The California Architect and Building News.

OFFICE, 408 CALIFORNIA STREET, SAN FRANCISCO, CAL., U. S. A.

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THE CALIFORNIA ARCHITECT AND BUILDING NEWS

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VOLUME XX. No. 1 JANUARY, 1899.

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PRICE THIRTY CENTS.

D. J. Patterson '98

OFFICE 408 CALIFORNIA ST.

BUILDING NEWS.

Baker near Fulton. Two-story frame; o, Ada S. Egerton; a, Curlett & McCaw; c, Z. O. Field; signed Dec. 13; filed, Dec. 22; cost $3,720.

Broadway cor. Montgomery. Alterations and additions; o, B. Cereghino; a, Depierre & Righetti; c, L. Capurro; signed, Dec. 27, filed, Dec. 29; cost $2,040.

Capp bet 25th and 26th; Alteration to a cottage; o, John W. Williams; c, Fred. Miller; signed, Dec 22; filed, Dec. 23; cost $1392.

Cole near Frederick. Two-story frame; o, P. C. Kleversahl; a, Martens & Coffee; c, A Guilbert; signed Jan. 9; filed, Jan. 12; cost $2,510.

Clay corner Gough. All work except plumbing, painting, marble and tile work for alterations to a two-story frame; o, Ludwig Schwabacher, a, R. H. White; c, Val Franz; signed and filed, Dec. 20, cost $1450.

Devisadero near O'Farrell. All work except plumbing and painting for frame builing; o, Robert B. Hochstadter; a, Saalfield & Kohlberg; c, Ira W. Colburn; signed, Dec. 27; filed, Dec. 28; cost $4,540.

Ferry Depot. O, Harbor Commissioners; c, F. Miller; cost $2,479.

Folsom near 7th. All work except plumbing, painting, mantels, chandeliers and shades for a two-story frame; o, A. Panba; a, E. J. Vogel; c, C. Krecker signed, Jan. 8; filed, Jan. 11; cost $2,365.

Fulton near Webster. Alterations and additions to frame building; o, Sarah A. Dick; a, H. Geilfuss; c, C. Schutt; signed, Dec. 23; filed, Dec. 27, cost $1680.

Geary No. 352. Alterations and additions; o, C. S. Benedict; a, E. Kollofrath; c, J. Furness; signed, Dec. 15; filed, Dec. 21; cost $3,645.

Golden Gate Avenue near Leavenworth. Three-story brick; o, P. M. Neuman; a, Brother Adrian; c, Robert Trost; signed, Dec. 19; filed, Dec. 20; cost $17,023.

Green near Buchanan. Two-story frame; o, N. Corinson; a, H. Geilfuss; c, W. Horstmeyer & Co.; signed and filed Jan. 6; cost $3,115.

Kearny near Sutter. Alterations and additions to brick building; o, Nathan and Louis Dusenberg; a, Havens & Toepke; c, George R. Lang; signed and filed, Jan. 11; cost $1298.

Main near Howard. Four-story brick; o, Pelton Water Wheel Co.; a, W. J. Matthews; c, E. L. Hallawell; signed, Dec. 17; filed, Dec. 21; cost $8450. Cast iron and steel work; c, Dyer Bros.; signed, Dec. 14; filed, Dec. 21; cost $3590.

Mason corner O'Farrell Alley. Heating plant in 4-story frame building. O, Thomas Ashworth; a, Newsom & Meyer; c, Geo. H. Tay Co.; signed, Dec. 9; filed, Dec. 22; cost $1265.

McAllister corner Filmore. Alterations and additions; o, George J. and Emma Wellbrock; c, Andrew Christensen; signed, Jan. 10; filed, Jan. 14; cost $8410.

Mission near 3d. Alterations to Grand Opera House; o, The Morosco Amusement Co.; a, Maxwell G. Bugbee; c, C. F. Ellis; signed, Dec. 28; filed, Dec. 28; cost $1080. Painting, papering and tinting; c, Merchant & Nichols; signed, Dec. 27; filed, Dec. 30; cost $1150.

Pierce near Green. Two-story frame; o, Mrs. Winifred Jennings; a, Wm. Mooser & Son; c, Petterson & Person; signed and filed, Dec. 23; cost $2400.

Powell near Geary. Lathing, plastering and cement work; o, M. A. Dorn; a, Shea & Shea; c, Floodberg & McCaffery; signed and filed, Jan 18; cost $1450.

Presidio, U. S. Government Reservation. Hospital building—brick; c, J. H. Long; cost $113,339.50.

Sacramento corner Maple. All work except painting, plumbing, gas fitting, electric wiring, heating and ventilating for 2-story frame building; o, Hahnemann Hospital College; a, Havens & Toepke; c, George R. Lang; signed, Jan. 10; filed, Jan. 11; cost $7728.

Steiner corner Broadway. All work except plumbing, tiling, brick work, excavating and cement work for a 2-story frame; o, J. Sweigert; a, Wolfe & McLensie; c, Chas. L. Williams; signed, Jan. 7; filed, Jan. 17; cost $3065.

Taylor near Turk; Cast and wrought iron work for a 5-story brick building; o, M, Heffernan; a, T. J. Welch; c, Judson Mfg Co.; signed, Dec 12; filed, Dec. 21; cost $3165. Carpentry, glazin , hardware, plastering, ventilation; c, A. Jacks; signed, Dec. 12; filed, Dec 21; cost $12,300. Brick, stone and terra cotta; c, M. V. Brady; signed, Dec 12; filed, Dec. 21; cost $7890. Plumbing; c, W. F. Wilson; signed, Dec. 12; filed, Dec 21; cost $3000. Tinning, galvanized iron, copper and bronze work; c, Wm. Cronan; signed, Dec 12; filed, Dec. 21; cost $2350. Marble and tiling work; c, W. H. McCormick; signed, Dec. 12; filed Dec. 21; cost $1125. Electric wiring; c, Gas Consumers Ass'n; signed, Dec. 12; filed. Dec. 21; cost $161. Painting; c, L. J. Dwyer; signed, Dec 12; filed, Dec. 21; c st $659. Sidewalk lights; c, P. H. Jackson & Co.; signed, Dec. 12; filed, Dec. 21; cost $834. Electric ele ator; c, W. L. Holman; signed. Dec. 29; filed, Ja . 5; cost $2155. Heating; c, Geo. H. Tay Co.; cost $45.

Tenth bet. I and J. Two-story fire engine house; o, City and County of San Francisco; a, C. L. Wilson; c, C. F. Sheibley; signed, Jan. 4; cost $5750.

Vallejo near Fillmore. Two-story frame; o, John W. Stetson; a, Martens & Coffee; c, J. T. Lorentzen; signed and filed, Dec. 29; cost $3775.

ALAMEDA.

San Antonio Avenue bet. Willow and Walnut. Two-story frame; o, A. Merle; c, F. Bammann; signed and filed, Jan. 7; cost $2150.

BERKELEY.

Crystal Spring Tract. Lot 12, Block 8. Two-story frame; o, George D. and Fannie H. Rhorer; c, Frederick Estey; signed, Jan. 16; filed, Jan. 18; cost $1806.

Louisa street near Delaware. Frame dwelling; o, Frank W. McLain; a, Belden & Cook; b, Anderson & Stockholm; Signed, Dec. 27; filed, Dec. 28; cost $1350.

EAST OAKLAND.

Glen Avenue near High. Frame building; o, E. Clark; a, W. Smith; c, J. R. MacGregor; filed, Jan. 3; cost $1375.

PLEASANTON.

Two-story building, all work except painting, chimneys and hauling of materials. o, E. R. Lilienthall; c, John H. Harr; signed, Jan. 12; filed Jan. 19; cost $1314.

SAN RAFAEL

Cole Tract, Magnolia Park. Alterations and additions; o, M. H. De Young; a, Clinton Day; c, Jensen & Schlosser; signed, Jan 4; filed, Jan 7; cost $13,456.

SAN LEANDRO.

Block 48. Brick factory building; o, King-Morse Canning Co.; o, A. Behrnd; c, Phil. Sheridan; signed, Nov. 7; filed, Dec. 27; cost $14,512.

LOS ANGELES

J. F. Francis has purchased three lots on the southwest corner of West Ninth and Bonny Brae streets, and inteneps to build a residence on them in the near future.

E. R. Brainard of the Economy Building Co., is about to erect two 5-room cottages on the north side of 21st street, near San Pedro.

Architects Eisen & Hunt are preparing plans for Mrs. C. P. Canfield for a residence to be built on the south west corner of Eighth and Alvarado streets.

Plans have been prepared for H. McNeale, of southeast corner of East Eighteenth and Essex streets, for cottages of five and six rooms each, to be built on the west side of Gladys avenue, between Fourth and Fifth streets.

Plans have been prepared for W. W. Holcomb of 211 West First street for a two-story frame building, to be built on the south side of East Third street, between Los Angeles and Wall.

Plans have been prepared for Wm. A. Symmes, o, 308 Henne block, for a two-story frame residence, to be built on the east side of Carondelet street, near Sixth.

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OFFICE 408 CALIFORNIA STREET, SAN FRANCISCO, CAL., U. S. A.

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VOLUME XX. JANUARY 20th, 1899. NUMBER 1.

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

AT THIS time, the idea of a comprehensive plan for the improvement of of the City of San Francisco is very appropriate. The public spirit exhibited by Mrs. Hearst and others in helping towards this consummation is worthy.

The plan of the City as it is now, very creditable for the time at which it was laid out, and a good deal of foresight was exhibited therein, not only foresight, but an eye to artistic effect. What a prosaic City we should have had to-day if the usual chequer-board system of streets had been used universally, north and south, throughout the whole city! We should have lost Market street with Twin Peaks closing the vesta at one end, and the bay at the other, forming a street of four miles, unparalled in the world.

The unfortunate part of the plan was that which made the streets north of Market street to run to the cardinal points instead of to the half points as it is in the south of Market district.

The generally received idea on these matters is correct, and an aspect N.E., S.W., &c., is far better for houses than due north or south, &c. The sun in the former system gets into every room.

The layout of the large quantity of vacant sand dunes to the south of the Park should be certainly changed before too late, and the south of Market system continued out there. It would cost nothing to do, as the same amount of land would belong to the owners, simply new description to the deeds would be necessary.

This is only one of a very large number of improvements which might be made; the extension of the Panhandle portion of the Park being one which has already been brought to the fore. Another is the necessity of the City immediately seizing upon all the tops of the hills, and forming parks thereon—Twin Peaks, Bernal Heights, and others. Roads up the hills being laid out on the spiral plan.

Time does not allow of mentioning here all the desirable improvements which would make of San Francisco the most beautiful and healthy city of the world. All the elements are here; it only needs the genius to mold them into shape.

THE LATE Board of Supervisors just before they went out of office did a just is deed, when they paid the architects who had put in plans for the City and County Hospital, which were afterwards found useless from the fact that the appropriation therefor had elapsed.

In such cases as this where it is manifest that an injustice would be done if the strict letter of law were followed, legal quibbles ought to be set aside and thus satisfaction should be given on all sides.

The newly elected Auditor, Mr. Asa Wells, also acted squarely in this matter and approved the demands as debts honorably due by the City.

AN ACT TO REGULATE THE PRACTICE OF ARCHITECTURE.

THE PEOPLE of the State of California, represented in Senate and Assembly, do enact as follows:

Section 1. Within sixty days from and after the passage of this act, the Governor of the State shall appoint ten persons, which persons so appointed shall constitute a Board, which Board shall be known and designated as the State Board of Architecture.

Five members of said Board of Architecture shall be residents of the Northern United States Judicial District of California, and shall constitute the Northern District Board for the examination of applicants for license to practice architecture in this State. And five members of said Board shall be appointed from the Southern United States Judicial District of California, and shall constitute the Southern District Board for the examination of applicants for license to practice architecture in this State.

The districts shall be the same as the Northern and Southern United States Judicial Districts of this State at the time of the passage of this act.

Said State Board of Architecture shall be appointed by the Governor, as follows: Three members shall be appointed from the members in good standing of the San Francisco Chapter of the American Institute of Architects, or some similar institute or association of architects, two of whom shall be designated to hold office for two years. Three members shall be appointed from the members of the Southern California Chapter of the American Institute of Architects, or some similar institute or association of architects, two of whom shall be designated to hold office for two years. One member shall be appointed from the faculty of the Berkeley University, one member shall be appointed from the teachers of the State Normal School at Los Angeles, and two members, one of whom shall be a resident of the northern district and one a resident of the southern district, who shall be lawyers in good standing, and who shall have been in practice for not less than five years.

Each person so appointed shall hold office for four years unless so designated to hold office for two years. And thereafter, upon the expiration of the term of office of the persons so appointed, the Governor of the State shall appoint a successor or successors to such outgoing person or persons whose term of office shall have expired, to hold for four years; *provided*, that the membership of the State Board of Architecture shall be composed as herein set forth.

Each member shall hold over after the expiration of his term of office until his successor shall have been duly appointed and qualified.

Any vacancy occurring in membership of the Board shall be filled by the Governor of the State for the unexpired term, in like manner.

The members of the Board shall serve without compensation from the State.

The expenses of said Board shall be paid out of the fees collected from applicants for licenses.

Sec. 2. The members of the State Board of Architecture shall, before entering upon the discharge of the duties of their office, take and file with the Secretary of State the constitutional oath of office.

The said State Board of Architecture shall, within thirty days from and after their appointment, meet and elect from their number a President and a Vice-President, one of whom shall be a resident of the northern district, and one a resident of the southern district, and two Secretaries, one from each district. The Secretaries shall also act as Treasurers. The person receiving the highest number of votes shall be Secretary, and the person receiving the next highest number of votes shall be Assistant Secretary. Said persons shall hold office for two years, or until their successors shall have been duly elected and qualified.

Sec. 3. The Board may adopt rules and regulations for the government of its proceedings not inconsistent with this act.

The State Board shall adopt a seal for its own use, and one for each of the District Boards. The seal used by the Northern District Board shall have the words "Northern District" inscribed thereon, and the one for the southern district shall have the words "Southern District" inscribed thereon, and the Secretary and Assistant Secretary shall have charge, care and custody thereof.

The Secretary shall keep a correct record of all the proceedings of the Board, which shall be open to public examination at all times. Six members shall constitute a quorum for the transaction of the business of the State Board of Architecture, and three members shall constitute a quorum for the District Boards for the transaction of business.

Special meetings of the State Board of Architecture shall be called by the Secretary, upon the written request of four of its members, and by giving twenty days' written notice of such meeting, and the time and place at which such meeting is to be held, to each member of the Board.

The District Boards shall call special meetings, upon the written request of two of its members made to the Secretary, and upon five days' written notice to each member of such District Board.

Within thirty days from and after the date of their appointment, the State Board shall meet to organize, elect officers as in this act provided for, and formulate and adopt a code of rules and regulations for its government in the examination of applicants for license to practice architecture in this State, and such other rules and regulations as may be necessary and proper, not inconsistent with this act.

The Board may from time to time repeal or modify its rules and regulations, not inconsistent with this act.

The State Board shall meet annually, on the second Tuesday in April, for the purpose of transacting such business as may lawfully come before it, not inconsistent with this act.

The District Boards shall hold their regular meetings for the examination of applicants for license to practice architecture, on the last Tuesday of January, April, July and October of each year.

The Board of the Northern District shall meet in San Francisco, and the Board of the Southern District shall meet in Los Angeles, and at such other times and places as they may elect, to examine applicants for licenses.

Three Flats, Six and Seven Rooms, 733 Haight street, Architect Chas. M. Rousseau; Owner George Marseley.

Any person shall be entitled to an examination for a license to practice architecture upon payment to the District Board, when he makes application, of a fee of fifteen dollars, which fee shall be retained by the Board ; should the applicant pass a satisfactory examination by said District Board, the Secretary shall, upon the payment to him of a further fee of five dollars, issue to the applicant a certificate, signed by the President and Secretary, sealed with the seal of the District Board, and directed to the Secretary of State, setting forth the fact that the person therein named has passed a satisfactory examination, and that such person is entitled to a license to practice architecture in this State, in accordance with the provisions of this act ; and upon the payment to the Secretary of State of a fee of five dollars, the Secretary shall at once issue to the person therein named a license to practice architecture in this State, in accordance with the provisions of this act, which license shall contain the full name of the applicant, his birthplace and age, together with the name of the District Board issuing the certificate and the date of issuance thereof.

All papers received by the Secretary of State on application for license shall be kept on file in his office, and a proper index and record thereof shall be kept by him.

Sec. 4. Any architect in good standing, who shall show to the satisfaction of the District Board of the district in which such architect may reside that he was engaged exclusively in the practice of the profession of architecture on the date of the passage of this act, shall be granted a certificate, without passing an examination, on the payment to the District Board of a fee of five dollars ; *provided*, such application shall be made within six months from and after the passage of this act.

Said certificate shall set forth the fact that the person to whom the same was issued was practicing architecture in this State at the time of the passage of this act, and that the person therein named is entitled to a license to practice architecture without having passed an examination by the District Board ; and the Secretary of State shall, upon the payment to him of a fee of five dollars, issue to the person named therein a license to practice architecture in this State in accordance with the provisions of this act.

Each licensed arch tect shall have his license recorded in the office of the County Recorder in each and every county in this State in which the holder thereof shall practice, and he shall pay to the Recorder the same fee as is charged for the recording of deeds. A failure to have his license so recorded shall be deemed sufficient cause for revocation of such license.

Sec. 5. Six months after the passage of this act, it shall be unlawful, and it shall be a misdemeanor, punishable by a fine of not less than fifty dollars nor more than five hundred dollars, for any person in this State to advertise or put out any sign or card or other device which might indicate to the public that he was a licensed architect.

Store and Residence of S. C. Spinney, Esq: Chas. M. Rousseau, Architect.

Architects' licenses issued in accordance with the provisions of this act shall remain in full force until revoked for cause, as hereinafter provided for in this act.

A license may be revoked for dishonest practices, or for gross incompetency in the practice of the profession, which questions shall be determined by the District Board of the district in which the person whose license is called in question shall reside or shall be doing business; and upon a full

Store and Two Flats, Five and Six Rooms, Silver street, between Third and Fourth. Chas. M. Rousseau, Architect; Owner, Mrs. Emilie Ursin.

investigation of the charges by the District Board, an opportunity having been given the accused to be heard in his own defense or by counsel, and upon the verdict of at least four members of the District Board, the Board may issue its certificate to the Secretary of State revoking the license of the person accused; and the Secretary of State shall thereupon cancel such license. And on the cancellation of such license it shall be the duty of the Secretary of the District Board to give notice of such cancellation to the County Recorder of each county in this State, whereupon the Recorder shall mark the license recorded in his office "cancelled." After the expiration of six months the person whose license was revoked may have a new license issued to him by the Secretary of State, upon the certificate of the District Board by which the license was revoked.

Every licensed architect shall have a seal, the impression of which must contain the name of the architect, his place of business, and the words "Licensed Architect," with which he shall stamp all plans and papers prepared by him. He shall also use the words "Licensed Architect" upon all signs, cards and other like matter indicating or advertising to the public his profession.

This act shall take effect from and after its passage.

TEST OF FIREPROOFING MATERIAL.

A REMARKABLE test of the efficiency of Asbestos Cement Kuhlewein was conducted on Wednesday afternoon, January 25, in the workshops of the Hermann Safe Company, 419–423 Sacramento street, of this city, in the presence of a number of witnesses, which fully confirmed the most favorable results of the previous trials of the same material in this city, and all that is claimed for this excellent fire-resisting cement by its makers. Mr. Hermann, the well-known proprietor of the Hermann Safe Company, had constructed a drum of sheet iron (No. 12) with a 3-inch lining of Asbestos Cement Kuhlewein on the inside of the drum. Into this receptacle the gentlemen present deposited various papers. The drum was then closed and exposed to a hot fire on a large blast forge for two hours and a quarter. The drum became red hot in a few minutes, and the fire was

Twenty-six Rooms and Store, 1207 Market Street, Louis Schoenberg, Esq., Owner, Architect, Chas. M. Rousseau.

forced to the utmost during the entire time. After the expiration of two and one-quarter hours the drum was placed in water, and when sufficiently cooled was opened. All of the papers deposited in the drum were then removed, and none showed the slightest influence of the exposure to the fire and heat, being neither scorched nor discolored in any way. The result was astonishing to those present, and all agreed that they had never known of any material which showed such resistance to fire.

Mr. T. H. Porter of the Underwriters' Inspection Bureau was one of those present, and he like the others was greatly surprised at the result. He stated that he knew of no other material which would stand such a test. The editor of this

Residence of S. Landner, Esq., Pine St., near Buchannan.
Architect Chas. M. Rousseau.

paper was also present, and can give any information desired. Mr. Hermann, the safe-builder, was quite elated at finding such material, which he proposes to use in his safes as filling, thus making them practically indestructible. Mr. Hermann is quite willing to arrange for further similar tests, if it is desired by those interested in fireproofing material.

Mr. Towel, the Fire Marshal of San Francisco, has himself made tests with this cement, and recommends the use of the same for fireproofing of iron or steel girders, columns, supports, etc., also for plastering of walls in frame buildings, even, thus placing an impediment in the way of the rapid progress of a conflagration, so as to give the fire department a chance to confine a fire to the room or locality where it originated and to save the rest of the building.

No fireproof building is safe without this material. Its use is manifold. In fact, architects and builders are generally searching for just such building material as Asbestos Cement Kuhlewein, which, at a comparatively low cost, ensures the greatest safety possible under any circumstances. It is easy of application, and can be used by any intelligent workman. It is safe to say that within and without the fire limits of this city the use of the cement will become general. For fireproofing buildings it is essential, but even frame buildings will become safer for life and property by the use of the same. Why should anyone use ordinary plaster when at a trifling increase in cost he can have a vastly superior article? Fire insurance companies will reduce the rate of premium on buildings where this material is used throughout, thus more than offsetting any slight increase in the first cost. Wood can be made fireproof as readily as iron. Doors can be constructed of it in very handsome designs. The material can be nailed, sawed, planed, etc. Roofs constructed of Asbestos Cement Kuhlewein are light and fireproof; ordinary covering fs of the thickness of 1 to 2¼ inches. It should not be omitted here that the Asbestos Cement Kuhlewein is also absolutely waterproof. It is therefore a desirable material for lining walls in cellars, etc., to avoid dampness. The material is such a poor conductor of heat that hot air conduits covered with the same and leading through ice-cellars do not affect the ice in the slightest degree, nor does the temperature in the cellar decrease the heat of the air in the conduits. The German Navy Department use the material extensively on shore and on board ship. Boiler-rooms, magazines, etc., are lined with the same, and woodwork is made fireproof by a covering of this cement.

Asbestos Cement Kuhlewein is a slate-colored hydraulic cement, and sets to great hardness, just like ordinary Portland cement. It is used without sand. The appearance of work effected with this cement is very handsome. The tensile strength of the cement is very considerable. A floor made of the same is both substantial and handsome. Walls plastered with this cement can be polished, or can be painted, papered or decorated in any manner desired.

Three Flats, Seven and Eight Rooms, 1322 Webster St., Mrs. C. Gaudin, Owner
Architect Chas. M. Rousseau.

SEMI-ANNUAL SUMMARY OF BUILDING OPERATIONS.

IN the following tables we present the number and value of buildings erected in San Francisco during the year 1898.

FOR FIRST SIX MONTHS.—1898.

1898	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 & Addit'ns Value.	No. of Buildings	No. of Contracts	Total Value.
Jan'ry..	3	4	$ 58,901	19	14	$ 81,286	7	7	$ 27,338	29	25	$ 167,525
Feb'ry..	6	10	92,879	15	17	62,984	6	13	33,580	27	40	189,443
March	3	7	77,154	39	37	217,382	11	13	51,870	53	57	346,106
April..	3	15	165,301	33	38	139,221	16	19	119,891	52	72	424,113
May...	4	12	151,108	19	23	67,980	9	15	41,815	32	50	260,903
June..	8	20	313,961	28	42	157,476	14	18	62,156	40	80	533,596
Total	27	68	$ 859,307	153	171	$ 726,329	63	85	$336,650	233	324	$1,922,286

FOR SECOND SIX MONTHS.—1898.

1898	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
July...	7	17	$ 213,146	28	35	$ 83,722	5	5	$ 10,015	40	57	$ 306,883
Aug.....	6	15	142,668	21	38	81,150	8	8	17,775	12	61	241,593
Sept....	6	12	101,095	24	35	106,457	4	4	8,333	34	51	215 885
Oct......	7	14	68,911	32	47	127,533	13	13	20,975	52	74	217,419
Nov.....	4	7	49,718	23	33	123,866	7	7	14,580	37	47	188,164
Dec......	6	11	66,808	24	37	108,677	5	5	18,623	35	53	194,108
Total	36	76	$ 642,346	155	1225	$ 631,3057	42	12	$ 90,301	240	343	$1,364,052
G'd Total	63	144	$1,501,653	308	396	$1,357,634	105	127	$ 126,951	473	667	$3,586,338

To this amount has been added the further estimated sum of $250,000 where costs have not been given, which would make the total for the last six months $1 614,052 and taking for the first six months of 1898 the amount of $2,222,286 making a total for the year 1898 of $3,836,338.

We give the total values and numbers from 1880 so that our readers may make a comparison:

1880—	397 engagements, value	....	$1,754,435
1881—	533 "	"	3,790,7
1882—	785 "	"	3,896,2
1883—	803 "	"	5,261,689
1884—	1,127 "	"	6,202,807
1885—	1,457 "	"	7,043,999
1886—	1,148 "	"	6,401,669
1887—	1,093 "	"	6,605,054
1888—	891 "	"	6,244,220
1889—	1,081 "	"	7,500,000
1890—	1,037 "	"	7,095,013
1891—	1,162 "	"	6,946,056
1892-	920 "	"	5,856,341
1893—	905 "	"	3,962,532
1894—	947 "	"	4,529,839
1895—	1,086 "	"	5,199,235
1896	880 "	"	6,223,375
1897—	862 "	"	4,460,133
1898—	667 "	"	3,836,338

WITH THE STUDENTS OF ARCHITECTURE OF THE MARK HOPKINS INSTITUTE OF ART.

AT THE regular meeting, on Wednesday evening, January 18, the annual election of officers was held and an interesting course of study was selected for the following year.

It was decided to make ample provision at this time of the year for entering students and the construction class, to be held on Wednesday evenings, was commenced with the rudimentary principles. For the first subject, a suitable building has been designed and all the details of its construction will be drawn out.

The department in design will continue its usual studies with prominent architects as critics, and the regular Monday evening will be occupied with subjects in design, chosen with a view of the coming exhibition, in which special attention will be given to rendering. Also for this evening, lectures by successful colorists will be provided, upon the use of color in architecture.

The subject for the department in architectural history will be, The Greeks and their Works, and the character, environments and architecture of the people will be entered into at length.

The Sketch class will be resumed upon Saturday afternoons as soon as the season permits of out-door studies about town and country.

Architectural draughtmen wishing to join the classes should apply to the secretary, G. Applegarth, 336 Sutter street, room 8.

Six Flats, Five Rooms each, on 32 foot Lot; Minna street, between Seventh and Eighth Streets; Owner Eugene Paulme, Esq.; Architect Chas. M. Rousseau.

Two Flats, Six and Seven Rooms,
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Two Flats, Five and Six Rooms,
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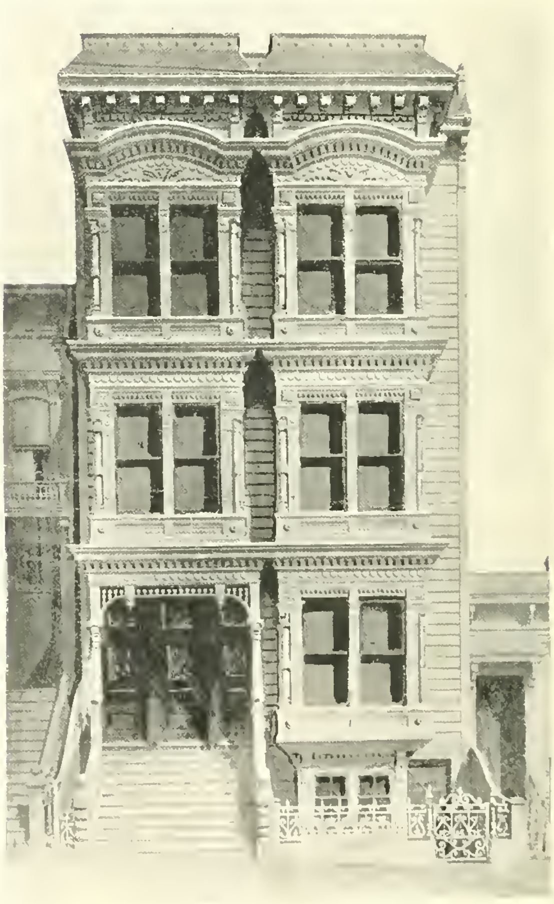

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1442 Fulton Street.

Residence Northeast cor. McAllister and Devisadero.

Residence Joseph Weba, Esq.,
440 Ashbury St.

Residence of F. C. Howard, Esq.,
1313 Howard St.

Chas. M. Rousseau, Architect.

Store and Flats, Southwest cor. 26th and Guerrero Sts.,
D. J. Shine, Esq., Owner.

Two Stores and Four Flats, Six Rooms Each,
Northwest corner 25th and Folsom Sts.,
Edward Genty, Esq., Owner.

Two Flats, Ten Rooms Each,
Northeast corner Pine and Buchanan Sts.,
Capt. W. J. Bryan, Owner.

Two Residences, Eddy Street,
Callaghan Estate Co., Owners.

Chas. M. Rousseau, Architect.

FILTRATION AND THE WATER SUPPLY OF CITIES AND TOWNS.

FILTERATION, as a means of securing the desired purity in the water, is strongly advocated in some cities where the improvement of the supply is being made the subject of investigation, and the subject is just now one of increasing interest and very vital importance.

The value of the filter for domestic use is not to be denied, says the *Scientific American*. They have the advantage, because of their portable character and moderate dimensions, of being readily cleansed or renewed; but if they are neglected, they may become a source of the very danger that is sought to be avoided.

A city filteration plant is a more difficult problem. It is expensive to install, requires an immense area, demands constant inspection and a frequent renewal of materials, all of which will add materially to the annual municipal burdens.

Whether the best known methods of filteration, as applied to large water plants, afford the desired protection, especially as regards the dissemination of disease, appears to be open to some doubt.

From time to time, during the last two decades, the filtera-

Three Flats, Seven and Eight Rooms, 1429 Buchannan Street; Owner M. Aamburger, Esq.; Chas. M. Rousseau.

tion and purification of water have been made the subjects of special investigation by the Franklands and by the British government through the medium of the laboratories of the Army Medical School at Netley, some of the investigations being undertaken on behalf of companies supplying East London with water These and other investigations on a smaller scale have supplied us with sufficient data to permit reliable deductions to be made.

Ordinary filtering plants, as applied to municipal supply,

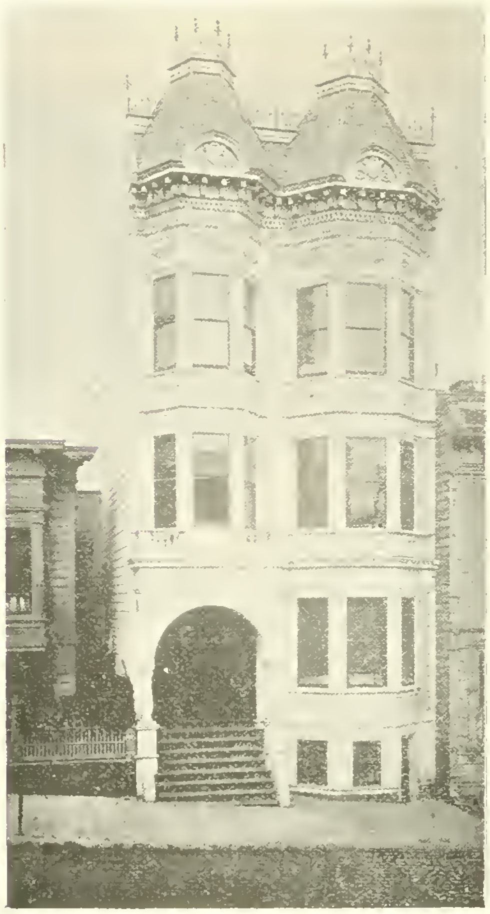
Two Flats, Four and Five Rooms, Devisadero Street, near Washington Owner Frank Kayser, Esq.; Architect Chas. S., Rousseau.

consist of an upper stratum of sand superimposed upon a layer of gravel of gradually increasing coarseness; these strata vary in thickness, from 14 to 28 inches of sand and 24 to 36 inches of gravel.

Common silicious sand that is not too fine—that presenting clean, sharp, angular particles is best—acts to a certain degree mechanically. As the water passes through, the impurities held in suspension, whether organic or inorganic, adhere to the angles and plane sarfaces of the grains. The result is highly satisfactory as far as it goes; but the action upon organic matters is very imperfect. Further, as the sand becomes incrusted with inorganic material, it rapidly loses its effect upon the organic, and thus ceases to act as a filter. On the contrary, if not frequently renewed, it may, after a considerable period, become an actual source of danger, by further impregnating water with material removed by previous filtrations.

Free ferruginous sand is more effective. It will, for a time, arrest all, or nearly all, organisms; but after being in constant use for a fortnight, in contact with water of the average character afforded by running streams, its value is considerably reduced. Safety, then, would demand that such filtering material be replaced with new, at certain stated intervals. Nearly as good, but not quite, is fine, well washed white sand that has been roasted to redness; and its virtues may be rewarded by subsequent treatment at high temperatures.

