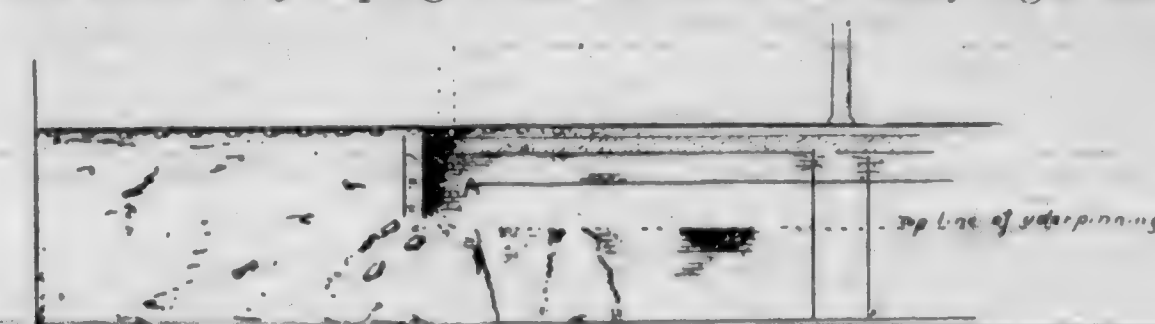
The first floor rests on a series of arches sprung from dwarf walls two feet eight inches high from footing to spring line. These arches began about twenty feet from the front wall; the floor on the intervening space rests on sleepers laid in an indifferent bed of concrete.

A small cellar was arranged in the back of the building in which the heating apparatus was located.

For several weeks workmen have been excavating a passageway from the front to the rear of the building. The central archway had been selected for this purpose. The dirt for this passage was removed, and the dwarf walls were underpinned for a height of about four feet. Curious as it may seem, they had practically completed the underpinning, having finished all the piers on which the columns rested except one, this one as an excavation was made beneath it, gave way, letting down the column marked *A*, pulling over the column marked *B* and precipitating the beams and brick arches which rested upon them on both the second and third floor to the first floor. The portion of the first floor which rested on 3' x 4" sleepers was carried into the excavation. The brick arch over the passageway did not fall. The roof, fortunately, was independent of the system of columns, reaching from wall to wall.

The clerks working on the different floors fell with the falling iron, brick, timber and desks, as there was no warn-

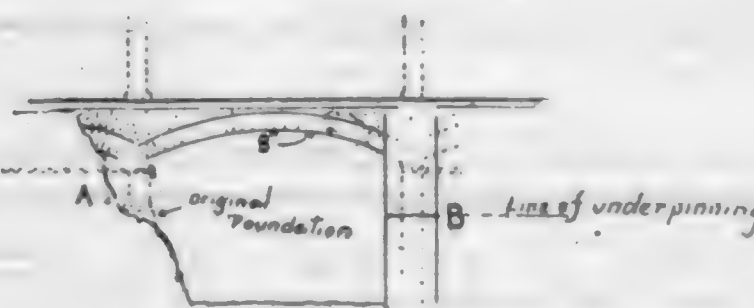
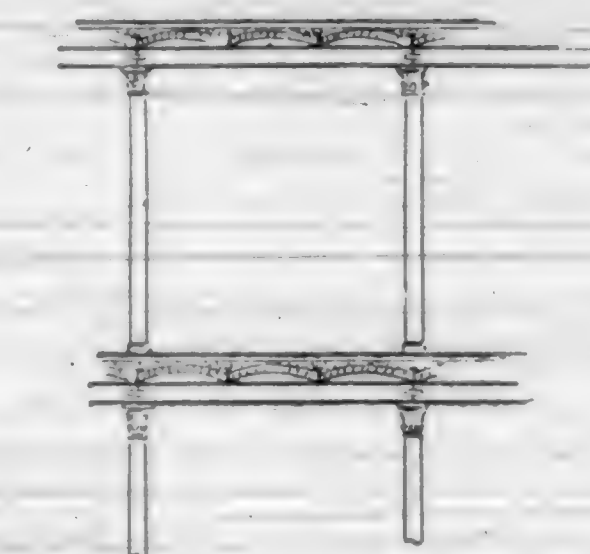
ing. Nineteen were killed by the fall, one who was safe, was killed by jumping from a window and sixty-eight were



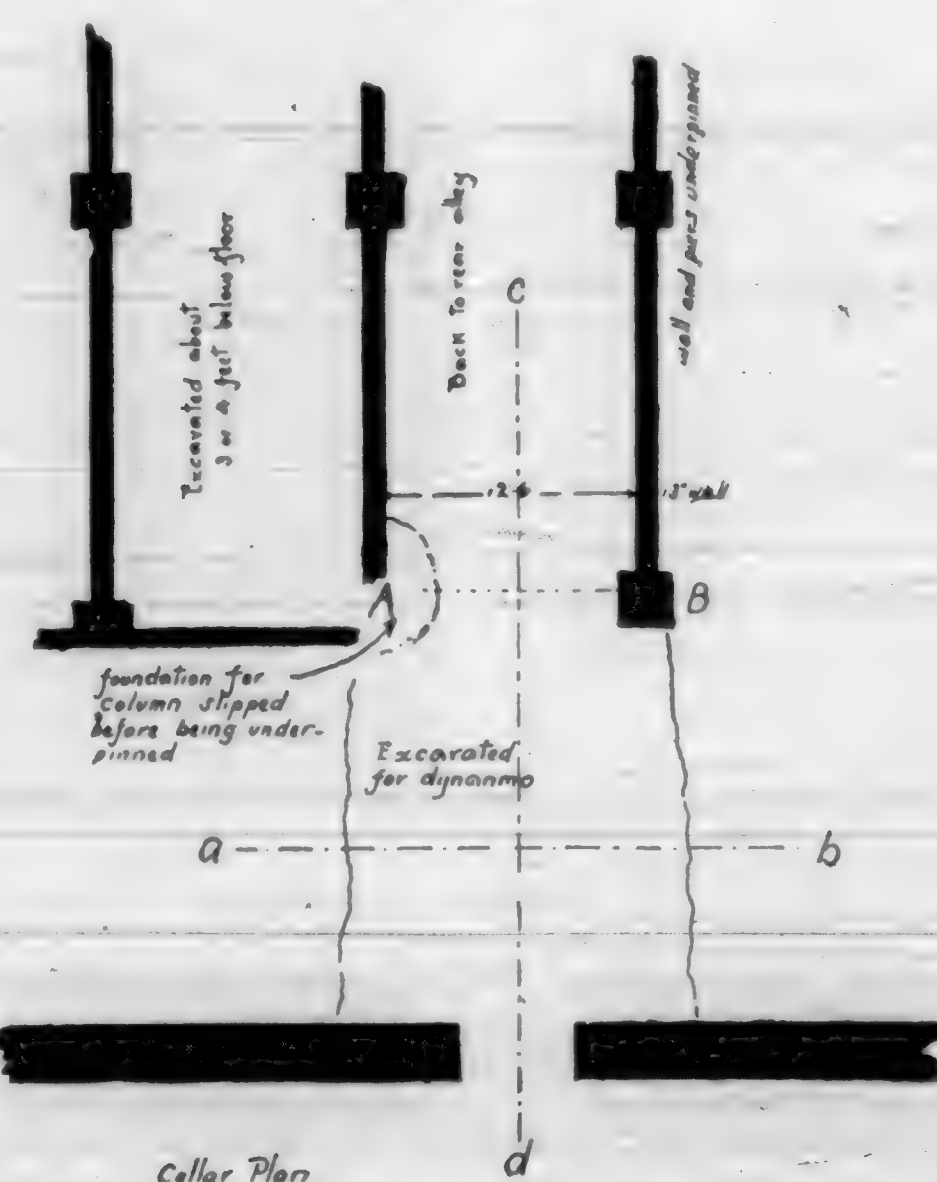
Section c-d

injured, three having died from their injuries. Twenty workmen were under the archway. The bricklayer, who was preparing to underpin the pier which gave way, feeling dirt fall on his neck, stepped back (out of harm's way) to brush it from his neck just as the crash came.

This accident has brought to light customs of the War Department, which if practised by an individual or a corporation would not only be considered criminal but would render them liable to prosecution and conviction for manslaughter. It seems that in work of this character, where the lives of many people are at stake, it does not employ proper expert supervision, and further, that it does not even get expert advice as to the proper methods of conducting such an important undertaking as underpinning a series of piers on which rested columns supporting two stories of brick and iron floors, 13x20 square feet, loaded with men, desks and papers. The methods adopted in carrying on this work show an entire lack of comprehension of the matter in

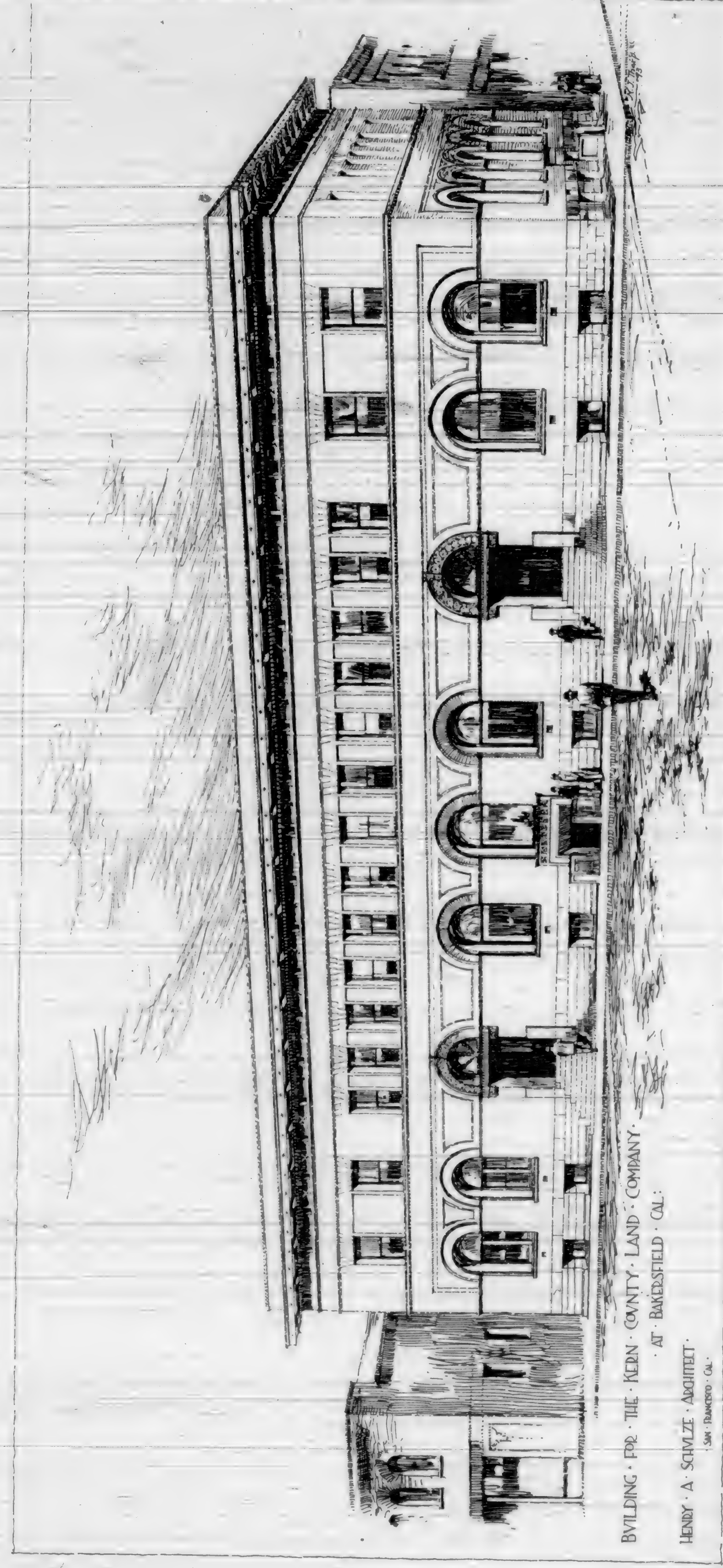


Section a-b



Cellar Plan





BUILDING FOR THE KERN COUNTY LAND COMPANY.
AT BAKERSFIELD, CAL.
HENRY A. SCHOLZ, ARCHITECT.
SAN FRANCISCO, CAL.

CALIFORNIA ARCHITECT & BUILDING NEWS
SAN FRANCISCO.

BRITTON & REY PHOTO LITH.

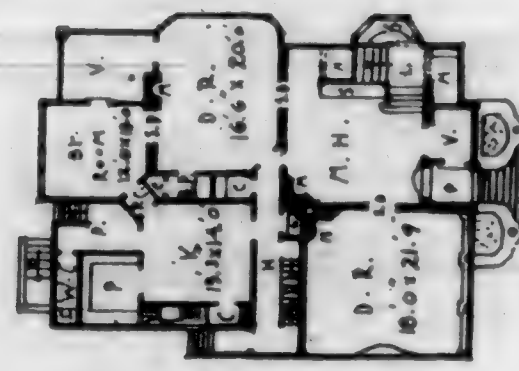
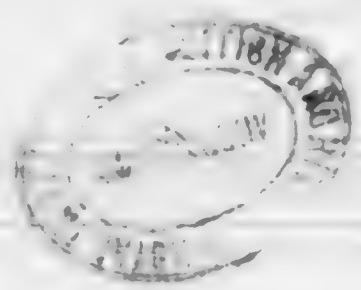
VOL. XIV NO. 7 JULY 1893.