The material obtained by roasting hematite ore, and which from time to time has obtained unstinted praise, is merely a porous metallic iron with manganese oxide. It occupies a



Three Flats, Six and Seven Rooms, Pine Street near Lyon; Owner A. C. Clark
Architect Chas. M. Rousseau.

space of about twenty cubic feet to the ton. As regards [illegible] is both mechanical and chemical. Like [illegible] inorganic matters, and at the same time [illegible] organic material held suspended in solution ; it even in [illegible] decomposes the water, setting free a portion of [illegible] to reinforce that evolved from the manganese. The experiments of the Franklands, and of Parke, prove that this material can be depended upon to remove the greater part of dissolved organic material, and, indeed, all such, if the exposure to its influence be sufficiently prolonged, and the resultant filtrate is bright, clear, and pure, and may, moreover, be stored for a long time without undergoing change. Its power is much more enduring than that of any other known substance or combination of substances ; the great drawback being that, when once it is loaded with organic matters, it must be immediately renewed. Moreover, as hematite ore is very abundant in many districts of the United States, its cost for this purpose is fairly low.

"Magnetic carbide," so called, is prepared by roasting in a retort equal parts of red hematite and sawdust. Its value is not equal to that of any charcoal, and is decidedly inferior to hematite alone. "Manganous carbon," or "carbide," is another compound, of about equal value. It is claimed to be a mixture of animal charcoal and manganese oxide surrounding a block of "specially prepared carbon." "Carbolite" is of a similar nature, but is reputed to be even more expensive without proportional increase of value. "Polarate" is another substance for which extravagant claims have been advanced. It is a magnetic, spongy carbon, consisting of iron oxide, along with some silica, alumina, and carbonates. It is understood to have given good satisfaction as regards house and small filters, but, like all other agents, requires to be renewed. It can readily be imagined that, like all filteration materials, by neglect it may defeat its end and become a positive source of impurity.

A compound that has obtained no little reputation in France among the non-expert—perhaps because it is a purely Gallic product—is made up of manganous carbon and lime permanganate. It purports to be not only equally effective as regards either mineral or organic substances, but also to completely sterilize any fluid brought in prolonged contact therewith. Manifestly this is a case of claiming too much, since there is no substance available for domestic or corporation purposes that is capable of removing all bacilli. Further, certain bacilli are essential to the purity of water that is to be stored and exposed, as in a corporation reservoir. Even the solid block of specially prepared porcelain, operated in connection with an air pump, as employed in physiological laboratories, is not invariably efficient. The theory advanced, however, becomes plausible, doubtless, when sounded in the ears of the laity ; for it is declared that decomposition is induced by the manganese in the presence of organic matters, whereby they are "turned into oxygen,"

Three Flats, Six and Seven Rooms, Jackson Street, near Mason; Owner George H. Jacobs, Esq.; Architect Chas. M. Rousseau

while the lime "consumes the micro-organisms." Even accepting the foregoing as possible, it at once is made obvious that the value of the material as a filter would be limited. Having once parted with its oxygen and become simple metallic manganese and lime, new sources of oxygen and renewal of chemical composition would speedily be demanded.

Animal charcoal, deprived of its calcium phosphate and carbonate by repeated washings or by treatment with hydrochloric acid, has long been deemed one of the best of filtering materials—and this is as true as regards many fluids. Brought in intimate contact with water, it removes the suspended matters, organic and inorganic alike, the filtrate yielded being very clear and bright. But this substance also has its limitations. At first the organic matters are completely oxidized, but after a very brief period it becomes wholly inoperative.

In connection with the experiments conducted at Netley, personally repeated and verified by Percy Frankland, it was discovered that while animal charcoal, for a considerable time, has a very rapid and powerful effect upon dead, decaying, or wholly decomposed organic matter, it speedily allowed fresh organic matter to pass through but very little, if at all, changed. Also that the filtrate requires to be utilized almost immediately, since it is prone to be speedily charged with new organisms. Again, its value is in a measure determined in proportion to the pre-existing purity of the water filtered, and to be at all efficient it requires to be placed as often as every three months, and with very bad water, as frequently perhaps as every fortnight.

Vegetable charcoal, as had from the combustion of wood, peat, and seaweeds, is less efficient than the animal product; but reduced coke is in general more efficient than either, retains its essential filtration qualities longer, and for a time may be renewed by heating and the addition of a modicum of new material. It ranks second to hematite.

Three Flats, Seven and Eight Rooms, 2028 Sutter Street; Owner John Bernan; Architect Chas. M. Rousseau.

NOTICE OF MEETINGS.

San Francisco Chapter, American Institute of Architects, meets second Friday of each month at 408 California street, at 4 p. m.

Seth Babson, Pres. H. A. Schultz, Vice-Pres.
Oliver Everett, Sec. John M. Curtis, Treas.

Southern California Chapter American Institute of Architects, meets first Wednesday of each month at 114 Spring street, Los Angeles, Cal.

Theo. A. Eisen, Pres. Arthur B. Benton, Vice-Pres.
William C. Aiken, Sec't. August Wackerbarth, Treas.

Washington Chapter American Institute of Architects, regular meetings at 8 o'clock P. M., the first Friday of each month, except July and August.

Jos. C. Hornblower, Pres. Jas. G. Hill, Vice-Pres.
E. W. Dunn, Jr., Sec. W. J. Marsh, Treas.

Association of Architects of Arizona, meetings held at Phoenix, Arizona.

D. W. Millard, Pres. T. H. Maddox, Vice-Pres.
W. R. Norton, Sec. and Treas.

Technical Society of the Pacific Coast, meets first Friday of each month at Academy of Sciences Building.

E. J. Molera, Pres. W. F. C. Hasson, Vice-Pres.
Otto Von Geldern, Sec. Edward T. Schild, Treas.

Master Plumbers' Association, meets every first and third Friday of each month at the Flood Building.

Jas. E. Britt, Pres. J. L. E. Firman, Sec.

Builders' Exchange, Directors meet first Friday in each month at Mission and New Montgomery.

S. H. Kent, Pres. Jas. A. Wilson, Sec.

Masons' and Builders' Association, meet first Friday evening of each month.

Adam Beck, Pres. M. V. Brady, Sec.

COLOR DECORATION.

THE following extract is from a lecture delivered by Mr. F. Scott Mitchell before the Master House Painters, Association of Hartlepool, Eng.:

"Any color may be made to serve two or more purposes by its use in different positions: (1) With respect to shape of surface covered—concave surfaces add a gray shade and subdue the tone of the color; convex surfaces reflect a maximum of light with the color, which thereby appears lighter and brighter; and flat surfaces give a medium effect. Another color should always intervene to give full value to this arrangement. (2) With respect to contrast with other colors in juxtaposition—a medium tone of color will appear dark by contrast with lighter tints, and lighter when opposed to rich, darker colors. It will appear assertive or subdued as it is contrasted with colors more or less subdued than itself.

Country houses admit of cooler coloring and plainer surfaces, because of the ever-present beauty of nature's landscape with flowers and foliage, that contrasts to the disadvantage of man's best handiwork, and if ornamental decoration be applied it should be of strictly conventional design on this account. Likewise, all coloring should be in neutral tints and shades, its value thus becoming enhanced by contrast with the incomparably brilliant products of nature all around.

Shop fronts in large and manufacturing towns should be always painted in light and cheerful tints, in face of the prevailing custom to the contrary. Wherever this course has individually been adopted, it has been proven that pale colors, if well varnished, last as long as their darker contemporaries, which are often a dirt color to begin with, while the lighter coloring actually mellows with age, and looks cleaner through the dirty accumulation of long neglect than the darker color did at the start. It is generally admitted that not only do the displayed goods look their best in contrast with pale tints on shop fronts, but the appearance of a whole street is improved, and thereby the whole town appears to greater advantage where this is already the prevailing custom.

Entrance halls should appear of medium warmth and be cheerfully inviting in general coloring, as special contrast to the locality outside.

Drawing rooms should present a smart contrast to the entran[illegible], th[illegible]gh still cheerful in treatment, as it is essenti[illegible] entertainment of friends. Coloring may [illegible]s will emphasize the complexion [illegible] he drawing room is where they alw[illegible]

Dining [illegible]ch in coloring and not too dull. They sh[illegible]estive of richness and bountiful provision of the prim[illegible]essities of life, and sufficiently cheerful to have a stimulating effect on any who may approach the dining table with appetites impaired by worry or anxiety.

Bed rooms should give the impression of repose and cleanliness above all else, though not depressingly dull, since when sickness necessitates the occupancy of the room for any length of time, its decorations have much to do with the comfort and even the health of an invalid."—*The Canadian Architect and Builder.*

DURY LANE THEATRE.

ELECTRICAL STAGE APPLIANCES.

THE proposed application of electrical power for mounting plays at Drury Lane on the lines advocated by Mr. Edwin O. Sacks has now taken a tangible form in the completion of the first section of the stage installation in time for the impending pantomime.

Mr. Sacks' present work refers principally to the stage floor and its movability in sections above and below the footlights. The total area now already movable by mechanical power exceeds 1200 square feet.

The electrical appliances just completed take the form of so-called "bridges" each working independently. Each individual section measures 40 feet by 7 feet, and weighs about 6 tons, of which about 4 tons are counterbalanced. They can travel about 20 feet vertically.

The motive power is from the ordinary electric supply mains over a four-pole motor, developing 7½ H. P. at 520 revolutions per minute. The "bridges" are suspended from cables, and these, working over the motor allow the former to be raised with the necessary live load at rates varying from 6 feet to 20 feet per minute.

Mr. Sachs has arranged for every possible safeguard against accident, the "bridges" themselves being so constructed that in the event of derangement of current the appliances can be worked by hand gear. Automatic switches are provided so as not to be entirely dependent on the attendants, and automatic catches will work in case of rope-breaking. Special locking gear has been installed to hold the "bridges" stationary at certain points, such as stage level, and a very large factor of safety has been allowed in apportioning the strengths and weights in the various parts of the mechanism, having special regard to the ever-increasing scenic requirements under Mr. Arthur Collins' able management.

As regards the economic aspect of the electrical installation the initial outlay on Mr. Sachs' system is about half that of Continental hydraulic work, and this is allowing for English contractors as against foreigners. The maintenance is minimal, whilst the actual working only costs a few pence per performance. The saving in manual labor on the stage is very considerable, whilst the hygiene of the theatre is materially raised by the absence of woodwork. This is the first application of electrical power to the English stage.

For the successful execution of this work, Mr. Sachs is primarily indebted to the enthusiastic encouragement of Mr. Arthur Collins, who is the first manager to have introduced modern methods on the stage, and deserves the congratulations of the technical professions. He has been ably seconded by the Thames Ironworks, who acted as contractors, their engineers Messrs. Stewart & Grove having to meet innumerable difficulties, as most of the work was carried on at odd moments or at night during the run of "The Great Ruby."

MANAGEMENT OF QUICKSANDS IN FOUNDATIONS.

TWENTY-FIVE years ago, anticipating that I would probably have to contend with quicksand in my work, says J. B. Gibson, in *Clay Record*, I read up on the subject everything I could find, but with very little satisfaction. In fact the theories set forth by the majority of writers on the subject were virtually of no use when I met with the actual facts in the course of my experience. I investigated the matter very thoroughly, however, finding a very essential point in the fact that in all quicksands a great variety exists in the sizes of the atoms, this variation requiring various plans to be tried to successfully contend with the difficulties that must be overcome.

I did not have long to wait before meeting with a quicksand bottom. I was then engaged on the foundations of the bridgework of a railroad in Hoboken. In foundation eas of Henderson street, we had to go two feet into a bed of quicksand to get our depth. In this case it happened that I had a large bank of oyster shells in the way, which I utilized. I cribbed my sump large enough to give me plenty of room, mixed the oyster shells with gravel, and put a bed of the mixture all around the sump, shoveling the sand out of the middle and allowing the mixture to sink until I got below the required depth, the mixture closing in and making a solid bottom for sump. After this I uncovered about ten feet square section of the sand, throwing out the sand as quickly as possible with as many men as could conveniently handle a shovel. The moment the required depth was reached we covered the bottom with a foot of the gravel and shells. When this was done and walked over, it would all be in a movement, but after standing a few hours it would become perfectly solid. The cause of its becoming solid is that the larger atoms of the sand passing up through the mixture adhere to the shells, gradually closing up all the crevices. Leading drains across the foundation we successfully completed the work. After this I used crushed stone with better results than with the gravel.

Some years later, when superintending the construction of a large tank—200 feet in diameter—for gas holder in Brooklyn, at thirty feet in depth—just the depth we had to go—we uncovered a quicksand bed. The contractor was very much excited, having previously lost several thousands of dollars in a similar case. I proceeded this time with crushed stone in getting my sump down, sinking a wall of broken stone all around the well hole, got our pipes into their proper depth and made this our sump, leading box drains from this point all over the bottom, uncovering sections of ten feet square and replacing with crushed stone a foot thick, completing the whole bottom on this system with entire success.

CIVIL SERVICE EXAMINATION.

SHIP DRAFTSMEN AND ASSISTANT SHIP DRAFTSMEN.

THE United States Civil Service Commission announces that the following change will be made in the examination for Ship Draftsmen and Assistant Ship Draftsmen, beginning February 7, 1899 (see Announcement No. 41, November 13, 1898):

The examination will consist of the subjects mentioned below, which will be weighted as follows:

EXAMINATION FOR SHIP DRAFTSMEN

SUBJECTS	WEIGHTS
1—Applied mathematics	15
2—Ship calculations	15
3—Ship drafting	30
4—Practical ship building	15
5—Technical education and experience	25
Total	100

Time allowed: Four (4) days, divided as follows: First day, subject 1, five hours; second day, subject 2, six hours; third day, subject 3, seven hours; fourth day, subject 4, six hours.

ASSISTANT SHIP DRAFTSMEN EXAMINATION

1—Pure and applied mathematics	20
2—Practical ship building	20
3—Ship calculations	20
4—Ship drafting	20
5—Technical education and experience	20
Total	100

Time allowed: Three (3) days, divided as follows: First day, subjects 1 and 2, seven hours; second day, subject 3, seven hours; third day, subject 4, seven hours.

As a result of this examination appointments will also be made to the following named positions:

Ship draftman, Crescent Ship Yard, Elizabeh, N. J. - - - $5.00 per diem

Ship draftsman, Office Naval Constructor, Philadelphia, Pa. - - $5.00 per diem.

Asst. Ship draftsman, Under U. S. Superintending Naval Construction, William Cramp & Sons - - - $4.00 per diem

Asst. Ship Draftsman, Navy Yard, Washington, D. C. - - $4.00 per diem

GENERAL LAND OFFICE (DEPARTMENT OF THE INTERIOR).

The United States Civil Service Commission announces that examination will be held on February 15, 1899, commencing at 9:00 P. M., at any city in the United States where the Commission has a board of examiners, for the position of Examiner of Surveys, General Land Office (Department of the Interior), at a salary of $5.00 per diem.

The examination will consist of the subjects mentioned below, which is desired to fill.

The examination will consist of the subjects mentioned below which will be weighed as follows:

Letter writing	5
Arithmetic	10
Theory and practice of land surveying	15
Public land surveying	30
Observations for meridian	10
Use and care of solar compass and transit with solar attachment	15
Experience in public land surveying	15
Total	100

Two days will be allowed for this examination.

Applicants must be between 21 and 55 years of age and physically sound. The medical certificate in Form 304 must be executed.

This examination is open to all citizens of the United States who comply with the requirements, without regard to race or to political or religious affiliation. All such citizens are invited to apply. They will be examined, graded, and certified with entire inpartiality and wholly without regard to any consideration save their ability as shown by the grade they attain in the examination.

Persons desiring to enter this examination should at once apply to the secretary of the board of examiners at the post-office, for application blanks (Forms 304 and 375), which should be properly executed and promptly forwarded to the Commission at Washington, D. C.

WAGES AND PRICES.

IN the rise and fall of wages and in the variations of the purchasing power of a dollar, we have a phase of the monetary and industrial problems. In a recent investigation made by the State Bureau of Massachusetts, some valuable information has been secured regarding the ups and downs of wages and prices in that State. The following table gives the weekly wage rate in such industries where the comparisons extend to 1872:

Average weekly wages	1872	1881	1897
Blacksmiths	$16.44	$16.38	$16.00
Boots and shoes	12.71	11.06	11.90
Building trades	15.66	11.00	15.83
Cabinet making	14.21	11.51	13.20
Carpetings	4.89	5.94	8.26
Carriages	17.31	13.43	13.51
Clothing	9.71	10.90	9.01
Machinery	13.84	16.48	10.80
Metals and metallic goods	6.06	13.52	9.51
Paper	7.37	9.47	9.31

In commenting upon this report the Springfield (Mass.) Republican editorially says:

"In six of the nine industries specified average wages are lower to-day than in 1872. Agricultural wages per month with board was $23 in 1872, and $18 50 in 1897. Cotton mill wages are given as $759 weekly average in 1881, and $7.71 in 1897, the latter returns having been obtained prior to the general ten per cent reduction of last winter. Compared with 1881 wages are more generally higher, and this is true not only of the industries mentioned above, but of others, such as the wooden manufacturers, straw goods, stone cutting, rubber goods, printing and glass making. In hosiery and leather wages are lower than 1881. Wages as a rule were lower in 1860 than in 1872. These figures of course are more or less effected or modified by local or special circumstances, and are not conclusive as to conditions elsewhere. They are, however, in a general way indicative of the trend of wages in nearly all industries. The tendency in the majority of trades has been downwards since 1872, with the added fact that more is being done for the same money now than then. Work [illegible] under high pressure, and [illegible] rapid and larger. This [illegible] the [illegible] question lies in the increase [illegible] the purchasing power of the wage paid to labor.

In a tabulation of twenty-two articles of food, clothing and that of rentage or housing, it is shown that the dollar of 1897 will buy more in ten cases and less in twelve than in 1860, but as compared with the prices of 1872, one dollar in 1897 will buy less in only one case. In some manufactured articles, such as boots, flannels, shirting, cloth, etc., the purchasing power of the dollar has largely increased, in some cases to twice its value since 1872. The conclusion reached by a fair comparison of wages and prices, is, that as a whole, the toilers of the country are moving onwards to a higher style of living, have more comforts at less cost than those of a few decades ago, are better clad and housed, and in comparison with the industrial classes of some European countries the American mechanic and laborer if not in clover is certainly now in straw. This is not saying that in some lines of industry wages are miserably inadequate, or the pressure of toil abnormally severe, or that wages and prices are not manipulated by unscrupulous parties for personal or corporate aggrandizement, or the problem of the unemployed is less grave or menacing than heretofore. For all of this, however, the bulk of the people are moving in line to better conditions.—*Age of Steel.*

THE ARCHITECT AND HEATING SPECIFICATIONS.

THE province of architects where specifications call for heating apparatus is illustrated by a contract which was entered into between an owner and a contractor, whereby the latter agreed to build for the former a hotel, and the articles of agreement referred to certain drawings and specifications as a part of the contract. This also contained a clause as follows: "Should any difference of opinion arise respecting the true construction or meaning of the drawings or specifications, the same shall be decided by the architect, and his decision shall be final and conclusive."

One of the specifications was as follows: "Furnace. The same to be furnished and set up at the designated place; a No. 14 Mott furnace, with the usual fixtures, furnished with cold air ducts, etc.; for general heating of all the halls, cafe, offices, parlor and other parts, as per the plans prepared for heating. The furnace to be set up in the best possible manner, and so arranged as to give the best possible results, and on the floors the requisite warm air registers as marked, the registers to be not less than 12 by 14, and to have an independent line for each register."

Out of all this grew a controversy as to whether it was the duty of the contractor to put in such apparatus. The contractor claimed a fulfillment of the contract without having put in the heating apparatus, and fell back upon a decision of the architect that he was not bound by the contract to put in any sort of heating apparatus. The trial court said about it that if the architect, under the authority given him by the contrrct, decided that it did not include an obligation on the part of the contractor to put in the heating apparatus, there would be no obligation on the part of the latter to put it in.

But the Supreme Court of Georgia, in reversing the judgment rendered in favor of the contractor, for error in the trial, holds (Mallard against Moody, 31 Southeastern Reporter 45) that the clause in the contract relative to the power of the architect did not authorize him to decide that the contractor was not bound by the contract to put in the heating apparatus; and that the architect's certificate thereafter, that the work had been completed according to contract, did not bind the parties as to this matter, the contractor not having put in the heating apparatus.

Under this clause, the Supreme Court maintains, the architect had power simply to pass upon the meaning and construction of the drawings and specifications. He had the power to decide whether the work done was of the character or quality mentioned in the specifications. The specifications called for one Mott furnace, with usual feaxtures, etc. The architect had power to decide, had the contractor put in the furnace, whether it was the furnice required, and whether the usual fixtures, cold air ducts, etc., were furnished according to the specifications, whether the apparatus heated the halls, cafe, offices, etc., and whether it was in accordance with "other parts as per the plans prepared for heating." He had also power to decide as to the materials used, and as to whether the furnice and fixtures were put ud in a workmanlike manner.

In short, the court holds that the architect could construe the contract and decide what it meant, or determine the nature and character of the work or materials required, but he could not eliminate or abrogate any of its terms, as would be done if the specification as to the heating apparatus was agreed upon by the parties and become a part of the contract and we were permitted to decide that the contractor was not bound to put in the heating apparatus.—*The Improvement Bulletin.*

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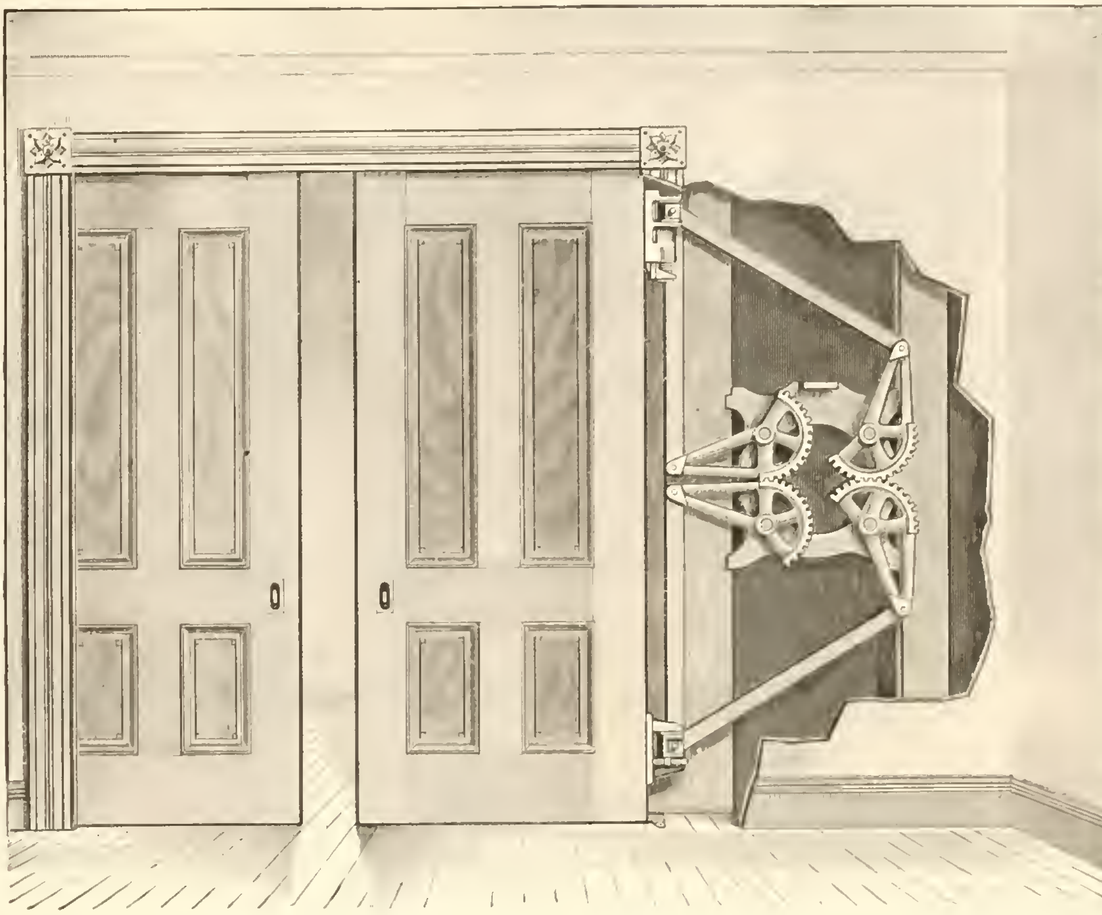

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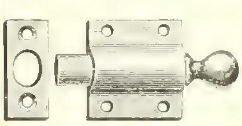

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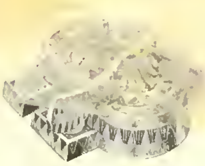

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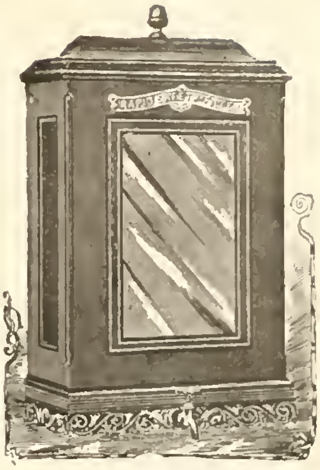

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BUILDING NEWS.

Battery street, Nos. 17 and 18. Additional story to a brick building; o, Emily J. Wilson· a, Percy & Hamilton; c, Peacock & Butcher; signed and filed, Feb. 8; cost $4530.

Berry bet. 6th and 7th. Razeeing of a story from a brick building, and additions and alteratiens; o, King & Lathrop; cost $1500.

Brannan bet. 7th and 8th. Additions to a stable; o, McNab & Smith; c, H. T. Greib; signed and filed, Feb. 7; cost $2550.

Bush and Mason. Carpentry, brick work, etc; o, McCann, Belcher and Allen; a, Albert Farr; c, J. Wilkie, Jr; signed, Feb. 13; filed, Feb. 11; cost $2527.50.

Bryant near 16th. To build; o, John and William Hazlett; c, Charles M. Lindsay; cost $7500.

Carl near Cole. Four two-story frames; o, J. Siierlein; cost $16,000.

Devisadero near Page. Alterations and additions o, Thomas Drady; c, Henry P. Conrady; signed and filed, Jan. 26; cost $2500.

Eighteenth and Dolores. Excavations, brick work cement work, etc; o, Board of Education; a, Chas. I. Havens; c, Union Paving nd Contracting Co; signed, Feb. 14; filed, Feb. 16; cost $12,385.

Ellis near Gough. Excavations; o, Herman Rogers a, C. A. Meussdorffer; c, Warren & Malley; signed, Feb. 3; filed, Feb. 4; cost $375.

Ellis and Gough. Excavations; o, Louis Friedman; a, C. A. Meusdorffer; c, Warren & Malley; signed, Feb. 3; filed, Feb. 4; cost $235.

Folsom street No. 225. To build; o, Dundon Bridge Co; cost $1500.

Folsom near 19th. Excavations, brick work, etc; o, G. Monnier; a, Jules Godart; signed, Feb. 14; filed, filed, Feb. 18; cost $1700. Carpentry, plastering, etc; c, L· B. Perramont; cost $6700.

Frederick near Shrader. To build; owner and builder, Hans Petersen; cost $6500.

Grant Ave. and Post. Additions and alterations· o, for Butterick's Pattern Store; c, C. S. Murray; non work; Dyer Bros; cost $2000.

Howard near Third. To build except rough lumber, doors, etc; o, Edward McLaughlin; a, Charles Geddes; c, Samuel E. Thomson; signed, Feb. 3; filed, Feb. 18; cost $1691. Plastering, etc; c, Chas. Dunlop; cost $1240.

K neao 9th Ave. Cottage; o, B. L. and Karen N. Hofl; c, J. B. Ogborn; signed, Feb. 13; filed, Feb. 14; cost $1100.

Kearny street No. 116. Additions and alterations; o, A. Calleau; c, R. Greig; cost $1500.

Market and Ellis. Wrough, cast iron work, etc; o, M. A. Gunst & Co; a, E. A· Herman; c, Jas. A. Wilson; signed, Feb. 2; filed, Feb. 4; cost $1573.

Market and O'Farrell. Office fittings, etc; o, James D. Phelan; a, Curlett & McCaw; c, Home M'f'g. Co; signed, Feb. 11; filed, Feb. 13; cost $1848.

Market street 914 and Ellis street 11. Saloon fixtures o, Milo Waldron and H. L. Nason; a, A. J. Barnett; c, William Patterson; signed, Feb. 7; filed, Feb. 9; cost $5490.

Market near Larkin. One-story brick; o, Steiger Pottery Works; c, V. Hoffmann; cost $1000.

Maple near Clay. Cottage; o, Samuel P. Johnson; c, Joseph B. Ogborn; signed and filed, Jan. 26; cost $1450.

Mason and O'Farrell Alley. Passenger elevator; o, Thomos Ashworth; a, Newsom & Meyer; c, W. L. Holman; signed and filed, Feb. 7; cost $1560.

Masonic Ave. near Frederick street. Owner and contractor, Caspar Zwierlein; cost $8000.

Mission and 14th. Carpertry, mill work, etc; o, Southern Pacific Co· a, Henry A. Schulze; c, Ingerson & Gore; signed, Feb. 3; filed, Feb. 7; cost $7300.

Mission near 4th. Electric work for St. Patrick's church; o, P. W. Riordan; a, Shea & Shea; c, Wybro-Hendy Co; signed, Jan. 11; filed, Jan. 30; cost $1150.

Mission near 9th. All work except sewering, gas-fitting, etc; o, R. Ward; a, T. J. Welsh· c, S. A. Born; signed, Jan. 26; filed, Jan. 28; cost $7090. Sewering, plumbing, etc; c, James E. Britt; sig ed, Jan. 26; filed, Jan. 28; cost $1625.

Ninth Ave near C street. Cottage, owner and contractor, G. H. C. Cunningham; cost $2500.

Nineteenth and Angelica. Laundry machine plant o, Youth's Directory· a, C. J. I. Devlin; c, Troy Laundry Machine Co; signed, Jan. 27; filed, Jan. 28; cost $1765.

Pacific and Jones. All work except draining, plumbing, etc; o, H. W. Holle; a, Martens & Coffey; c, S. Saywell; signed, Feb. 1; filed, Feb. 3; cost $5000

Post and Gardner. Tearing down and removal of old buildings, etc; erection of seven-story brick; o, Crocker Estate; a, Tharp & Holmes; c, Mahoney Br s. sub-c, John Tuttle; signed, Feb. 10; filed, Feb. 13· cost $1250.

Sacramento near Cherry. Two-story frame; o Henry Hickman; c, W. R. Kenny; signed, Feb. 13; filed, Feb. 14; cost $2191.50.

Seventh and Berry. To build; o, Cutting Fruit Packing Co; a, Percy & Hamilton; c, F. H. Masow; signed and filed, Jan 28; cost $20,900.

Sixth Ave near California. To build; o, Agnes T. Thorne; c, Marcuse & Remmel; signed and filed, Jan. 26, cost $2290.

Sixteenth and Church. Two-story brick; o, California Fig Syrup Co; a, F. S. Van Trees· c, Mahoney Bros. cost $10,000

Steiner near Bush. To build; o, A. Comte, Jr; a, G. A. Berger; c, Spaulding & Blanchard; signed, Feb. 15; filed, Feb. 16· cost $5110.

Stewart near Mission. Alterations and additions to a three-story brick; o, John F. Boyd; a, McDougall Bros; c, J. H. McKay; signed and filed, Feb. 17· cost $6115. Plumbing, gas fitting, etc; c, H. Williamson Co; cost $969.

Sutter near Polk. Alterations; o, James F. McCone a, Albert Sutton· c, J. G. Cook; signed, Feb. 10; filed, Feb. 11; cost $3294.

Taylor near Sacramento. Two-story frame; o, J. L. Flood; a, Albert Pissis; c, William Paterson signed, Feb. 2; filed, Feb. 4; cost $4025.

Twenty-Sixth and York. To build; o, A. I. Leary; c, W. O. Peterson; signed and filed, Feb. 11; cost $4082.

Twenty-seventh and Guerrero. To build; o, P. Broderick; c, John Gillogley; signed and filed, Feb. 6; cost $2850.

Twelfth Ave. near I St. Cottage; o, Alfred and Augusta Bear; c, W. E. Grant; signed, Jan. 30; filed, Feb. 1; cost $1580.

Utah near Mariposa. Cottage; owner and contractor, W. W. Rednall; cost $3000.

Wood street near Pt. Lobos Ave. Two-story frame o, Mr. and Mrs Thornton; c, John Flaherty; signed, Jan. 20· filed, Jan. 30; cost $1650.

ALAMEDA

Cedar street near Clinton Ave. Two-story frame; o, Henrietta T. Speddy; c, Charles Bolin; signed, Feb. 4; filed, Feb 7; cost $3965.

Eagle Ave. near Mulberry. Two-story frame; o, Harry M. Kibbey; c, Fred Bammann; signed, Feb. 4; filed, Feb. 7; cost $1775.

Chestnut near Encinal Ave. To build; o, Isabel Barck; c, F. Bammann; signed, Jan. 25; filed, Jan. 26; cost $2250.

BERKELEY

Central Park Tract, Lot 19, block 11. To build; o, Laura C. Price; a, T. D. Newsom; c, Geo. H. Holloway signed, Jan. 25; filed, Jan. 26; cost $1150.

EAST OAKLAND.

Sixteenth near 27th. Cottage; o, Fannie M. Riley; a, J. H. W. Riley; c, A. N. Frost; signed and filed, Feb. 2; cost $1000.

OAKLAND

Everett near Willow. To build; o, H. B. Belden & F. P. Cook; c, Anderson & Stockholm; signed, Jan. 19; filed, Jan. 23; cost $1250.

Eight near Jackson. To build; o, R. M. Turner; a W. J. Mathews; c, J. H. and J. F. Dingwell; signed, Feb. 4; filed, Feb. 6; cost $2218.

Eighth and Chestnut. All work except painting and electric work; o, Theodore Westphal; a, D. F. Oliver; c, H. E. Wharton; signed, Jan. 27; filed, Jan. 28; cost $4547.

CONTINUED ON PAGE XII

The Yale & Towne Mfg. Co.

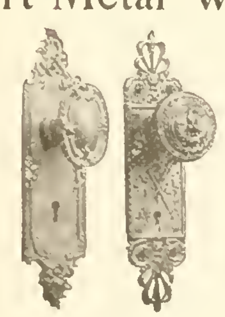
LOCAL OFFICE:

Mills Building, San Francisco.

The "Yale" Locks with new Paracentric Key, afford the highest standard of security. They are made in hundreds of styles and sizes, adapted to almost every possible use.

The Builders' Hardware, made by this Company, and used in connection with the "Yale," "Vulcan" and "Branford" lines of locks, forms collectively the largest assortment in the trade and covers respectively, as used with these locks, fine, medium and cheap goods.

The Art Metal Work (or Hardware of Ornament) as illustrated and listed in the No. 16 Catalogue, includes the largest collection of Ornamentations and patterns of this class in the world; not only those usually required but also a vast variety of special pieces. In all Yale Art Metal Work an intelligent interpretation of design may always be found.



As to Prices. While the goods made by this Company are always "the best for the money," the range of products and grades is such as to meet conditions where cost is a FIRST requisite, as well as where the greatest perfection of design and finish is alone considered.

GENERAL OFFICES:

Nos. 9, 11 and 13 Murray Street, New York City.

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GENERAL INDEX OF ADVERTISEMENTS.

CLASSIFIED INDEX.

VOLUME XX. FEBRUARY 20th, 1899. NUMBER 2.

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

LIKE individuals, cities have their characteristics, and like individuals they are frequently unconscious of them. If they ever think about it at all, like Topsy they "Spect they growed so," and look no further. There is no more resemblance between New York, Boston and Philadelphia than between Daniel Webster, Henry Clay and John C. Calhoun. The same difference is apparent between Chicago, St. Louis and New Orleans. Pittsburg does not resemble Cleveland, nor Buffalo look like Cincinnati. The capitals of the several states are as unlike as the faces of their governors.

That this variety exists is pleasing and proper. That it comes almost altogether by chance is not so fortunate. Take San Francisco, analyze the history of its growth, and how perplexing it appears. Yet its story is simple. It was born and christened a half Mexican town, adopted while an infant into a family loosely connected and speaking a variety of languages, but chiefly American. It grew rapidly in an energetic but careless fashion. It suffered by fluctuations of fortune, but still accomplishing great things in its Pioneer generation. And then, what? As a Native Son is it holding its own? If not, what is the matter with it? Is it going the way of other young things that have been too little looked after in adolescence, and forming a character which later generations will not care to inherit?

A good many hard things are said of San Francisco of recent days. But while it is true that it might have a better municipal government, it might show a more cultivated taste in art matters, and a better judgment in business affairs, it is not by any means going to the bad, as some people would have us believe. The trouble with this city is that it is too far from neighbors. It takes too much time and costs too much money to keep up social and commercial relations.

It may sound paradoxical to declare that there was a healthier progress in the days of the immigrant wagon than since the advent of the railroad train. In the former time the real founders came to stay, bringing their fortunes, their families and their willing hands to apply to the building up of a common-wealth. They drew after themselves the money and the talent of other classes which also became builders. These people came by steamer, and there was competition in rates enabling passengers and freight to be carried cheaply. The railroad bought off the steamer lines. Everybody knows how it has been since. Beautiful San Francisco Bay instead of bristling with shipping masts, lies smiling in the sun with as quiet an air as an inland lake, undreaming of the splendid future which nature seems to offer it, and the city lies lazily along its many hills placidly waiting for something to turn up.

But may not a city, like an individual lose its opportunity? Already, in the Atlantic States at least, men say of any enterprise proposed for us, or by us, "O, that is merely local," they repudiate us because we have so long been indifferent to our possibilities, and so satisfied with ourselves. The time has come when this city set on the hills should not be satisfied to be a show town, or a resort for excursionists; when it must reach out for whatever there is on the globe of business, of beauty or of culture. Such is its birthright; after such a destiny shall it not strive?

THEN AND NOW IN ARCHITECTURE.

OF all the arts architecture is supreme—after it has become an art. Unlike the other arts it has its origin in necessity. It is an instinct, as witness the homes provided for themselves by insects, birds, and many of the smaller quadrupeds, as well as some of the monkey tribes. Man himself in his wild state shows invention scarcely superior to the simian ancestor. In desert countries he lived in caves. In forests he utilized the materials at hand, and constructed the hut. On the great grassy plains of the American continent he sheltered himself in a tepee made of dried skins of animals slain for food. Along streams and near the coast his wickiup was constructed of willows or of water plants bound together. In tropical countries, where endogenous plants have a rapid growth he contented himself with a thatched bamboo dwelling, as in China and Japan is still the habit of the lower orders.

Thus is revealed the dependence of architecture upon the availability of material. But primitive men, and their immediate successors the pastoral races, were wanderers, a temporary residence being all that was required. In their struggles for supremacy they were often dispossessed of these. Such as grew powerful by conquering and enslaving weaker tribes were held more permanently together, and in the more eligible parts of any country, agriculture and settlement in towns become possible. Land came into private possession, and permanent dwellings became a necessity.

Men in the early ages were very reverent. They were unable to understand the working of those natural laws of which they were the observant witnesses. This fostered superstition. To account for the wonders by which they were confronted, they imagined supernatural beings or deities whom they willingly worshiped in the hope of gaining their favor and thereby becoming more powerful. Hebrew and Greek literature is full of exhibitions of this sentiment. Both were borrowers from the Egyptians, and more remotely from Asiatic sources.

From the first intelligent efforts of the human brain to express religious feeling in a form befitting the importance of the subject, came the earlies impulse to architecture—the erection of temples. The size, the strength, the beauty of these structures was a measure of the greatness of their Gods, and correspondingly of themselves.

For obvious reasons size and strength were attainably long before beauty. The caves in which the shepherd races had dwelth furnished suggestions, and also sites for places of worship. The enslaved tribes furnished the labor; and as to time, was not eternity before them? In cutting away the rock of their caverns they left here and their a square shaft to supply the roof, from whence came the idea of pillars in later detached structures. These rock temples and dwellings were at first extremely simple being no more than quadrangular rooms of no very great size.

The style of architecture which grew out of the conditions in ancient Egypt were first, houses of mud, bricks being suggested by the drying of masses of mud left from their construction. The mud or adobe house had a flat roof formed by beams of palm laid over with palm branches, covered again with mud. In a rainless country this roof was secure against the elements, and being strong, contributed to the house a secluded promenade for the starry evenings of the Nile country.

Gradually architecture felt the force of the natural attribute of imitation. The architrave, introduced when the portico became a part of the building came from the stone beam extending from pillar to pillar in the earlier temples; the cornice was as imitation of the projecting palm branches used in roofs; and the torus was modeled after the projection formed by the binding together of reeds in the end walls of adobe buildings. Imitation finally advanced to the copying of more elaborate forms. Pillars became polygonal or fluted like bundles of reeds, but they remained thick and comparatively short, one face being left smooth for inscribing the history of the building, with the pedigree of its founder. As wealth and taste developed height and size increased, and with them the consequent suggestion of ornament

Even at this stage of progress the Egyptians continued to imitate natural objects like the palm tree, the reed, the lotus and the papyrus; but sculpture being undeveloped, color was resorted to for the decoration of flat walls and the mouldings of pillars. The figures used in painting included sometimes the head of one or more of their deities, as later they did in sculpture, and all of these objects continued to be copied after the art of expressing beauty in stone had reached to elegance.

The early Egyptians, when the rounded column had been adopted, constructed them of several pieces, in the form of half drums, the seams being crossed at right angles. These pieces were not secured, or adjusted to each other, as was done by the Greeks, who followed the Egyptian models in their early architecture. The only examples of whole columns were where small granite shafts were used, and were confined chiefly to the temples of the Delta.

Dividing Egyptian columns into orders, we find there are eight of these: 1st, the square: 2d, the polygonal and fluted; 3d, the water plant; 4th, the improved water-plant; 5th, the palm tree which was not common until the eighteenth dynasty; 6th, in the same dynasty and later, the top ornamented with the face of a goddess; 7th, in the age of the Ptolemies, a composite with a variety of forms in the capital; 8th, a square pillar with a figure attached, the idea carried out in Greece in caryatides. This is called the Osiride pillar, and was never permitted to support any portion of a building, the figure being that of a king in the form of Osiris, and therefore sacred. But the figures and heads of vanquished chieftains were made to appear as consoles over windowsills in the Thebes of Rameses III. and to decorate the thrones of the Pharoahs.

A peculiar avoidance of uniformity in the arrangement of columns and other details was a feature of Egyptian architecture. The origin of this peculiarity is unknown, but it seems certain that however it was suggested it was continued and formed a style. Its merit was that it gave variety and avoided fatiguing the eye by repetition and regularity, that its object was the effect, is shown by the fact that it is not perceived until the eye is brought on a level with the lower part of the capitals. They sometimes also had a different capital for every column in a portico. In the great hall at Karnak the capitals are at different heights, some extending lower down on the shaft than others. One result of this arrangement must be a break in the vanishing line of perspective.

Although the Egyptian roof was flat, the brick arch was known in Egypt as early as 1600 B. C. and was in use in roofing tombs. The arch was also employed in the roofing of chambers in pyramids. The earliest brick arches had the bricks placed longitudinally, forming the pointed arch. The first deviation from the mode of roofing large structures with flat stones was formed by inclining two sets of stones towards each other at an angle of one hundred degrees, as over the entrance to the Great Pyramid. The next step was covering the space with stone slabs overlapping until they met nearly enough to allow of covering the remaining space with a single stone, from which may have come the idea of the arch. This feature which in later times became so important a feature of European architecture, was abstained from by the Egyptians in their monuments as unsuited to a style already formed. The stone arch, while in use by them after the Romans had adopted it and added the keystone, continued to be built without this important modification. What Egyptian architecture lost by rejecting the arch is illustrated by a comparison of the Great Hall of Karnak with St. Peters at Rome, the one having a roof supported by a forest of columns, the other with a dome that lifts itself into immensity like a firmanent. Both are wonderful creations, the first by its suggestions of extraordinary physical power, the other by its elevating effect upon the human mind.

The horizontal line continued to predominate in Egyptian architecture, although in their obelisks, and in the long slender columns which extended from the ground to the roofs of their house-fronts they gave place to the vertical. The pointed styles which were brought to such perfection at a later period, by other nations were not in accord with Egyptian ideas of beauty—possibly were in violation of some religious sentiment. To build those monuments which should rival Nature hereself in strength and majesty, and eternity in point of time, was apparently their ambition.

The first monuments of Egypt were limestone; afterwards sandstone was adopted, and later granite. The granite quarries of Cyrene were one hundred and thirty miles from Thebes, and five times as far from Memphis, yet the stones transported these distances were of incredible size, being from sixty to ninety feet in length and of a thickness and breadth to correspond. The monoliths erected on the Delta were conveyed over eight hundred miles. The largest obelisk in Egypt, at Karnak is estimated to weigh nearly three hundred tons, and was moved a hundred and thirty-eight miles. In the plain of Koorneh are two colossi of a single block each, that contain eleven thousand five hundred cubic feet, and are of a stone not found within several days journey of the place. Those taken to Heliopolis vary from seventy to ninety-three feet in length of a single stone, and were transported eight hundred miles. Large blocks were moved on sledges drawn by oxen or by men. One colossus is represented as dragged by one hundred and seventy-two miles on an oiled roadway. On the knee of the statue stands the man who gives the signal to move. Herodotus mentions a monolith at Saais which Amasis had transported from Elephantine. The passage was accomplished by employing two thousand boatmen, who took three years to the task. It was a block thirty-one feet long, twenty-one feet broad, and twelve feet thick. After the Herculian labor bestowed in quarrying and transporting it the builders would not admit it to the temple because the engineer who had charge of its removal had been heard to sigh aloud, as if wearied by his task. For this irreverence it was left lying at the entrance of the temple as unworthy a place in the sacred structure.

As to sculpture employed in architecture in Egypt, the oldest was in low relief and painted, except in the case of obelisks and funeral tablets, which being in hard stone were in intaglio. This style continued until the time of Rameses II, who introduced intaglio generally on larger monuments, which style was in vogue until the twenty-sixth dynasty, when low relief was revived. Intaglio was restored occasionally in the Ptolemaic and Roman period. The intaglios of Ramesse II had the sides of the picture cut down perpendicularly, and the centre raised by a gradual slope. On this the features and dress, with other details, were painted. Ramerz III had the lower side deeply carved, inclining the picture toward the observor, by which devise it was better distinguished. After Rameses III there was a decline in the arts, which in the twenty-sixty dynasty were again revived and improved.

Sculpture, such as we find it in Greece, never was attained to in Egypt. Wood was used for statues in the earliest dawn of art, and occasionally down to the Pharoahs. They were first made with the arms placed down the sides and the legs united. A sitting statue had the hands resting on the knees, or placed across the breast. The drapery was without folds. The portraits of the kings in the tombs are always in profile.

The date at which painting was first used in the decoration of monuments is uncertain. The Egyptians placed it at six thousand years before it was known in Greece. It was not known in Greece at the time of the Trojan war, but it is certain that it was known nine hundred years before that period in Egypt. Color was an essential part of Egyptian architecture. The ceilings of temples were painted blue, and studded with stars to represent the firmament. Over the central entrance used by the king, and by religious processions, were represented vultures and other emblems, and the winged globe was placed over the doorway. The whole building and the avenue of sphinxes were richly painted, the colors being harmoniously arranged, and of such enduring quality that they have never been equalled.

Coating the shafts of columns with white stucco was practiced by the Egyptians. On sandstone it was necessary, to prevent the absorption of the paint, and to give a finish to the sculpture, but they often concealed the beautiful granite of the obelisks with it. At the same time they sometimes lined the walls of their houses or temples with granite or some other stone stained in imitation of it. Painted panels of a solid color were common in Egyptian houses, or painted in flowers and other devices. The Japanese have the same delicate and suggestive style of decoration which imparted true elegance to the interiors of Egyptian houses.

In form and perspective the Egyptians were deficient, although they had a knowledge of proportion. They excelled in expressing grandeur and repose, building their monuments for all time. In this they were assisted by the hardness of their material and by the dryness and mildness of their climate, which tended to repose, and even to monotony. The power of the priesthood which compelled men to follow the occupation of their fathers, and that forbade the study of anatomy, restricted the growth of design in art, and of truth in the outlines of their decorative sculpture. Later discoveries show that in consequence of this, art suffered a decadence and that the Ramesian period furnished better examples of correctness and beauty than subsequent dynasties.

To represent figures on buildings in suitable and dignified situations is the proper application of sculpture, while decorative art should confine itself to different subjects. There is a pleasure of the imagination in the harmonious combination of merely conventional forms superior to the arbitrary copying of natural forms in unnatural situations. Among the Egyptian styles of ornament which did not imitate natural objects are the guilloche or Tuscan border, the chevron and the scroll pattern. Andrew Lang, in his work on "Customs and Myths" points out that some savage peoples have these conventional designs almost identical with those of the older civilized nations, as if this form of decoration in painting and sculpture were a general human development of the art instinct. The most complicated form of the guilloche was painted upon an Egyptian ceiling a thousand years before it was used even at Ninevah.

The sculptures of an Egyptian temple usually represents the king making offerings to the Triad of the city. The name of the king was carved upon the architraves, cornices and other places, and the same subjects were repeated on the outer walls. But in the larger temples, battle scenes and victories were represented on both the outer and inner walls; and upon the towers of the facade the king appeared smiting the captive chiefs in the presence of the god of the temple. These temple sculptures were undoubtedly designed as records of historical facts rather than as examples of decorative art. The human figure when used to represent joyousness of movement as in the Greek processions and games, becomes the most pleasing of all forms, and may be justly considered ornamental, having both variety and grace. But grace was not a feature of Egyptian figures. Their laws prohibited those studies essential to the achievement of grace in design; but the heads of men were placed on animals, and of beasts and birds on the figures of men. Moses who was educated at the temple of Heliopolis according to the curriculum set for the priesthood, forbids altogether the making of graven images, or likenesses of anything in earth, heaven or hades. This he did to put a stop to idol worship, but so far as the idols of Egypt were concerned, they indeed resembled nothing in whole, but only in parts. Their statues, like their monuments were well proportioned and remarkable for size. A figure of Rameses at Thebes is the largest in the world, being sixty-three feet around the shoulders, and thirteen from the shoulders up.

Herodotus gave it as his opinion two thousand years ago that the Egyptians had never improved in art. Nevertheless we owe to them through modification by the Greeks, Romans and Saracens, our ideas of architecture in some o its noblest forms. Its development will be made the subject of another article.

IMPORTANT TO ARCHITECTS AND OTHERS.

DIFFUSION OF LIGHT THROUGH WINDOWS.

ABSTRACT from the *Engineering News* and *American Railway Journal* of Dec. 22, 1898, and substantiated by circular No. 72 of the Boston Manufacturers Mutual Fire Insurance Co.:

Previous to 1883 Mr. Edward Atkinson, President of Boston Manufacturers Mutual Fire Insurance Company studied the best means of diffusing light through windows and skylights in mills and factories.

He experimented with various forms of glass including prismatic, corrugated, rough, waved and ribbed glass. He photographed images from each kind also from plain glass, and he found that the greatest and most uniform diffusion of light *was not delivered from prismatic or angular forms, but from simple ribbed glass in true curves, inverse and obverse 21 ribs to the inch.* This form of glass was fortunately in commercial use for certain purposes *and is also the cheapest type of glass suitable for glazing windows except the common clear glass.*

It will be observed that many types of prismatic and of ribbed glass had long been in common use and had transmitted direct and diffused light before I attempted to give any special direction to this work. Therefore no patent claims can be sustained on the principle of diffusion of light by the use of prismatic or any other form of glass. such claims may be sustained on methods of setting or glazing, but not on the forms of glass itself.

Again early in 1898 Mr. Atkinson desired some further information, and Prof. C. L. Norton of Massachusetts Institute of Technology made a more complete investigation, and the report is made in July 19, 1898 by circular 72 of the Boston Manufacturers Mutual Fire Insurance Company is briefly as follows:

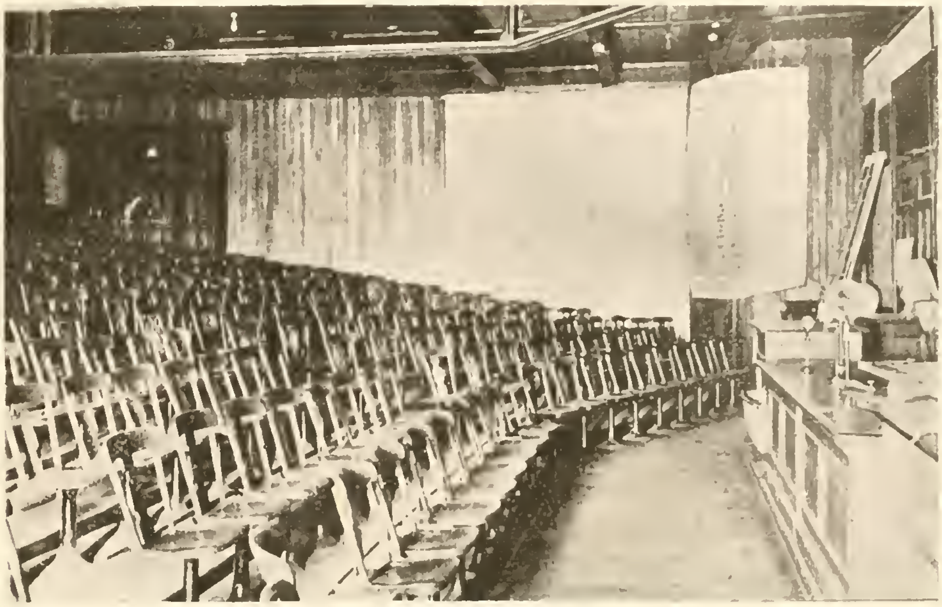
Mr. Norton started out doubting the assertion made that more light was admitted in a room when glazed with corrugated glass than glazed with plain glass. But experience has clearly shown that at the rear wall of a room 25 feet deep the intensity of light was increased three times by substituting ribbed glass for plain glass.

Mr. Norton explains as follows:

The light entering a room through a window comes for the most part from the sky, and has, therefore a general downward direction, varying with the time and position of the room which receives the most light ordinarily is the floor near the windows; but if we interpose in this downward beam of light a dispersive glass the light no longer falls to the floor but is spread out in a broad divergent beam falling *on walls, ceiling and floor.*

We gain nothing in the total amount of light entering a room but we have simply redistributed the light, taking up from the floor that which fell there and was comparatively useless, and sending it in where it is of more service.

The result of the examination to determine the relative intensity of illumination in a room of the various glasses of which he tested many kinds, in fact all he could find, including the most expensive *Cathedral glass, and the Luxfer Prismatic glass, proved that the Factory Ribbed Glass about*



RIBBED GLASS.

3-16 of an inch thick with 21 ribs to the inch, known as Factory glass, is the best dispersive glass upon the market.

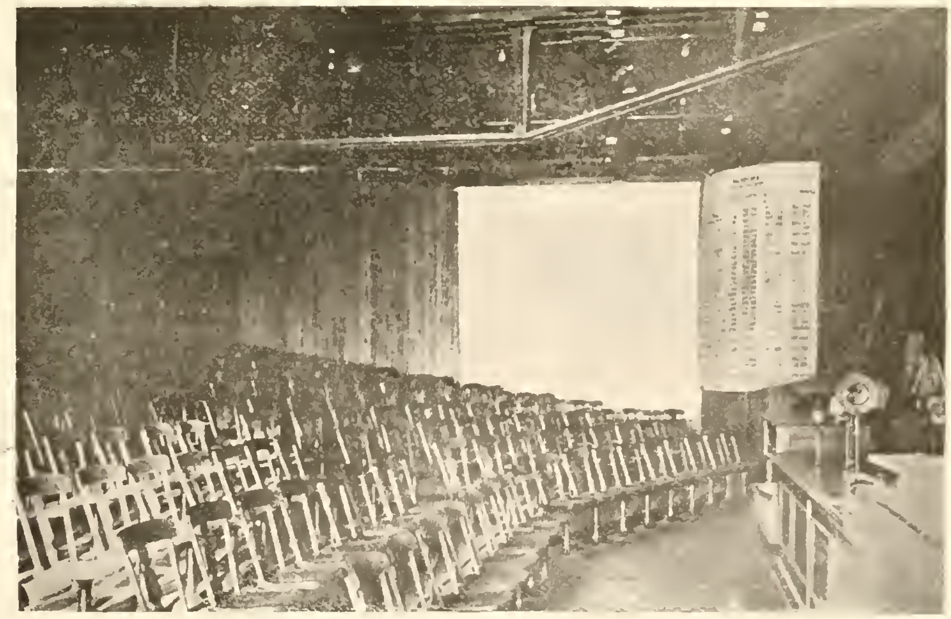
There is no apparent gain by corrugating both sides.

Ground glass is a loss of transparency caused by a slight amount of moisture or dust.

When a glass of slightly better appearance is desired, that which is known to the trade as Maze Glass is the best, it is similar to the fine ribbed glass, except the ribs are not straight, but are bent into irregular curves.

Photomeric measurements were made by taking two rooms, one above the other, alike in exposure shape and size, and comparing the intensity of light falling on similar portions of the two, when one was glazed with plain glass, and the other with the glass under examination.

The two photographs do not show as great a difference as does the eye. Take, for instance, the apparatus case in the upper left-hand corner. Where ribbed glass is used, it is possible to distinguish and recognize the separate pieces with a very small window. When the same window of plain glass is used, one cannot even see that there is any



PLAIN GLASS.

case there. In the photographs the windows are behind the camera, as is shown by the strong light on the lower corner of the "plain" exposure.

Broadly speaking, it was found that in the center of the room was as bright, where lighted by a window one square foot of this ribbed glass, as with three square feet of plain glass. This was true in all lights, from bright sunlight to a heavy thunderstorm, and windows facing in any direction.

The circular reproduces a number of photographs of the same rooms or objects taken when lighted by plain glass and by ribbed glass, and says in each case the greater intensity of light derived from the window glazed with ribbed glass is very apparent. I have taken every precaution I could to make the comparison a fair one, and in over 200 negatives every one shows the room much better lighted with ribbed glass than with plain glass.

This glass is kept in stock by glass dealers of San Francisco, California, and sold at only eleven cents per square foot, and for lighting towards the back of our deep stores and other dark rooms from the front, is of great value and should be generally used.

In the back office of Messrs P. H. Jackson & Co., 228 First street this city, is a sash door opening out into the back yard and in it are 8 panels of window glass 12x17 inches, Mr. Jackson had one side, or 4 glasses taken out, and substituted 4 of these corrugated Ribbed Factory glass, which cost eleven cents per square foot, and has two separate window shades to cover each the factory and plain glass.

Directly opposite this is an open door to a dark room which intervenes between the back office and front show room, and when all shades are drawn down then the shade over the 4 plain glass is raised, the light is feeble on the back wall of the dark room about 22 feet distant from the glass door, but when this shade closes out this light and the one over the factory glass is raised the light is bright on the wall. The contrast is surprising and should be witnessed by every architect in San Francisco.

A Chicago firm has placed in front of several upper store windows and other places in this city, Luxfer prismatic glass in frames costing about one dollar and seventy-five cents per square foot, which is described as inferior in reflecting light in circular No. 72 compared to the factory glass costing but eleven cents per foot, or about one sixteenth the price of the Chicago article.

Furthermore, the frames with the prismatic glass is suspended on the outside of the building opposite the upper sash and close to it and is subject to the fogs and dust which coats the fine prisms of the glass, while with the factory ribbed glass, the ribbed portion in window sashes is in the room and protected from the elements and easily cleaned, which is not the case with those in frames.

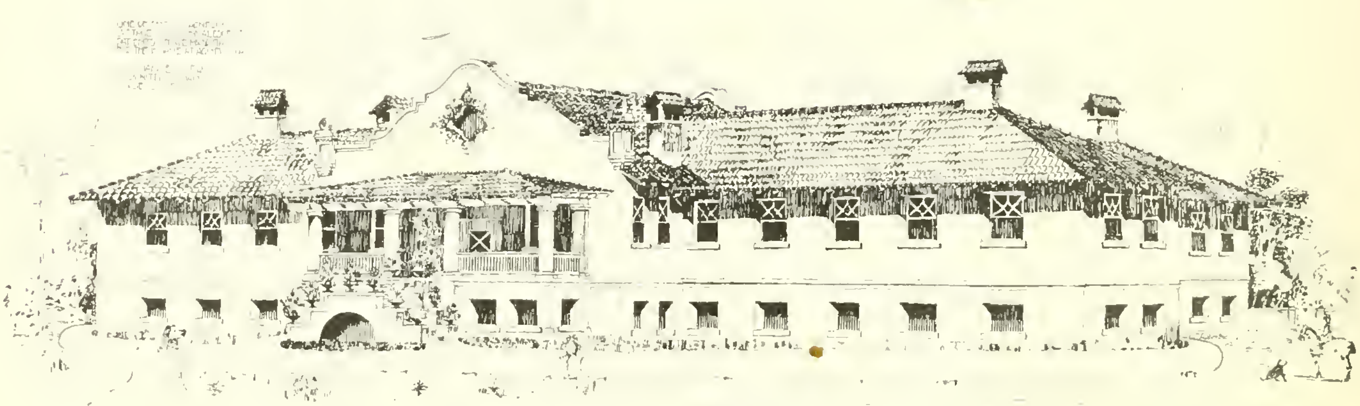
The value of this discovery is very important as we have at hand a cheap reflecting glass which should be generally used in upper sashes and other places where it is desired to project light into dark interiors and can be easily kept clean.

ILLUSTRATIONS:

ACCEPTED DESIGN for Sacramento High School, John M. Curtis, Architect.

A RESIDENCE in Alameda, C. H. Russell, Del.

DESIGN for a proposed Hotel near San Francisco, C. H. Russell, Del.



APPROPRIATIONS BY CONGRESS FOR PUBLIC BUILDINGS.

A comparison of the amounts appropriated by congress for public buildings in the various states indicates that Illinois has not fared very well. Chairman Mercer of the buildings and grounds committee has had printed an interesting table showing the amount of money appropriated in different cities and states from which it appears that Illinois, with a population of 3,826,341, has received appropriations for public buildings of $8,514,539; while New York, with a population of 5,997,853, or considerably less than twice as much as Illinois, has had appropriations of $24,068,728, or three times as much in round numbers; while Massachusetts, with a population a million and a half less than Illinois, has received $1,400,000 more appropriations. Louisiana, with a population less than a third of that of Illinois, has received appropriations of $6,137,554, and Missouri, which has more than a million less people than Illinois, has received over one million dollars more in appropriations.—*The Construction News.*

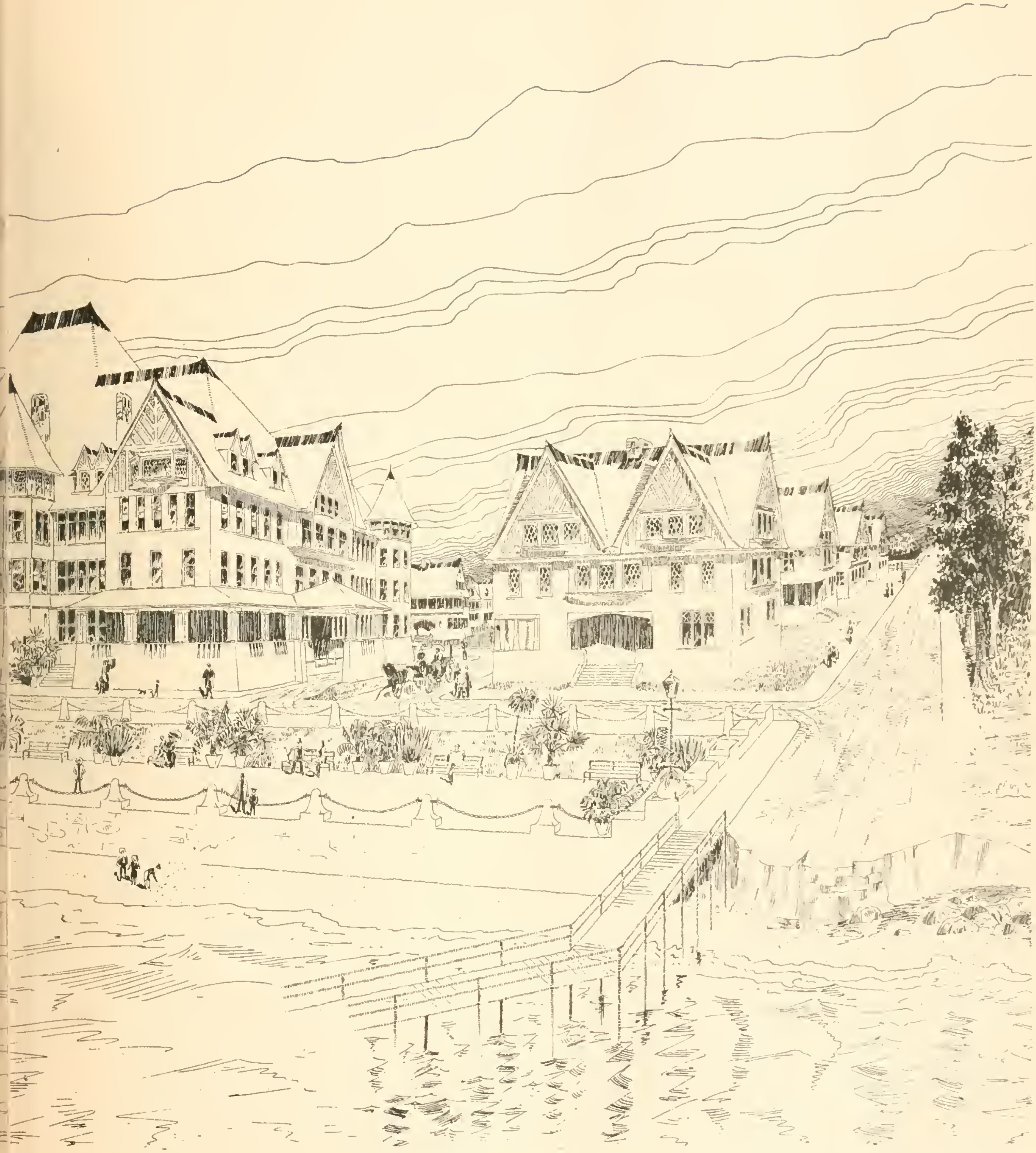
A RESIDENCE IN ALAMEDA

DRAWING BY C.H. RUSSELL

BRITTON & REY, PHOTO LITH

Design for a Proposed Hotel near San Francisco

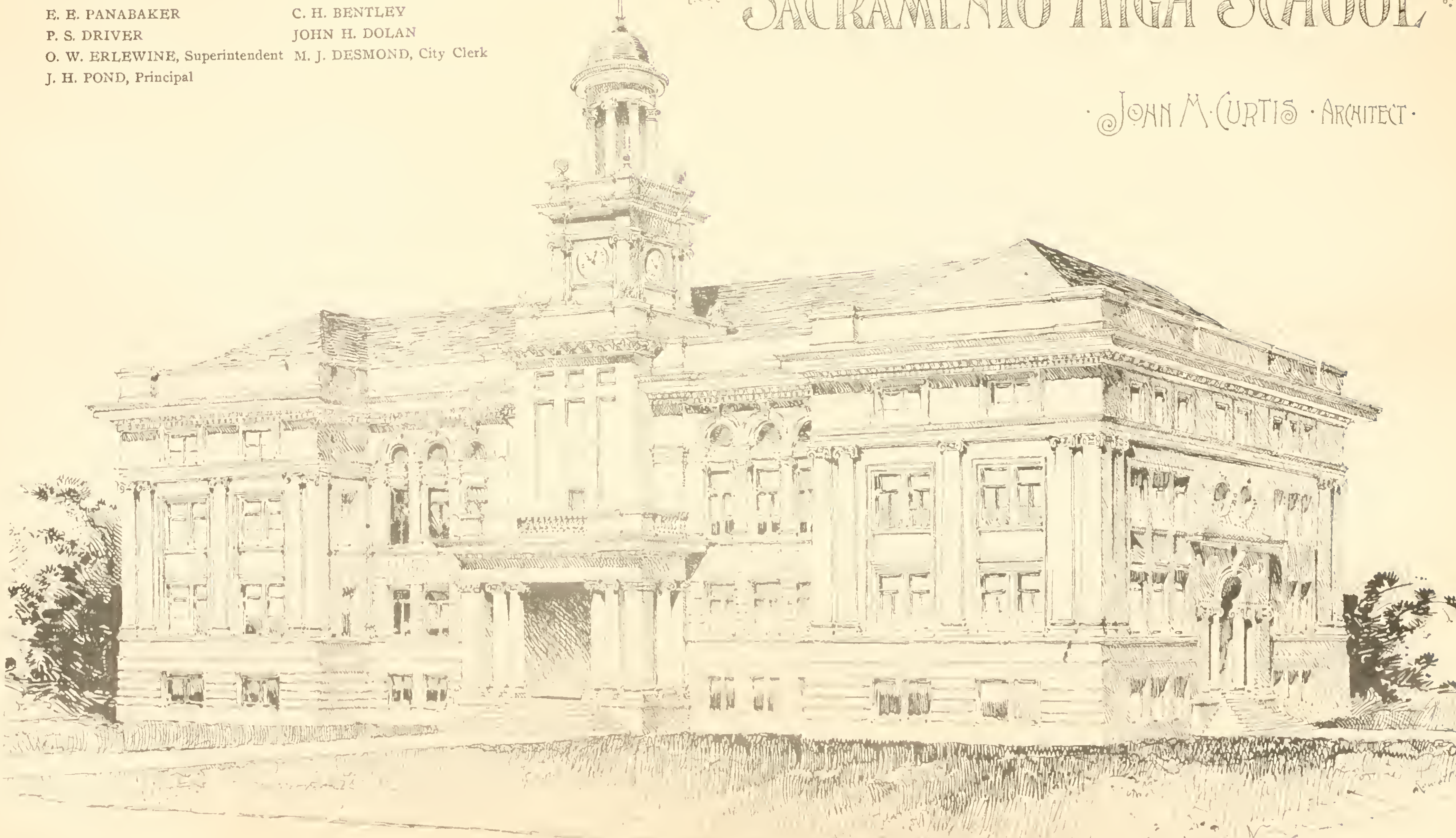
Drawing by C. H. Russell



E. PHOTO LITH.

Accepted Design for Sacramento High School

John M. Curtis, Architect.