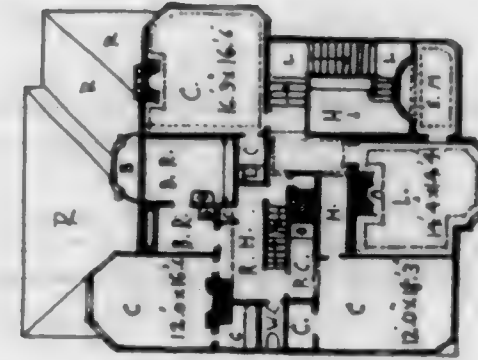
ACCEPTED DESIGN FOR
THE COMPLETION OF THE
NEW CITY HALL S.F. CALIF
ARCHITECT : FRANK T. SHEA :

COMMISSIONERS
L. R. ELLERT
WM. BRODERICK
HARRY T. CRESWELL

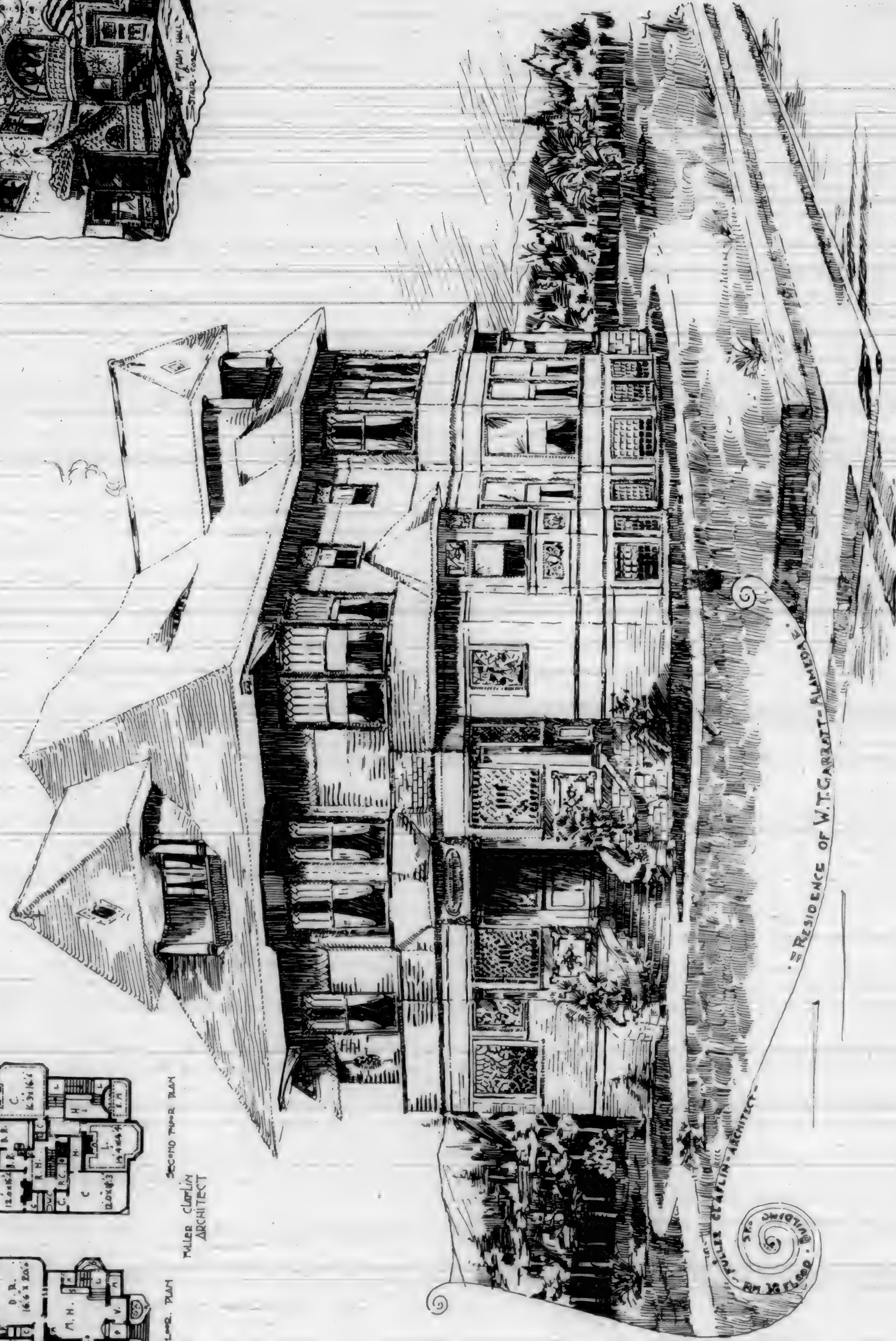
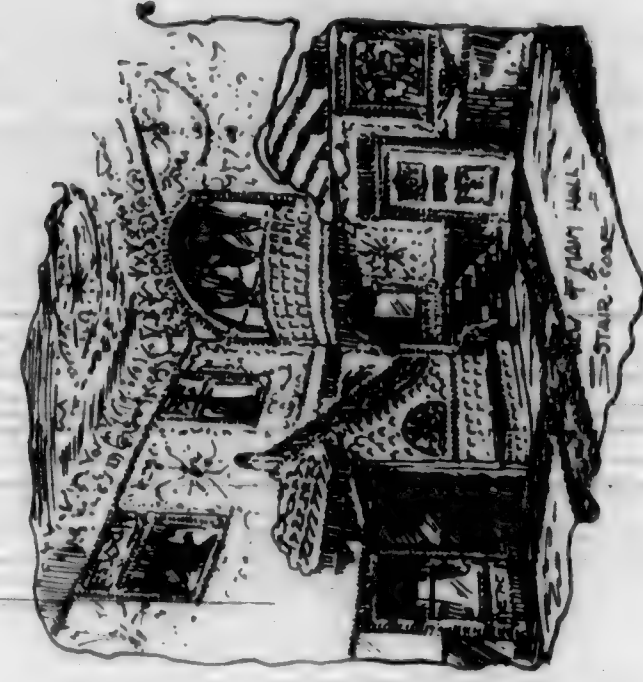




FIRST FLOOR PLAN
Sole 1/2nd



SECOND FLOOR PLAN
T. H. C. J. W.
ARCHITECT





MISSION OF SAN ANTONIO DE PADUA; FOUNDED JULY 14, 1771.



SAN BUENAVENTURA MISSION.



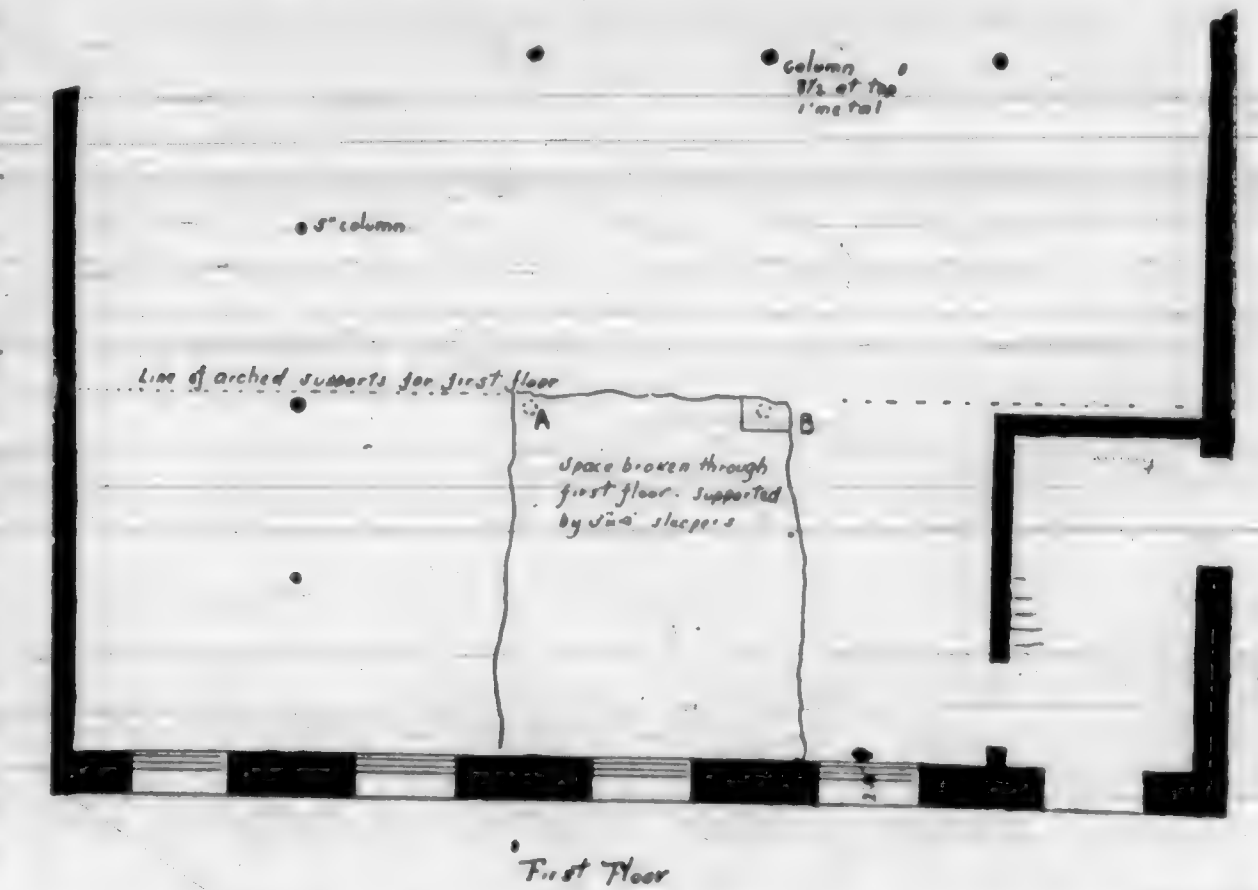
MISSION OF SAN ANTONIO DE PADUA; FOUNDED JULY 14, 1771.



SAN BUENAVENTURA MISSION.

hand. Each pier had, at a low estimate, 51,000 pounds resting on it when the earth was taken from beneath, leaving a bond of about three feet of brickwork to support this great weight above. Curiously, this method was successful until they came to the last column. This pier had a wall bonding into it only on one side, hence they were depending on the strength of a brick corbel with only the counterbalancing weight of three feet in height to support 51,000 pounds. They (we might say miraculously) accomplished this feat at B, but at A, the last pier, what might have been considered inevitable, happened. The brick corbelling and the little support which was obtained from the earth, a mixture of sandy clay, gave way and the columns and superstructure which they supported collapsed. It does not seem to have occurred to the contractor or any of his supervisors to have shored up the story above. The ease and slight cost of such shoring the cross-beams by temporary support one would think would have commended itself to the most obtuse as well as the most penurious person, whether it was a Department Chief or a contractor. It appears from the assertions of those who made estimates on the job, that no specifications, drawings, or directions were given for the work. The party in charge of the building said that no specifications were needed, all they wanted was that the dirt should be dug from beneath the walls, and the space bricked-up. That was the quality of expert direction as to how the work should be done. The supervision consisted in Colonel Ains-

mon way of letting-out contracts for the War Department, and the Supply Division or Quartermaster's Department which has charge, of course, know little if anything about how the work should be done, hence they depend on the contractors. This is a sorry confession from the Department which has the whole Engineer Corps of the United States Army at its

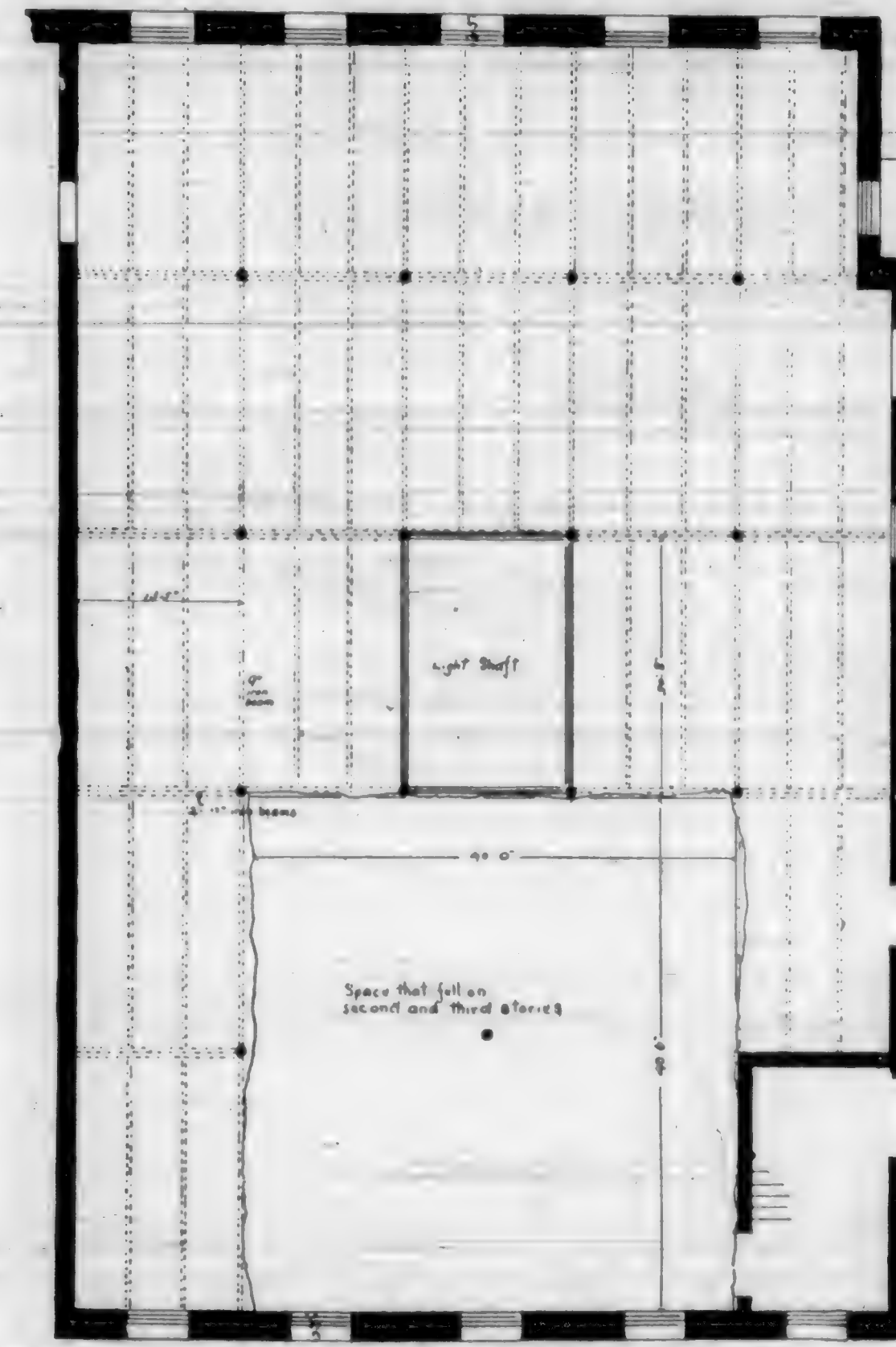


command. To what better use could the engineers be put in times of peace than computing the weights and size of shores to resist them, and specifying the necessary precautions that should be taken in such cases as this? It seems as though such trifling affairs are not worthy the attention of even a lieutenant in the Engineer Corps.

It is a serious question to decide which party is the most to blame, the contractor, Dant, who should at least have known a little about relieving the piers from the weight above underpinning them, or the army officer, Dr. Ainsworth, who should have obtained expert advice and supervision.

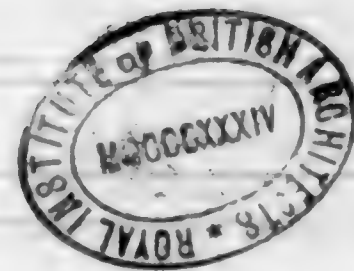
The coroner's inquest and the Board of Inquiry, consisting of General Casey, General Batchelder and Major N. Davis, will investigate and probably place the responsibility where it properly belongs. Several questions have arisen in reference to this accident. The building has been condemned by reports of the Surgeon-General Barnes, in 1881, and Representative Shellabarger, in 1883. These reports have naturally been talked over and magnified by the clerks. They seem to bear principally upon the bad light, lack of ventilation and the first floor having no cellar, so it was not considered healthful; and further, that the roof was not fire-proof and the valuable collections of the Medical Museum were, therefore, in an unsafe building. The walls seem to be strong. The floor beams are lighter than would be used in ordinary practice, being 9" for a span of a little over twenty feet. Beams about four feet four inches on centres. This would be safe, but would give more deflection than would be considered agreeable. The collapse evidently did not occur from the condition of the building, as many suppose. The daily papers and the clerks make quite a point of the floor (which was temporarily supported by the sleepers and roped off while the excavation was going on) shaking when walked upon, but of course this had no bearing upon the accident. It was simply carelessness in preparation for doing and supervising the excavating and underpinning of the new work that was the immediate cause of the failure.

The accident also brings forward prominently the notoriously unhealthy and reported unsafe condition of the Government Printing-office as well as other make-shift buildings which the Government occupies in this city, and again calls attention to the fact that many such buildings are overloaded, and an entire lack of knowledge as to what the floors were intended to carry. All such buildings should have their capacity computed and posted on every floor, as the documents and other matter which the Government stores away, increasing daily, are a menace to the stability of the buildings and the life of their occupants.—*The American Architect and Building News.*



worth (medical Colonel), Chief of Division, the man who attends the boiler (dubbed engineer) and the contractor for the brickwork examining the work daily and asserting that everything was all right. Dr. Ainsworth and Captain Thorpe, who let-out the contract, assert that this is a com-

The contractor making the above statement declined to bid, and hence, presumably, the crude specification and drawings (which I have seen since writing the letter) which are stated to have been prepared, "not by a regular architect or builder," but by a "steam engineer"; i.e., the man who attended to the boiler for the heating-apparatus. The estimates and contract were made on such an indifferent basis as this.



NOTICE OF MEETINGS.

SAN FRANCISCO CHAPTER, AMERICAN INSTITUTE OF ARCHITECTS, meets second Friday of each month at 408 California street.
 GEO. H. SANDERS, Pres. W. J. CUTLER, Vice-Pres.
 OLIVER EVERETT, Sec. JOHN M. CURTIS, Treas.

TECHNICAL SOCIETY OF THE PACIFIC COAST, meets first Friday of each month at Academy of Sciences Building.
 C. E. GRUNSKY, Pres. CHARLES D. MARX, Vice-Pres.
 OTTO VON GELDERN, Sec. GEO. F. SCHILD, Treas.

CALIFORNIA ELECTRICAL SOCIETY, meets the first and third Monday evenings of each month at the Academy of Sciences Building.
 GEO. P. LOW, Pres. C. O. POOLE, Vice-Pres.
 MAX CASPARI, Sec. H. T. BESTOR, Treas.

A special meeting of the members of the San Francisco Chapter A. I. A. was held July 7th in reference to the buildings for the proposed Mid-Winter Exposition viewed from an architectural standpoint.

It was the general opinion that the best results could be obtained by following the method so successful in producing suitable designs for good execution at the World's Fair at Chicago, viz: by appointing a supervising architect for the entire work, and an individual architect for each building—a committee was appointed to present to the Executive Committee of the Mid-Winter Exposition resolutions embodying these suggestions.

The regular monthly meeting of the Chapter, held on the evening of the 14th, approved the action taken by the members at the special meeting. A committee consisting of Messrs. Bestor,

Curtis and Kollofrath was appointed to consider the advisability of holding an architectural exhibit in connection with the Mid-Winter Fair and report at next meeting. An amendment to the By-Laws was proposed to be voted on at next meeting.



We have received from the author James R. Willett, Esq., a copy of his address on HEATING AND VENTILATION OF RESIDENCES, delivered to the Engineering Society of the University of Illinois, March 23, 1893, confining himself to its practical application in order to show the way in which a person engaged in such business may prepare designs for excavation. It cannot fail of being useful to the class for whom intended, as well as of interest to the general reader.

The first number of a monthly journal called "ORNAMENTAL IRON," devoted to industrial art, has just been received, certainly the publishers have reason to congratulate themselves upon having produced a gem. The illustrations are truly works of art applied to every day use.

Published by The Winslow Bros. Co., office 761 Rooking, Chicago, Ill. Subscription price per year \$2.00.

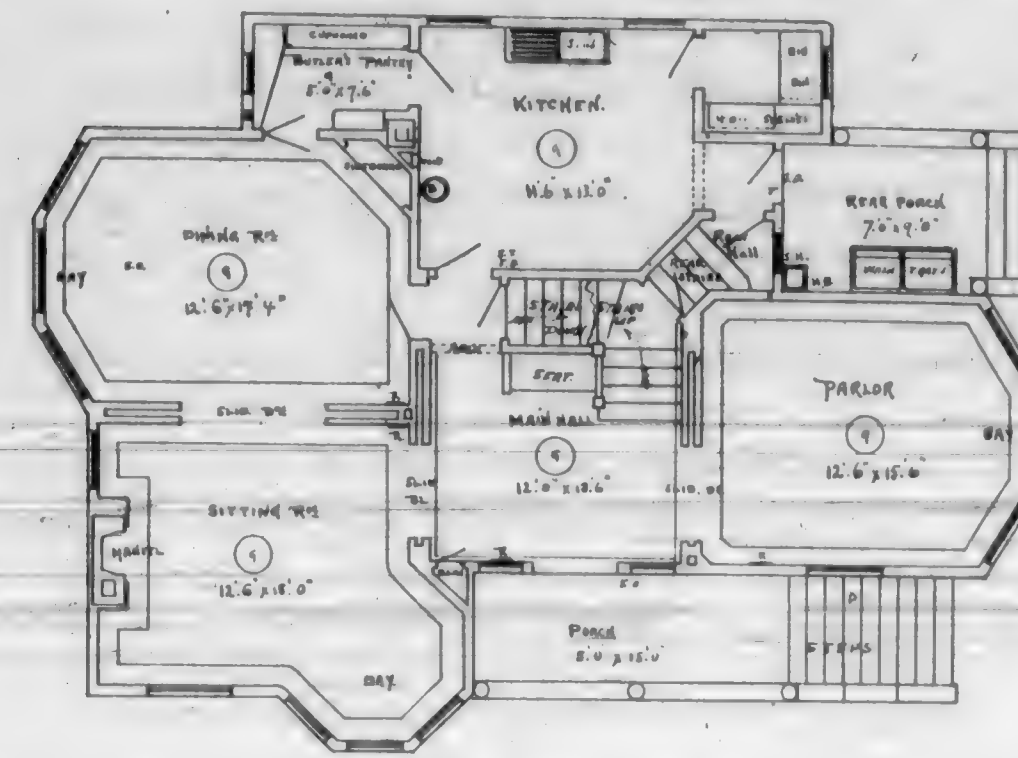
The circular of the SCHOOL OF ARCHITECTURE of the University of Pennsylvania, just received, is a very attractive four-page leaflet, in two colors, describing in brief and comprehensive form the advantages offered by that institution, its faculty, course of instruction and equipment. Full information will be sent upon application to the Dean of the College Department.



RESIDENCE IN SAUSALITO, W. H. LILLIE, ARCHITECT.

The June number of PAINTING AND DECORATING contains a paper on glass embossing, by Arthur Segmour Jennings. The regular departments contain much to interest the carriage painter, paper hanger and all branches of the trade. One dollar a year seems a small price to pay for so excellent a magazine. Published by the House Painting and Decorating Publishing Co., Philadelphia.

We are indebted to THE WINSLOW BROS. CO. of Chicago, for a handsome collection of photographs of ornamental iron. This new photogravure edition of their catalogue for the year 1893 is certainly a very creditable specimen of the printers art, but cannot fail of being of great use to the architect and contractor who are about to order work of this kind. A long list of buildings that have been supplied with this class of work by this firm, being in many cases illustrated by engravings, gives the reader an opportunity to judge of the effect produced, which in some instances is really very fine. Mr. P. H. Jackson & Co., of 228 and 230 First street, this city, are the agents.



FIRST FLOOR PLAN W. H. LILLIE, ARCHITECT.

LEGAL DECISIONS.

From a large number of Legal Decisions of the higher Court, of the different States of the Union, we select and publish in this column, such as appear applicable to this section of the country.

CONSTRUCTION OF LAWS IN REGARD TO MECHANICS' LIENS.—Under the provision of the Laws of Ky. that persons furnishing labor or materials for the construction of railroads and other public improvements, by contract express or implied, with the owners thereof, or by a subcontract thereunder, shall have a lien thereon for the price of such labor and materials, does not embrace one who furnishes such labor and materials under a contract with a sub-contractor.

Cent. Trust Co. v. R. N. I. & B. R. Co. Circuit Court D. Ky. 54 Fed. Rep. 723. 74.

NEGLIGENCE OF INDEPENDENT CONTRACTORS.—Where a contractor agreed to furnish all materials for the construction of piers, for a railroad bridge across a river, the materials to be subject to the inspection and approval of the engineer of the railroad, and to construct the piers according to certain plans and specifications under the continuing inspection and subject to the approval of the engineer, he was an independent contractor and as such liable for the injuries to third persons, resulting from his negligence in the performance of the work.

Casment v. Brown, 13 Supreme Court Reporter 672. 86.

EFFECT UPON MECHANICS' LIEN OF FAILURE TO RECORD CONTRACT.—Where the constitution provides that mechanics, material men, etc., shall have a lien on the property on which they have labored or furnished material, and the statutes provide that all contracts between the owner and contractor for work, where the amount exceeds \$1,000, shall be in writing and recorded before the work is begun, otherwise the contract to be void, and no recovery to be had thereon by either party thereto; that the labor done and materials furnished by all persons except the contractor shall be deemed to have been done at the instance of the owner, and they shall have a lien for the value thereof, a contractor who has failed to record his contract for work, where the amount to be paid therefor is over \$1,000, is not entitled to a lien.

Morris v. Wilson, Supreme Court of Cal. 32 Pac. Rep. 801. 131.

ASSIGNMENT OF RIGHT TO MECHANICS' LIEN.—Where the statute provides that all persons and laborers of every class, performing labor upon, or furnishing materials to be used in the construction of a building, may have a lien thereon for such services or materials; and also provides that such persons shall themselves file a claim for record, stating the character of the labor or materials which they themselves furnished for the building, the right to assert such a lien is a personal right, for the laborer's own protection, and cannot be assigned.