MAMMOTH REFLECTING LENSES.

THIS picture taken from a photo made in the front basement of the Hastings Clothing Co's. store S.W. cor. Montgomery and Sutter streets, San Francisco, shows the bottom surfaces of two reflecting iens sidewalk lights each of the same size, and but poorly shows the difference of light in comparison.

To the left marked A, on the Sutter street side of the corner extends a bulk head and shows the reflecting lenses in the aidewalk light over, made by the Luxfer Light Company of Chicago, also the extended light from the same, this cost $123.50.

To the right on the Montgomery street side of the corner marked B; extends a similar bulkhead covered with a sidewalk light having *Home Product*, Mammoth Reflecting Lenses, each lens weighing about 3 pounds, made by P. H. Jackson & Co. of San Francisco, both lights are of same size, while Jackson & Co's. regular price is but $91.20, saving by using home goods $32.30 and by far a superior article. The largely increased light from the home make over that of the Luxfer Co. is surprisingly apparent.

Mr. Jackson informs us that about six years ago he got up these Mammoth Reflecting Lenses and left samples with the architects in this city and elsewhere, but from their increased cost over the ordinary sidewalk light lenses he has during these years never been able to sell any, and this is the first opportunity of showing the marked difference in contrast with the foreign article, and he was not slow to size up the situation in comparison.

The proprietors of the Hastings Clothing Company not being aware of the home article, and after pressing solicitation of the agent of the Chicago Company here, gave the order which is at the rate of $5.15 per square foot, while the home product which seems to give fifty per cent more light is sold at $3.80 per square foot, saving thirty-five per cent. *Why should we go abroad and seek foreign goods* when better articles are to be had at home.

Hang a canopy beneath the inner or houseend of the light composed of Factory ribbed glass in frame having 21 ribs to the inch, more fully described in another place in this book, and the blaze of light emitted from it may be projected 75 feet back and at a cost not to exceed 20 cents a foot, this glass canopy is superior for projecting light to any of the high priced eastern articles being placed about this city costing ten times that amount.

The Home Product light and canopy, which is superior in both respects saves the purchaser about $3.00 per square foot compared to that brought from abroad.

VALUABLE INFORMATION CULLED FROM OUR EXCHANGES.

THE candidature of Miss Ethel May Charles for associateship in the Royal Institute of British Architects gave rise to an animated discussion at the December meeting of that society. Several members contended that, while the charter did not specifically prohibit it, the admission of ladies was such an absolute departure from precedent that the election of Miss Charles be not proceeded with until the desirability of admitting ladies as members of the institute could be discussed. B motion to that effect was finally overruled, and the society proceeded with the election of each candidate separately. All candidates were elected by a unanimous vote with the exception of Miss Charles, who was elected by a vote of 50 to 16. It is interesting to note that while the Royal Institute of British Architects has a membership of about 1600, and are represented in nearly civilized country, only 98 members were present at the meeting where was to be decided one of the most radical departures in the history of that organization. In order to become an associate of the institute stringent examinations have to be passed. Miss Charles passed as a probationer in 1893, took her students' examination in 1895, and last year passed the final examination, which lasts five days and requires the student to design a building of an important public character, to show a complete knowledge of style, construction, planning, foundations, the manipulation of all kinds of building materials, specifications, estimates, etc., and proficiency in one ancient and one modern language.—*Construction News*.

AN interesting decision was recently rendered by the Supreme Court of Illinois which strikes at the practice, now becoming quite common, of public officials prescribing that only union labor shall be employed by contractors doing work for them. In the particular case adjudicated the Chicago Board of Education had adopted such a rule, and the right of that body to do so was made the subject of a legal contention. The court said in its decision: "Upon what theory it could be claimed that the Board of Education, which exercised merely the functions of the State in maintaining public schools within a limited portion of the State, can possess either power or discretion which the State, in its sovereign capacity, could not confer upon it, we are unable to imagine. No argument is made which would justify such a conclusion. There can be no greater power of the board to act of its own motion than by virtue of positive law. The results, in either case, are equally in conflict with the organic law, and such legislation, contract, or action, whatever form it may take, is void. Nor can the fact, if it be a fact, that an individual might make such a bargain, authorize these public officers, exercising a public trust, to do so. The individual may, if he chooses, give away his money, but the public officer, acting as a trustee, has no right to surrender to a committee or any one else the right of those for whom he acts." According to this decision no discrimination can be made against one set of citizens in favor of another, merely because the former do not belong to certain organizations known as "unions." If this could be permitted it would be lawful for an official board to provide that no work should be given to a contractor unless he agreed to employ only those of a certain religious belief or or only of a certain nativity.—*Carpentry and Building*.

MR. James Gamble Rogers of Chicago, who is known to many of the younger architects in this city, returned from Paris on January 31, bringing with him one of the much coveted diplomas of L'Ecole des Beaux-Arts. Though the Paris school was founded by the French government more than a century and a half ago, there are only twelve American graduates of the institution. In addition to the distinction of having graduated with honor from the famous French school, Mr. Rogers also brings three gold medals, awarded for work while at that institution. The gold medals are much sought after by Frenchmen for the reason that the possession of one of them entitles the holder to exemption from military service. Mr. Rogers is 30 years of age, and has made his home in Chicago since 1874. He was educated in the city schools and at Yale, where he graduated in 1889. Afterward he studied at the Art Institute in Chicago, and practiced his profession for a time in this city. He designed the Lees building on Fifth avenue, the residence of Arthur Eddy ann other buildings in Chicago. Mr. Rogers expects to locate in Chicago, though he has not yet made any definite arrangements. Chicago also has another graduate of L'Ecole des Beaux-Arts, Mr. Theodore Wells Pietsch, who graduated with honors in December, 1897, and who is now practicing at 218 La Salle street. The twelve American diplomes of the Beaux-Arts and the date of their graduation are as follows: June, 1895, John Van Pelt, Herbert D. Hale, Boston, and J. H. Friedlander, New York; December, 1896, Hugh Tallant, New York; June, 1897, John Mead Howells, New York, and Edwin H. Denby, Philadelphia; December, 1897, Theodore Wells Pietsch, Chicago, and Charles Butler, New York; June, 1898, Donn Barber, New York; Mr. Morgan, New York, and John Carey Rodman, New York; December, 1898, James Gamble Rogers, Chicago.—*The Construction News*.

THE new fireproof curtain of the Paris Opera House, which is lowered after each representation and in the event of accident or panic, is made of aluminum plates, 3:32 inches thick, thirteen feet long, and three feet, three and one-half inches wide, representing a surface of 3,229 square feet, while weighing 1.8 tons. A similar curtain made of iron would weigh over five tons.—*Fire and Water*.

THE special committee of the New York Board of Trade and Commerce, which has had under consideration for the past two years the question of regulating the height of buildings in that city, has recommended to the municipal assembly the passage of an ordinance which shall provide that on the wider streets and avenues no building hereafter erected shall exceed 200 feet in height, and that no building used as a hotel or appartment house shall exceed 165 feet in height; that proportionate lesser heights be provided for the erection of structures on the narrow thoroughfares; and that in every building erected to a height of 137 feet and over, there shall be two separate stairways leading from the ground floor to the roof, one of which shall be remote from the elevator shaft. The new building code commission, formally organized three weeks ago, has received the reports of its committees on scope and procedure, and has adopted the suggestions of the latter to send invitations to the heads of the allied municipal departments, and to the various professional societies and trades organizations interested in building to attend the meetings of the commission, and to submit, either in writing or orally, objections to the present laws and suggestions for amending the same.—*The Construction News*.

THE Paris Exposition of 1800 will be the fourth of its kind. Its predecessors, that of 1867, 1878 and 1889 were successes; The interest taken therein was practically world wide and in keeping with the ambition of one of the leading nations of Europe. The gate money of each of these as they follow in order of time was $2,153,000, $2,515,000 $4,366,000. In a local as in a national sense these expositions literally unloaded money in the public exchequer. The amount spent by visitors, the increase in telegraph and postal receipts and the addition to railway earnings footed up an enormous total. The Exposition of 1900 will in all probability surpass all previous records, providing national caprice and political and journalistic fire eaters do not precipitate international rupture. The space occupied by exposition structures will approximate three hundred acres, and interest is being aroused to such a degree that even this magnificient allotment is insufficient. The space secured for the American exhibit has been enlarged and it will be the fault of the American manufacturer if he misses the opportunity that will be among the great events in the opening of the twentieth century.—*The Age of Steel.*

AN attempt will be made to pass a law in Missouri for the regulation of the practice of architects. A bill on the subject has been prepared by the St. Louis Chapter of the A. I. A., and will be presented to the legislature. The measure provides for the appointment by the governor of a board of five members, one of whom shall be a member of the faculty of the state university, and the other four architects of at least ten years' standing. This board is to hold meetings twice a year or oftener and examine all persons who desire to follow the profession. An examination fee of $15 is to be charged and $25 for a license. The secretary of the board is to receive a salary of $1500 a year and each of the members $10 a day for what time they devote to the business of the board. The salary and fees to be derived from the persons who stand examinations and obtain licenses. All architects are required to obtain a license and pay $25 for the same, but those now engaged in the business and who can satisfy the board of the same need not be examined. Licensed architects who obtain licenses will be expected to provide themselves with seals and stamp their plans with the same. Any person practicing architecture without a license will be subject a fine ranging from $50 to $500. The measure is patterned after the Illinois law which, it is claimed, has worked well in the main.—*The Improvement Bulletin.*

THE offer made by the American Art Association, to sell to the City of Philadelphia for $9000 a portrait of Washington painted in 1780 by Charles Wilson Peale, brings out the fact that another of Peale's famous Washington pictures belongs in West Chester, Pa. This was painted in 1778, at Valley Forge, and subsequently became the property of John Neagle. Later it was presented by him to the Chester County Cabinet of Natural Science, and in 1872, together with other treasures included in the collection, it passed into the hands of the West Chester State Normal School. This painting of the great Washington, by Peale, is considered one of the finest specimens from his brush.—*Boston Transcript.*

ABOUT a mile east of the Dumbarton rock, in the Firth of Clyde, a dwelling on piles or crannog, has been discovered below high water mark, some 50 yards from low water mark. It is 184 feet in circumference, the outer circle of piles being of oak wood, sharpened with stone axes. The transverse beams and floor are of oak, willow, birch, elder and branches of fir, birch and hazel, and bracken (ferns), moss and chips. In the refuse heaps outside the crannog were found the bones of stags, cows, sheep, signs of fire, many firestones, and a whitestone or hone. Near-by was a canoe thirty-five feet long by four feet wide, hollowed from single trunk of oak. The crannog is the first yet found in an estuary, and it evidently dates from the stone age; therefore, it seems earliest than others yet found in the British isles.—*Stone.*

NOTICE OF MEETINGS.

SAN FRANCISCO CHAPTER, AMERICAN INSTITUTE OF ARCHITECTS, meets second Friday of each month at 408 California street, at 4 p. m.

SETH BABSON, Pres. H. A. SCHULTZ, Vice-Pres.
OLIVER EVERETT, Sec. JOHN M. CURTIS, Treas.

SOUTHERN CALIFORNIA CHAPTER AMERICAN INSTITUTE OF ARCHITECTS, meets first Wednesday of each month at 114 Spring street, Los Angeles, Cal.

THEO. A. EISEN, PRES. ARTHUR B. BENTON, Vice-Pres.
WILLIAM C. AIKEN, Sec't. AUGUST WACKERBARTH, Treas.

WASHINGTON CHAPTER AMERICAN INSTITUTE OF ARCHITECTS, regular meetings at 8 o'clock P. M., the first Friday of each month, except July and August.

JOS. C. HORNBLOWER, Pres. JAS. G. HILL, Vice-Pres.
E. W. DUNN, JR., Sec. W. J. MARSH, Treas.

ASSOCIATION OF ARCHITECTS OF ARIZONA, meetings held at Phoenix, Arizona.

D. W. MILLARD, Pres. T. H. MADDOX, Vice-Pres.
W. R. NORTON, Sec. and Treas.

TECHNICAL SOCIETY OF THE PACIFIC COAST, meets first Friday of each month at Academy of Sciences Building.

GEO. W. PERCY, Pres. W. F. C. HASSON, Vice-Pres.
OTTO VON GELDERN, Sec. EDWARD T. SCHILD, Treas.

MASTER PLUMBERS' ASSOCIATION, meets every first and third Friday of each month at the Flood Building.

JAS. E. BRITT, Pres. J. L. E. Firman, Sec.

BUILDERS' EXCHANGE, Directors meet first Friday in each month at Mission and New Montgomery.

S. H. KENT, Pres. JAS. A. WILSON, Sec.

MASONS' AND BUILDERS' ASSOCIATION, meet first Friday evening of each month.

ADAM BECK, Pres. M. V. BRADY, Sec.

FROST ON BUILDING MATERIALS.

NATURAL cements should never be used in freezing weather. The cement once frozen has lost all of its binding property. Thawed out it crumbles like mere sand. Portland cement, however, behaves very much better, and it is contented that some brands are especially fit for use in frosty weather. No proper explanation can as yet be offered as to this particular difference in quality.

Common mortar, however, should be considered as being subject to no detrimental change in its properties through the action of frost. On the contrary, it is improved. This is especially evident in all cases in which the mortar steadily continues—for a time of three to four months—to remain in a frozen state, so as to allow all surplus moisture to vaporize. Plastering thus "frozen dry" turns out to be the toughest and in every respect best kind of work. Where roofing tile are jointed with mortar, the best work is ever obtained in steadily frosty weather, lasting long enough to allow the mortar to set. But the difficulty in our climate is that such steady frost-weather can never be depended upon. We are bound to resort to artificial heat in processes of plastering, to say nothing of the advontage sn saving time. A peculiar property of frozen mortar is, that when a sudden thaw sets in, shortly after freezing, this mortar will become quite liquid. It will drop from the plastering lath, will also freely ooze out from the joints in a stone wall.

Stone walls should never be built in frosty weather, or at a time when frost may set in shortly thereafter. If the stones are laid in common cement mortar, they would be no better off than if laid in dry sand, if as well. If laid in lime mortar the case is even worse, because the mortar in heavy joints, where none or very little of its moisture is absorbed by the stone, becomes so liquid when thawing that it will freely ooze out from the joints and thus leave the masonry more or less unstable. In case stone walls are imperatively called for they should, therefore, not be built with lime—or common cement mortar. A proper kind of Portland cement is required. Considering this as to expense and as to the possibility that the kind of cement chosen is not the proper one, it would appear to be like a positive rule for every practitioner to avoid in frosty weather the use of common stone on any kind of walls. Foundations may be of dimension stone bedded in sand merely; basement walls of brick laid in lime mortar. In case exterior faces of these walls are to be shielded against dampness, it would be utterly useless to apply the usual cement mortar coating, the full efficiency of which is doubtful in any case.

When, soon after the great Chicago fire of 1871, the rebuilding of the city began, basement walls were in a number of cases built with rubble stone. Frost soon thereafter setting in and remaining almost constant till March in the year following, their green mortar was in solid condition enough to sustain the superstructure in the meantime thereon erected. But so soon as the March weather set in they were speedily converted into a loose mass of rubule, held in a precarious position by a loose mass of mortar, which began to ooze ont and endanger the stability of the structure. A remedy was found in the speedy call of the "house doctor" and his jackscrews. Yet so ignorant were both architect and builder as to the threatening cause, that the "doctor" was discharged after the rectification of a south wall, to be called again within a week thereafter, in order to also uphold the north wall, which had followed the example of the south wall.

An "accident" took place on another street, where a block of three stores, four stories high, fell all on a sudden into a heap of ruins. Its basement walls, some six feet high from the ground, had been built oi stone. "Jack Frost" had solidified them for the time being. The walls were completed and roof put on. When "Jack" took his leave the structure was doomed. Lucky it was that the crash took place early in the morning prior to starting work.

The lesson then so repeatedly given had, however, not sufficed to afford the necessary amount of instruction. A prominent member of the profession undertook, two years thereafter, to build in winter a stone cellar wall of a store, with no favorable result. Had the tottering wall been an isolated one instead of one learning against the wall of an adjoining store, it would probably have come to the ground.

Contrary to general opinion on the part of the public, it must be stated as a fact that masonry is *improved in its quality* by the action of frest, provided it has received the amount and degree of care required. It is in disrepute because the conditions on which success depends have so seldom been altogether well observed, even if they were at all understood. When mortar freezes, when the ultimate parts of its humidity expand into solid crystals, the rubbing motion of porticle against particle than taking place is, without question, a very severe one, enough so to exact an improved condition of them, especially in regard to the silica which thereby seems to become in a measure "unlocked." It is converted, partly so, from its original inert state into one of more or less acute affinity, by which the silicatization of the lime is started, and increased in rapidity of its action. My own conviction in regard to the fact that masonry properly executed in frosty weather is comparatively the best, is positive. It is shared by good and attentive masons as well as a number of architects. All that is required in the case is, that the subject be more fully investigated and the results taken *ad notam*. A time-honored prejudice will then be fully dispelled.

The necessity of "keeping the weather out" from inhabited buildings is self evident, and protective measures, especially as to exposed parts, such as fire walls and chimney tops, owing to the introduction of Portland cement and terra cotta lap-coping, have at last become a rule. Facts have gradually had the effect of demonstrating a necessity, from which no part of a building is excepted. A most special care is owing to monumental structures which, as the case is, are designated to endure for ages. Frost is their principal enemy. Water enters into the minutest open joint and ever expans it by freezing. It is to be kept in mind that this expansion taking place is ever and ever repeated with irresistible force. It is exceedingly difficult, if at all possible, to construct monumental work, self-evidently io be durable, with small pieces of material, the joints between them offering so many chances for gradual destruction.

A cemetery vault was, some eight years ago, constructed at Graceland Cemetery, Chicago, with arches composed of small blocks of granite. The structure was altogether neat and attractive, affording evidence of a good deal of happy thought on the part of the architect. But the grim existence of "Jack Frost" had not entered upon his mind. The result was that improved arches were made in the spring following.

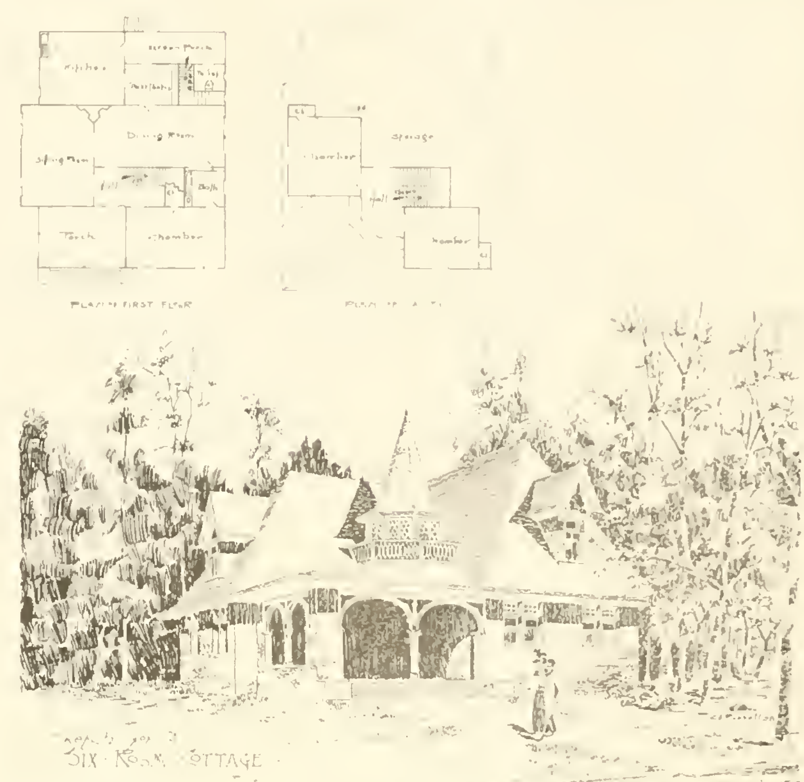
In the early days of our common electric street railwsys and electric lighting stations, new industries were to be created, which for capital might appear to the whole world. There was no question of extinguishing the value of an existing investment

In arguing electricity into a mine, however, the mine operator has not only had to consider the question of a future benefit, but also what must appear to him the most serious one of a present loss, and it is a known fact that old apparatus assumes in the mind of the owner a factitious value as soon as the question arises of discarding it, and purchasing new apparatus in its place. Furthermore, the charge involved not only the supersession of mechanical and animal power in the mine itself; it involved the installation of a complete steam and electrical generating plant at the same time. Electricity, therefore, has been compelled to show that its adaptation to mine work would not only mean future economy, but, also, that its economy would be sufficiently large to compensate for the extinction of the value of the apparatus at present in use. That it has been shown capable of this is, perhaps, best demonstrated by the very large number of mines now using electrical apparatus, and the still larger number in which the use of electricity is proposed and almost decided.

It will hardly be disputed at this date that electricity is the ideal power for use in the operation of mines, and that the advantages it offers, and the benefits which accrue from its use, cannot be equalled or even approached by any other known power, whether animal, steam or air. A power that needs heavy piping; that demands expensive protection in very cold weather and constant expensive maintenance; that cannot be transmitted satisfactorily over long distances; and that operates machinery demanding constant attention, compares poorly with a power that requires two or three slender wires only for its transmission; that gives off no heat, nor smoke, nor moisture; that is unaffected by change in temperature, however severe; that can now be transmitted over long distances, which, five years ago, would wealth, attention to the destructive agency of frost seems to have been rarely paid. Many of a cemetery vault then built on the side of a hill, the arch covered with soil and sod, has gone out of existence owing to the destructive agency of frost. Some of them have been rebuilt in place of being abandoned. All of them, I trust, could be made permanent by not only covering the arch with a coating of Portland cement concrete, but also protecting this coating with sheet lead of fair thickness, the sheets soldered.

The fewer the joints, the larger the constructive units, the more certain the durability of the structure. All joints should be cerefully prepared for filling with lead, to be firmly caulked. Such caulking requires that the blocks be massive in order that they may resist all lateral motion thereby induced. This necessity should be considered a factor in the style of all monumental work.

The superficial inspection of the New York-Brooklyn suspension bridge reveals a want of care as to results of the action of frost, and even government work is, here and there, allowed to be thus injured. I have noticed heavy granite copings on quite new retaining walls somewhat moved off their beds. The retaining walls to the approaches of our river tunnels have been rebuilt twice and are again leaning, owing to an ever-repeated freezing of the ground which leans against their back. On our principal residence streets are shown a large number of fence copings to be in a "demoralized" condition, brought on by the action of frost. The time for proper care and attention in regard to the relentless action of frost seems, after all, to be as yet in suspense.—*Frederick Baumann, F. A. I. A., in Inland Architect.*



Drawing by C.H.Russell.

CHANGES IN SCHOOL ARCHITECTURE.

THE general trend of public opinion regarding the design and construction of school buildings is nowhere changing more rapidly than at Cleveland. A commission recently appointed to inspect the school buildings of other cities recently returned, and Architect F. S. Barnum made the following informal remarks upon the trip and its results, Mr. Barnum's standing as an architect making his observations exceedingly interesting and worthy of record.

Mr. Barnum said, in a newspaper interview, that while it would not be decided just what the innovations will be (in Cleveland school buildings) until the members of the inspecting party had compared notes, it was safe to say that the benefits of the trip would be apparent to all when new buildings shall be erected. Both Mr. Barnum and Director Sargent made copious notes, and from these and personal remembrances the new ideas which will be incorporated in future school structures will be evolved.

The eastern tour was the result of a desire, not only on the part of Architect Barnum, but also of Director Sargent and the school officers, to know what were the latest improvements in school edifices.

"Of course I cannot say just what the changes in Cleveland school architecture will be," said Mr. Barnum, "until I have consulted with my colleagues on the trip. I can, however, say something about the new ideas which seemed to impress us most, and some of which we will likely adopt, although we hope from the composite ideas to evolve plans for school buildings which will, we hope, excel even some of the magnificent structures we visited.

"We did not pay much attention to exterior designs, giving practically our whole attention to inside arrangements. We first visited Pittsburg, where we saw two splendid buildings, one completed two years ago, and the other now being finished. Then we went to Philadelphia. In this city we inspected an enormous building which is at present at a standstill for want of funds. Then we went to New York and from thence east. The finest building, architecturally, which we saw, was the night school at Springfield, Massachusetts. However, it was not as good a building as many others, because it was not thoroughly fireproof, and was not constructed of as good material.

"We found the school structures radically different from those in Cleveland. Here the idea followed has been the grouping around a large central hall, lighted from the top by means of a well, of the various rooms needed, although this style has been departed from to some extent of late. Eastern school buildings are generally structures with a long frontage and slight depth, usually having a court or semi-court in the center. A favorite design seems to be a narrow building with a long frontage, with wings extending backward from each end, thus forming a sort of court in the rear. Plenty of light is thus insured.

"Another radical difference was in the width of the corridors in the Eastern buildings. In Cleveland many of our buildings have corridors forty feet in width; others of more recent design have them twenty-six feet wide, but in all of the Eastern schools the corridors are much narrower. In New York they are sometimes but five feet wide, and in the majority of cities do not exceed ten feet in width. In Cleveland we provide wide stairways at both ends of the buildings. They do the same, but in addition have many narrower stairways at convenient places throughout the structure. In the best buildings these stairways are made as nearly fireproof as possible, being constructed of iron and slate. The corridors, too, are fireproof and are floored with mosaic tiling and tiling or glazed brick is used on the walls in place of plaster, the idea being to utilize the stairways and corridors as avenues of escape in case of fire. The reason for the many stairways is that space is economized by making the corridors narrower, while the many exits render crowding of the halls impossible.

"None of the Eastern buildings of recent construction are provided with fire escapes, although some of them are four stories in height and all of them three, many having basements. The fireproof stairways and corridors are considered safer means of exit in case of fire than would be the skeleton-like escapes attached to the outside of the building. In fact, all Eastern school officials were unanimous in preferring many fireproof inside exits, even though narrow, to the usual style of fire escape.

"Another novel feature we saw in New York, and which we shall probably incorporate in our building is asphalt flooring in the corridors. The asphalt is lain on top of a fireproof floor constructed of iron beams and concrete. Its advantage consists in that while it is thoroughly fireproof it is almost noiseless. In many of the corridors we found these floors were extended into the wardrobes, and that the walls were of tile or of impervious brick, the idea being to provide a corridor not only fireproof, but susceptible of being easily cleaned and of being kept so.

"Other features which attracted our attention were the lunch-rooms which are provided in almost all of the schools. These are large and commodious, and at many schools are furnished with cooking apparatus necessary to supplying the children with hot soup and coffee or other inexpensive foods. We also notice that large gymnasiums were much in favor. Some buildings have separate rooms for the boys and girls, with apparatus suited to each sex. Manual training departments are also located in nearly all the buildings.

"In view of the opposition to high buildings, let me say that none of the new school buildings we visited were less than three stories in height. A few of them were provided with elevators, but as a general thing, the architects have provided very easy stairways instead of elevators.

"While I cannot speak authoritatively I think it safe to say that some of the innovations we shall likely adopt in Cleveland will be that of constructing longer buildings of less depth, perhaps with wings at each end, and providing narrower corridors, extending from end to end of the structure, with subcorridors to the side of building at frequent intervals, thus insuring perfect lighting. More stairways will be provided, in place of having one at each end of the building, and there will be narrower stairways in the middle of the building. We shall also adopt the plan of making the corridors and stairways thoroughly fireproof. By this means we shall insure perfectly safe exits and plenty of them, for even if a fire should start in one of the rooms, it would be impossible for it to make any headway through halls and stairways where there is absolutely nothing to burn. I think these will prove better means of exit in case of fire than any fire escape yet devised.

"We shall very likely adopt the asphalt flooring for the corridors and wardrobes. Other floors will be constructed as they are now, of iron beams and concrete, on which is laid a thin hardwood flooring. We shall also probably adopt the plan of using tiling on the walls of the corridors, or we may follow the plan in vogue in some cities of using a glazed brick for the walls. Neither are more expensive than plaster, provided a substantial, plain material is used.

"The lunchroom and gymnasium features were favorably regarded and they may be substituted. Bicycle rooms we shall certainly provide, and we found that all of the Eastern schools have them. I do not know about the manual training and cooking schools in the high school buildings of Cleveland, yet nearly all of the Eastern schools have especial rooms for their accommodation."

Mr. Barnum said that the favorite material for school buildings in the East seems to be hard, light-colored brick—what is known as impervious brick—in place of stone. It was not more expensive and was much more cleanly in appearance. Inside, the buildings are subdivided by solid brick walls, and the aim in all of them appeared to be to reach as near a fireproof construction as possible, this idea being carried out to utilizing tile flooring in the laboratories or wherever there was the slightest danger of fire originating. This, with the perfectly fireproof exits he said, seemed to insure the absolute safety of the children while in the school building, so far as danger from fire was concerned.

The cost of the buildings in which the new ideas were embodied, Mr. Barnum said, need not be greater than the old style structure. Greater economy of space in the long, narrow building would more than offset the slightly added cost for the side walls, while the other improvements did not necessarily involve the expenditure of more money than present methods of construction. —*The Inland Architect.*

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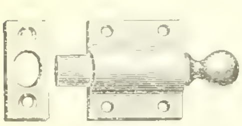

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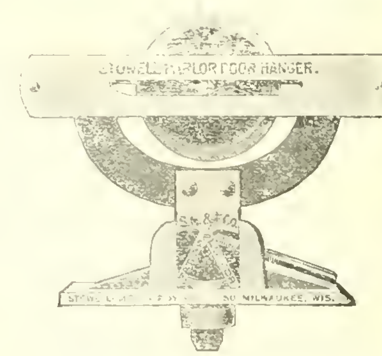

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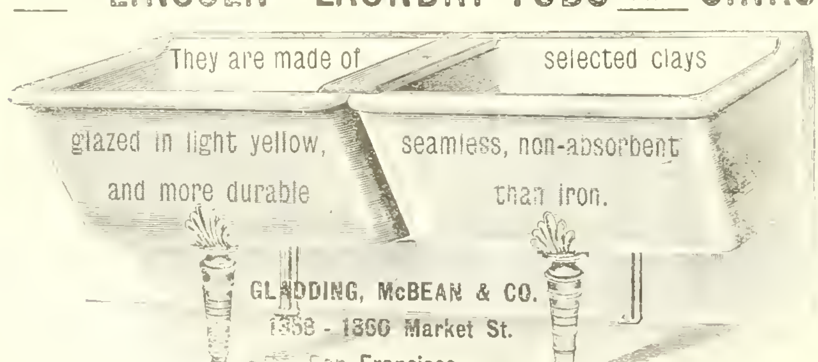

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BUILDING NEWS.

OAKLAND

Ninth near Harrison. To build; o, C. W. Gallagher c, W. H. Butson; signed, Feb. 1; filed, Feb. 2; cost $2800.

Rowland Tract, block 2013, lot. All work except paintin and electric work; o, F. R. Guard; a, D. F. Oliver; c, Axel Wahlstrom; signed, Feb. 1; filed, Feb. 4; cost $2075.

PASADENA

The plans of the new Catholic church at Pasadena, prepared by architect R. B. Young, call for a brick building 62x117 feet, of imposing style, with a tower surmounted by a cross. The exterior wall will be laid up with selected stock brick rubbed smooth, with cement plaster finish to the floor level. Handsome art glass windows and other sanctuary furnishings are to be provided for.

SAN RAFAEL

Golden Meadew Tract. Plumbing, etc; o, M. H. De Young; a, Clinton Day; c, Kelly Bros; signed, Feb. 1; filed, Feb. 4; cost $2600.

Mission near Grant Ave. Two two-story frame cottages; o, Henry Schlosser; a, Max G. Bugbee; c, ensen and Schlosser; signed, Jan. 21; filed, Jan. 21; cost $6516.

ALTURAS

A $12,000 hotel building will be erected in this town in Modoc Co. The new structure will take the place of the Grand Central Hotel, lately destroyed by fire

LOS ANGELES

Architect H. F. Starbuck, of Long Beach, has prepared plans for J. A. Gowan, of the same place, for a cottage to be built on the ocean front.

Architects Austin & Skilling have prepared plans for M. Knopf, for a five room cottage to be built at northwest corner of Brent and Temple streets.

Architect W. S. Garrett has prepared plans for Mrs. Morey, for a five-room cottage, to be built on Towne avenue in the Wolfskill Orchard tract.

Architect John P. Krempel has received instructions from Gen. H. G. Otis, at Manilla, to prepare plans for a two-story carriage house and stable, to conform to the style of his residence on Wilshire Boulevard.

Plans have been prepared for Mrs. S. E. H. May, for a two-story frame ten-room residence to be built on the west side of Vermonth avenue between Vine and Kenwood.

Architects Locke & Munsell have prepared plans for John Whittlock of Altadena, for extensive alterations and additions to his residence on west side of Santa Clara avenue, Altadena.

TREASURY DEPARTMENT, U. S. LIFE-SAVING SERVICE, WASHINGTON, D. C., February 10, 1899.—SEALED PROPOSALS will be received at this office until 2 o'clock P. M., of Tuesday, March 14, 1899, for the construction of a Life-Saving Station at Point Bonita, Cal. Forms of proposal, plans and specifications, and full information can be obtained upon application to the Superintendent of the 12th Life-Saving District, Room 35 New Appraisers' Stores, San Francisco, Cal.; or to this office.

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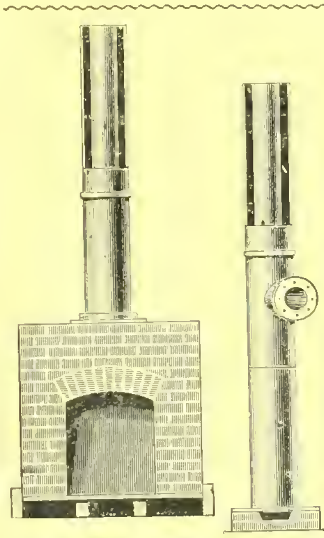

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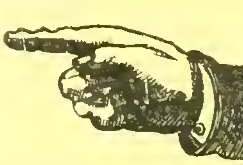

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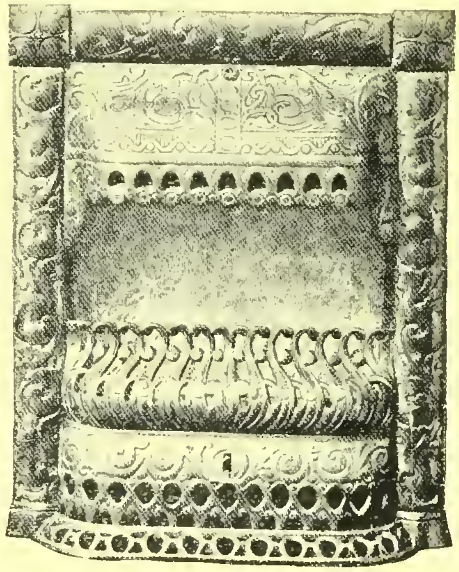

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BUILDING NEWS.

Albion near 17th. To build: o, C. W. Welsh; c, Campbell & Pettus; signed and filed, April 26; cost $5600.

Broadway near Buchanan. Plumbing, gasfitting, etc; o, Robert Oxward; a, Frank S. Van Trees; c, Gulick & Wetherbee; filed, April 19; cost $2660.

Broadway near Buchanan To build; o, Robt. Oxward; a, Frank S. Van Trees; c, William Bros; filed, April 19; cost $16,270.

Broadway near Pierce. To build; o, Mrs. L. Allison, a, D. F. Oliver; c, I. and H. Bingham; signed, April 11; filed, April 14; cost $5377.

Bryant near Harriet. To build; o, Michael Hannan a, C. A. Meussdorffer; c, A. H. Wilhelm; signed, April 14; filed, April 14; cost $6685.

Bryant near 16th. Three flats; o. Andrew Jackson; c, Wm. Helbing; filed, April 12; cost $4385.

California near 19th Ave. Cottage; c, Marcuse & Remmel; signed, April 7; filed, April 8; cost $1500.

California and Powell. Excavations, etc., o, S. F. Art Association a, Edward R. Swain; c, Jeremiah and John J. Mahoney; signed, April 25; filed, April 26; cost $24,133.

California near Franklin. To build; o, Kaspar Pischel; a, Nathaniel Blaisdell; c, C. Krecker; signed, April 3; filed, April 5; cost $13,480.

Castro near 18th. Alterations and additions; o, H. F. Stolz; a, H. Geilfuss; c, Wm. Horstmeyer; signed April 19; filed, April 20; cost $2295.

Devisadero near Vallejo. To build; o, George P. Tallent; c, C. M. Depew; signed and filed, March 21; cost $2815.

Diamond near Jersey. Two-story frame; o, John and Kate Baier; a, Thos. J. Walsh; c, S. A. Born; signed, April 11; filed, April 12; cost $5965.

Eight Ave. and M. Excavations, etc; o, R. C. Orphan Asylum; a, C. J. I. Devlin; c, L. B. Sibley; signed, April 17; filed, April 24; cost $1500.

Ellis near Franklin. Three-story frame; o. Wm. Wolf; a, P. Schwerdt; signed, March 23; filed, March 24; cost $25,000.

Ellis near Franklin. To build; o, Wm. Wolf; a, P. Schwerdt; signed, March 30; filed, March 31; cost $13,000.

Ellis near Gough. Plastering, etc; a, P. Schwerdt, c, Wm. Linden with Chas. J. Burt sub-contractor; filed, April 12; cost $1685.

Ellis near Scott. Alterations and additions; o, A. B. Lang a, Jos. P. McQuaid; c, Henry Behrens; signed, April 20; filed, April 21; cost $5600.

Fifth and Jessie. Alterations and alterations; o, Mrs. A. L. Lankeshim; a, Curlett & McCaw; c, D. Perry; signed and filed, March 21; cost $2485.

First near Howard. Three-story brick; o, H. E. Bothin; a. Percy & Hamilton; signed, March 27; filed, March 31; cost $5625.

First Ave. near California. To build; o, Wm. I. Smith c, Marcuse & Remmel; signed, March 29; filed, March 30; cost $3400.

First Ave. near California. To build; o, Pinkus Lelkovitz; c, Casper Zwierlein; cost $2000.

First and Jessie. Grading, etc; o, Louis Metzger; a, Schnaittacher; c, Peacock & Butcher; signed, March 21; filed, March 24; cost $19,300. Carpentry, mill work, etc c, Thos. H. Day; cost $7900. Wrought and cast iron work, etc; c, Henry Ralston; cost $11,000. Concret and trenching; c, Peacock & Butcher; sub-c. Cushing & Wetmore Co; signed, March 21; filed, April 14; cost $6750.

Filbert and Dupont. To build; o, Rev. B. C. Bedahan; a, Shea & Shea c, Louis Ceteghino; signed, March 14; filed, March 23; cost $1870.

Filmore near Page. To build; o, P. H. Reardon; a. M. J. Welsh; c, A. A. Russell and J. J. Stahl; signed, March 25; filed, March 27; cost $2915.

Fell near Fillmore. To build; o, D. J. Makepeace; a, Chas. M. Rousseau; c, John McLeod; signed, March 27; filed, March 29, cost $3947.

Folsom near 19th. Plumbing, etc o, G. Monnier; a, Jules Godart; c, Schanz & Grundy; signed, March 24; filed, March 29; cost $1050.

Folsom and Hawthorne. Four flats; o, Mary E. Hinton; a, Newsom & Meyer; c, Moore & Cameron; signed, March 31; filed, April 1; cost $5290.

Francisco near Leavenworth. Concrete, brick, etc; o, H. B. Hildebrand c, Chas. Koenig; signed, April 15; filed, April 19; cost $3622.

Greenwich near Taylor. One three-story frame and one two-story; o, Colin M. Smith; c, Wm. Helbing signed, April 8; filed, April 9; cost $5835.

Grove near Gough. Brick work, etc; o, Neustadter Bros; a, Shea & Shea; c, S. H. Kent; signed, April 14; cost $7700.

Howard near 16th. To build; o, Mrs. Rosa E. Wagner; a, James Wolfe; c, H. Behrens; signed and filed, April 10; cost $1685.

Jackson near Pierce. Plumbing, etc; o, M. Ehrman; a, Julius E. Krafft; c, Schanz & Grundy; signed, April 17; filed, April 21; cost $5115.

John near Mason. To build; o, Cecile Raisin; c, Douglass & Campbell; signed, April 8; filed, April 12; cost $1905.

Jones and Washington. Sewering, etc; o, Chas. Franzoi; a, J. W. Rowell; c, G. C. Sweeney; signed, March 2; filed, March 25; cost $2100. Carpentry, etc; c, Andrew Christensen; cost $11,000.

Jones near Chestnut. Alterations and additions o, Wm. Oechslin; a, C. M. Rousseau c, K. C. Gardner; signed, March 30; filed, March 30; cost $1297.

Kearny and Pine. Alterations and additions; o, Mrs. Mary A. Mesick; c, Moore & Cameron; signed, May 22; filed, March 24; cost $1598.

Latona near Bay View. Cottage; o, Herman Thomas; c, Erick Boes; signed and filed, April 14; cost $1320.

Lombard near Stockton. Plumbing, etc; o, James Kitterman; c, A. Guilbert; signed, March 20; filed, April 4; cost $8000.

Market street, Ferry building. Iron fences; o, State of California; c, West Coast Wire Co; cost $979.

Market and Ellis. Pilasters, arches, etc; o, Jas. Orndoff and Geo. Smith; a, Havens & Toepke; c, L. & E. Emanuel; signed, April 29; filed, April 21; cost $1630. Sewering, etc; c, Duffey Bros; cost $1460.

McAllister and Franklin. Painting for ten flats; o, F. Koenberg; a, Salfield & Kohlberg; c, John Quadt; signed, April 11; filed, April 15 cost $2398. Carpentry, etc; c, C. Schutt; cost $34,885. Gas fitting, etc; c, Henry Hufschmidt; cost $6973. Artificial stone; c, R. Stettin cost $1886.25.

Mission near 7th. To build; o, H. F. Suhr; a, C. A. Meussdorffer; cost $5797.

Morrison near China Ave. To build; o, Louis Kahn c, A. Schweizer; signed and filed, March 20; cost $2300.

Ninth Ave. near I. Cottage; o, Eugene Keller; a, A. R. Denke, Jr; c, Jos. Holl; cost $1527.

Ninth near Folsom. To build; o, May Williams; a, R. H. White; c, C. M. Lindsay; signed, March 22; filed, March 27; cost $2950.

Pacific near Hyde. To build; o, Auguste and Moenni Mielo; a, Jules Godart; c, P. A. Antonelli; signed, April 8; filed, Apr 110; cost $2300.

Pacific near Leavenworth. To build; o, Anna Herzo a, Martens & Coffey; c, J. Pecarich; signed, April 6; filed, April 12; cost $1.00.

Park Hill Homstead Assn. lots 11, 13. Alterations and additions; o. Hannah B. de Urioste; a. Nathaniel Blaisdell c. E. C. Bletch; cost $4228.

Post and Gardner. Cast iron bases and columns for seven-story brick; a, Tharp & Holmes; c, Joshua Handy Machine Works signed, April 8; filed, April 25; cost $9870. Pressed and moulded brick and terra cotta; c, Steiger Terra Cotta and Pottery Works; cost $40 per M. for plain brick, $49 per M. for moulded brick $2.50 per M. for eratin brick, $320 for 49 Jack arches of terra cotta. Terra cotta work; c, Steiger Terra Cotta and Pottery Works cost $12,430.

Post near Grant Ave. Excavations; a. Tharp & Holmes; c, John S. Stratton; cost $3500.

Post and Meacham Place. To build; o, S. Glennon; a. Newsom & Meyer; c, C. L. Williams; cost $4455.

Seventeenth near Eureka. additions and alterations; a, C. F. Robertson; c, C. Krecker; cost $3340.

Scott near Broadway. To build; o, J. S. Oyster; a, Clinton Day; c, R. Greig; signed, April 24; filed, April 25; cost $18,400.

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D. J. PATTERSON 98

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

THE GREAT question which the world is about to be called upon to settle is how to reconcile men and machinery. Scientists teach us that the moral, physical and intellectual advancement of the race depends on desire; in other words, that what the intangible part of us aspires to, and gropes after, becomes ours in tangible form solely through the force of mind, directed by our inclinations, appetites, longings, ambitions or aspirations. We talk about *discoveries*. But actual discoveries are rarely made. What we name such have been the result of long mental processes, begun often before the birth of the so-called discoverer, and received as an inheritance by him. Locomotives, musical instruments, delicate or powerful mechanisms, are but the outward expression of the soul of man—doing in mechanics what it could not do in its own body.

Men have not been able to fly, but early sculptors and artists made winged monsters and winged deities, thereby expressing their thought. Early Christians painted angels with wings, and encouraged their converts to believe that in the next world their desire to fly would be gratified. The first form of the thought died out; and the second only lives in copies of the old masters. But in proof of the hold the idea of flying had on the human mind we have the myth of Icarus—from whence we dub as Icarian those who soar too high for safety. No human being ever did fly, yet humanity has always been intent on accomplishing the feat. Hence flying machines have been attempeed over and over, albeit with indifferent success. We cannot fly with our own wings, but "on the wings of thought" we may yet arrive at success in contriving a machiue which will do our flying for us.

Man has always felt the barriers imposed by time aud space to the rapid communication of thought, although the ancient philosophers of India devoted their lives to the study of thought, and the means of making it its own agent in overcoming physical forces. It remained for the godlike brain of Shakespeare to couceive an idea too incredible to be put into the mouth of his earthly characters, and therefore he makes the dainty Puck declare that a girdle shall be put upon about the earth in "forty minutes." To-day it is a fact accomplished, and achievements more wonderful still have followed and are accumulating rapidly, in the direction of instantaneous transmission of thought.

In the early period of the world's history the lifting and propelling power used in the construction of the greatest monuments of antiquity was human muscle, and whole nations were forced into slavery to accomplish such results. But man's brain has kept at work upon problems in mechanics until he has almost too little use for his muscles, which are in danger of degenerating through neglect of exercise. What we have been accustomed to call inorganic matter expresses his thought, and performs his will better than he could do it with his own hands. His intelligence animates inert substances and controls unseen forces.

The beginning of these wonderful manifestations was by putting to use steam. Out of its expansive power came a marvelous change in transportation: steamships and railways resulted, until the surface of every civilized country has been ribbed with steel, and "globe-trotters" may be found in every corner of the earth. Still it was only by the means of corporations and massive enginery that so much was accomplished. The desire of man to have his locomotion under individual control, to be able to run like the ostrich, if not to fly like the eagle, had not been attained. He had long ago subdued to his service the fleet-footed horse; but the horse has a will of his own, and requires food and shelter as well as his master. In the evolution of mechanical ideas it was observed that motion in one direction might be made to counteract the influence of gravitation in another.

This was not a discovery, for from the trundling of a child's hoop to the movements of the heavenly bodies, the principle had always been illustrated. All at once, apparently, it occurred to somebody to mount a wheel and ride it, instead of trundling it on foot. And now we have the noiseless steed, animated by no will but our own, and whose speed depends, under favorable conditions, upon the exercise of that will. Nothing that has ever been invented as a means of transportation has made the traveler so independent.

But it would not be in consonance with the thought in this article to suppose that a limit has been set to the development of the idea involved in its construction. Perfection in anything is death, or degeneracy ending in death. In continual change lies growth; and while the soul of man aspires to know and to control the elemental laws of nature, growth must proceed, and must proceed in all directions, for there is an independence between the material and the spiritual in the universe which does not permit of a too one-sided development.

Too rapid evolution is apt to generate revolution. The man of to-day has lost his head upon the past, and has not yet taken firm hold of the future. Particularly has the rush of invention by the ever increasing brain power of the thinking classes paralyzed the faculties of the more numerous classes who do no thinking, except in self-defence. When crowded too far, self protection becomes aggressive, and in masses dangerous.

The problem which the thinkers have now to solve, is how to go on without encountering this opposition. The thought which is expressed in the numerous mechanical inventions of the nineteenth century is taking employment away from large numbers of people, and combinations are forming in manufactures which put money and machinery above men. On the other hand, a very great amount of brain is engaged in trying to solve the problem of how to produce an equilibrium between human force and mechanical force—to save the man, and yet not sacrifice the machine. No nobler aim can a great soul have than this—to preserve man's independence and equality of rights from every kind of domination, whether it be of rank, riches or intellect. There may be absolutely equality of birth, but equality of rights can be maintained only by effort.

THEN AND NOW IN ARCHITECTURE.

CONTINUED FROM LAST NUMBER.

ALTHOUGH separated from each other only by a few hours of modern sailing time, the Greeks and the Latins remained unacquainted for centuries after the former had set out upon its remarkable career of development in architecture and sculpture. Rome was in the second or third century of its existence when the Parthenon was completed. This was the culminating period of Greek art, but Rome had not felt to any perceptible degree the influence of Grecian ideas.

The people from whom Rome derived its earlier examples of art were the Etruscans, a race in the north of Italy whose origin is still a problem in ethnology. It is believed that they first appeared in the country ten or twelve centuries B. C. Whence they came, or what form or degree of civilization they brought with them is unknown to historians, who all agree, however, that they possessed a language, a religion, and customs wholly different from the Latins, to whom they were superior in the arts of peace and war, and whom they encroached upon in the mutual struggle for possession. In this contest they extended their conquests south of the Tiber, and it required six centuries for Rome to emancipate itself, and to conquer at last this strong people, a dynasty from which at one time ruled Rome. The final conquest of Etruria was effected 281 B. C., when their twelve cities between the Arno and the Tiber were subjugated.

In this instance, as in those referred to in the foregoing papers on the history of architecture, it was the influence of a foreign people, either conquering or conquered, which modified or changed the architectural ideas of the native races. Thus the Latins obtained, apparently, the arch, which they afterwards improved, from the Etruscans, who used the horizonta-jlointed false arch, a few examples of which have been found in Egypt, and more frequently in Asia Minor. But they also used the true arch with radiating joints when a round arch was desired. In some of their rock-cut tombs their doorways slope towards the top after the Egyptian style; and again some of their cornices and other details are obviously related to Greek or Grecco-Egyptian styles.

The only decided characteristic of Etruscan structures which the Romans adopted, after the arch, was the circular form of building; the true Etruscan examples being in the form of a drum, with a cone-shaped roof. No large buildings remain of their construction, hence we have nothing to point to, save related types; but the preservation of some circular Roman tombs, the remains of several circular temples, the Colosseum and the Pantheon are evidence of the favor with which the circular form was received by the early Latins. Thus the Etruscan of semi-Asiatic influence was the first to affect the barbaric or native taste of that portion of Italy called Latium, and it came from an invading power. War first, and commerce afterwards, was the medium through which the arts were carried from nation to nation.

Greece had been conquered by Persia, and in return had conquered Persia, Egypt, Assyria and Babylonia, and nearly all the half civilized countries of Asia and Africa. A Grecian general became the founder of the dynasty of the Ptolmies in Egypt. From the spoils of war Athens had become opulent. Temples, altars, theaters, gymnasia, porticos, baths and statues abounded. Poetry, learning and art flourished. All this magnificence was at its height in the fifth century B. C. Then came the decline which follows riotous living. Nothwithstanding, however, the contact of the Greeks with the conquered nations, such was the inherent refinement of the Greek mind that in the matter of the arts it was not corrupted, but maintained its pre-eminence.

Meanwhile Rome, which had developed through its wars with neighboring nations the military spirit to a remarkable degree, essayed to conquer the conquerors of Greece—the Macedoinans—214 B. C. This was finally accomplished, 146 B. C., when Macedonia and Epirus became a Roman province, and the remainder of Greece the Roman province of Achaia. For four hundred years the Grecians were subject to the Romans, without losing their eminence in learning, their intellectuality being kept alive, if not stimulated, by the demands made upon their scholarship by their military masters.

Rome at this period was at the height of its glorious career of conquest. Her armies were over a great part of Europe, and for some distance into Asia and Africa. Where-ever her captains went they colonized, carrying with them the Roman idea of architecture, founded in strength and simplicity. Their roads, acqueducts, temples, theaters and fortifications were constructed, as far as their materials would allow, to resist the tooth of time. After two thousand years their remains may still be found in all the western countries of Europe, and, more rarely, in Asia and Africa.

But while Roman ideas were carried over almost the whole then known world, leaving thereon their imperishable record, the returning soldiery brought back from these countries the best intelligence of the captured peoples, which the Romans applied to their own uses. It follows that a pure Roman style could hardly be said to exist. Upon the Etruscan was grafted the Egyptian, Persian and Greek styles of art.

The three columnar orders of the Greeks—the Doric, Ionic and Corinthian—suffered at the hands of the Romans by having their expression destroyed. The "manly Doric" of the Greeks in Roman hands lost its austere dignity and became commonplace, and the "decent matron grace" of the Ionic was marred by clumsy volutes, which seem added to, rather than a part of the capital, as in the original. But the Corinthian order with its acanthus-leaf capital spreading its "wanton wreath around," was suited to the taste of a people who preferred opulence of ornament to refinement, and delicacy of proportion, which was the Greek characteristic. Only two other orders were recognized by the Romans—the Tuscan or Italian, and the Composite.

To the unprofessional observer, the slight difference in general form would hardly suggest an order. On these differences, however, depended the expression of a building, as the expression of the human face depends upon certain lines in it. In Roman hands the Greek Doric—which stood upon tho marble floor without any other base, and lifted itself with a slight dimunition of its diameter to the capital, which was merely a symmetrical expansion above the volutes to the thickness of the foot of the column, with a fillet in intaglio a little way beneath, around the volutes (a suggestion from Egypt)—became a column with a projecting double base, a capital with a moulding, and a fillet in relief. The shaft was lighter than in the Greek column, and the capital was surmounted by an entablature or prolongation of the column, which was decorated, and had a larger capital than the main shaft, being used generally to support arches which would have been quite as well supported and more imposing if they had rested directly upon the column.

Similarly the Ionic and Corinthian orders were altered to conform to Roman ideas of taste and expediency. Out of the two came the Composite, order with its more slender shaft, its Ionic base, Corinthian capital, and the prolongation above, as in the Doric. The Tuscan differed from the Roman Doric by its superior size, and absence of false lines by way of decoration. This fault in Roman architecture is peculiarly open to criticism. No architecturai detail should be employed simply as ornament and not of use.

In the Grecian Doric the architrave is a plain beam resting upon the outer rows of columns. Above it is a frieze consisting of upright blocks of stone grooved to present three pillars, placed at the angles of the structure and over and between the supporting columns as supports to the cornice. These grooved pieces, called triglyphs were a necessary part of the resisting power of the building, and of use. Between them, and for ornament, were placed sculptured slabs, which could be turned upon hinges and were called metopes. The Romans made a false application of the triglyph by removing it from its most important position at the angles of a building to make the spaces between the columns equal, instead of making a slight difference in the place of the column or the triglyph to accommodate the latter to its proper use. They also placed columns in the walls of buildings whose real supports were arches, as in the Colosseum. The columns appear to be sustaining the weight of a heavy moulding between the several stories, which really they do not, and their only purpose is one of ornament. But an architectural feature is not an ornament.

Another variation of the Doric style of building in Rome was the greater elevation of the low-pitched roof and pediment of Grecian architecture, and was made in accord with a general tendency of the Romans towards height in construction. These innovations or alterations in adopted styles, while pardonable in the effort to produce new and attractive effects, were often injudicious, and almost always accomplished in a manner to vulgarize the original form, or to betray the inexpediency of the change. Purity of style was not possible to a people absorbing in itself the ideas of all the known world, as did the Romans.

Leaving the columnar orders derived from Egypt through Greece, and turning to other architectural forms, we find the use of columns retained in temples and public buildings to a very great extent, but differently applied to suit the Roman styles of roofing which succeeded to the Doric.

It must be remembered that the ancients, either from some superstitious reverence for the sun, which they worshiped, from want of knowledge of lighting, or from fear of marring the external appearance of their public buildings, did not provide for windows. The cella, or enclosed part of temples, received only as much light as came from an open door, in the shadow of a forest of stone columns, as in Egypt; or as at Athens, where the light was filtered through a double row of marble shafts standing around the outside of it. The sacred inner cella, where dwelt the Holy of Holies, was lighted by la ept always burning by virgins devoted to this service, as we read in scriptural and secular history.

As the Parthenon at Athens was the crowning glory of Grecian architecture at its best period, so the Pantheon at Rome was the greatest work of the Roman architects in the Augustan period, and the most perfect example of the difference between the arts of the two nations so near each other.

This wonderful building, erected less than thirty years before the Christian era, is the best preserved of the ancient monuments of the Eternal City. It had the Etruscan circular form, and was constructed of concrete faced with brick, which was again faced with marble fixed in position with metal cramps, which in the course of centuries rusted and let fall the marble veneering, so that it presents in our time only the concrete and brick of the walls. These are not supported by true arches, although helped by relieving arches placed to throw the weight on the piers below, where the thickness of the wall is twenty-three feet. The external diameter is one hundred and eighty-eight feet, the height to the top of the cornice one hundred and two feet, and adding the dome, the elevation is one hundred and forty-eight feet. The dome has five rows of coffers, and an opening in the center twenty-six feet in diameter, which gives a flat summit.

The interior diameter of the rotunda is one hundred and forty-two feet between the piers which divide recesses in the wall, eight in number. These alcoves, intended for the reception of shrines to the deities, with the exception of the one facing the entrance, and devoted probably to Jupiter, were again divided into three by two columns thirty-four and a half feet high. The floor was of mosaic work, and the statutes of the gods colossal. Mars and Venus were among the deities most honored by the Romans, and whose statues were enshrined in the Pantheon. In the portico stood statues of Cæsar Augustus and his son-in-law Agrippa, who was the founder of the temple.

So far this Roman temple illustrated the combination of the Egyptian ideas of strength and solemn obscurity in a religious building, with the Roman features of circular and arched forms, greater height, and a more joyous pantheism.

The portico, that important adjunct to all temples, was an octestyle, of the Corinthian order, thereby adding a Grecian element to the combination. The disposition of the columns, which were shafts of granite in single pieces, forty-seven feet in height and five feet in diameter, with marble bases and capitals, was in a triple row, sixteen in all, one at each angle, and the others so arranged as to divide the space internally into three aisles, the center one being the widest, and containing the great doorway. The others had each in the wall a semi-circular recess for statues. Although the portico was but three inter-columns in depth in front, its flanks continued the order in pilasters which formed two more, making the projection from the main structure nearly seventy feet at the ends. The width of the portico was one hundred and ten feet, and the approach to it was by three steps. A massive pediment rested upon the outer row of eight columns, and the roof was of gilt bronze. A second higher pediment behind the first reached to the projection immediately under the dome, which was divided into two stories by an encircling cornice. The cupola or second story of the dome was built of a finer concrete than the walls, and contained five of the seven rows of panels.

The splendors of this temple to all the gods are hardly to be conceived by the modern mind. It suffered spoilation through the invasion of barbarians in the fifth century A.D., and in the seventh century it was further despoiled by Emperor and Pope, its gilt bronze roofing being removed by Constantine to Constantinople, and its metal tiles taken by Pope Urban VIII to make the Baldachino of St. Peters in Rome, as well as to make cannon for Castle St. Angelo, formerly the tomb of Cecilia Metella. It has been used as a Christian church for thirteen centuries, being converted by Pope Boniface IV from the Temple of all the Gods, to the "Church of all the Martyrs."

The Roman Forum in the Augustan period occupied the same relation to the city that the Acropolis sustained in Athens—it was the centre of its architectural greatness. But the buildings surrounding it were mainly of a different character, and admitted of a variety of forms. Temples there were, but here also were the triumphal arches of their great captains; here in close neighborhood was the immense circular Colosseum, and here was the great public hall or Basilica—in reality a merchants' exchange. It occupied almost the whole of the sunniest side of the Forum, as it needed, for it was open all around, being, like a Greek temple, a columned structure supporting a roof, but without the walled cella. Instead of this was a double colonnade within the outer one, the space between answering to a portico whose roof was at a lower elevation than the roof over the hall within the inner colonnades, a style of which there are other examples in early Roman architecture. A pediment surmounted the cornice of the second story, pitched at an angle too high for symmetry, unless as in the Pantheon there had been two pediments.

The destruction wrought by northern invaders, following the schisms in the early Christian church, and the removal of the capital of the Roman Empire to Constantinople, with much of the moveable wealth of the city, brought Rome to the lowest degree of impoverishment in the middle of the sixth century A. D., a condition from which it did not begin to recover for about three hundred years. During this long period of decline and fall many features of ancient architecture disappeared, especially those pertaining to Roman dwellings, few hints of which remain. All that is really known of this branch of building art, is handed down to us in the writings of that period which described some patricians villa on which large sums of money were expended. In these descriptions we find that noblemen's houses at least, had a fore-court, with a colonnaded room beyond, thus preserving in domestic architecture that most ancient feature of temple-building.

The removal of the Roman seat of empire to Byzantium in the fourth century A. D., introduced new forms of building with many changes in details, which when the Renaissance took place became grafted upon ancient styles, or blossomed out in a glory all their own under domes and minarets, and a lavishness of ornament unknown heretofore. Side by side with this magnificence arose and flourished the Gothic style of architecture, with which the Christian nations have ever since been associated.

To be Continued.

OUR SUPERVISING ARCHITECT'S OFFICE.

THE recent discussions in Congress regarding the Supervising Architect's office show very little appreciation of the changes taking place in its management or knowledge of the workings of the so-called Tarnsey bill. For the first time in the history of the office the Supervising Architect is not in any sense a political appointee. In his appointment Mr. Gage, the Treasury Secretary, decided to base it entirely on civil service examination. As will be remembered, the details of this examination were drawn up by consultation with some of the most eminent architects in private practice and the examination was passed upon by the same body.

In order to render the selection more independent of personal bias not even the names of the applicants were known to the examining board. Three name were certified by this board as standing at the head of the list, and Mr. James K. Taylor, the present incumbent, although second on the list but with markings but little below the first, was selected from the fact that he was at the time head draughtsman in the Supervising Architect's office and had the advantage of being thoroughly conversant with the details of the office, a circumstance that more than counterbalanced any slightly higher markings of the applicant first on the list.

This was a radical departure from the time-honored custom governing these appointments, and does away with the feature of patronage and political influence governing the selections for this position heretofore. The two features of special note are that it was based on merit and previous service. It marks a step in advance and one that cannot well be ignored by future administrations.

Another matter of importance in the present administration of this office is the effort to make use of the Tarnsey bill, a law that had been a practically dead letter up to the present time. The long and acrimonious conflict with Mr. Carlyle to secure a trial of it is still familiar to members of the profession and the utter failure in these efforts is well known to all. Mr. Gage and his able coadjutor, Mr. Taylor, have given it a trial in several cases and with very satisfactory results. Notwithstanding the fling made by Mr. Gallinger, in discussing the appropriations for this office (in the Senate recently), at a "system under which we pay a salary to a Supervising Architect who has passed a civil service examination and then have to let out special work to an architect here or there 'who could not pass a civil service examination.' " The new departure is likely to prove highly advantagious.

Congressmen as a class have shown little appreciation of the importance of improving the public architecture, especially in the Senate, these positions have been looked upon merely as opportunities for patronage. The difficulty in securing the passage of this Tarnsey bill, imperfect as it is, will be remembered by all. It took years of labor on the part of architects to accomplish its passage and until recently it has been a dead letter.

Our public men have shown little sympathy with the efforts of architects and artists to bring the character of the great monumental buildings of the country up to a plane with that of the present status of the art in private work. To secure diversity of design and afford to really high talent an opportunity for the exercise of its powers in the large field offered by Government building was the object of this law. Up to the present Administration neither recognition of this sentiment nor sympathy with this effort has been shown on the part of the administration of this office. What has now been done however, shows what can be done in improving Government architecture, and it is scarcely conceivable tha we can ever settle back to the old *regime* of machine made design that has heretofore prevailed.

In Government work the conditions are so entirely different from that in private work that much arises to hamper the Supervising Architect that could not come up in an ordinary architect's practice. Time, and a good deal of it, seems to be an element which must be ever present in these undertakings. The long periods elapsing from the time any public building is projected until finished could not be endured in any other work, yet here it seems scarcely to be avoided. These are not necessarily faults of the Supervising Architect but the result of the general laws concerning buildings.