Mills vs. LaVerne Land Co., Supreme Court of Cal. Feb. 1, 1893, 32 Pac. Rep. 169. 90.

WHERE BUILDING IS NEGLIGENTLY CONSTRUCTED.—In an action on a contract for the erection of a house, the owner pleaded a set-off for failure to build the same in a workmanlike manner, his evidence showed that the floors were not level, that the windows were not vertical, not at equal heights from the floor, though intended to be on the same level; that they had embrasures above them; that bricks were put in the outer wall that had to be removed; and that one room had so many holes in the wall that daylight could be seen at seventeen different places. The contractor's evidence was that the house was constructed according to the local

custom, but did not greatly qualify the facts shown by the owner. If a man contracts to build a house in a workmanlike manner, that means a house built in a workmanlike manner, constructed according to the customs and usages of the section of the country in which the contract is made, but a custom which justified the erection of a house in the manner shown by this owner, is unreasonable. Anderson v. Whittaker, Supreme Court of Alabama, 11 So. Rep. 919. 185.

SEMI-ANNUAL SUMMARY OF BUILDING OPERATIONS.

The first six months of this year has shown a slight increase in comparison with the first six months of 1892, both in the number of buildings and total cost.

FOR FIRST SIX MONTHS, 1893.

1893	No. of Buildings	No. of Contracts	Brick Building Value	No. of Buildings	No. of Contracts	Frame Building Value	No. of Buildings	No. of Contracts	Alterations & Additions Value	No. of Buildings	No. of Contracts	Total Value
Jan'y	3	7	\$ 70,770	27	35	\$ 113,888	2	5	\$ 7,040	32	47	\$ 230,708
Feb'y	3	3	\$ 22,400	40	47	\$ 202,447	18	25	\$ 61,032	50	67	\$ 288,809
March	9	9	\$ 280,438	48	55	\$ 277,324	18	29	\$ 280,221	65	81	\$ 848,802
April	17	17	\$ 120,738	57	67	\$ 251,827	12	18	\$ 41,067	70	83	\$ 430,267
May	1	2	\$ 15,930	65	77	\$ 280,129	10	11	\$ 20,409	81	90	\$ 316,888
June	7	11	\$ 78,347	60	73	\$ 332,827	8	11	\$ 18,850	75	95	\$ 480,024
Total	24	49	\$ 614,518	297	354	\$ 1,498,541	68	100	\$ 425,230	208	245	\$ 2,524,498

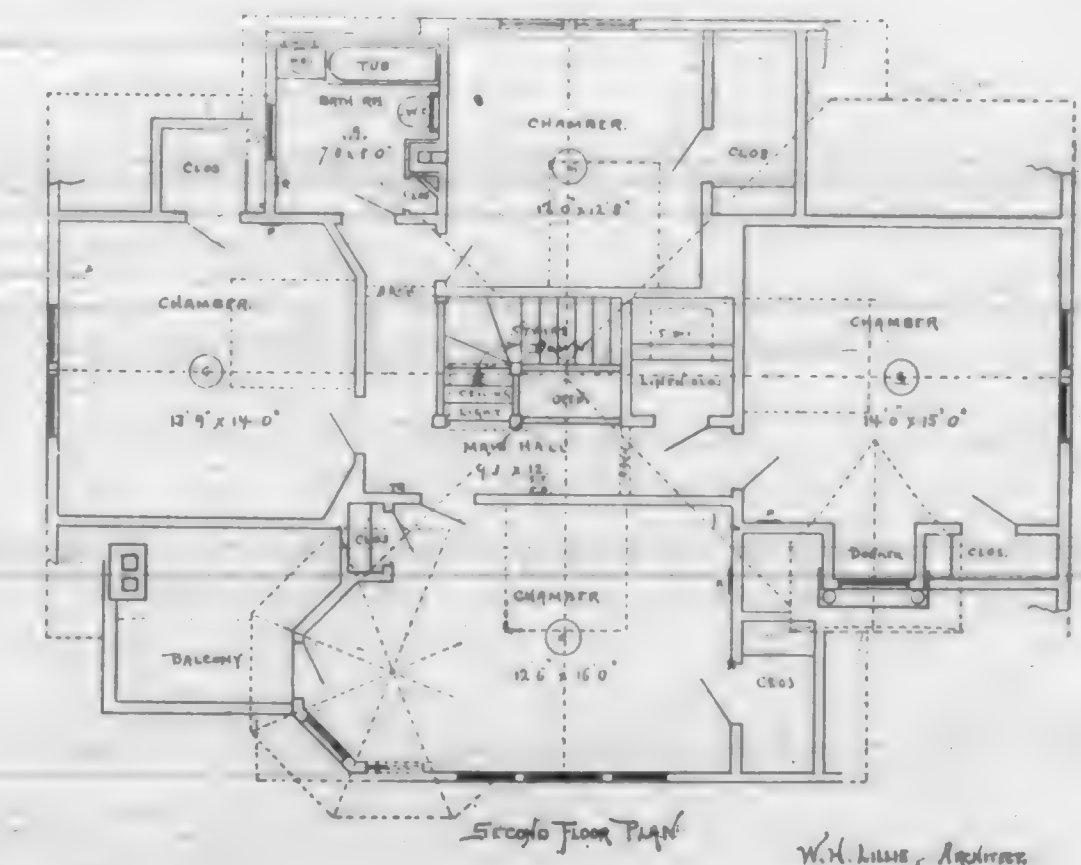
To this amount should be added the further estimated sum of \$500,000 where no contracts have been filed, which would increase the sum total to \$3,024,498.

FOR FIRST SIX MONTHS, 1892.

1892	No. of Buildings	No. of Contracts	Brick Building Value	No. of Buildings	No. of Contracts	Frame Building Value	No. of Buildings	No. of Contracts	Alterations & Additions Value	No. of Buildings	No. of Contracts	Total Value
Jan'y	1	14	\$ 101,872	22	33	\$ 210,865	4	4	\$ 7,872	27	51	\$ 330,409
Feb'y	3	8	\$ 116,310	28	38	\$ 279,149	7	8	\$ 24,818	34	60	\$ 430,277
March	2	2	\$ 72,471	30	38	\$ 173,071	5	7	\$ 14,498	37	81	\$ 262,030
April	4	4	\$ 335,358	46	64	\$ 240,772	5	9	\$ 20,880	55	91	\$ 586,901
May	1	17	\$ 137,715	46	52	\$ 271,200	4	5	\$ 21,475	58	74	\$ 480,880
June	8	9	\$ 139,022	39	54	\$ 222,110	13	13	\$ 51,291	55	70	\$ 412,421
Total	16	78	\$ 902,749	211	280	\$ 1,308,967	38	48	\$ 140,780	205	241	\$ 2,442,496

The business of the first six months for several years is shown by the following table.

1885—754 contracts.....	value, \$4,267,375
1886—670	2,486,633
1887—516	3,269,914
1888—437	2,719,820
1889—546	3,910,600
1890—556	3,793,858
1891—583	3,916,973
1892—411	2,942,496
1893—475	3,024,498



SECOND FLOOR PLAN W. H. LILLIE, ARCHITECT.

CHICAGO ARCHITECTURE.

NO other American city can claim such a record, and it is not the least glory of the whole that the artistic results are as satisfactory as they are characteristic. Granted that the bad buildings of the city out-number the good, the latter are already so numerous and are so entirely part and parcel of Chicago as really to represent its present architectural spirit. And this spirit is thoroughly business-like, thoroughly comprehensive of the complicated problems which hedge in and bind the architect at every turn. Chicago buildings are not palaces, they are not highly ornamental edifices, they are not wonders of decorative skill nor miracles of gingerbread appendages. They are calm business structures, designed for business, used for business and admirable because the business motive is so evident. If they are plain it is because there is reason for the plainness, not because their architects cannot design good ornament nor because decorative structures are not appreciated. They must be judged

for what they are, not what they are not nor what they might have been. Those who want palaces for their places of business should not find fault with the people of Chicago because they are wiser and reserve their palatial work for palatial structures or some public building like the Auditorium. The buildings of Chicago form one of the most distinctive and remarkable and successful products of American architecture, and it will be a decided step in advance when we in the East learn to appreciate them better and take them as models for similar structures for ourselves.

At last America has buildings worth going a thousand miles to see, and the traveler who sets forth from New York on his first Western tour will find in the buildings of Chicago some examples of a new form of architecture, a more sensible and more business-like treatment than he will find at home. The least impressive of the lessons he takes away with him will not be the one he gains from the study of Chicago's new buildings.—*Lippincott's*.

Rub a creaking hinge with a very soft lead pencil.



STUDY FOR COMPLETION OF
NEW CITY HALL
SAN FRANCISCO CAL.
ARCHITECT FRANK J. JACKSON

COMPLETION OF
NEW CITY HALL
SAN FRANCISCO CAL.
ARCHITECT FRANK J. JACKSON

BUSINESS MOSAICS.

The present utilitarian age is one of continuous advancement in the perfection of improved methods of construction, and the scientific specialist is always on the *qui vive* to discover more economical processes for applying the materials placed at his disposal by arts and sciences of advancing civilization. Numerous examples of the application of these remarks can be found, and to call attention to a notable instance of securing greater strength by the combination of two materials, is the object of this writing.

As the gothic architects of the middle ages studied the thrusts of arches till they had ascertained the least weight required to establish an equilibrium of force and the best possible way of disposing of that weight, and out of the results of their studies reared those wonderful cathedrals that now remain as enduring monuments of the skill and knowledge of their designers, so with a similar purpose, the constructors of the present generation are studying to arrive at the simplest and most economical processes for disposing of the more numerous and varied materials at their command, and on pages v, vi and vii of this issue of the CALIFORNIA ARCHITECT, is a detailed description of the methods now perfected and employed by Mr. P. H. Jackson, for combining the great compressive strength of concrete, with the great tensile strength of iron, thus neutralizing the

comparatively weak tensile strength of the concrete, and enabling the construction of sidewalk arches, roofs of vaults and fire-proof floors, etc., without the use of the customary steel supporting beams and girders, thus effecting a very material saving in the amount of money required, and resulting in material savings to the property owner, that are more eloquent and speak in louder tones than the language of the most gifted orator.

This saving in cost, which has been secured without lessening the strength of his constructions, enables Mr. Jackson to increase his already extensive business in the face of all competition, and the experience gained during his long connection with the department of public works in New York city, showed him how to practically apply the successful solution of problems and achieve the remarkable results that have sprung from his studies.

In this connection the reader should carefully peruse the scientific analysis of the principles that underlie this construction, which were fully discussed in a paper by Calvin Brown, C. E., published in the June number of this journal.

Mr. Brown enjoys a deservedly high reputation in the scientific world; and the ability and skill displayed in designing and building the immense dry docks of the United States Government at Mare Island, made him one of the

best of recognized authorities. In whatever concerns the use of concrete and cement, his opinion can be relied on absolutely, and no more interesting reading can be had by architects and builders than lucid explanations of the principles that have been so successfully applied by Mr. Jackson.

We predict that the use of this method of employing concrete and iron will enter more largely into the construction of the future, not only for the heavier and more substantial buildings suitable for mercantile purposes, but with the object of making the residences of the future more substantial, more enduring and more in keeping with the progressive spirit of the age. It rests with the progressive architect when designing the structures to be erected under his supervision, to take advantage of the opportunities thus presented and introduce into his specifications the result of Mr. Jackson's latest thought.

Verdant Visitor—"What's all the fuss about? Accident happened? BROKER—"The cordage trust has gone to pieces, shares have fallen from 75 to 16. VERDANT VISITOR—"I am not surprised at all. No wonder there is no demand for cordage when the electric chair has been substituted for the rope."

Antinomian is said to offer a complete protection against Dry Rot, Fungi, Mildew, etc., it can be applied like white wash with a brush; is odorless and non-volatile, it has the recommendation of many architects in the old countries. If half that is claimed for this wonderful chemical with a still more wonderful name o-dinitrokresolkaum is true, it is well worthy the attention of architects and engineers. For further information apply to W. H. Schieffelin & Co., New York city.

"The servant you have now seems very nice and quiet."
"Oh, yes: she doesn't even disturb the dust when cleaning up a room."—*Chicago Tribune*.

Model Art Glass Works.—Notwithstanding a conflagration on the second of May last, nearly destroying Mr. Wm. Schroeder's works at 29½ Fremont street, thanks to the energy of the latter gentleman, they were soon rebuilt. A company was then incorporated of which the following are the directors:—Wm. Schroeder, President; Edward Lemme, Vice-President; Henry J. Breuer, Secretary; Wm. Buttner, Superintendent; Wm. J. Breuer, Director.

Mr. Wm. Schroeder continues the management of the works. When such an establishment is at hand no excuse can be given to send for such work abroad.



San Francisco Slate Co., whose office is in the Mills building, have furnished us the illustrated account of the quarries of their company, which appears in this number of our paper. It will be found of much interest; and as for the quality of the slate, parties interested have only to call at the office where full particulars and information will be given. Take the elevator and go to 10th story, rooms 4 and 5.

The attention of our readers is called to an interesting illustrated article in this number of our journal under the title of California Slate Company of this city, having an office in Mills building, are introducing to notice an article of slate said to be equal in quality to any found in the market; it is taken from a quarry described as being 2000 feet wide and 1600 feet high from the bed of the American river and very likely as deep below the bed.