There are about one hundred printed pages of statutory provisions which have to be studied at every move toward putting up a building. The ingenuity of man never devised a worse net for the feet of a would-be progressive bureau, under the guise of an elaborate system of checks and balances. But back of that still lies the fact that the law forbids the expenditure of one penny toward a building till the site has been selected and its title passed upon. Agents of the department perhaps spend some months in deciding between rival sites in a particular city. Then the United States attorney for that district examines the title, taking all the time he wants, and being, as an officer of the Department of Justice, beyond the control of the Treasury Department. When he makes his report to the Attorney General the latter takes in turn all the time he wants to look the report over, finally certifying it to the Secretary of the Treasury. Not till that moment—possible twelve or eighteen months after the authorizing bill was passed—is the Supervising Architect permitted to make even so much as a sketch plan for the building. The full plans, specifications and detail drawings take a good while to prepare, if proper care be taken with them; and the advertising for proposals must be done so-and-so, involving still further delays. Perhaps, after the bids are in, considerable modifications of the plan seem advisable; and so it goes.

Under these conditions it is not surprising that public work is so long drawn out. The San Francisco building is a good exemplification of how this goes. It has already been about a dozen years under way and two or three more are likely to elapse before it is finished. In the first place, the selection of the site was a matter of years. The city was divided and every element of political, social, and, we might say, religious life, was brought into the fight until the successive secretaries, during whose terms the war was waged, were in despair.

After the building was designed came another period of conflict as to the material to be used. Mr. Aiken, the then Supervising Architect, had designed a building to be executed in marble, but California not having enough of that materia in sight and objecting to the use of Eastern marble, the design had to be modified to adapt it to granite, resulting in cutting off two towers and an ornamental balustrade topping the cornice, until now it is claimed it looks like a prison or a factory, a result not to be laid to the designer, but rather to an unfortuitous combination of circumstances.

The above is but a single example of what has occurred in a multitude of Government buildings and after everybody has pulled and hauled at the thing until there is no shape in it the whole blame is laid at the door of the Supervising Architect. It is to remedy this state of things, as far as may be, that the Tarnsey law was passed and that further legislation is sought. The hopeful thing is, however, not that the present office is what it should be, but that it is pointing in the right direction and has a possible future before it.—*Architecture and Building*.

WASHINGTON ARCHITECTURAL CLUB—THE OCTAGON.

THE following resolutions were adopted at the last meeting of the Washington, D. C., Architectural Club:

To the Architects and Laymen of the U. S.:

We, the members of the Washington Architectural Club, a representative body of architects of the District of Columbia' in meeting assembled, believing that:

While it is true that for a long time in the history of the office, known as that of the Supervising Architect of the Treasury, there existed a state of affairs which deserved the adverse criticism of the profession at large, those conditions have now been so altered for the better that adverse criticisms are unjustifiable and detrimental to the best interests of the profession, do hereby

Resolved, Tnat this club extend to the Supervising Architect and his staff its moral support, and desires to uphold them in their earnest efforts to improve Government Architecture, and

Resolved, That this club resentf the unjust and sweeping charges of incompetency and mismanagement which have recently been made in the Legislative Halls of the National Congress, and it is hereby further

Resolved, That this club bel.eves it unjust to hold the present Supervising architect responsible for work executed under the direct supervision of his predecessors in office.

EDWARD W. DONN, JR., President.
ARTHUR B. HEATON, Secretary.

ADDRESS ON ARCHITECTURE.

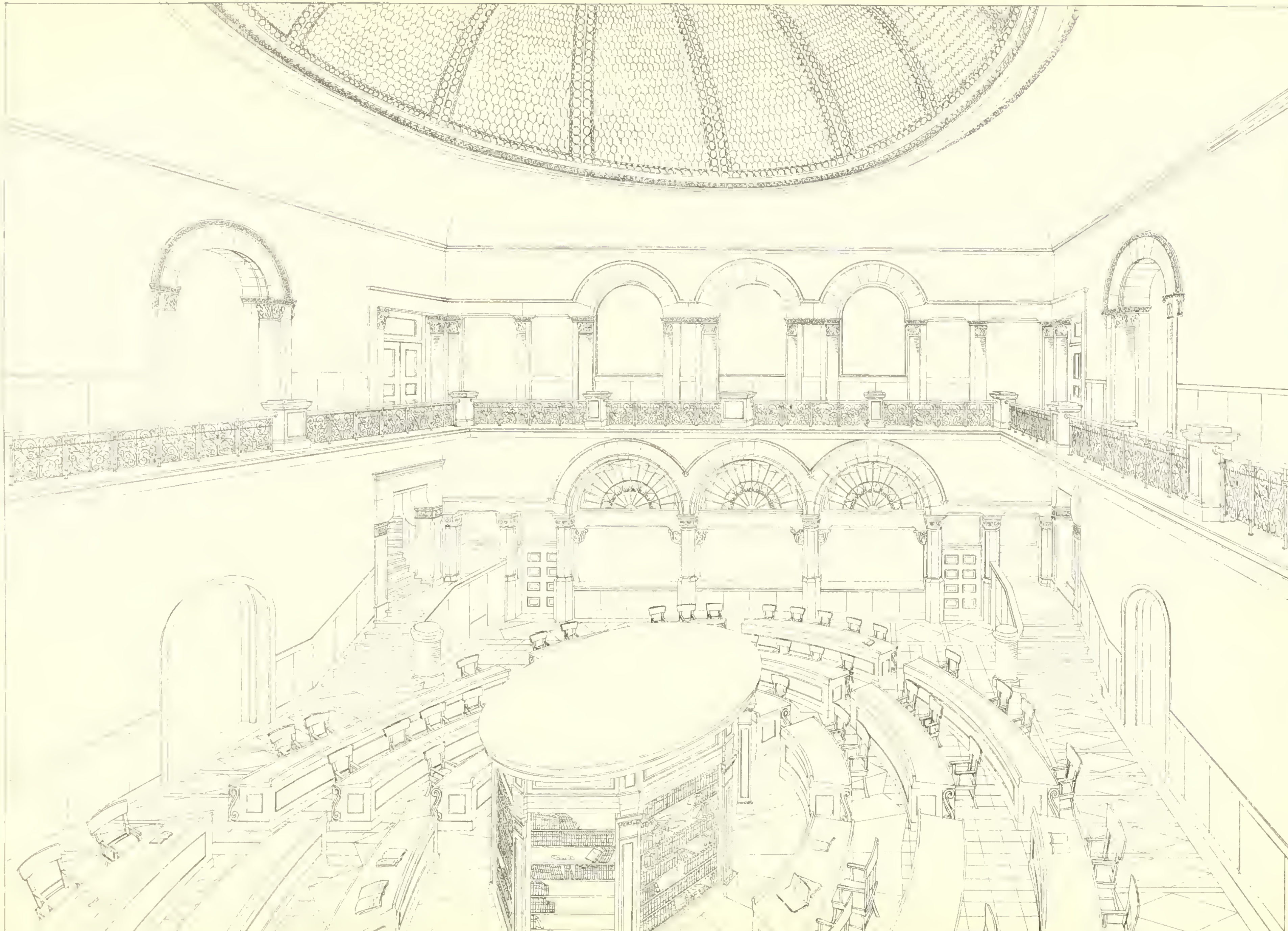
DELIVERED BY H. C. KOCH OF MILWAUKEE AT THE CONVENTION OF THE NATIONAL ASSOCIATION OF BUILDERS, HELD AT MILWAUKEE FEB. 7, 1899.

MR. KOCH began his remarks by expressing his gratification at being asked to address the convention, and expressed it as his opinion that the National Association of Builders had done much to assist in the establishment of the position of the builder upon a higher plane than he had hitherto occupied in the public mind. Continuing, he said:

"Through your efforts and combined action, you have reduced the number of the peculiar class of individuals styling themselves 'general contractors.' I emphasize the name 'general contractors,' because to my mind this name is very ambiguous, in most cases it means a master builder who is a practical mechanic, while in some cases it means an individual who is no mechanic, a sort of building broker or dealer in false pretenses, who secures and peddles all the sub-contractors' bids he can get, which is his only method of estimating, then adds up the lowest sub-bids, and sometimes reduces the aggregate 10 per cent, so as to be certain of being the lowest. After being awarded the contract he again visits the various sub-contractors with the intent of getting lower figures, after exposing the figures of others, and finally combines with those sub-contractors that belong in his class. The work progresses in the same character as that of the contractor, and therefore before the structure is half finished its rottenness is brought to the surface. The local press then takes a hand, magnifies facts, condemning all contractors and architects, and thus public opinion is sometimes formed.

But this class of general contractors are not the only individuals that have polluted the reputation of honorable master builders; there is another class of individuals equally if not more guilty than the peculiar 'general contractor' and known as 'designing architects,' that enter all competition with elaborate colored perspectives on a large scale, in their way promising the most expensive construction and finish, who often meet with success when they have a 'tenderfoot' or questionable committee to deal with, provided the structure can be built within the appropriation. The so-called working plans are drawn to a scale of ⅛ inch to the foot. The specifications consist mainly of the general phrase 'as will be directed,' or 'as shown on the plans.' Very little is shown on the plans, and the term 'as will be directed' is so elastic that it either makes or breaks the contractor, and when the structure is said to be completed the contractor retires with the reputation of a rascal or a fool, either one of which will not elevate the reputation of master builders or architects. I have referred to the peculiar general contractor and the 'designing architect' for the purpose of impressing upon you that the reputation and interests of honorable and reliable master builders, as well as those of the competent and honorable architect, are identical and mutual; as no builder, however competent he may be, can erect a structure with credit to himself, after the plans of an incompetent or unreliable architect, and *vice versa*, and I suggest the assertion that it is very essential to the master builders as well as the architects of this country to relieve each other from the peculiar class of individuals which a portion of the public may call colleagues. Both are a menace to your reputation, which your association is endeavoring to elevate. It is often said that the builder only carries out the ideas of the architect, which may be true in some instances, but in many cases where complicated problems in construction and erection present themselves the architect often seeks and adopts the ideas of the experienced master builder. In architectural and technical schools the theories of construction are taught to the embroy architect, but such theories were evolved and deduced from the practical experiments of the mechanic. Several years ago, while on a visit to the Massachusetts Institute of Technology, I became very much interested in the details of construction of the various building trades that are taught there, and complimented Professor Chandler on the thoroughness of the method, illustrated in the detail plates published by him. He informed me that the credit for the method of construction belonged to the masters of the various building trades of Boston, whom he had consulted, and that he considered superior to ordinary office methods of even the prominent architects, and hence their adoption in the regular course of architecture in the Institute. I consider this the hightest compliment that can be bestowed on the ability of the master builders of this country."

Mr. Koch's address was listened to with undivided attention, and frequently interrupted with bursts of hearty applause.—*Carpentry and Builder.*

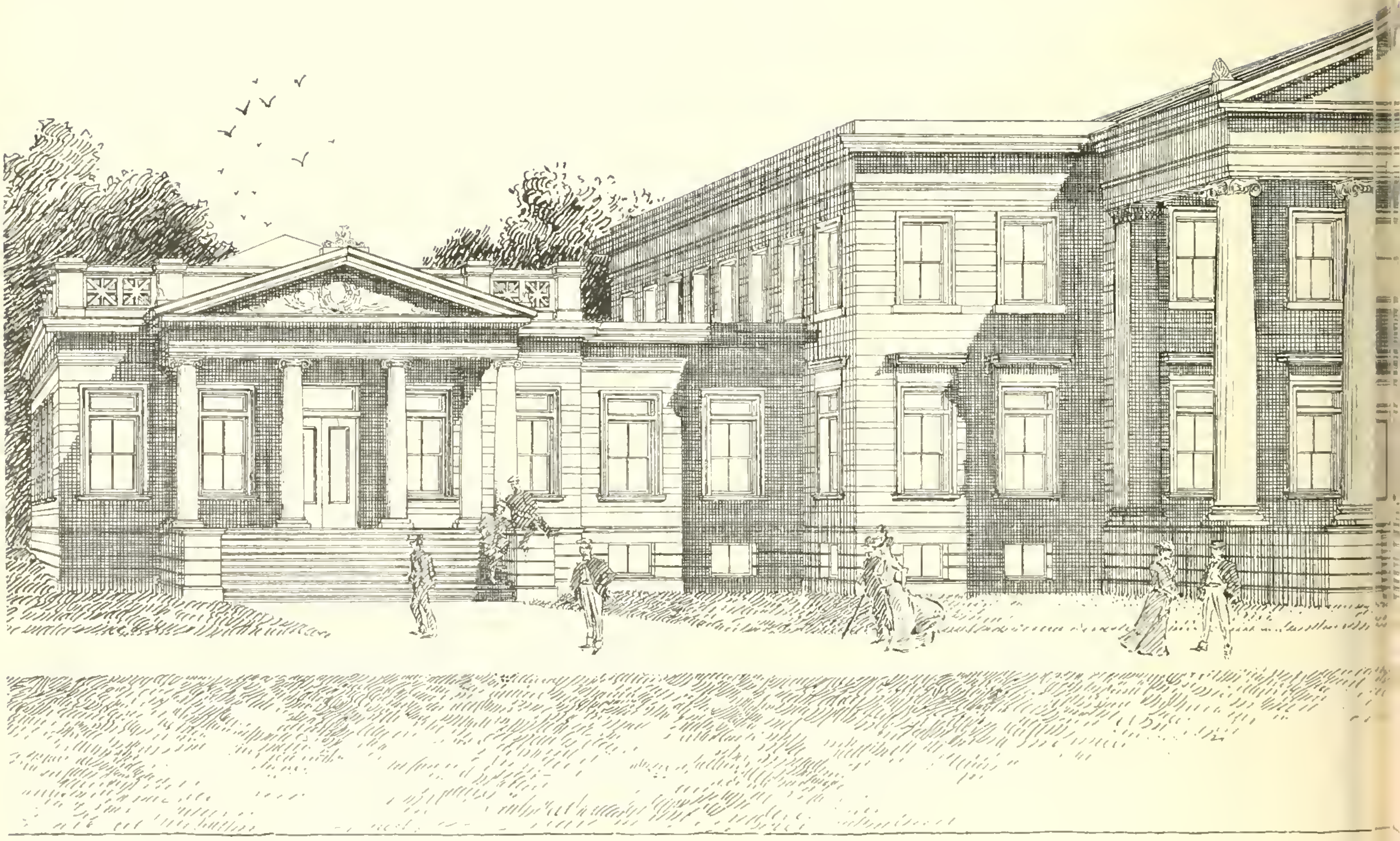


CALIFORNIA ARCHITECT & BUILDING NEWS
SAN FRANCISCO

BRITTON & REY. PHOTO LITH.

VOL. XX Nº 4 APRIL 1899

~LIBRARY~BUILDING~LELAND~STANFORD~JR~UNIVERSITY~INTERIOR~OF~READING~ROOM~PERCY~&~HAMILTON~ARCHITECTS~



CALIFORNIA ARCHITECT & BUILDING NEWS
SAN FRANCISCO

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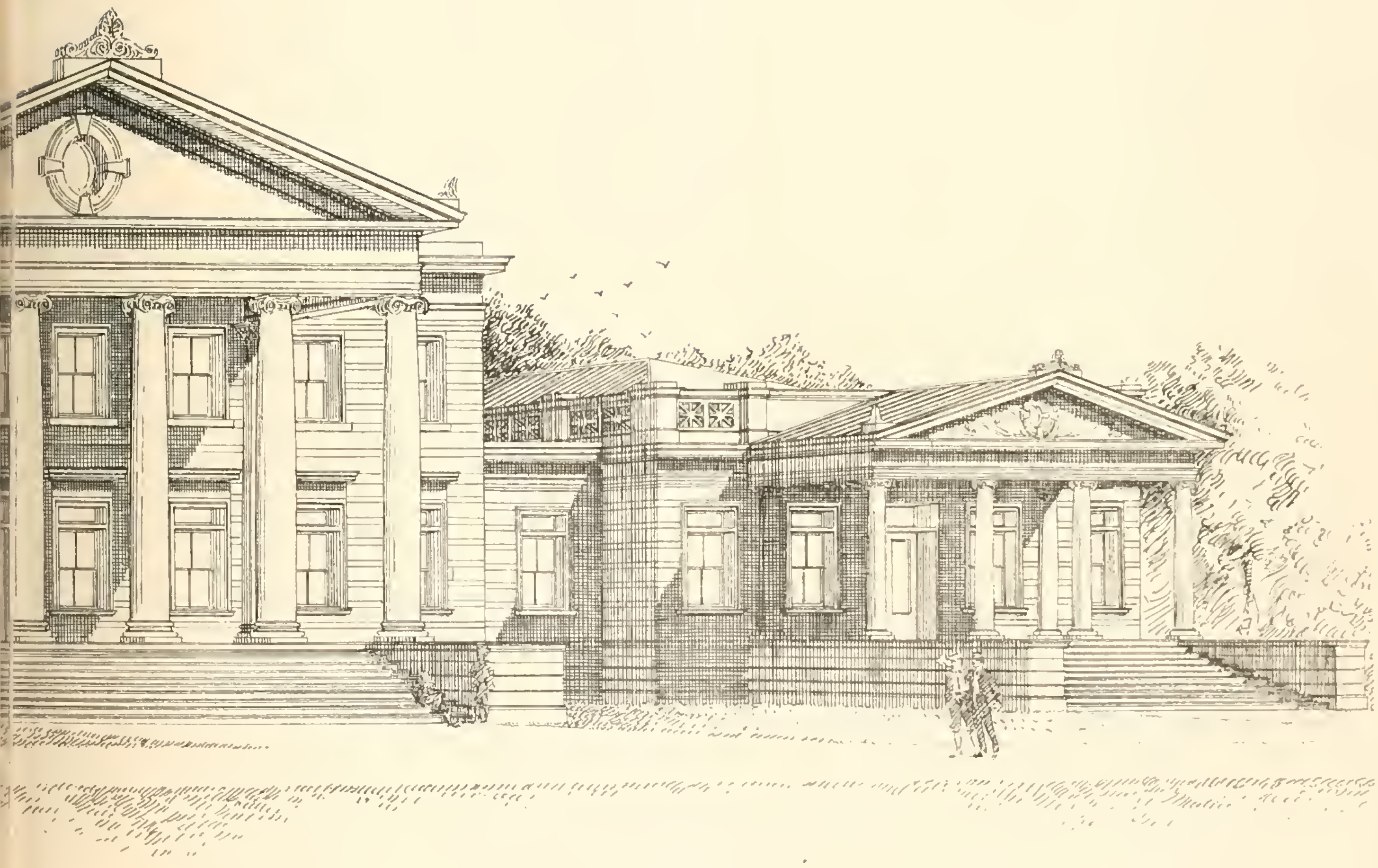

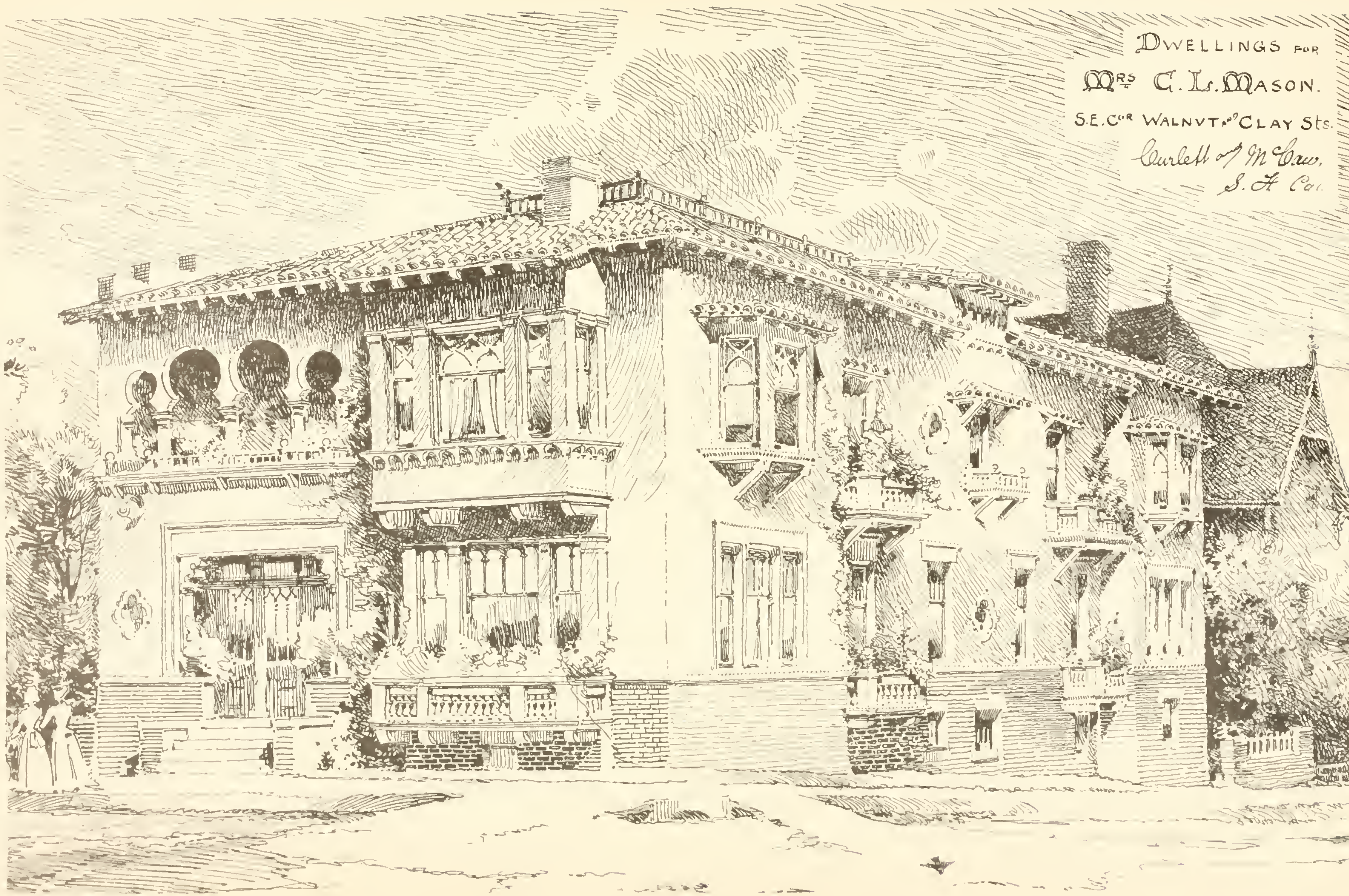

BRITTON & REY PHOTO LITH

NEW YORK HAPPENINGS.

EVERYTHING is overshadowed by the magnitude of the Windsor hotel catastrophe, and every day its horrors increase, says *Fire and Water*. None can, probably none will ever be able to say with any approach to certainty how many perished in the burning building. One of the hotel clerks thinks one hundred at least lost their lives. Up to the present, twenty bodies have been found, and any amount of fragments. Meanwhile those who would make political capital out of the disaster, are springing up like mushrooms. Unconstitutional bills, which will have a retroactive action, and will virtually wipe out some of our old-fashioned, but thoroughly comfortable and well-conducted hotels are, of course, very much to the fore at present—no words of praise for the fire department can be too high. To attempt to rehearse all the deeds of heroism performed, would about fill this paper. Enough said, when it is noted that there are twenty-one names on the roll of honor which the fire horror created for the records of the fire department. To these must be added the name of Fireman Haslam, attached to the fire department in Brooklyn, who was holidaying for the day and viewing the procession. He saw the fire and, throwing on his coat, ran up the fire-escape to the fourth story, where he assisted a woman to safety. On the floor he saw the form of a little girl, and though the fire was creeping along the floor, he entered the room and carried the child out. She died on the fire-escape. Above him, on the edge of the roof as he climbed, he saw a woman poised to jump. He shouted! "Wait, I'm coming!" He then hastened to a point as near as possible to her; braced himself, and, as she fell, caught and saved her. The department will take action in his case. Very few firemen were injured, and none seriously. Most deservedly three persons have this week been fined $250 each, with costs of court, for neglecting to place fire escapes on their property, as the law demands. The long threatened attack on Chief Bonner will probably have a very boomerangish effect on those who promoted it—they are not hard to find. There will probably be no further attempts made at this session at Albany to depose the chief, to whose good services Postmaster Van Cott, Republican and all as he is, an insurance man and a former fire commissioner bears most emphatic witness. New York generally has three big fires at comparatively short intervals between each and then a lull for a few weeks. Last week has been no exception to the rule. The Windsor fire was immediately preceded by a $200,000 fire at 345 Broadway, Manhattan, extending back through to Benson street on the premises occupied by S. J. Elliott & Co., importers of lace and linen on the basement and ground floor, and A. J. Hague & Co., in the same line. Chief Bonner sent in three alarms and the blaze was got under, but not until the roof caved in and carried with it the third, fourth, and fifth floors. A portion of the Broadway wall and that on Benson street fell in. The narrowness of Benson street and the dense smoke made it hard and risky for the firemen. The other serious fires were in a printing office at 718–722 East Eleventh street, Manhattan, and at Randall's Island, where a House of Refuge boy set fire to the workshop, so as to get sent to the Elmira reformatory. The young donkey, who caused a big loss, didn't know when he was well off. Fire Commissioner Scannell has sent Miss Helen Gould and Mr. Frank Gould each a gold fire badge, nominally, because an intelligent policemen stopped the former when trying to get to her own home, and kept her waiting twenty minutes before she was sufficiently identified to be allowed to pass through the fire lines! The real reason was, of course, to show the appreciation of the fire department of Miss Gould's and her brother's "valuable and disinterested services" during, and since the Windsor hotel fire.

THE CLASSIFICATION OF BUILDING STONES.

THE MAJORITY of stones used for any form of structural or decorative work may be roughly classified under three heads. The crystalline, siliceous rocks, which include the granites; the calcareous rocks, including all limestones and dolomites; and the plastic rocks, including the sandstones and clay slates. Those of the first group have been formed from molten matter, erupted from the earth's interior or from the metamorphism of siliceous sediments; the orign of the second group is deposits of calcareous mud from the breaking up of shells, corals, and the remains of other marine animals on an old sea bottom, those of the third group result from the breaking up of older rocks, and the accumulation on the bottom of lakes and seas of the resultant sand, clay, or mud, in beds of varying thicknesses, to be subsequently gradually hardened into stone.

The essential difference between a marble and a compact common limestone, is that the first has undergone, through the combined action of heat and pressure, just the right degree of change, or metamorphism, to develop in it crystallization and color. The essential difference between a brick or fire clay, and a cleavable slate used for roofing, is that the first named still retains its plastic condition as it was laid down in the form of fine silt on a sea bottom, while the slate has, by geological ageneies, and by actual movements of the earth's crust, being so squeezed and compressed as to lost all resemblance to its former self, and to become the cleavable article of commerce we now find it.

Since these processes of change are dependent very largely upon the actual movements, warpings and foldings, as may be said, of the earth's crust, and the heat and chemical action which is thereby generated, and since these movements only take place with extreme slowness, whole geologic ages being occupied in their conception and completion, it follows, as a matter of course, that metamorphic rocks, like granites, marbles, and slates, are found only among the older rocks, and only in those portions of the country where this crust has been wrapped, compressed, and folded, as in the process of mountain making. In other words these rocks are to be expected in their best development only in places bordering along more or less extensive mountain ranges.—*Stone*.

INTERESTING EXPERIMENTS WITH LIQUID AIR.

SOME very interesting experiments were made with liquid air at the meeting of the Eastern Association of Physics teachers at Springfield, Mass., on March 31st, says *The Age of Steel.*

The exhibition was conducted by C. F. Warder, principal of the Mechanics' Arts High School, of Springfield, who briefly reviewed the earlier attempts to reduce air to liquid form, preparatory to beginning the exhibition. He said Faraday had liquified chlorine and other gases and he tried to accomplish the same results with air. His theory was to use compression, and he submitted oxygen to a pressure of 1000 pounds to the square inch, which other scientists increased to 4000, but withont producing any tendency to liquefaction. The idea of producing liquefaction by cold was discovered in 1869 by Dr. Andrews, of Belfast, and in 1877 the oxygen and hydrogen were liquided, establishing the fact that there are no permanent gases. Mr. Warner further explained that air is a liquid at a temperature of less than 312 below zero. When the temperature is raised above that point the liquid air boils just as water boils at 212, and passes off in a vapor just as water passes off into steam. When liquid air is taken out from the heat-proof receptacle in which it is kept, and into air of normal temperature, the change is so great from the air's temperature of 312 below to a temperature of 70 above that it passes off into vapor very rapidly.

The experiments made held the closest attention of the large audience, and some of them were very singular. The expansive power of the liquid was shown by turning some of the liquid air into a flask with a cork which was connected by tubing with a little air baloon. The vapor prodheed by the air traversed the tube and inflated the baloon to much more than its original size. By pouring more liquid air over the flask the air inside the balloon recondensed. This pretty experiment and many others were vigorously applauded by the audience. What is called a Dewar globe was produced. This consists of two flasks, one inside the other, the smaller containing liquid air. The holding of this to the light showed that liquid air will allow the passage of light. The space between this inner flask and the outer one was a vacuum, the air having been exhausted.

Mercury was used in exhausting the air and in such a way that the intense cold produced by the liquid air in the inner flask condensed the vapor of mercury in a thin coating all over the inner flask. This turned the inner flask into a perfect little looking-glass. Liquid air was poured into a tea-kettle and placed on a cake of ice. It still continued to boil, producing a long cloud of vapor, issuing from the nozzle. A steel wire was burned by exposing it with a lighted match to the rapid liberation of oxygen caused by the evaporation of the liquid air.

Pieces of beefsteak were frozen so hard by dipping that an impression could scarcely be made on them with the point of a sharp knife. Eggs dropped in the liquid became as hard as rock. Common rubber balls were made as brittle as glass, and would break like that material when dropped to the ground. The same results were achieved with zinc and fuse wire, which ordinarily are very pliable.

An exhibition showing how alcohol could be frozen was also given, but probably the most technically interesting experiment of all was the "mercury hammer" one. Liquid mercury was poured into cardboard molds, shaped like a hammer head attached to a hammer handle. When this mercurp hammer was taken out it was so hard that by pounding with it on nails it was possible only barely to dent it. This hammer was passed about among the spectators, the caution being added that the mercury should be kept away from rings and watch chains. The hammer finally melted and went to pieces. A mold was then made of mercury frozen with liquid air in which were caught two hooks. When the mold was taken out two of the physics teachers present grasped these hookstand endeavored to pull them ont of the mercury. The hooks finally broke, leaving the mercury intact.

A WORLD WIDE BOOM IN THE IRON TRADE.

THE present activity in the iron and steel trades is not a matter of splutter in spots. The consumption of iron is not erratic, but steady. It is not a case of wiring dry bones, or galvanizing dead frogs. There has been no scheming or conspiracy to force matters, or to pour brandy down the throat of demand. The situation is clearly one of conditions that are neither artificial or acrobatic. For reasons behind the present movement it has become a sharply cut fact that a hunger for iron and steel is possessing the world, and so strongly so that present production can scarcely keep pace with demand. There has been no such like situation in any year of the last decade, when the markets of the world were so eager for iron or so indifferent as to prices. This is as true in Continental Europe as in the United States, and in Great Britain as elsewhere. In most instances there has been a strong increase in home demand, which added to the broader market areas in China, Japan, Russia and elsewhere has brought production to the straining point. Steel and iron are multiplying their forms of service, and in structural uses alone are consuming enormous amounts of iron. Masonry and woodwork are no longer monopolists of the building trades. In railway equipment, the steel-press car is coming into use, and the heavier steel rail is following the route of the heavier tonnage. Railway construction is crossing the threshold of a new era. It is becoming empire-making. It has Africa to cross and to spike from Cairo to the Cape. It has done considerable work in India, and as yet has but began to gridiron a territory with two-hundred million population, and reaching down from the defiles of Afghanistan and along the Indus and the Ganges, to the superb metropolitan city of Calcutta. The industrial revival in Russia, and the new spirit of enterprise that has wakened up a century-dormant nation, with its massive, inert and slow-to-move hordes of Tartars in Slav sdines, is expressing itself in the Siberian railway, the gobbling of Manchuria and the carving knife reaching out for trans-Caspian mutton. Mines are being exploited, iron-works established, and factories and mills springing up in what were once solitudes, save where the Cossack and the exile made tracks in the snow and left suppers for wolves. In the Australasian groups of islands, the industrial march is kept in stept to the ring of anvils that is making a Krupp greater than a Bonaparte, and a Carnegie or an Armstrong than a squard of field marshals. There is an empire of trade in these antipodal islands, colonized by a race that has never failed in giving preference to a machine rather to a brass band. In short the conditions everywhere are favorable to a long run of business activity in iron and steel, and all related industries. Of course there are slips between the cup and the lip, and nothing mundane in the way of business has the fixedness of a ninepenny nail, but it seems to be a predestined certainty that for some time to come the demand for iron and steel must be continuous and heavy. It is worthy of note in connection with this that as every new scientific discovery comes along, new mechanical apparatus is a coincidence, in which inventive genius is stirred up and the manufacturer of tools and devices has added stimulus to his trade. There is also a marked movement on the part of municipalities to appropriate every kind of new power and appliances to city uses. In engines, pipes, road beds, electric lighting, and in numerous other directions on the line of economy vnd progress, the leading cities of the world are in honorable rivalry. All this means more work and more iron, and with all civilized nations hitching the wagon to the same star, the outlook is not lacking for sunshine. We believe in the prosperity of all being to the betterment of each. It is better to have buyers able to sell than sellers not finding a market in which to find a buyer.—*The Age of Steel.*

ILLVSTRATIONS:

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.

LIBRARY Building, Leland Stanford, Jr., University, Percy & Hamilton, Architects—Interior of Reading Room.

PROPOSED Building for Belmont School, W. T. Reid, Principal, Percy & Hamilton, Architects.

DWELLING for Mrs. C. L. Mason, S.E. cor. Walnut and and Clay streets, Curlett & McCaw, Architects.

NOTICE OF MEETINGS.

San Francisco Chapter, American Institute of Architects, meets second Friday of each month at 408 California street, at 4 p. m.

Seth Babson, Pres. — H. A. Schultz, Vice-Pres.
J. W. Reid, Sec. — John M. Curtis, Treas.

Southern California Chapter American Institute of Architects. meets first Wednesday of each month at 114 Spring street, Los Angeles, Cal.

Theo. A. Eisen, Pres. — Arthur B. Benton, Vice-Pres.
William C. Aiken, Sec't. — August Wackerbarth, Treas.

Washington Chapter American Institute of Architects, regular meetings at 8 o'clock p. m., the first Friday of each month, except July and August.

Jos. C. Hornblower, Pres. — Jas. G. Hill, Vice-Pres.
E. W. Dunn, Jr., Sec. — W. J. Marsh, Treas.

Association of Architects of Arizona, meetings held at Phoenix, Arizona.

D. W. Millard, Pres. — T. H. Maddox, Vice-Pres.
W. R. Norton, Sec. and Treas.

Technical Society of the Pacific Coast, meets first Friday of each month at Academy of Sciences Building.

Geo. W. Percy, Pres. — W. F. C. Hasson, Vice-Pres.
Otto Von Geldern, Sec. — Edward T. Schild, Treas.

Master Plumbers' Association, meets every first and third Friday of each month at the Flood Building.

Jas. E. Britt, Pres. — J. L. E. Firman, Sec.

Builders' Exchange, Directors meet first Friday in each month at Mission and New Montgomery.

S. H. Kent, Pres. — Jas. A. Wilson, Sec.

Masons' and Builders' Association, meet first Friday evening of each month.

Adam Beck, Pres. — M. V. Brady, Sec.

LIABILITY OF BUILDERS.

AN interesting decision in regard to the liability of builders was recently rendered in England. A man contracted with a builder to build for him a house, furnishing the materials, including the mortar. When the house was up, the official inspectors discovered that it had been built with bad mortar, and ordered the owner to pull it down. He complied with the order, and then had the house rebuilt with proper materials, and sued the original builder to recover the cost of pulling down and rebuilding, with damages for loss of ground rent while these operations were going on. It does not appear that the contract specified that the mortar should be of any particular quality, but the Metropolition building act gives clear directions as to the composition of mortar, and it was acknowledged that the mortar used did not fulfil the requirements of the act. The defense was that the damages claimed were too remote, and that the builder could not be held for all the items mentioned; and it was further agreed that the owner had an opportunity to see the mortar before it was used, and ought to have objected at the time; and that the parties could not have contemplated, when they made their contract, that if the builder supplied bad mortar he must pay for pulling down and rebuilding the house, and rent besides. The plaintiff offered evidence showing that the mortar was brought to the building wet and that he could not detect its bad quality in that condition; and the Court of Queen's bench decided that as the plaintiff could not, with reasonable diligence, have discovered the defects in the wet mortar, he was entitled to recover the damage that he had suffered from its use; and judgment was given him for the whole expense of pulling down and rebuilding, and the loss of ground rent, with the costs of suit.

A COMPARISON OF SOUND AND ETHER WAVES.

A PAPER was read by Mr. F. W. Branson, before the Leeds Naturalists' Club and Scientific Association in which the writer discussed varieties of waves known as Roentgen rays, photographic light, heat rays, Hertzian waves, acaustic vibrations, etc. A series of experiments were made by Mr. Branson, comparing sound waves with Hertzian waves, to illustrate the differences between such actions when occuring in the atmosphere and in the ether. Quite a few models and methods of illustration were employed and facts and figures deduced which are well worth recording in some convenient note book,

The data is as follows: Roentgen rays represent 288,224,-000,000,000,000 vibrations per second in the ether. The photographic limit of the solar spectrum corresponds to 1,125-899,906,842,624 vibrations per socond. Electric oscillations or Hertzian waves represent 67,108,864 vibrations per second. The highest note in music 4,096; the lowest note 32 vibrations per second.

It is highly interesting to note these difference because they place before the mind a true picture of the phenomenon of light and its degenerations, so to speak, into lesser vibrations known by different names. We can easily realize that the word light only possesses a meaning from a physiological standpoint. To eyes possessing a greater range of vision than our own magnetic lines of force might be perceived as well as Hertzian waves although appearing to such a vision as a sort of twilight or haze. Nature has limited our sight as well as our hearing and forced us to see by means of vibrations, beyond which extends a high and impenetrable wall of Stygian darkness. With our super senses and the apparatus at our disposal these other regions are made known to us but the limitations of our senses prevent us from peering into this great and unexplored region.

To the scientific mind vibrations in the ether are arranged and classified in much the same way as a zoologist would arrange the various species of animals placed before him for inspection. There are species of light rays whose properties make them absolutely distinct from all others. When a ray possessing a new rate of vibration comes within range of our investigation it always means some new and unexpected phenomenon intimately associated with it. The Roentgen ray, the Hertzian wave and the magnectic lines of force are merely well known examples.

AN ARCHITECTURAL DEPARTMENT FOR BOSTON.

THE Massachusetts legislature is considering a bill for the formation of an architectural department for the city of Boston This is a measure drawn up by the Boston Society of Architects and has been under discussion among architects in that city for some little time. The bill provides that the department of architecture shall consist of a board of seven commissioners, each of these to be a Boston architect, who has been practicing in that city or elsewhere for not less than seven years. Of these seven, three are to be appointed by the president of the school board, two by the mayor, one by the trustees of the Boston public library and one by the trustees of the Boston city hospital, these appointments only to take effect when they have been confirmed by a vote of the majority of the art commission of that city. The architectural work of the city is to be divided among the members of the boards according to their appointment, as, for example, the three appointed by the president of the school board are to have charge of the construction of school buildings. In case, however, any building is to be erected by the city at an estimated cost of $500,000 the board shall employ for such building an architect not a member of the board, but who shall be approved by the mayor and the art commission. It has been suggested that buildings costing over $100,000 shall be given out by open competition, held under the direction of the department of architecture.—*Construction News*.

A LARGE COVERED RESERVOIR.

ONE of the largest covered reservoirs in Southern California, if not on the Pacific Coast, is that which was recently completed at Pasadena. It measures 525 feet in length by 350 feet across its widest part, and varies in depth from 17 feet to 19 feet 8 inches. It is said to have a capacity of 21,000,000 gallons. It was originally constructed in 1875, but as in the summer months the warm rays of the sun cause a vegetable growth to accumulate in open reservoirs, it was decided to cover the reservoir in order to prevent this. In the present instance the cover is made of 1-inch Oregon pine boards, which rest upon 2x8 joist 6 feet apart, these being supported by 4x10 girders. The girders in turn are supported by 2-inch iron pipe used as posts and set 18 feet one way by 15 feet 9 inches the other. The cover or roof is raised by about 2 feet above the rim of the reservoir, a wire screen covering the intervening space to afford ventilation.

VALUABLE INFORMATION CULLED FROM OUR EXCHANGES.

IDAHO boasts a siphon whose diameter is the largest in the world. It is located near Boise City and carries the water of Sheep creek across the Boise river. It was designed and built by J. Bouse, chief engineer of the mines on that river. This forty-eight-inch siphon is inverted ; it is 1700 feet long, with a maximum depression of 350 feet ; it cost $36,700 and took four months and twenty days to build. Owing to the topography of the country, everthing used in its construction had first to be raised 700 feet and then lowered 450, says *Fire and Water*. The lightest piece of material handled weighed 3100 pounds. The whole force of water was turned on into the siphon suddenly and at once, not gradually as is the usual custom. The big siphon of the Spring Valley Hydraulic Mining company, at Cherokee, Butte County, Ia., is less in diameter than that of Boise City ; it has an approximate inner diameter of thirty inches, discharging fifty-two cubic feet of water a second. But at its greatest depression the Cherokee siphon sustains a depression of 887 feet—530 feet greater than its Boise City rival, where the greatest pressure sustained in its lower portion is 167 pounds to the square inch. The only siphon whose diameter ever approached forty-eight inches was one of forty-two inches built in this city, which "went out" as soon as the water was turned on. In the Boise City siphon there never has been any tendency to move or any leak, in spite of the tremendous pressure. To admit of contraction and expansion without any derangement in position, the engineer invented joints, built in San Francisco. One of these expansion joints is placed between each two elbows, and the average movement during the course of construction of the pipe line in all of these expansion joints was seven-eighths of an inch between the extremes of temperature of night and day. The pipe being laid on the side of the hill, part of it at an angle of forty-five degrees, this movement in the pipe line, if these expansion joints had not been used, would either have deranged the position of the pipe or would have strained its riveting in a way that would have manifested itself very quickly when the water was turned on and the pipe tested.

A DECISION of some interest to builders was made recently by Justice Ketcham in Kalamozoo, Mich. A builder by the name of Nichols brought a suit against one Crowley for a note of $52.49, the balance in payment for the building of a house which was erected for Crowley in the spring of 1896. The defendant made a cross claim of damages amounting in all to $73, which he held was due as a result of bad workmanship and work done not according to contract. In support of Mr. Crowley's claims three expert witnesses, all considered authorities on the work of building, testified that the house was now in the need of repairs that would cost $73, and that the work was incomplete. Nichols' defense to Crowley's claim laid in the attempt to prove that there never was any contract, which, however, the latter maintained did exist. When the trial was finished it had been established that the house had been built much to the contrary of Crowley's wishes and in an unworkmanlike manner, and a decision was rendered by the court in behalf of the defendant Crowley and against plaintiff Nichols in the sum of $23.30. The court held that when a contractor engages to build a house for a party, that, even though there is only a verbal contract and no specifications are made as to word or material, a workmanlike manner of doing the work is implied. It is held that because Crowley signed the note and expressed himself as satisfied with the house soon after its construction, this will not serve as a bar to prove the demerits of the work at a later time, as he, not being skilled in workmanship, might not have been aware of the faults when he gave his sanction.—*Architecture and Building.*

THE Illinois House of Representatives has passed a bill creating the office of state architect by a vote of 85 to 13. The state architect is to be appointed by the governor for a term of four years, at a salary of $5000 per annum, and his duties, according to press reports, will be to "have charge of all buildings erected by the state, furnishing the plans, procuring estimates, and supervising the actual work of construction."

THE records of the building departments of the leading cities of the United States during the month of March indicate improved building conditions. Despite the continuance of winter weather and the threatened strikes, a number of cities redeemed themselves from the heavy deficits caused in February by the first period of severe weather. Statistics from eighteen cities show an expenditure of $27,646,058 in structures started during March, 1899, as compared with $11,640.503 for the corresponding month of 1898, being an increase of 27.7 per cent. The records are given in detail in the following table :

	1899		1898		Per Cent	
	No.	Cost	No.	Cost	Gain	Loss
New York Boroughs of Manhattan & Bronx	881	$16,868,073	714	$9,653,498	75	.....
Borough of Brooklyn	762	2,403,025	718	1,854,318	29	.....
Chicago	397	2,485,960	538	3 258,200	.. .	24
Philadelphia	715	1,981,820	796	2,613,875	.....	24
St. Louis	244	921,000	317	1,096,630	....	16
Cleveland	355	502,110	366	380,775	35	.....
Kansas City	345	388,740	319	245,870	54	.....
Pittsburg	223	384,584	135	323,663	18	...
Detroit	211	330,700	289	499,400	.....	34
Denver	110	265,700	84	165,200	60	.....
Milwaukee	89	216,360	128	236,948	.....	8
New Orleans	171	197,098	150	242,936	.....	22
Buffalo	129	183,491	172	451,109	.....	59
Minneapolis	212	162,753	237	162,900	.....	.....
Louisville	262	113,66t	198	171,326	.....	33
Allegheny	73	97 300	47	50,175	94	.....
St. Paul	73	96,615	116	99,140	.....	2
Omaha	73	47,068	128	124 540	.....	62
Total fos eighteen cities	.....	$27,646,058	.....	$21,640,503	Inc.27.7p.c.	

The records for the past two months in New York point to a good building year in that city. The increase of this year's operations over those of 1898 already amounts to over $10,000,000. Operations in Chicago were not far behind those of the corresponding month of last year, the deficit shown being largely due to the taking out of permits in March, 1898, for a number of tall structures in anticipation of a change in the limit of height. Some of those structures are now in course of erection, but on a number of them nothing has been done, and the life of the permits has expired.—*The Construction News.*

AN ELECTRICAL ORGAN PUMPING OUTFIT.

USED BY MEANS OF EITHER ALTERNATING OR DIRECT-CURRENT ELECTRIC MOTORS.

THIS system was primarily designed for operation on alternating-current circuits, but its extreme simplicity, compactness, and the ease with which it can be installed, readily permits its use with any kind of current. The outfit consists of a single-phase, alternating-current motor of one-horse power capacity, arranged with a triple worm-gear to directly transform the motion of the motor armature into the reciprocal crank motion required for an organ pump. In the case of the outfit shown the armature of the motor revolves 1800 times per minute, giving through the worm-gear a crank speed of 45 strokes per minute. The apparatus eliminates all pulleys, belts, countershafts, etc., and is arranged to meet the exact requirements as to length of stroke and strokes per minute, which may be required to meet the needs of the various types of organs.

In this system the motor is started and left running (at a constant speed) while the organ is in use, and would be left running during an entire service or concert. The only disadvantage of this is the amount of current used while the pump is not in operation, and as this amounts to only 1 3 cents per hour on a one-horse-power motor with a rate of 10 cents per 1000 watts, it will be seen it is a negligible factor, and is fully compensated for by the absence of extra current in starting several times.

The advantages of this system are quite numerous, the principal ones being the absence of regulating rheostats and sparking of contacts on stopping and starting, while the simplicity and compactness of the outfit speaks for itself.

The operation of the apparatus is as follows: The motor is started by the motor-starting handle, and, as the bellows of the organ is presumably empty, the friction cluch at the other end of the motor shaft is in contact with the worm disk and the motor begins pumping air into the air reservoir until filled. The natural rise of the top of the air reservoir, to which a chain is attached through pulleys or bell cranks, will release the friction disk when filled to any desired point, and the pump mechanism will stop, leaving the motor running free, and thus taking almost no current.

As soon as the air reservoir begins to empty this will allow the clutch to operate again and supply as much or as little air as may be necessary to keep the reservoir full or well supplied with air.

The action of the friction disks is positive and noiseless. The worm is of hardened steel. The worm-wheel is run in a bath of oil, and is, therefore, perfectly lubricated at all times, and the entire outfit is designed and manufactured in a thoroughly first-class and workmanlike manner to stand hard and continuous service, with little or no attention.

The action of the apparatus may be controlled so as to pump fast or slow, and to change speed as the air reservoir fills by merely making a spring connection between the air reservoir and motor instead of a solid connection, but a solid connection is advised whenever practicable, as there is then very little or no wear on the friction clutch.

AMENDING THE ILLINOIS LIEN LAW.

THE Chicago Architects' Business association, which has been devoting much time and energy to secure the amendment of the present lien law, is gratified to learn of the interest that these labors have created among the kindred organizations of the building trade. The law was designed to protect the architect and the responsible contractor, and to secure the mechanic and the material manufacturer against the tricks of dishonest contractors. In reality, it has protected the dishonest contractor, permitting defective work and materials, and securing him in his demand for pay for first-class work. The law has therefore worked serious injury to the building interests by turning investments into other channels. Among the replies received to the circular letter mentioned last week, a Chicago firm dealing in real estate loans said that one of its largest eastern banking houses supplying money for this purpose had been compelled to discontinue sending funds for building loan investment on account of the uncertainty resulting from the operation of the present lien law. Considerable Chicago capital has also been diverted from building investments on this account. The aim of the Chicago Architects' Business association has been to amend this law so that its protection would be extended to the architect, the original contractors and the mechanic. Of the work which the association's committee on lien law has been quietly carrying forward, chairman William G. Barfield speaks as follows:

"The committee on amendments to the lien law is working earnestly on the amendments which it believes can be passed at this session of the legislature. The committee has had drafted two different amended laws, which have been submitted to attorneys for approval. The committee have visited Springfield and canvassed the members of the general assembly as to the advisability of presenting the amendments, and have ascertained the best way of securing their passage. We do not believe it possible to make any radical change in the law, but are laboring to have the law so amended that only the architects, original contractors and mechanical labor shall be able to establish a lien. The present cumbersome law cannot, we believe, be repealed, in its entirety, but it can be amended, and to that end the committee has sought the aid of the Chicago real estate board and will in the near future ask for the support of all organizations connected with the building trades. The committee has been working for a year and a half in perfecting a law which, if adopted, will simplify and remedy many of the grievous faults in the existing law, and while not perfect, perhaps, in all its parts, will assuredly be a step in the right direction.

The committee in charge are gratified to learn of the interest their labors have created, and will be pleased to have the co-operation and assistance of associated bodies in this task. In union there is strength and in securing amendments to the law all should unite for concerted action, and labor, not as different organizations and individuals, but as one harmonious whole, with one thought and one mode of action. Everything leading to that result will be gladly welcomed by our committee, which is working for the best interest of all in the building business.—*Construction News.*

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	Box No.
Abrahamson, P.; patent ventilators	123
Adams, John G.; contractor and builder	270
Alameda Brick & Tile Co.; brick	170
Arizona Sandstone Co.; building stone	326
Bass-Huter Paint Co.; paints, oils and varnishes	136
Bateman Bros.; contractors and builders	236
Beck, Adam; mas n and builder	11
Bell, Wm.; contractor and bu lder	75
Bibb Lumber Co., D. H.	
Bellingham Bay Im'p. Co; lumber	241
Boyd, Robert; mason and builder	77
Brady, M. V.; mason and builder	34
Brady, O. E.; mason and builder	360
Brennen, D. J.; mason and builder	51
Brennan James, plasterers	159
Britt, James E.; plumber	36
Brode, R.; iron works	295
Burden, W.; mason and builder	260
Burnham, Stanford Co.; planing mill	28
Burrell, E. H.; building material	146
Burt, W. J.; house mover	296
Butler, Wm. A.; mason and builder	255
California Art Glass Works	63
California Electrical Works	223
California Mills; planing mills	300
Campbell, Alex L; contractor and builder	105
Carey, J. E.; brick manufacturer	282
Bignami and Masow	133
Cartwright, D. S.; teaming	10
Central Lumber & Mill Co.; lumber and planing mill	345
Chatham, Wm.; contractor and builder	62
Chemical Paint Co	317
Chisholm, C.; contractor and builder	44
Clark, N. & Sons; terra cotta, etc	290
Clawson, L. E., & Co.; patent chimneys	66
Coghlan, Frank; plasterer	91
Collin & Gunn; lathers	114
Concannon Wm., contractor and builder	24
Coulin & Roberts; metal roofers	90
Coppieters & Moekel; grill work	
Cowell, H. & Co.; lime, cement, fire brick, etc	7
Crichton, Peter; contractor and builder	339
Crocker, Wm.; planing mill	12
Cronan, Wm.; Eagle Sheet Metal Works	313
Currie Donald; contractor and builder	227
Currie, Robert; contractor and builder	143
Cushing-Wetmore Co.; concrete and artificial stone	218
Curry, J. M.; stone dealer	35
Daniels, Gus. V.; painter and decorator	85
Davies, E.; plasterer	42
Davis, Geo. & Son; house movers	293
Day, Thos. H., & Sons; contractors and builders	131
Degan, Patrick; stone contractor	366
Dillon, David; teamster and contractor	139
Donovan, M. J.; painter	121
Dunbar, Wm.; mason and builder	364
Dunham, Carrigan & Hayden Co.; hardware	4
Dunlop, Chas.; plasterer	59
Dwyer, L. J.; painter and decorator	197
Dyer Bros.; Golden West Iron Works	64
Elam, & Knowles, carpenters and builders	202
Excelsior Mill Co	72
Feely, M. J.; contractor and builder	180
Fennall, M. & Son; masons and builders	58
Field, Wm. J.; contractor and builder	89
Field, Z. O.	128
Flanagan, L. G.; lime and cement	53
Foley, Michael; grading and teaming	251
Forderer Cornice Works; patent sky lights, roofing, etc	164
Forth Brick Co	98
Frazer, J. P.; painter and decorator	50
Fuller, W. P. & Co.; paints, oils and glass	333
Furness, John; contractor and builder	152
Geier, Frank A.; Market Street Planing Mills	252
Giletti, Secondo; artificial stone	308
Gillogley, Geo.; teaming	324
Girvin & Eyre; Importers	
Gladding, McBean & Co.; architectural terra cotta	162
Golden West Iron Works, Dyer Bros	64
Goodman, Geo.; artificial stone, etc	334
Grannis, J. G. & Co.; steam heating, etc	331
Gray Bros.; artificial stone and concrete work	86
Griese, Carl; artificial stone and concrete work	231
Hammond, Philip; metal roofer	43
Hansen, A.; planing mill	3
Hansen, F. L.; contractor and builder	108
Hansen, M & Co.; planing mill	187
Harmon Lumber Co.; lumber	314
Harris & Jooes, Lumber Dealers	
Haustein, H.; tiles	82
Heidt, W.; cornice works	264
Henzel, Ed. F. & Co.; electricians	375
Herring, R. mill work	70
Hille, Wm.; cornice works	210
Hindes, Ed. B., & Co.; patent blinds	174
Hobson, B. Y.; painter	25
Hock, T. & Son; masons and builders	232
Hoffman, V.; mason and builder	9
Holmes, H. T., Lime Co.; lime, cement, etc	268
Hooper, C. A., & Co.; lumber	341
Huber, Frank; sash, blinds and doors	342
Hurlbut, R. P.; builder	156
Ickelheimer, Samuel & Bro.; plumbers	353
Ingerson & Gore; contractors and builders	37
Jacks, Henry; contractor and builder	267
Jackson, P. H. & Co.; illuminating tiles	27
Jackson, W. E.; curbing	304
Jesse, Geo. R.; stair builder	102
Jordan D., & Son; masons and builders	57
Joshua Hendy Machine Works	188
Judson Mnfg. Co	363
Keating, M. Artificial Stone	127
Keatinge, R., Artificial Stone	13
Kelleher, M.; house raiser and mover	23
Kendall, A.; Pacific Coast Lumber and Mill Co	52
Keefe, J. H.; painter and decorator	199
Kent, S. H.; contractor and builder	190
Kern, F. W.; contractor and builder	225
Kittredge, E. H. & Co.; sash, doors and blinds	204
Knox & Cook; contractors and builders	244
Kuss, P. N.; painter, decorator and wood finisher	307
Lang, Geo. R.; contractor and builder	214
Larsen, H. H.; mason and builder	33
Leahy, D.; plasterer	344
Leonard, J., Concrete and Artificial Stone	306
Leprohon, P.; steam and hot water heating	239
Logan, J. F.; adjuster and builder	21
Lovett, A. E.; roof repairing and painting	258
Lucas & Co.; Golded Gate Plaster Mills, calcined plaster	31
Lynch, M. C.; contractor and builder	274
Macdonald & McKinnon; lumber	348
Maguire, A. B.; lime, laths, plaster, cement, etc	263
Maguire, James A.; manufacturer's agent	120
Manglesdorf, M.; Electrical Maintenance Co.	350
Mangrum & Otter; heating, ventilating, tiles, etc	294
Market Street Planing Mill	252
McCarthy, John; mason and builder	168
McClure, H. N.; teaming and grading	169
McElroy, A.; contractor and builder	211
McGilvray Stone Co.; stone contractor	340
McGowan, M.; mason and builder	17
McKee, John; stair builder	262
McLachlan, T. M.; contractor and builder	92
McMahon, Henry; stair builder	113
McPhee & Co.; stone contractors	256
Mennie, Alex., plasterer	84
Miller, J. W.; mason and builder	208
Mitchell, R.; mason and builder	74
Montague & Co., W. W.; tiles, mantles, etc	237
Moore, C. Parker; contractor and builder	80
Moore, G. Howard; contractor and builder	358
Morehouse, C. C.; plasterer	301
Morehouse, J. J.; plasterer	97
Mulcahy, J.; mason and builder	55
Niehaus, Edward F. & Co.; hardwood lumber	205
Niehaus Bros. & Co.; planing mill	20
North, J. J., Brick manufacturer	98
Nutting, C.;	49
O'Brien, Jas. J.; carpenter and builder	107
O'Brien, P. R. & Son; plumbers	65
O'Connor, Thomas, mason and builder	47
Ogle, John; contractor and builder	215
O'Sullivan, D.; mason contractor	277
Pacific Bridge Co	10
Pacific Refining & Roofing Co	346
Pacific Lumber Co	365
Pacific Manufacturing Co., Mill Work	
Pacific Rolling Mills	192
Pachtz, Gus. J.; electrican, etc	81
Palace Hardware Co.; builders' hardware	292
Paraffine Paint Co.; roofers, building paper	111
Patent Brick Co.; brick	172
Peacock & Butcher; masons and builders	122
Petersen Brick Co.; original red pressed brick	68
Petersen, H. M. & Co.; concrete	245
Pflugst, F. L., hardwood	76
Please, Henry; mason and builder	299
Pool, Jas. R.; house mover and raiser	217
Rae, James; stone contractor	56
Ralston Iron Works	175
Raymond Granite Co.; contractors for stone work	165
Reichley Geo.; contractor and builder	109
Reigle & Jamieson; machine white washing	240
Remillard Brick Co.; pressed stock and common brick	278
Richardson & Gale; masons and builders	328
Richmuller, Geo.; door opener	355
Riley John F.; masons and builders	329
Ringrose, R.; mason and builder	18
Robinson & Gillespie; contractors and builders	111
Rocklin Granite Co.; granite work	69
Rosenbaum, Fr. H.; glass	96
Ruffino & Bianchi; marble	219
Sacramento Transportation Co.; patent and stock brick	332
S. F. Lime & Mortar Co. C. Bennet	246
San Francisco Lumber Co	157
San Francisco Novelty and Plating Works	291
San Francisco Planing Mill; Wm. Crocker	12
San Joaquin Brick Co.; brick	288
San Jose Brick Co.; brick	5
Saunders, J. S. W.; contractor and builder	250
Schroeder, Wm.; art glass	63
Scott & Van Arsdale Lumber Co.	193
Sessions, M. P.	304
Smith, J. W.; carpenter	71
Smith & Young; building supplies	374
Smith & Quimby; street contractors	67
Snell, E. L.; lime and plaster	101
Snook, W. S. & Son; plumbers	372
Soule Bros.; carpenters	61
Steiger, A., Sons; architectural terra cotta	134
Stevens, F. M.; patent chimneys	15
Stockton Brick & Terra Cotta Co.	297
Stratton, Jno. S.; house mover	362
Sullivan, J. F.; painter and decorator	1
Sullivan, Tim; carpenter	83
Sullivan M. F.; grading and teaming	148
Sweeney, Daniel; carpenter	325
Sweeney, G. C.; plumber	135
Tacoma and Roche Harbor Lime Co	289
Tay, Geo. H., Co.; plumbers supplies	321
Tobin, J. R.; plasterer	173
Towle & Broadwell	298
Trotter, John; contractor and builder	251
Tupper, O. M.; lime	281
Tuttle, John; teamster, plasterers' supplies	79
Union Lumber Co.; lumber	335
Vermont Marble Co	
Vulcan Iron Works	284
Wagner, Henry F.; painting and decorator	312
Wagner, J. Ferd; mason and builder	181
Walker, George H.; carpenter	367
Warren, C. A.; grading	272
Washburn & Moen Mnfg. Co	310
Washington Street Planing Mill	48
Waterhouse, C. J.	78
Watson, W. C.; plasterer	109
Western Granite & Marble Co	316
Western Iron Works	171
White Bros.; carpenters	257
White Bros.; hardwood lumber	145
Whittle, H.; mason and builder	60
Williams, F. A.; contractor and builder	178
Wilson, Bros. & Co.; lumber	354
Wilson, W. F.; plumber	238
Wilson, James A.; mason and builder	221
Wilkie, Andrew; planing mill	305
Wilkie Andrew, Jr.	125
Worrel, C. R.; mason and builder	2
West Coast Wire Works	273
Western Expanded Metal & Fire Proofing Co	
Yates & Co.; paints	349
Young, S T., grading and teaming	336

TREASURY DEPARTMENT Office Supervising Architect, Washington, D. C., April 24th, 1899. Sealed proposals will be received at this office until 2 o'clock P. M., on the 27th day of May, 1899, and then opened, for all the Masonry Work, Roof Covering, etc., for the U. S. Post-Office, Court House, etc., building at San Francisco, Cal., in accordance with the drawings and specification, copies of which may be obtained at this office or at the office of the Superintendent at San Francisco, California. JAMES KNOX TAYLOR, Supervising Architect.

BUILDING NEWS.

Shotwell near 18th. Excavation, etc; o, Krug and Zimmermann; a, R. Zimmerman; c, H. L. Pettersen; signed, March 21; filed, March 22: cost $2000. Malt kiln work; c, Union Machine Co; cost $7201. Brick work; c, Adam Beck; cost $7745.

Spear near Mission. Two-story brick; o, James Denman; c, William Linden; cost $5995. Concrete work, etc; c, Peacock & Butcher; cost $3675.

Tehama near 9th. Alterations and additions; o, Marie Glenger; a, C. A. Meussdorffer; c, A. H. Wilhelm; cost $1150.

Vallejo near Devisadero. To build; o, Douglass Watson; a, Albert Sutton: cost $3050.

Washington near 1st Ave. To build; o, Mrs. Nora M. Pratt; a, T. Patterson Ross; c, C. M. Depew: cost $3935.

ALAMEDA

St. Charles near San Antonio. To build; o. F. W. Ray; a, H. H. Meyers; c, W. B. Knowles: cost $4048.

BELVEDERE

Cottage; o; D. W. Hines; a, Wm. Knowles; c, N. A. McLean; cost $1556.

Map No. 5, block 1. lot 32. To build: o, Fred A Greenwood; a, Edgar A. Mathews; c, N. A. McLean; cost $2000.

OAKLAND

Twelfth near Oak. To build; o, M. F. and Walter W. Hunt: a, Whalin and Sons; c, J. Whalin; cost $5741.89.

ROSS VALLEY

To build; o, Dr. F. J. Hund; a, C. A. Meussdorffer; c, Isaac Penny; cost $7195. Carpentry, etc; cost $7195. Plumbing, etc.; c, G. C. Sweeney; cost $479. Painting; c, J. F. Sullivan; cost $560.

SAN RAFAEL

Lot in Laurel Grove. To build; o, Otto H. Hund; c, Isaac Penny; cost $5639.50.

STOCKTON

Contracts are now figuring on a two story frame residence for John Campbell to be built immediately on the corner of West Acacia and Lincoln Streets, Geo. Rushforth is the architect and the estimated cost is $2500

OAKDALE

Dodden Bros. has let contract for business building to W. P. Stryker, contractor who was the lowest bidder for carpenter work. One-story building, cost about $2000.

LOS BANOS

C. F. Bertholf, druggest, is contemplating erecting a brick business store for himself and has employed Geo Rushforth, architect of Stockton to make plans it will cost over $2000.

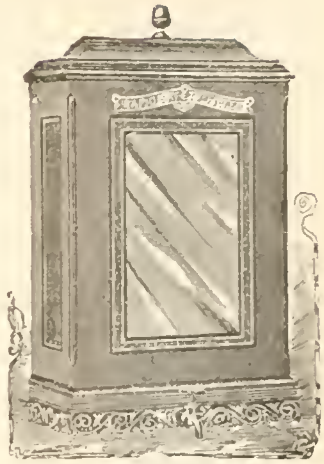
AUBURN

Wm. I. May is building a five room cottage. Chas. Keenr will soon build a cottage.

Wm. Austin of Applegate Station, Placer Co, will build an eight room house, E. D. Flint Builder.

Hospital plan by A. F. Enquest adopted but through a defect in advertising the board will have to readvertise for plans.

Geo. C. Hepburn will build a depot store at Applegate Station.



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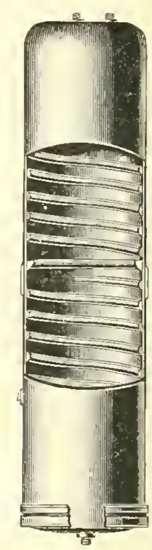

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VOLUME XX. No. 5. MAY, 1899.

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BUILDING NEWS.

Baker near Greenwich. To build; o, Otto Kaiser and wife; a, Martins & Coffee; c. S. B. Kress; signed, May 2; filed, May 3; cost $1882.

Bluxome near 4th. Concrete, etc; o. City of S. F.: a, T. J. Welsh; c, F. A. Williams; cost $15,391. Excavations, etc; c, San Francisco Bridge Co; cost $2118.50 Plumbing, etc; c, J. E. Britt; cest $1187.

Broad near Plymouth. To build; o, Father J. A. Cooper; a, B. J. Clinch· c, J. H. Hughes; signed, May 24; filed, May 25; cost $?236.

Broderick near Sacramento. To build; o, Geo. E. Ames; a, Wm. Koenig; c, Ira W. Coburn; signed and filed, May 18; cost $12,700.

Broderick near Califoroia. To build; o, J. H. and C. T. Dumbrell; c, R. C. Stiller; signed and filed, May 8; cost $3875.

Bryant Ave. near 21st. To build; o, H. Jacoby: a, Salfield & Kohlberg; signed and filed, May 8· cost $3025.

Buchanan near Golden Gate. To build; o Alex. Levison; a, A. J. Barrett; c, John Ogle; signed, May 5; filed, May 12; cost $4695.

California near Scott. To build; owner and contractor, J. F. Ortman; days work, cost $8000.

California near Franklin. Plumbing, etc; o, Kaspar; c, W. F. Wilson! signed, May 12 filed, May 13; cost $2912.

Capp near 16th. To build; o, Louis Weule; a, Aug. Nordin; c, J. T. Lorenzen; signed, May 5; filed, May 8; cost $1500.

Castro near 18th. To build except brick work, etc; o, T. L. Trouin; a. C. M. Rousseau; cost $1075.