CITY BUILDING NEWS.

Belvedere bet. Waller and Frederick. Plumbing five houses; owners, Smith, Coop and Hinkle; architect, Ed. Burns; contractor, Geo. Humphreys; signed, June 27; filed, June 27; cost \$1,375.

Broderick near California. Two story frame; owner, Paul Agman; architects, Percy & Hamilton; contractor, F. W. Kern; signed, June 14; filed, June 15; cost \$3,490.

Bush near Powell. Painting; owner, Mrs. L. M. Bigelow; architect, J. C. Newson; contractors, A. Gradin & Co.; signed, June 15; filed, June 17; cost \$975.

Bush near Powell. Mill work; owner, Mrs. L. M. Bigelow; architect, J. C. Newson; contractor, C. M. Depew; signed, June 14; filed, June 17; cost \$3,500.

Bush near Powell. Plastering four 2-story frames; owner, W. A. Van Dervort; architect, J. C. Newson; contractor, G. W. Glosser; signed, June 18; filed, June 26; cost \$1,775.

Bush near Powell. Four 2-story frames; owner, Mrs. L. M. Bigelow; architect, J. C. Newson; contractor, W. A. Van Dervort; signed, June 16; filed, June 16; cost \$15,900.

Bush near Powell. Plumbing four 2-story frames; owner, Mrs. L. M. Bigelow; architect, J. C. Newson; contractor, H. Williamson; signed, June 13; filed, June 13; cost \$2,400.

Carl and Stanyan. Painting; owner, Thomas Lundy; architect, T. J. Welsh; contractor, M. J. Donovan; signed, May 28; filed, June 27; cost \$1,285.

Carl and Stanyan. Two-story frame; owner, H. Johnson; architect, J. W. Werschling; contractor, L. F. Fletcher; signed, July 3; filed, July 3; cost \$1,800.

Central Ave. near Washington. School building; owner, Edward B. Spalding; architect, Wm. Carlett; contractor, Jos. Norris; signed, June 28; filed, July 1; cost \$8,425.

Clarence Place and Townsend. To construct concrete tunnel; owners, Edison Light and Power Co.; architect, Chief Engineer employed by owner; contractor, W. J. Holmes; signed, June 3; filed, June 3; cost \$19,500.

Commercial and Battery. Repairs to brick building; owner, Henry Kane; architect, M. J. Lyon; contractors, M. Fennell & Son; signed, May 31; filed, June 15; cost \$4,500.

Eighth Ave. near Point Lobos. A cottage; owner, A. E. Lowry; contractor, Thos. Ridout; signed, June 6; filed, June 10; cost \$1,750.

Ellis near Mason. Interior wood finish and mill work; owner, Y. M. C. A.; architect, A. Page Brown; contractors, Burnham, Standford & Co.; signed, June 9; filed, June 10; cost \$13,900.

Ellis and Webster. Alterations; owner, J. F. Ross; contractors, Cook & Patterson; signed, June 14; filed, June 14; cost \$1,610.

Filbert near Jones. Three-story frame; owner, J. J. Howser; architects, John & Balezynski; contractor, Emil Hoelle; signed, June 24; filed, June 24; cost \$3,750.

First near Natoma. A four-story brick; owner, Pacific Metal Works; contractors, Smilie Bros.; cost \$20,000.

Folsom and Treat Ave. To build; owners, R. W. Lahaney and wife; architect, D. J. Ellis; contractors, J. P. Rines & Son; signed, June 20; filed, June 20; cost \$700.

Folsom street. A cottage; owner, Chas. Hankel; contractors, Koenig Bros.; signed, June 15; filed, June 28; cost \$1,600.

Fourteenth Ave. and L. Alterations; owner, Board of Education; architect, J. C. Havens; contractor, Robert Currie; signed, June 7; filed, June 10; cost \$377.

Francisco near Powell. Excavating and brick work; owner, J. Schweitzer; architect, H. Geiffuss; contractor, J. O. Sullivan; signed, June 30; filed, July 3; cost \$4,250.

Franklin and Hickory Ave. Three-story frame; Mrs. C. M. Berger; architect, Oliver Everett; contractor, Jos. McLean; signed, June 12; filed, June 13; cost \$6,000.

Golden Gate Ave. near Lyon. One story frame; owner, A. F. Morton; architect, J. B. La Rimer; contractor, Todd Boone; signed, June 19; filed, June 19; cost \$2,300.

Green near Scott. Two-story frame; owner, Carrie L. Lawler; architect, Fuller Chaffin; contractor, A. C. Soule; signed, June 23; filed, June 27; cost \$3,500.

Harrison bet. 7th and 8th. Tinning and roofing; owner, Timothy Hopkins; contractor, Forrester Cornee Works; signed, June 12; filed, June 14; cost \$9,000.

Hoffman near Alvarado. To build; owner, G. B. Lang; contractors, Soule Bros. signed, June 5; filed, June 12; cost \$1,800.

Hyde and California. Carpenter, plastering and stair work; owner, Fred Katz; architect, A. C. Lutgens; contractor, F. V. Steinmann; signed, July 1; filed, July 5; cost \$12,000.

Jackson near Devisadero. Plumbing 3-story frame; owner, Chas. I. Wingert; architect, A. C. Lutgens; contractor, W. F. Wilson; signed, June 14; filed, June 17; cost \$1,084.

Lafayette near Minna. To build; owner, E. Lauthier; architects, Townsend & Wyneken; contractor, J. A. McDonald; signed, June 6; filed, June 12; cost \$1,700.

Liberty near Church. A 1-story frame; owner, E. J. Malloy; contractor, Daniel Einstein; signed, June 18; filed, June 20; cost \$1,714.

Lyons near Page. Alterations; owner, Kate Johnson; contractor, F. V. Acker; signed, June 13; filed, June 13; cost \$1,720.

Market near City Hall Ave. Two-story brick; owner, L. H. Seymore; architects, Shea & Shea; contractors, M. Fennell & Son; signed, June 3; filed, June 10; cost \$6,250.

Market near City Hall Ave. One-story brick; owner, Henry Schmiedell; architects, Mathison & Howard; contractor, R. Ringrose; signed, June 14; filed, June 16; cost \$4,100.

Merritt bet. Denver and Hattie. Two-story frame; owner, Edward McBride; contractor, R. O. Davis; signed, June 21; filed, June 22; cost \$2,650.

Minnesota near Butte. A two-story frame; owner, Jas. Flanagan; contractor, Ed. Mooney; signed, June 7; filed, June 10; cost \$2,673.

Mission near 30th. To build; owner, Gottlieb Arnold; contractor, H. K. Schmeckert; signed, June 6; filed, June 12; cost \$3,400.

Mission near 5th. Elevator; owner, Emma Lohr; architect, Chas. Geddes; contractors, Wm. H. Birch & Co.; signed, June 27; filed, July 1; cost \$1,755.

Oak near Buchanan. Additions and alterations; owner, Robert Taylor; architect, Edward J. Vogel; contractor, Robert Currie; signed, July 1; filed, July 3; cost \$1,620.

Octavia near Grove. Plumbing two buildings; owner, P. L. McCure; architects, Pissis & Moore; contractor, E. Moenning; signed, May 12; filed, May 25; cost \$2,150.

Octavia near Grove. Painting; owner, P. L. McCure; architects, Pissis & Moore; contractors, Smith & Daley; signed, May 12; filed, June 23; cost \$1,100.

O'Farrell and Bayley Place. Iron work and tiling 6-story brick; owner, B. Curtaz; architects, John & Balezynski; contractor, Western Iron work; signed, June 17; filed, June 19; cost \$10,523.

O'Farrell and Bayley Place. To build; owner, Benjamin Curtaz; architects, John & Balezynski; contractor, Adam Miller; signed, July 3; filed, July 3; cost \$27,500.

Parker and Henderson Ave. A four-story building; owner, Albert Meyer; contractor, G. G. Gillespie; signed, June 8; filed, June 10; cost \$3,250.

Pennsylvania Ave. near Sierra. A cottage; owner, Wm. L. Nolan; contractor, T. E. Mitchell; signed, June 12; filed, June 12; cost \$1,880.

Pierce near Oak. To build; owner, Mary G. Murasky; architects, Martens & Coffey; contractor, J. O'Brien; signed, May 16; filed, May 17; cost \$3,400.

Pine street No. 2016. Alterations, etc.; owner, Mrs. M. E. Pleasant; contractor, S. C. Murray & Co.; signed, June 8; filed, June 8; cost \$3,135.

Plymouth and Lagamore. Additions, owner, P. Pellegrini; architect, L. Morrison; contractors, Morrison & Cook; signed, June 21; filed, June 27; cost \$1,330.

Sacramento and Central Ave. Sundry mill work; contractors, N. Parish & Co.; signed, May 12; filed, May 27; cost \$1,307.

Sacramento near Polk. Carpenter and plumbing; owner, J. Cazour; architects, Townsend & Wyneken; contractor, Robert Trist; signed, June 8; filed, June 12; cost \$2,403.

Sacramento near Spruce. To build; owner, C. P. Fonda; contractor, Phillip Rive; signed, June 12; filed, June 13; cost \$2,500.

San Jose Ave. near 26th. All work to build six flats; owner, E. A. Culling; contractor, Jas. Norris; signed, June 10; filed, June 14; cost \$5,085.

Seventh near Bryant. Carpenter, mill and mason work; owner, Hayfield & Helling; architects, Townsend & Wyneken; contractors, Brodt & Bateman; signed, June 8; filed, June 9; cost \$13,000.

Seventh near Harrison. Two-story frame; owner, Patrick Quinn; contractor, C. A. Henderlong; signed, June 24; filed, June 26; cost \$2,325.

Seventh near Bryant. Painting and graining; owners, F. Heydenfeldt and Z. O. Helling; architects, Townsend & Wyneken; contractor, Wm. R. Eaton; signed, June 28; filed, July 5; cost \$1,058.

Seventh near Bryant. Plumbing; owners, F. Heydenfeldt and Z. O. Helling; architects, Townsend & Wyneken; contractor, G. C. Sweeney; signed, June 29; filed, July 5; cost \$1,225.

Sickles near Sears. To build; owner, G. A. Gunning; architect, D. M. Duell; contractors, Bates & Deuel; signed, June 26; filed, June 28; cost \$1,100.

Steiner near Ellis. Raising, moving, etc.; owner, F. Knoppacker; architect, A. C. Lutgens; contractor, James Geary; signed, June 28; filed, July 5; cost \$1,375.

Tenth Ave. A cottage; owner, Chas. Boehringer; architects, John & Balezynski; contractor, Emil Hoelle; signed, June 14; filed, June 16; cost \$2,010.

Washington and Devisadero. All work except plumbing; owner, Estate of F. Merrifield; architect, E. R. Swain; contractor, J. T. Logan; signed, June 6; filed, June 8; cost \$3,123.

Washington and Devisadero. Plumbing; owner, Estate of F. Merrifield; architect, E. R. Swain; contractor, J. T. Logan; signed, June 6; filed, June 8; cost \$405.

Washington near Walnut. To build; owner, Lillian E. Suydam; architect, Chas. I. Haven; contractor, Jas. McLean; signed, June 21; filed, June 22; cost \$5,470.

Washington near Jones. Plumbing; owner, Mrs. M. Wolf; architects, Pissis & Moore; contractor, R. A. Vance; signed, June 21; filed, June 24; cost \$1,475.

Washington near Buchanan. Alterations; owner, John A. Wright; architects, Percy & Hamilton; contractor, F. W. Kern; signed, June 20; filed, June 27; cost \$3,380.

York and 24th. Two-story frame; owner, Adam Herman; contractor, H. P. Conrady; signed, June 13; filed, June 13; cost \$4,650.

ALAMEDA COUNTY.

Adeline near 5th, Oakland. Cottage; owner, M. Studevski; contractor, A. J. Wood; signed, June 1; filed, June 5; cost \$1,287.

Blake near Grant Ave. A cottage; owner, F. W. Bauer; contractor, J. J. Rose; signed, May 27; filed, May 27; cost \$1,585.

Brush near 23d, Oakland. To build; owner, C. Moran; architect, E. J. McManus; contractor, C. S. Barnard; signed, June 21; filed, June 25; cost \$1,651.

Colway near LeConte Ave., Berkeley. Two-story frame; owner, R. H. Wetmore, Jr.; architect, R. H. Wetmore, Jr.; contractor, J. F. Meyers; signed, June 20; filed, June 23; cost \$2,155.

Eighth and Filbert, Oakland. Two-story frame; owner, M. J. & F. Tushard; architects, W. T. Veitch & Bro.; contractor, A. E. Fake; signed, June 26; filed, June 27; cost \$500.

Everett and Central Ave. Two-story frame; owner, E. Z. Garett; architect, G. A. Bordwell; contractor, D. S. Brehant; signed, June 28; filed, June 29; cost \$2,275.

Filbert near 14th, Oakland. Alterations and additions; owner, M. E. Cogan; architect, H. Burns; contractors, Gardner & Heyden; signed, June 7; filed, June 21; cost \$1,250.

Filbert near 24th, Oakland. One-story frame; owner, M. Meyers; contractor, P. J. Brophy; signed, June 18; filed, June 28; cost \$2,035.

Filbert near Encinal, Oakland. To build; owner, G. E. Randolph; architect, H. F. H. Brown; contractor, A. E. Fake; signed, June 26; filed, June 27; cost \$1,835.

Fruitvale lot 16th. One-story frame; owner, C. T. Slamberg; architect, W. M. Campbell; contractor, A. E. Fake; signed, June 22; filed, June 27; cost \$1,390.

Fourteenth near 26th, E. Oakland. To build; owner, J. Anderson; architect, C. L. Corregan; contractor, C. C. Burke; signed, June 7; filed, June 9; cost \$2,120.

Haight near 7th, Alameda. To build; owner, A. E. Hoffman; contractor, A. R. Denke; signed, June 23; filed, June 24; cost \$1,000.

Lot 10 block E. L. V., Oakland. Two-story frame; owner, W. W. Garthwaite; architect, J. C. Newson; contractor, T. G. Krownick; signed, June 19; filed, June 28; cost \$3,642.

Park near Lincoln Ave. Addition to Pacific Hotel; owner, M. Debrat; architect, J. Lath; contractors, Ryus & Underwood; signed, June 16; filed, June 21; cost \$1,400.

Rose and Shattuck, Berkeley. To cottages; owners, W. F. & H. Lingaid; architect, Geo. A. Emburg; contractors, Ryus & Underwood; signed, June 19; filed, June 21; cost \$2,058.

Santa Clara Ave. Two-story frame building; owner, J. M. Raun; contractor, A. W. Cornelius; signed, May 28; filed, June 1; cost \$4,000.

Seventh street. Two-story frame, including fourteen stores; owner, J. Bruguiere; architects, Smith & Freeman; contractors, Hebert & McLeod; signed, May 28; filed, June 8; cost \$29,500.

Santa Clara Ave. One-story frame; owner, A. M. Jenkins; contractor, A. R. Denke; signed, June 14; filed, June 14; cost \$2,284.

San Antonio Ave. near Union. To build; owner, L. Raschen; architect, N. P. Fisher; contractors, D. Straub & Son; signed, May 27; filed, June 1; cost \$3,200.

Second Division street. Carpenter work; owner, Joe Arenat; architect, W. Veitch; contractor, J. F. Meyers; signed, June 21; filed, June 21; cost \$3,750.

Sonol. To build; owner, J. E. McElrath; architect, H. Wharton; contractors, Weber & Rohler; signed, June 2; filed, June 2; cost \$3,350.

Third near Cypress, Oakland. One-story frame; owner, J. Milley; architect, H. Geiffuss; contractors, Weber & Kohler; signed, June 2; filed, June 2; cost \$2,222.

Twelfth and Washington Ave., Oakland. Carpenter work; owners, H. S. and F. Kahn; architect, W. J. Mathews; contractors, Price & Rush; signed, June 5; filed, June 12; cost \$9,355.

Webster and Haight. Two-story frame; owner, Mrs. J. Schmitt; contractor, A. R. Denke; signed, June 12; filed, June 12; cost \$6,250.

The California Architect and Building News.

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A MONTHLY JOURNAL DEVOTED TO THE ARCHITECTURAL INTERESTS OF THE PACIFIC COAST.

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W. J. CUTHBERTSON, President.

OLIVER EVERETT, Secretary.

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THIS journal is prepared to take charge of rendering perspective drawings in pen and ink or color. Charges will depend on size and kind of drawing wanted.

Upon receipt of plan and elevations, with a description of what is wanted, we will submit our estimates for the performance of the work.

IN another column will be found an interesting talk, delivered by invitation of the San Francisco Chapter of the American Institute of Architects, by Mr. G. Morin Goustiaux, on the present status of architects and architecture in France. In some particulars the practice of the profession there has certain advantages over the customs in vogue in this country; notable in regard to the honesty of both patron and architect in the manner of conducting and judging competitions.

In this country we regret to have to say, the majority of building committees endeavor to secure gratis, the best ideas of the profession, by dangling a hook seldom baited with anything more substantial than contingent promises. If cash prizes are offered, they are usually inadequate to properly compensate an architect for a serious study of the problem, and are often tied up with the condition that the premiated designs shall belong to the committee. As long as this method succeeds, it will be useless for architects to hope for a better.

On the other hand the architect who enters a competition, usually does so with the expectation or at least the hope of securing by personal means enough influence to secure a decision of the committee favorable to himself, irrespective of the merits of his design. Thus the cause of progress in architecture is seriously retarded, and instead of architects striving to arrive at the best possible solution of the problem submitted to them, they are too apt to slight the design, and trust to personal considerations for achieving success.

Another advantage the competing architects enjoy in France, is the fact that the awards of prizes are made on the recommendations of a jury of experts. Who would think of electing a doctor to the Supreme Bench, or consulting a

lawyer in case of sickness? yet the parallel holds good in a majority of cases here, as it is the exception rather than the rule when a building committee considers it necessary or advisable to secure professional advice on the merit of plans submitted.

THE City Trustees of Alameda deserve great credit for the model advertisement for Competition Drawings for their proposed New City Hall, the conditions of which were arranged with great fairness. The result has been that they have received the largest number of well thought-out plans and from the largest proportion of standard architects of any competition that has been held of late.

The competitors generally have also reciprocated, as almost without exception no attempt has been made by them to obtain any undue advantage over their fellows by going beyond the size and quality of the Drawings laid down in the Conditions.

A reception was tendered by the San Francisco Chapter of the American Institute of Architects to Mr. G. Morin Goustiaux, on the evening of Friday, July 28th.

Mr. Goustiaux was delegated by the city of Paris as its representative at the World's Columbian Exposition, and previous to returning to France, passed some few weeks in this city.

Mr. Goustiaux, who is a native Californian, renewed old acquaintances in the Chapter and made new ones, and entertained and instructed his professional brethren by a detailed description of the conditions under which architects and architecture flourish in France.

He described the requirements and examinations necessary to enter the *Ecole des Beaux Arts* and the difficulties to be overcome by the students before graduating, when they are entitled to a diploma, issued by the Government, and the option of entering the public service.

The requirements are severe, and a bright young man is doing well if he secures his diploma at the end of six or seven years—about twelve each year reach their goal; seldom at less than thirty years of age; should they chose to enter the public service, they first take the position of *Conducteur* of work, are afterwards promoted to that of *sub-inspecteur*, then to be *inspecteur*, and finally at the age of forty to forty-five years of age to the position of Architect, and are then given charge of such repair work as may have to be done.

For important works there is a corps of ten to fifteen architects under the direction of the *Inspecteur General* of Paris.

In competitions for public improvements the committee of awards is composed of a certain number chosen by the competitors themselves, a representation from the *Societe Centrale* (the principal architectural association of France) and a special commission of prominent architects. The method employed to arrive at a decision is first to reject all designs that do not conform to the programme, then to reject those that are seriously defective in any important particular, and continue this process of elimination till the number of designs that remain are reduced to the number of prizes offered—and these are then classified in their order of merit; and to the credit of the committee, Mr. Goustiaux states that their decision is almost universally acknowledged among the competitors as being just.

In regard to Architectural Societies there are three—the most important being the *Societe Centrale*, with branches in

other departments of the country. This society is very exclusive, and very difficult to enter. No contractor, nor any one who has ever been a contractor is eligible—a certain standard of work must have been executed by the applicant. The customs of the profession as determined by this society are taken as precedents by the courts, and judges frequently refer to the society for information as to the customs, and govern their decisions according thereto—the schedule of material and prices fixed by this society are authoritative.

These is a smaller society consisting of *architects diplomés* and a third society to which architects and builders are admitted indiscriminately.

Important public works over 500,000 francs in value is usually decided by competition, the competition being confined to Frenchmen.

A vote of thanks was tendered Mr. Goustiaux for his pleasant talk and the meeting adjourned with mutual good wishes.



A PERFECT ELECTRIC INSTALLATION.

IF any doubt existed as to the advisability of placing the details of electric wiring under the charge of an independent electrical expert, that doubt will be eradicated upon reference to the San Francisco building of the Mutual Life Insurance Company of New York, of which Mr. Clinton Day is architect and of which a full page illustration was presented in the June number of the CALIFORNIA ARCHITECT AND BUILDING NEWS. As most of our readers are aware, this building is a thoroughly modern fire-proof structure of steel, terra-cotta and pressed brick, nine stories in height. No more difficult construction in which to place electric wiring exists, yet the electric work therein installed is a marvel of simplicity and perfection.

The experiences which have been had with the electrical work of other buildings of similar construction in various portions of the country was taken advantage of in designing this installation. Its main features resemble closely those of the incandescent wiring of the Mills buildings, San Francisco, yet the wiring of the Mutual Life building may be considered as the perfection of the idea carried out in the first named structure. In the Mills building, for instance specific provision is made for electric light conductors only. All other wiring such as telephone, district telegraph, time service or bill circuits, are placed together in a recess on top of the incandescent ways, while in the Mutual Life building a separate recess or groove or tube is provided for each distinct class of wiring.

Throughout the whole system, the inviolable idea which

has been carried out in that all wiring shall be concealed and hence unobtrusive, yet always accessible.

The wiring usually placed in a large modern office building may be divided into two general classes, namely: electric lighting circuits and signal circuits. It is important for several electrical reasons, chief among which are that immunity from fire and reliability are effected, that the wires of these two classes of circuits be kept distinct from each other. From a mechanical standpoint, running separate ways for distinct classes of circuits is necessary to facilitate handling and what is sometimes equally important it keeps concerns from interfering with wires of other and perhaps rival companies. In the Mutual Life building it was found that the best service would be attended by dividing the circuits into four groups; electric lighting, telephone, bells, and district telegraph and clock wiring. These circuits run to each room of the building; every foot of wire is concealed, every foot is accessible and moreover any wiring may be carried from any room in the building to any other room on any floor without breaking plaster or without exposing the conductors in any way. It is difficult to conceive anything more perfect.

From the engine room in the basement is run an electric riser-way which continues in a straight line to the top floor paralleling the elevator shafts. In this riser-way are run all the electric circuits of the building. The telephone circuits, for instance, come into the building from the under-ground cables, the cable being continued through the basement and up the electric shaft to the fourth floor where it terminates in two twenty-five pair cable heads, and whence the telephone circuits are distributed to the various rooms as will be described. Similarly, the under-ground incandescent service of the Edison Light and Power Company is brought into the basement and connected up to a simple marble switch-board. From this switch-board independent circuits are run to each floor and each hallway in the building. Throughout the entire structure, with the single exception of in the corridor moldings, the insulating tubing of the Interior Conduit and Insulation Company is used. Separate tubes are run through the riser-way from the switch-board to each floor and each hallway for the incandescent system while special tubes are similarly run for containing the signal wires.

In the lavatory of each floor is a cabinet which opens directly into the electric shaft and in which is placed the plug switches and cut-outs for each particular floor. About each hall is placed molding run in line with the casings of the doors and windows and capped and finished in oak to match. The molding is in two parts, capping and backing, the latter containing five grooves, two for electric light wires, one for telephone wires, one for district telegraph and clock wires and one for bell wires, and each room is supplied with a separate tube from each groove. The room cut out is set in flush with the backing of the molding so that the grooves of the cut out and molding are in line. From the cut out conduit tubing is carried down to the room switch, thence to the fixture. A valuable innovation will here be noted. No safety devices are used in the fixture. Each fixture circuit is contained in an independent conduit tubing carried through a switch from a separate cut out in the molding to the fixture direct. Both the fixture and circuit are protected by the safety cut out in the molding, hence if the fuse blows it may be replaced in the hall without inconvenience to the tenant or sometimes without even entering the room affected. The cappings of the moldings are all secured with

screws and although it extends entirely around the halls it is neither conspicuous nor a disfigurement in any way.

In each room, the electrical service is confined to two polished oak service blocks. The smaller, placed near the door contains the electric light switch and a push button which may be connected with any part of the building at any time. To the larger service block, also of polished oak 14x16 inches, is brought the messenger circuits of the Postal and Western Union Telegraph companies and the San Francisco District and American District telegraph companies respectively, while but a few inches away and at the proper height is a conduit tubing leading to the telephone groove in the corridor molding so that the tenant may have a telephone placed without disfigurement whenever desired. In order that the idea of accessibility of all circuits should be carried out, not an inch of wire of any description, nor even a fish string, was placed in any tube until after the tubing was set in place, and not an inch of electric light wire was inserted in the tubing until after the plastering was finished. All the incandescent circuits in the building are of the well known Grimshaw White Core insulation. Flush, push wall switches of the Cutter Specialty Company, Philadelphia, are used throughout while the hall circuits are controlled by the S-C flush key switches of the same company. In these the janitor alone holds the key by means of which the switch may be operated.

The entire electrical work was installed by the San Francisco office of the General Electric Company under the electrical expertship of Mr. Geo. P. Low.



FIGHTING FIRE WITH GASES.

AN interesting experiment in fighting fires was tried at Salem, Mass., last week, and it appeared to be successful. All the apparatus used in the experiment was a sheet-iron cylinder about three inches in diameter and sixteen inches in length. This cylinder was charged with gases and chemicals sufficient to throw a stream half the size of an ordinary lead pencil about twelve feet continuously for five or six minutes. After the cylinder had been charged a box eight feet long and four feet high by four feet wide was obtained, and the inside smeared with tar. Then, to add to the inflammable quality of the material, a half-gallon of kerosene oil was sprinkled upon it and the whole thing set on fire. The heat created by the fire was intense, and those who were witnessing the experiment had grave doubts as to the success. After the fire had burned the boards nearly half through, the contents of the little can were turned on and in less than a minute the flames were extinguished. The test was certainly a severe one. The inventor of this extinguisher thinks that in time he will be able to perfect a device for fighting large fires, and that eventually gases will take the place of water entirely in the fire departments.—*Fire and Water.*

THE RE-INFORCEMENT OF CONCRETE BEAMS BY TWISTED IRON FOR FIRE-PROOF FLOORS.

THE reference made in the May number of the CALIFORNIA ARCHITECT to the use of Twisted Iron incorporated in Concrete, has called out some inquiries as to the nature and extent of the tests so far applied to this mode of construction. Though first introduced upon this Coast but little has been published here respecting this new departure in fire-proof building.

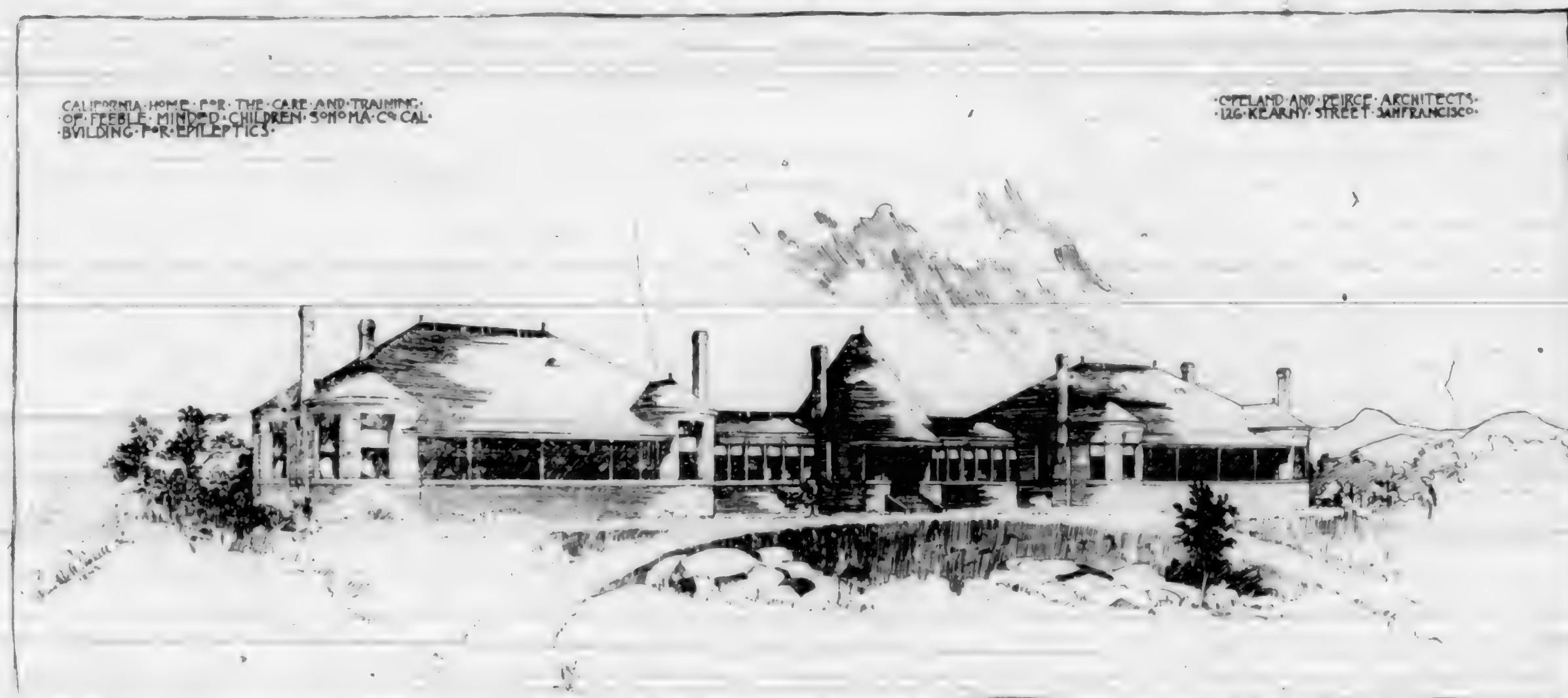
The Museum at the Stanford University was not the first structure where this method was employed, but the concrete beams supporting the heavy dome, have the longest span yet produced, forty-five feet. Another notable example is the California Academy of Sciences on Market street, where five floors covering an area of 50,000 square feet are so constructed. The span ranges as high as thirty feet, and there is also a projection of three feet of concrete over the central area, supporting an iron railing at the outer edge, and a walk for visitors. The floors were estimated to carry with

been concentrated at a single point by the employment of nuts and washers. By twisting the iron before it is imbedded in the concrete the strain is diffused equally through the length of the bar, while it is firmly held at all points by the enveloping mass.

An incidental advantage of the twisting is that thereby all imperfectly laminated iron is at once detected, and the defect exposed, ensuring the employment in practical use of only a high quality of iron.

In the more common forms of construction the major element has been the iron beam, whose lower cord was exposed, necessitating additional protection below against the action of heat. By substituting the concrete beam as the chief factor, the iron used is so incorporated within the body of the stone as to be amply protected without extra cost. Moreover the iron girder is an expensive form, while the very simplest and cheapest is the flat or square bar.

The claim that cold twisting actually adds to the strength of the bar, rests upon somewhat exhaustive experiments conducted by Lieutenant F. P. Gilmore, U. S. N. (Government Inspector of Iron and Steel for war vessels under con-



safety 250 pounds per square foot. One section, 15x22, was tested with a uniform load of 415 pounds per square feet, and the load was left on one month. The architects reported the extreme deflection at the center as only one-eighth of an inch. Contractors and workmen were distrustful at first, but their confidence became unbounded before the completion of the work. The saving over the usual mode is estimated at fifty cents per square foot.

Touching the weight of these floors, as compared with iron girders and hollow tiles, the first impression that the concrete must necessarily be much heavier, is found incorrect. For when the span is of usual length, and the required strength of moderate limit, the weight per square foot is less with the new construction. For example: with spans of fifteen to twenty feet, and a safe load of seventy-five pounds per square foot, the saving in weight is about forty per cent over iron girders and hollow tiles. With a load of 125 pounds it is some twenty per cent.

This economy is doubtless due to the fact that the bond between the twisted iron and the enveloping concrete is so perfect and continuous as to give the effect of a homogeneous beam, and that the tensile strength of the iron bar is utilized.

Ordinarily in the use of iron with concrete the strain has

struction at San Francisco) and by the College of Mechanics of the University of California at Berkeley, also at the celebrated Low Moor Iron Works, England.

Lieutenant Gilmore found that common commercial iron $\frac{3}{4}$ inch square, being given $1\frac{1}{2}$ twists per lineal foot gained seventeen per cent in tensile strength; given $3\frac{3}{4}$ twists, twenty per cent, and six twists gained twenty-four per cent.

The best Norway Iron given six twists per foot, gained from fifty to fifty-three per cent in tensile strength.

Similar experiments at the Low Moor Iron Works with $\frac{3}{4}$ inch round iron, showed twenty-two per cent gain for $1\frac{1}{2}$ twists per foot; thirty-six per cent with $2\frac{1}{4}$, and forty-one with three twists, which was as far as the experiments noted were carried.

The latter experiments conducted by the University of California gave similar results, with one important fact ascertained, namely: that a suitable interval between the twisting and the testing gave a much greater gain. Three-quarter inch iron turned down to $\frac{5}{8}$ was given six twists per lineal foot. Twisted while hot there was a small loss in tensile strength. Twisted cold and tested immediately, the gain ranged from thirty-three to forty-three per cent. Twisted cold and allowed to remain five days and then tested, the increase in tensile strength of the same quality

of iron was from forty-seven to fifty-nine per cent, or an average of fifty-three per cent.

It would seem that advantage might be taken of this important augmentation of tensile strength in many places. Bridge builders, as well as workers in concrete, would do well to inform themselves fully upon this claim.

SCULPTORS OF THE WORLD'S FAIR.

By J. H. GEST.

WHATEVER may be the success of the World's Columbian Exposition as an exhibition of the liberal and mechanical arts, or of natural products, it has achieved in one respect a result that could not reasonably have been expected, and certainly could not have been foreseen in its actual magnitude. In 1889 France presented to the world an architectural and artistic spectacle unapproached by former exhibitions, and until within a few months past the last French exhibition remained the ideal in the public mind. Almost no one had thought of an American exhibition which in the architectural beauty of its buildings, and especially in their sculptural decoration, should in any way rival Paris of 1889.

Conceding the ability of our architects to carry out their part of the task, where were the sculptors capable of acceptably decorating the buildings? To do this work required not only one man, or a half-dozen men, but a score or more of trained sculptors supported by a corps of personal assistants, and a small army of subordinate modelers and molders. They must be men fertile in the invention of a kind of ornament for which comparatively little use has hitherto been found in this country—not men capable of modeling merely detached statues, but able also to do it in harmony with architectural surroundings. This aspect of the sculptor's art is almost entirely unknown to the Americans as a people, who for want of knowledge have really no conception of its uses and its value in civic and national life. Even those of us who have occasionally the good fortune to travel in Europe, and who bring back in memory, and in photographic scrap-books, impressions of the architectural and sculptural interest of European towns large and small—even they drop back into the practical course of the overpowering commercial and mechanical movements peculiar to our civilization, and ere long become content with the bald surroundings of brick and stone amidst which the large percentage of our population live and labor. If even these favored few do not sufficiently value the presence of beauty of sculptural form as a leaven in the hard commonplace of our cities, how can the less fortunate, to whom this beauty is as unknown as though it had no existence?

It may be asked: What is the value, to a civilization like ours, of the esthetic expressions in form which are the products of the sculptor's art? Some years ago esthetics seemed entirely apart from the proper course of our lives. The usefulness of art was practically unknown, and even recreation was indulged in either under compulsion or with an unhealthy excitement. It is now generally admitted that of all the means of mental recreation none are so nearly inexhaustible as art, and in none can the restful influence be so ever-present. This is acknowledged in our strenuous efforts to introduce beauty into the most humble of the industrial arts, which is the marked characteristic of our industrial advance since 1876. All of this reaches the homes of the people and introduces an esthetic leavening of growing force. Art museums and galleries of paintings and sculpture are carrying the movement forward on a higher plane. But we have just begun to appreciate the fact that buildings, public and private, should themselves teach the value of beauty of proportion, of mass, of form in outline and surface, and even of color. Here the sculptor's work joins that of the engineer, architect and builder. When the capitalist has employed the engineer to plan his enterprise, the architect

to give his building not only adaptability to its use but also a character that shall be its entity as compared with others, then steps in the sculptor to ornament, until the whole shall possess not only utility but a beauty which shall make acceptable and perhaps emphasize that very utility. The finished work is thus by its attractiveness made even more efficient for the purpose for which it was intended. Other things being equal, the increased rental of the building will pay the interest on the cost of the sculpture. And the city with fine public squares, artistically dressed with statuary in appropriate architectural settings, will thrive as compared with the rectangular, monotonous, bald, utilitarian town, provided the location and other commercial conditions be not too unfavorable. Further, this ornamentation of a city stimulates its pride—a force constantly active in advancing a community. The streets should, so far as public and private enterprise can make them, be as popular museums full of object lessons that will tend to make good citizens. One of those lessons is the evidence of thrift given by the bustling crowd, another is the stability of buildings, but still another should be the appropriateness and the architectural and sculptural beauty of these same buildings. All this provision for his enjoyment of life tends to add something to the capacity of the citizen for activity.

There is no doubt as to the impression that will be made upon thousands of visitors to Chicago this year. The beauty of grand buildings harmoniously grouped in Jackson Park, the charm of decorative sculpture, the richness of public places and avenues abounding with statuary, create an unsuppressable longing that something of this, apparently so permanent, yet really so temporary, may remain as a lasting impression upon our people. While not attempting to distribute the credit for the beauty of these buildings and grounds, we may well recall that, when the use of Jackson Park—then largely swamp-land—was under discussion, it was Frederick Law Olmstead, the landscape architect, who conceived the plan of dredging lagoons and canals to secure sufficient earth for fills upon which to place the buildings, thus meeting the practical demands of the occasion, and providing the opportunity for artistic effects of land and water. Then followed the grouping of the buildings, of which much was prompted by Mr. Root, though conferences among the chosen architects led to the arrangement finally worked out, and to the adoption of the prevailing style of classic architecture. Coming to the sculptural ornamentation of the buildings and grounds, we should probably find Augustus St. Gaudens the dominant power, though his own work is limited to the gilded "Diana" on the main dome of the Agriculture building, whither it was removed from the tower of the Madison Square Garden, New York. These names, coupled with that of D. H. Burnham, the director of works, are those one hears from all who speak of the enterprise.—*The Engineering Magazine.*

THE COGSWELL FOUNTAIN IN BOSTON.

IT will be remembered, says the *American Architect*, that a few years ago, a certain Dr. Cogswell, of San Francisco, we believe, made to the City Government of Boston, as he already had to other municipal bodies, a proposition to erect on the Common, and present to the city, a fountain, consisting of a bronze figure, sheltered under a classical pavilion of granite, and furnished with an appropriate pedestal and inscriptions. No conditions were annexed to the offer, and the gift was accepted, and the fountain and pavilion duly erected on the Common. The site assigned to it was not a happy one, and the structure itself, although tolerably well executed, did not please the educated taste of the citizens, while, the name of the donor being rather conspicuously displayed on it, an idea became current that it was intended as an advertisement of the donor's business. However that may have been, the popular dislike to the affair became so marked that, after four or five years, the City Government appropriated money to have it removed.



The management of this journal desires to extend a cordial invitation to all architects on this coast and elsewhere to contribute designs for publication.

Drawings should be made with perfectly black lines on a smooth white surface. Good tracings, if made with black ink, answer the purpose.

The designs selected will be published without charge. All drawings, whether accepted or not, will be returned to their authors, who must bear express charges both ways.

VESTA DEL MAR—to be erected corner Jones and California streets, an apartment house of 250 rooms, arranged in thirty suits. To be strictly fire-proof. Material, light press brick and terra cotta. Cost \$320,000. Reid Bros., architects.

THE proposed building for the San Francisco *Examiner* is by Willis Polk, architect.

SKETCH of stable for A. B. Spreckles is by C. I. Havens, Architect.

DEATH OF COLONEL R. T. AUCHMUTY.

EVERY architect, and every one who has the good of his fellow citizens at heart, must mourn the loss of Colonel R. T. Auchmuty, who died at Lenox, in consequence of an amputation made necessary by a painful disease of the leg, from which he had long suffered. Colonel Auchmuty was a grandson of one of the first rectors of Trinity Church in New York, and was throughout his life identified with that church and with the charitable and religious undertakings connected with it. He served in the army during the Civil War retiring with the rank of colonel. He was educated to the profession of architecture, and was for some time a partner of James Renwick, the architect of Grace Church, but, being possessed of an independent fortune, and finding ways in which he could be of more use to his fellow men than in the practice of his profession, he came of late years to devote himself entirely to his various charitable works, of which the greatest was that of the establishment of the New York Trade Schools. From the time of his first acquaintance, through his professional work, with mechanics of the old and new schools, Colonel Auchmuty had observed the unfavorable effect upon the younger men of the limitation or abandonment of the old apprenticeship system, and the substitution, for the instruction and control of the masters, of the tyranny of trade-unions. In New York, as in other large cities, the unions are almost completely under the control of foreigners, who favor their compatriots, to the exclusion of the native-born, and Colonel Auchmuty found his young fellow-countrymen not only shut out of employment in New York, to make room for foreigners, but prevented from learning a trade which they might practice elsewhere, by the limitation of the number of apprentices in the shops, rigorously enforced by the unions, and the absence of any other provision for training them. Finding that the same difficulty had been met abroad by the establishment of schools, under Government patronage, for teaching the manual arts, Colonel Auchmuty determined to see whether something similar could not be done in this country by

private effort, and, securing a small building in New York, he employed instructors and opened a school where young men could be taught carpentry, masonry and house-painting. The school was not free, a small tuition-fee being charged, and there was every year a deficit to be met, which Colonel Auchmuty and his wife paid. The first year the school was small, but it grew rapidly. Not only was practical workmanship thoroughly taught, but theoretical instruction was given in the properties of materials and elementary statics, and drawing was taught to all the pupils. Very soon, the school increased so much that it was necessary to erect new buildings, which were constructed by the pupils. New courses were added, and the school now has about six hundred pupils, of the best type of American adolescence. It is hardly necessary to say that an institution which taught young men to work and think excited from the first the hatred of the organizations which look upon anarchists as the true labor-reformers, and the walking-delegates tried open violence, as well as their arts of secret terrorism, to destroy the schools. Finding that the schools could not be closed by these means, they closed the shops against the graduates of the schools, ordering every shop "struck" that employed one of them. Colonel Auchmuty met this step by resuming his old profession, and making plans for a considerable number of buildings, which were carried out by the school graduates. After this, the labor organizations, finding that they had aroused a public feeling which it was advisable to allow to subside, ceased active hostility, and the relations between them and the trade schools, though far from cordial, are not now belligerent. On being attacked by the ailment which finally caused his death, Colonel Auchmuty was obliged to leave the work of managing his schools mainly to others, greatly to his regret, but, as he himself said, this has proved a certain advantage, as their continuance is in that way better assured, so far as the system of instruction is concerned, while they were recently firmly established financially, by the generous endowment of half a million dollars, presented them by Mr. J. Pierpont Morgan. Before his death, Colonel Auchmuty, with his wife, added one hundred and sixty thousand dollars to the endowment, this being outside of the seventy thousand dollars which they had already devoted to the schools.—*The American Architect and Building News.*

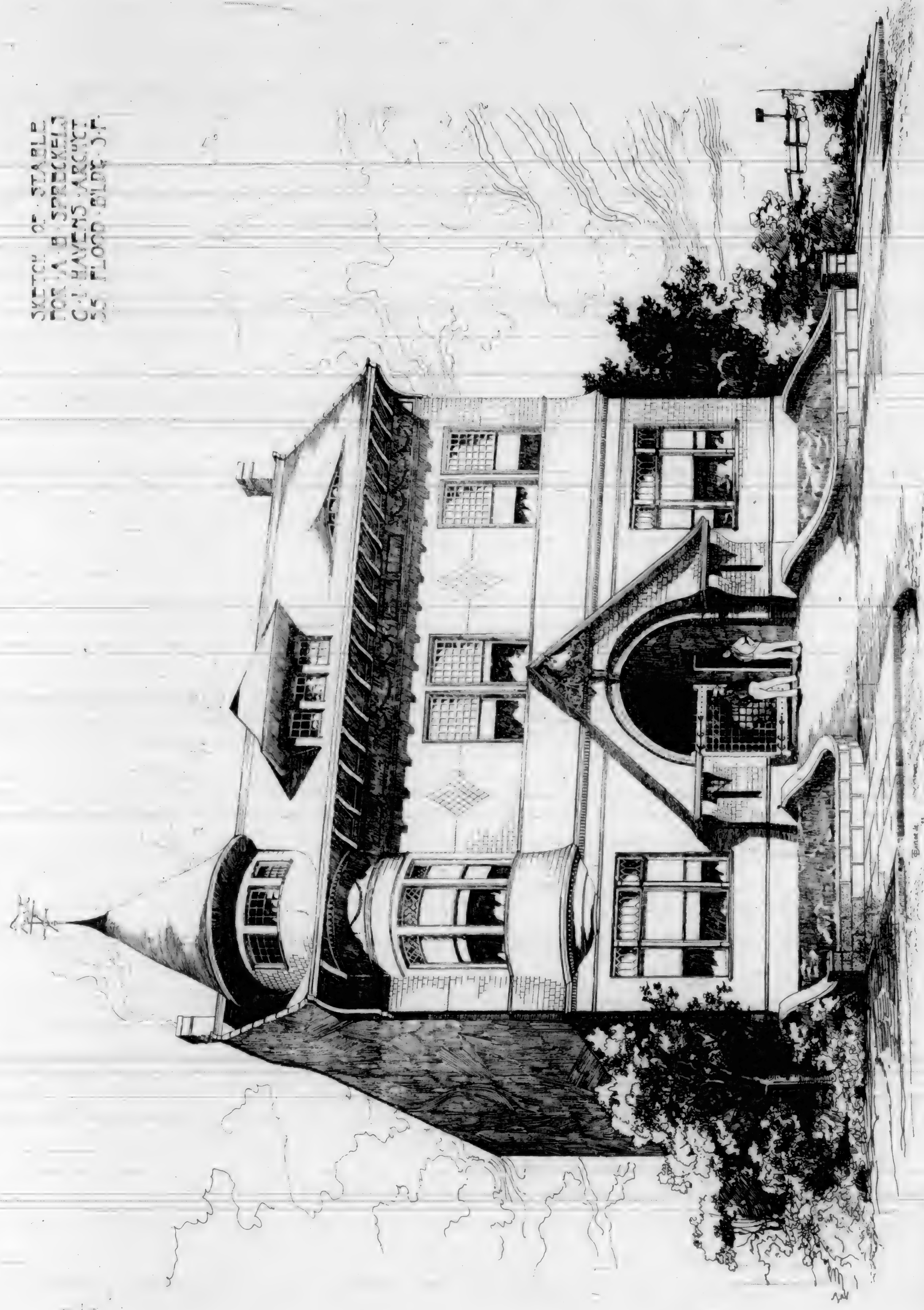


Clinton Day, Architect, has removed his office to the fine new building SE corner California and Sansome Sts.

Mr. Geo. P. Low, Electrical expert for the Pacific Insurance Union and who is well known to architects, left for an extended business trip east on August 10th. While absent will attend the meeting of the Underwriters' International Electric Association, of which committee he is a member. Mr. Low will also sit as delegate to the World's Electrical Congress to be held in Chicago beginning August 21st.

The first building erected by the London Council with their own men and without the intervention of a contractor has been brought to a successful issue. The new school building at Crossness was advertised in the usual way and the lowest tender obtained for a contractor was \$10,940. The estimate of the Council's architect was \$8,440 and the work was actually executed for the sum of \$8,310. The example, however, is on too small a scale to prove anything very much at present in regard to the superiority of this system of doing work.

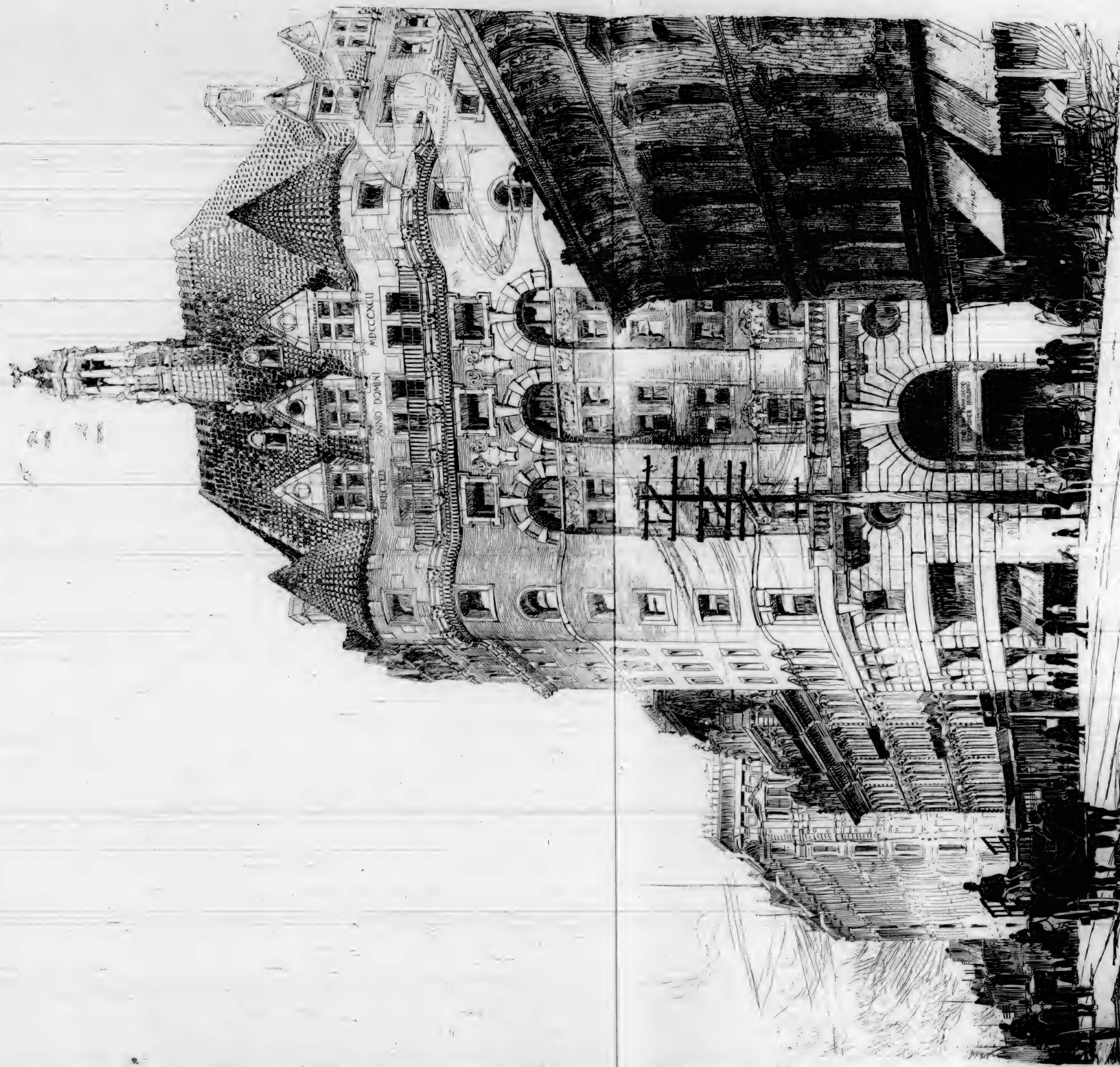
SKETCH OF STABLE
FOR J. B. SPRICKLE
CH. HAVENS ARCHT.
35 FLOOD BLVD. S.F.



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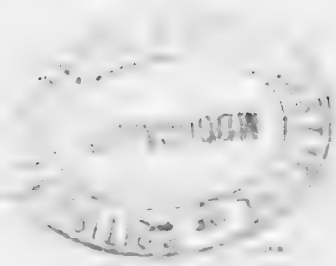


PROPOSED BUILDING FOR THE SAN FRANCISCO "EXAMINER," NEWSPAPER.
MR. WILLIS POLK, ARCHITECT.

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