Clay near Locust. Carpentry, etc; o, Dr. J. C. Spencer· a, F. R. Van Trees; c, W. H. Bagge; signed, May 10; filed, May 12; cost $5500. Painting, etc; c, J. H. Keefe; cost $660. Plastering, etc; c, J. R. Tob n; cost $435. Painting, etc; c, G. C. Sweeney; cost $953.

Drumm near Pacific. One-story brick; o, A. B. McCreery; a, Herbert B. Maggs; c, J. W. Wissinger; signed, May 9; filed, May 18; cost $12,200.

Dupont near California. To build; o, Tong Bong· a, J. J. Newsom; signed, May 10; filed, May 11; cost $1200.

Eddy near Webster. Brick, stone, etc, two-story brick; a, Percy & Hamilton; c, Peacock & Butcher; signed, April 27; filed, April 28; cost $7786.

Ellis near Powell. Gradin and bulkheading; o, Henry Kahn and Jules Levy; a, Albert Pissis· c, John Tuttle; signed, May 4; filed, May 5; cost $1500.

Ellis street No. 118. Electric elevator; o, Mrs. E. and R. J. Hancock; c, W. L. Holman; signed, May 24; filed, May 26; cost $2400.

BUILDING NEWS.

Fell near Masonic Ave. To build; o, J. Meyer; a, Martens & Coffee; c. C. Schutt; signed, May 5; filed, May 6; cost $5600.

Fourteenth and Jessie. Excavation, etc; o, College of Physicians and Surgeons; a, H. A. Schulze· c, Stiller Bros, signed, March 23; filed, March 28; cost $22,565. Plumbing, etc; c, Ickelheimer Bros; signed, March 23; filed, March 28; cost $4654.

Geary and Stockton. Two-story brick; o, Chas. C. Butler· a, G. A. Betrnd; c, Wm. Bell; signed, May 16; filed, May 18; cost $16,250.

Green near Buchanan. To build; o, Arthur McCracken; a, Wm. Mooser & Son; c, Petterson & Person; signed, May 4; filed, May 6; cost $5183.

Haight near Baker. To build; o, Mrs. Bessie McFadden; c, H. Keenan; signed, April 26; filed, April 28; cost $5550.

Jones near Washington. To build; o, J. B. Arrambide; a, C. I. Wilson; c, A. Christensen; signed, May 12; filed, May 13; cost $10,200.

Kearny and California. Concrete work, etc; o, Eugene P. SMurphy; a, Shea & Shea; c, A. L nch; signed, April 20; filed, April 27; cost $2455.

Larkin near Turk. To build; o, George Gamper; c, G. G. Gillespie; signed, May 10; filed, May 20; cost $2400.

Market street, No. 325. Electric elevator; o, Claus Spreckels; c, W. L. Holman; signed, May 16; filed, May 24; cost $2096.

Ninth near Folsom. To build; o, John Tamoney; carpenter sup't, Alex McKay· cost $6000. Plumbing, etc; c, W. T. O'Brien; cost $1150.

Noe and Henry. To build; o, Angele O'Reilly; c, B. Martin; signed, May 18; filed, May 18; cost $3050.

Oak near Central Ave. To build; o, L. Friedlander c, Wilson & Long; signed, May 2; filed, May 3; cost $3525.

Oak and Ashbury. Carpentry, etc; o, Ellen B. Copp c, C. Winchler Hansen; cost $10,621. Plumbing, etc; c, James F. Ford; cost $1888.

O'Farrell near Pierce. To build; o, D. Cassassa; a, W. H. Armitage; c, W. Horstmeyer & Co; signed, May 22; filed, May 25; cost $7300. Plumbing, etc; c, John Doherty; signed, May 23; filed, May 25; cost $1175.

O'Farrell near Powell. Grading, etc; o, Emilie M. Chabot; a, Shea & Shea; c, J. Tuttle; signed, April 21; filed, May 2; cost $1172.

Pacific and Franklin. Alterations; o, Henry Meyer· a, Salfield & Kohlberg; c, Geo. R. Lang; signed, April 27; filed, April 29; cost $1196.

Page near Devisadero. Brick work, etc; o, H. Mangles; a, H. Geilfuss; signed and filed, May 8; cost $4140.

BUILDING NEWS.

Primrose near Waller. Cottage; o, F. Nelson; day's work; cost $20,000.

Pine near Octavia. Carpentry, etc; o, Jonas Schoenfeld; a, Salfield & Kohlberg; c, Val Franz; signed, May 15; filed, May 22; cost $13,940.

Rhode Island street. To build; o, B. J. Curtin; c, P. Rasmussen; cost $1100.

Sacramento and Franklin. Carpentry, etc; o, Esthre Hellman; a, J. E. Kraffe; c, C. Chisholm; signed April 25; filed, April 28; cost $3585.

Sansome near California. Alterations and additions; o, Mutual Life Ins. Co; a, N. Blaisdell; c, R. McKillican; signed, May 10; filed, May 13; cost $15,990.

Second and Minna. Four-story brick; o, C. Froelich a, A. Sutton; c, J. A. Wilson; signed, May 5; filed, May 9; cost $15,053.

Stockton and Pacific. To build and alterations; o, Twinkling Star Imp. Co.; a, Bert Hasty; c, Hannah Bros; signed, May 6; filed, May 9; cost $23,250

Sutter near Grant Ave. Four-story brick; o, Goldberg, Bowen & Co; a, Edward R. Swain; c, George R. Lang; signed, May 20; filed, May 22· cost $12,750. Roofing, etc; c, Wm. Cronan; cost $919. Plastering, etc; cost $1320. Excavation, brick work, etc; c, John F. Riley; cost $1950. Cast iron work, etc; c, Cal. Artistic Metal and Wire Co; cost $5370. Plumbing, etc; c, Richard Rice; cost $2500.

Sycamore Ave. near Valencia. To build; o, August G. Wietman; a, M. J. Welsh; c, Thos. G. Fassett; cost $2500.

Tennessee near 22d. Cottage; o, Michael E. Gray; c, C. J. Antwiler; cost $.200.

Twenty-third Ave. near Pt. Lobos. To build; o, W. A. Deane; c, E; C. Blaisdell; c, E. C. Bletch; cost $3979.

Waller near Primrose. Four two-story frames; o, F. Nelson; cost $20,000.

Washington and Laguna. Excavation; c, Wm. G. Irwin; a, Reid Bros; c, Gray Bros; signed, May 8; filed, May 20; cost $8200. Cast and wrought iron; c, Judson M'f'g. Co; cost $11,277.

Webster near Filbert. To build; o, A. J. Kennedy; a, M. J. Bugbee; c, E. A. McCarthy; cost $2200.

Union near Octavia. To build; o, Johanna Slattery; a, J. F. Dunn; c, Douglass & Campbell; cost $3175.

Vallejo near Octavia. Carpentry etc; o, Joseph Goetz; c, Wm. Plant· cost $6825. Plumbing, etc· c, J. E. Britt; cost $1990.

Van Ness and Union. To build; o, Mrs. Antonio F Bendmann; a, M. J. Lyon; c, G. Roberts Elder; cost $3350.

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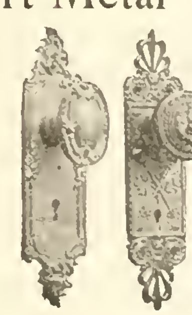

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GENERAL INDEX OF ADVERTISEMENTS.

CLASSIFIED INDEX.

Volume XX. MAY 20th, 1899. Number 5.

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

TO THE critical judgment nothing is more offensive than the positive, pretentious and false in art. A small boy may show us his drawing of a horse, expecting commendation, which we give, in a degree, because the work has some merit as the attempt of an untutored child. But when a man of mature years presents us a Rosinante on canvass as a work of art, we feel an impulse to devote it to the flames. The fact that the author of the work has so poor an opinion of our taste and judgment as to attempt to impose upon us, arouses our resentment. His reputation as an impostor is at once established, and although he may afterwards produce a fairly creditable work, we regard him with suspicion.

Hence a house painter, or a man who decorates furniture, carriages and steamboats may not assume to belong to that profession which furnishes pictures for the art institute or the salon. If he is a good house painter or decorator, let him be satisfied to be that. If a stone cutter can hew out architectural details in stone, according to the design furnished him, let him do that as perfectly as he can, but not call himself a sculptor. In doing his own work well lies the true distinction.

One may read, in a by-street of an eastern city, on a swinging sign, this legend: "Professor of Whitewashing." Of course the professor is a colored individual whose ambition is to be above his humble calling. But however we may sympathize with his aspirations, we are forced to smile at the vanity which prompted the title he has given himself.

In the case of the professor of whitewashing no harm is done, because nobody is deceived. It is a different proposition when men who have no right to call themselves architects go about the streets of San Francisco spying out contemplated improvements, and offering building plans which they too frequently get accepted because of their alleged economy.

A man is not an architect who . only a carpenter or a builder. It is true that he must thoroughly understand the *principles* of carpentry and building, and the various ways and methods of their application in the practice of his profession, in order to be an architect in the proper sense; but to these must be added scientific knowledge, and the artistic quality of brai With all these, and an honest intention to apply them for the benefit of his clients, for a reasonable amount of pay, he may be permitted to make contracts.

There is a great deal of false economy practiced by property owners in this city, by which the tenant class of householders and others suffer damage. In the first place there is the cheap "architect". He brings in the cheap contractor. They stand in together. A house is quickly built, for a seemingly low price, but in such a way as to leave a good margin of profit for the contractor. The lumber in it would hardly make a respectable woodpile for a New England household during a New England winter.

The walls of the structure are scarcely thicker than a packing-box. The floors are faulty, the stairs creak, the flues are unsafe, the plumbing is bad, the plaster cracks, and, in fact, the whole thing is a miserable pretense. But when the owner first sees his completed house, in all the glory of newness, before winds or earthquakes have shaken it, before sun and sand have defaced it, before it has shrunken, twisted, faded, grown old, he looks upon this creation with much satisfaction. Not being an architect, nor even a carpenter, he does not at first detect the fraud. The sense of being cheated comes, however in a very few years, if not in a few months. Tenants are always asking for repairs, and moving to newer houses. If he is unlucky enough to own several of these tenements in a row, he has the pleasure of seeing the windows placarded with TO LET month after month, until he is tempted to join the street urchins in stoning them. In vain he ponders on the problem of how to get interest on the value of his real estate. The longer his houses are empty the less willing is he to tempt renters by lowering the rent. He says he cannot afford it.

There are two factors entering into this condition of the property owner's mind. The first is the excessive value put upon ground in San Francisco; the second the cheapness of the buildings erected upon the high priced ground. The value of the ground increases, or should do so, while the value of the improvements rapidly decreases, and the joint value is not sustained. Neither can it be restored, except by tearing down, and building up again.

No city in the United States of the size of San Francisco shows so many vacant houses. The impression it gives the passing observer is that the population is growing less. This is not, however, the case. The vacancies occur chiefly from the inferior character of the houses that are built to let. The new houses are taken as soon as completed, and in a few years are in turn deserted. There is, all around, room for reform in business methods. Let us have it.

THEN AND NOW IN ARCHITECTURE.

PLACES of religious worship have in every country led the architectural idea. The temples of Egypt, India, Persia, Assyria, Greece, Rome, were the structures on which the genius and the wealth of these countries were lavished. Palaces or government buildings came next in importance, not only because kings, princes and captains were possessed of great wealth, but because in ancient times these persons were revered as half divine—demigods—and entitled to honors next to the supreme deity. Tombs of great men for the same reason were made costly, and as nearly imperishable as possible—they contained the mummies or the ashes of sacred personages.

Imitation led to the adoption of certain adaptable features of public buildings in private houses; hence the use of columns, which we have seen was the foundation of all the ancient "orders". The destruction which fell upon ancient Rome left only a few ruins as examples of its architectural achievements. The removal of the capital to Byzantium, and the introduction of Oriental ideas even into the Christian religion, which Constantine had forced upon the people, had a tendency to obliterate something of the past, while it had not strength enough to substitute any very positive features in place of those that were lost.

Rome for centuries after Christianity was nominally accepted as the religion of the people. was still pagan in sentiment, as her thousands of Christian martyrs give evidence. Not until the eighth century did the Church have strength enough to possess itself of temporal rule, and thus secure an opportunity to revive theocracy in a new form. With that revival came the necessity for Christian temples, or churches. Naturally the earliest Christian architecture was a modified, and often a very meager form of the older Roman. In fact the first public places of worship were pagan temples despoiled of their magnificence, as the Pantheon.

But before this period, while Christians were suffering persecutions which prohibited public worship, certain architectural ideas became fixed in their minds, which govern church architecture to this day. Their root was in the Egyptian temple, which had the portico, the vestibule, the cella, and at the end another more sacred enclosure. The Greeks had the same gradual approach to the mysteries, although their columns were outside, instead of inside the walls. The Romans, as has been shown, retained this idea in their public halls, or basilicas, even to having at the end a semi-circular apse behind a row of columns. This was used by the magistrates for hearing complaints. Even a Roman dwelling had its columned portico and hall, beyond which were the private apartments.

Therefore, whether it was the basilica or the private residence, in which the persecuted Christians first held religious services, that was imitated in the earliest churches, it clearly is still the inside form of our church edifices from the simple village structure to the grandest cathedral. To the long straight hall, growing darker as it was more deeply penetrated, there have been added side aisles, with apses, and niches to accommodate statues, with other modifications; but the Egyptian, Grecian and Roman model of temple-building, with the sacred enclosure from which the worshipper was excluded, remains to us.

The mediæval period showed a transition from classicism evidently experimental, as when the basilica form was raised to two or three stories, each narrower than the other until the uppermost elevation became insignificant, and the whole outline unpleasing. Buttresses were developed from the Greek pilaster, being merely a thickening of the flat wall at points where greater strength was required. The tendency to accentuate upward lines instead of horizontal ones gave a different character to buildings, and the introduction of windows as a feature, were all innovations which produced a style called Romanesque, or early Gothic (on account of its rudeness) but out of which the perfected Gothic in the course of half a dozen centuries was evolved.

Columns, as the change progressed, became adjuncts to instead of the main features of a building. While they still occupied their former position as supports to the roof of a portico, they were replaced in the walls by flying buttresses used to resist the pressure of the roofing, and on the inside were employed as the base from which sprang arches of nave and transept, or the supports of the dome itself. They divided the interior of churches into three aisles, and formed colonnades in lateral projections adding grandeur but not mystery to the sacred place. Domed roofs, high arched windows, lofty bell towers and great size united to impress the beholder.

But all these were simply the back ground on which, in the Renaissance of the arts, painting and sculpture, with mosaic and bronze work, were employed. Inside and outside, churches were decorated with a richness wonderful and worthy of admiration, if not in every instance in correct taste. The guild of masons was granted by the Popes special priveleges and exceptions on occount of their importance in church architecture. Artists of every guild received high honors and rich rewards. The treasure of all Europe was at the disposal of the church. Cities rivalled each other in patronizing art, and princes surrounded themselves with scholars and men of genius.

To this sunburst of imagination and learning the Crusades

A STUDY

had contributed not a little. Religion, romance, adventure had given life to the germs of intellectual activity which during the many centuries of mental darkness in Europe had lain dormant. From the Orient the fittest to survive returned with new knowledge. Those who had gone simply as mendicant pilgrims perished by thousands. Others who remained a home, in the absence of their feudal lords learned to become their own masters, and although the wealth which was brought back went chiefly into the coffers of the church, it was the Crusades that first lifted the yoke of surfdom from the neck of darkened Europe, and gave a fresh impulse to civilization.

Not only was Rome awakened to new life, but many cities of southern Europe, Venice, Pisa, Sienna, Perugia, Florence and Milan, in Italy, with others in France, Spain, Germany and England strove together for five centuries to discover new styles which should combine the religious sentiment with grandeur and beauty in the most perfect form.

The trade of the Mediterranean cities with the east, the invasion of Spain by the Saracens, the study of the remains of classic art all contributed to the development and completeness of the Gothic style. In this pursuit the suggestions of climate are plainly evident, the more northern countries contributing to Gothic architecture a greater slant in the roof with more projecting cornices, and more projecting buttresses than were thought necessary in the south of Europe. Also the sculptures used as architectural features had a character of their own, as different as the legends of the early northern writers are different from the classic poetry of Greece and Rome. Despite these characteristics the architectural idea continued to soar heavenward on lines of ever increasing beauty until there seemed nothing left, in some instances, to be desired.

The clever critic, however, who approaches St. Peters at Rome, so commonly regarded as the show church of the world, soon becomes sensible of a defect in its proportions. The designer had not sufficiently studied perspective and proportion to give the beholder a true idea of its great size, or even a magnified one, which would be better. There is nothing with which to compare it, or scale by which to measure it, and it becomes commonplace by looking like a smaller building seen through a spectroscope. The rule in Gothic architecture is the height of a man multiplied, not exaggerated. It is this careful study of proportion, both real and seeming, which constituted the charm of Grecian art.

The interior of the St. Peters has the fault just referred to, the paintings upon the dome being of special scriptural subjects, whereas at such a distance from the eye they should be of a decorative style only, and simple for effect as ornament, while the coloring should be so delicate as to increase the apparent height instead of lowering it, as very strong colors would do. But even Micheal Angelo had some things to learn ; and besides, his patrons required scriptural subjects visibly portrayed.

But the glory of St. Peters was the successful erection of so vast a dome, the effect of which was afterwards lessened by the lengthening of the nave, causing it to sink, apparently, as the structure is approached from the west front. With its magnificence in size, in decoration, in art treasures, and material wealth, to which each one of the long succession of Popes has added something, St. Peters may well be regarded as an architectural wonder, the rival to which our age is not likely to produce, because the conditions can never again be the same that they were from the eighth to the sixteenth centuries.

As a matter of fact, Italy never fully adopted the pointed Gothic style, although it is found with modified features in such structures as the cathedrals at Florence, Sienna and Milan. The latter, indeed, is architecturally faulty, being impressive chiefly on account of its size and its richness of ornament rather than its design. The Gothic period ended with the beginning of the Renaissance in the thirteenth century, but it is to the monuments constructed during its continuance that we turn with most interest. It is the history of architectural experiment carried on for a thousand years, and under many hampering vicissitudes. It shows us combinations which, if lacking in classic simplicity and elegance, suggest strength, inveution, sentiment, and achievement lacking in this our age.

Although the germ of the ancient temple, as has been stated, had been preverved in the portico, the columned aisle, and the apse at the *east* end of the aisle (an Oriental idea) the change in religion in the Christian period called for changes in the interior and exterior arrangement of churches which gave great scope to all the arts. The campanile or bell-tower, and the baptistery were usually seperate structures, treated often in a style quite different from the church. The pulpit and the choir afforded opportunities for the employment of original designs, both by architects and sculptors. Upon these features were lavished years of labor and large sums of money.

Taking for example the pulpit of the baptistery at Pisa in Italy, executed in the latter half of the thirteenth century: It is of marble in a hexagonal form, supported upon seven pillars, while two more support the staircase. Three of the columns rest upon figures of lions with smaller animals in their claws. Three animal figures, a lion, a tiger and a griffin support the central column, and at the foot of the stairs is the recumbent figure of a lion. The shafts of five of the main columns are of different kinds of granite, while the two under the stairs are of Parian marble, and two others are of Sicilian jasper and brocatello. There are two desks so placed as to constitute ornamental features. Above the columns are allegorical figures of Prophets and Evangelists. There are, carved in relief upon the five sides of the pulpit, scenes from the Annunciation, the birth of Christ, the Adoration of the Kings, the Presentation in the Temple, the Crucifixion and Last Judgement.

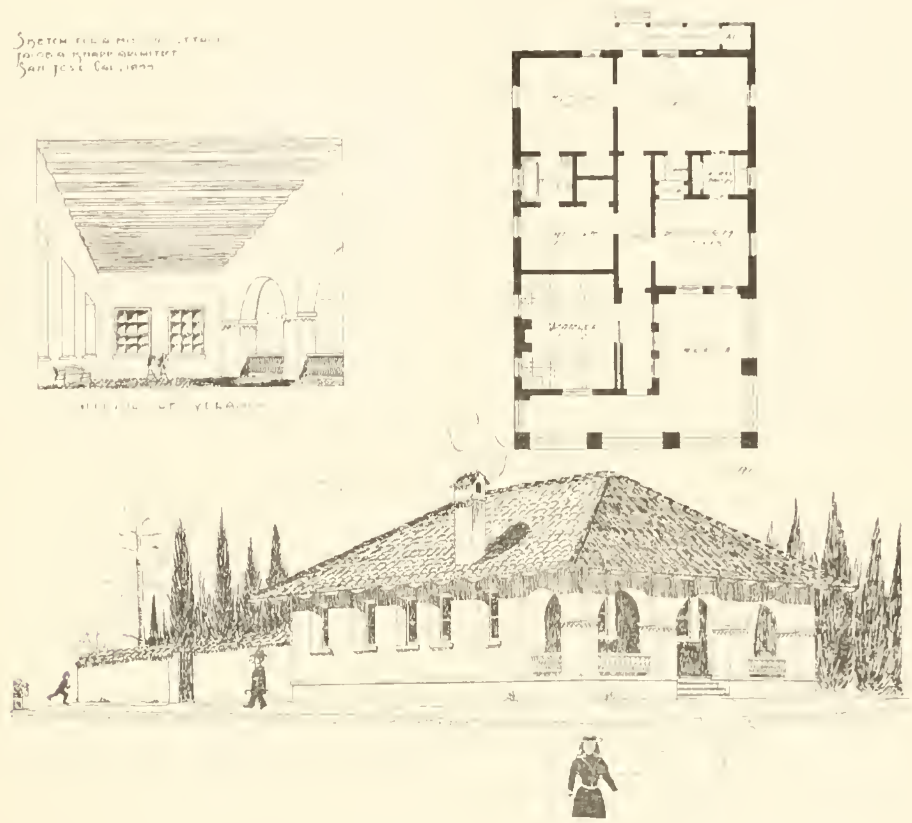
All this suggests the early Pagan idea of ornamentation, which indeed it resembled, the details being brought out with painful minuteness, black paste being used to accentuate the pupils of the eyes, the cavities of the nostrils and ears, and the lines about the lips. The hair and ornaments were gilded, and the figures all in such high relief as to be very nearly detached.

It has been remarked concerning this work that the figures are two grand and noble for the proper representation of such scenes, which called for tenderness and humility. The explanation is to be found in the fact that the artist, who was also the architect, had studied the Roman antiques. The same artist being called upon to invent devils to suit the popular notion of Satan and his imps, made them with repulsively grotesque head and features, the body and claws of a vulture, joined to the legs of an ox. Such was the luxuriance of the mediæval imagination applied to church building, both inside and outside.

All the most famous cathedrals of Europe are restorations of the earlier Christian churches, as, for instance, that of Milan, so celebrated by writers of books of travel. The name of its original architect is not known, but the architect who undertook its reconstruction, in 1386, was an Italian Giam Galeazzo Viconti. The work proceeded slowly, notwithstanding that masons were called from Germany to assist in it.

It was not finally completed until 1805. The form is that of a cross, the length four hundred and seventy-seven feet, with a width of one hundred and eighty-three feet. The height of the nave is one hundred and fifty-five feet, that of the cupola two hundred and twenty-six, and of the tower three hundred and sixty feet.

A work done by so many masters could not have a perfect fully proportioned. The life of the Virgin is illustrated in nine scenes in bas-relief, two upon each face of the basement, and the ninth, a large scene, covering the back of the tabernacle or shrine. All the work is graceful and refined, including the beautiful statuettes and the clustered columns and pinnacles. Its rich mosaics and exquisite finish make good its claim to be called the "Jewel of Italy." Its cost was eighty-six thousand gold florins—money that had been poured into the treasury of the church during the prevalence of the plague of 1348, when miracles were worked by the shrine of the Virgin.



purity of style. The Gothic style of the first intent is destroyed by Romanesque windows, portals, and other features. The interior has two aisles, and there are aisles in the transepts. The roof is supported by fifty-two columns, with canopied niches for statues in place of capitals. The painted glass windows of the apse are very brilliant; the carvings are elaborate; there are hundreds of colossal statues upon the cornice, roof and various projections, all of which, together with the immensity of the white marble pile form an object bewildering as captivating to the beholder. But the Cathedral of Milan cannot be said to have a distinct place in the history of architecture.

Rome had converted basilicas into churches. In the beginning of the fourteenth century Florence converted a market place into the church of Or San Michele, the artist taking eleven years to complete the change. A shrine to the Virgin was erected in the form of a Gothic pyramid, of white marble, which rose nearly to the roof, and was beautifully proportioned.

In the beginning of the fifteenth century there was a meeting of engineers at Florence, competing for the acceptance of plans for raising the cupola of the Cathedral San Marcia del Fiori, the largest dome, measured diametrically, in the world. The work was entrusted to architect Filippo Brunellesco, who was also a sculptor. It was of an excellence of construction that has never been surpassed, but Michael Angelo, who greatly admired it, made the dome of St. Peters to excel it in beauty

Branellesco had much to do with the Renaissance or rebuilding period of architecture in Italy. He rebuilt the church of San Lorenzo at Florence, and built the church of Santo Spirito, the interior of which is in his best style. He was one of the competitors for the honor of designing the second bronze door ot the Baptistry at Florence which was secured by Lorenzo Ghiberti, and begun in 1403, and which has been the admiration of the world for four and a half centuries, as it must continue to be for all time.

Turning from churches to palaces, Brunellesco designed the Pitti Palace, at Florence, which is among the earliest efforts of the Renaissance in this branch of architecture. It is monumental in grandeur, with a facade four hundred and sixty feet in length, of three stories, each forty feet in height, and built of undressed stone, or fragments of rock rugged and dark. Immense round arcades support the windows, and a simple balustrade runs along the top of the wall. No attempt is made to imitate any order.

Some reason other than indifference to architectural effects should be looked for in accounting for the bestowal of all the arts could bring to beautify churches, while the residences of princes were still rude in construction. That reason was probably to be found in the fact that churches were places of sanctuary, where life and treasure were safe from foes or plunderers, while palaces in the frequent wars between neighboring states were points of attack. Gradually as civilization developed the reign of peace, the embellishment of dwellings amplified, and there arose in the sixteenth century many instances of the genius of the age applied to the homes of the rich and powerful.

The farther from Rome we pursue the subject, the more we find of originality of fancy in combinations of styles. From Venice to London, through France, Spain and Germany, there occur continually new features. The Romans adhered more or less tenaciously to the classic, or ancient Roman models. Florence violated this classic idea by superimposing several stories of columns supported by cornices, with arched windows between, in flat walls. Venice hung balconies and oriels out from her windows, and was profuse in wall decorations, both as to design and color, using different marbles to produce effects. The French built their chateaux with round towers at the angles and steep roofs, dormer windows in the upper story continuing the architectural design above the cornice; while their town houses made up for this simplicity by a confusion of orders and details which, while not strictly correct, were undeniably picturesque.

England had less to do with the Renaissance than continental Europe. What corresponds to it, known as the Elizabethan period, is really the perfection of the Gothic style of which England furnishes the finest examples, St. Paul's in London being the chief. About the middle of the seventeenth century the restoration of the old St. Paul's church was projected, and undertaken by Sir Christopher Wren, who promised to remodel it "after a good Roman manner," and also not "to follow the Gothic rudeness of the old design." In the same year, however, London was burned, and only a portion of the walls of St. Paul's left standing.

Two or three years afterwards Wren was again commissioned to execute the rebuilding of the church. His first plan had too many features of the "Roman manner" to please the dean and chapter, and another was substituted in which the architect finally modified and improved upon the former ones, the result being the present St. Paul's, whose symmetry is unrivalled by any Gothic structure in Europe. He overcame the defect in St. Peter's of the apparent sinking of the dome, by placing a second external higher dome of wood over the internal one, thus preserving the interior proportion while giving the necessary elevation on the outside. By an ingenious device he furnished odequate support to the stone lantern surmounting the dome, which gives the effect of great elevation to the structure.

Wren rebuilt several of the many churches destroyed by the great fire, besides designing numerous public buildings in London and elsewhere. His genius is impressed indelibly upon English architecture.

Germany was less affected by the revival of art than was England. Spain was subject to such conditions, through the influence of the Moorish spirit, as to take it out of the category of the countries prompted by the Renaissance spirit. Of the great buildings erected during this period the most noted are St. Peters in Italy, the Escurial in Spain, Versailles in France and St. Paul's in London. In contemplating its glorious achievements the student of architecture must be reverently impressed with the power of the human intellect, and be led to ask himself, "What of the future?"

ILLVSTRATIONS:

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.

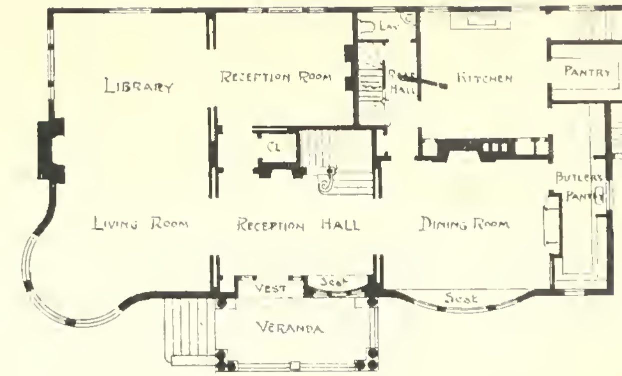
WORK has commenced on the third $60,000 structure to be built this year in San Francisco. It will be erected by Frederick Kronenberg on the northeast corner of McAllister and Franklin streets, and will cover an area of 137:6x120 feet. The main front will be on McAllister street, where five stores will be situated on the ground floor with rooms in the rear. Above will be sixteen flats, access to which will be by means of ten tiled vestibules so arranged that each apartment will have its separate entrance. The construction will be of the most modern character and the interior appointments will be of the most convenient kind. In addition to the main building a smaller one containing four flats will be placed on the end of the lot facing on Locust avenue. Salfield & Kohlberg are the architects of the Kronenberg building.

RESIDENCE for Saml. J. Davis, Berkeley, Cal., Wm. Mooser & Son Architects.

STUDY for a hotel, F. R. Collins, Des. and Del.

:Residence · For · Sam'l · J · Davis · Esq:
:Berkeley · Cal:

:Wm · Mooser & Son · Architects:
:14 Grant · Av · San Francisco:



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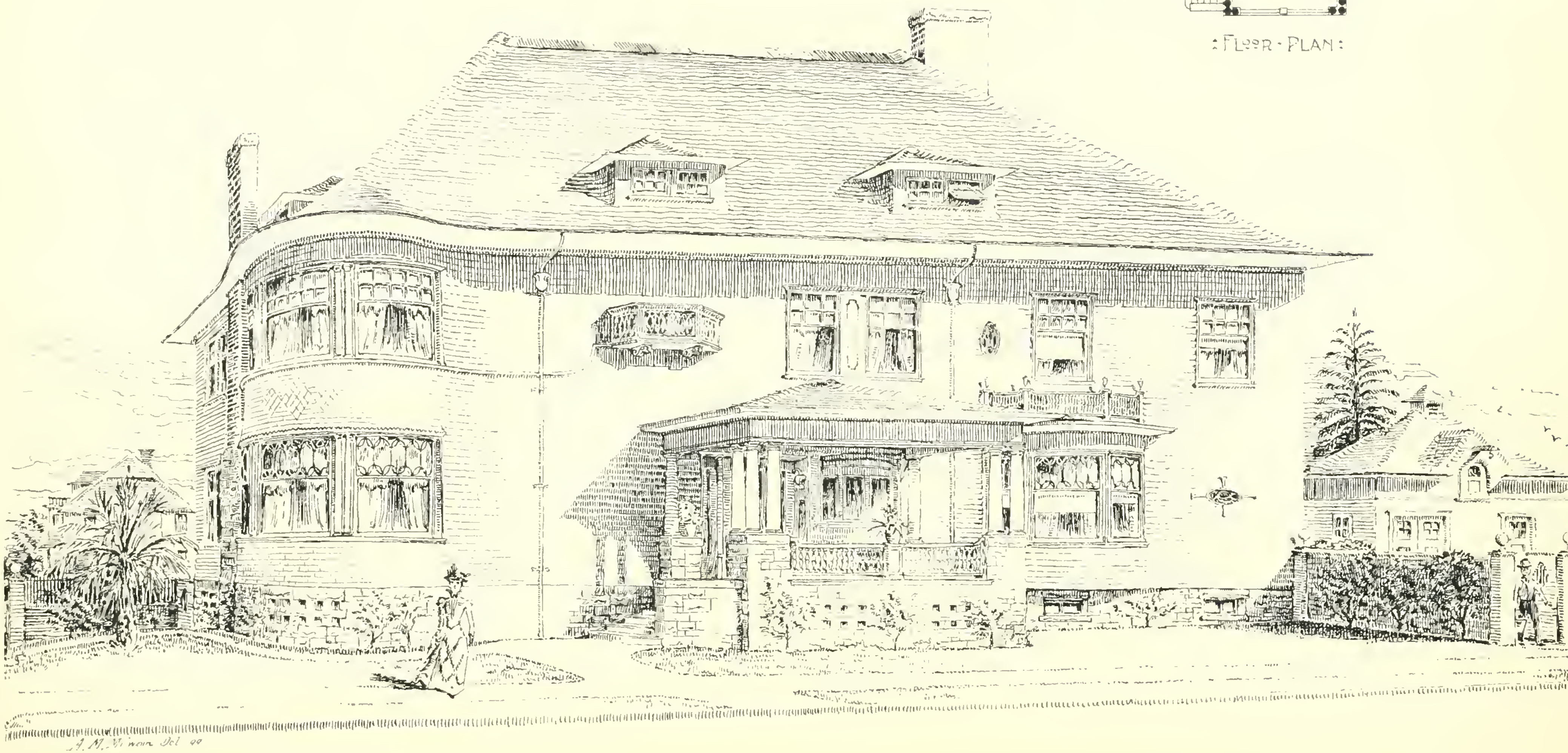

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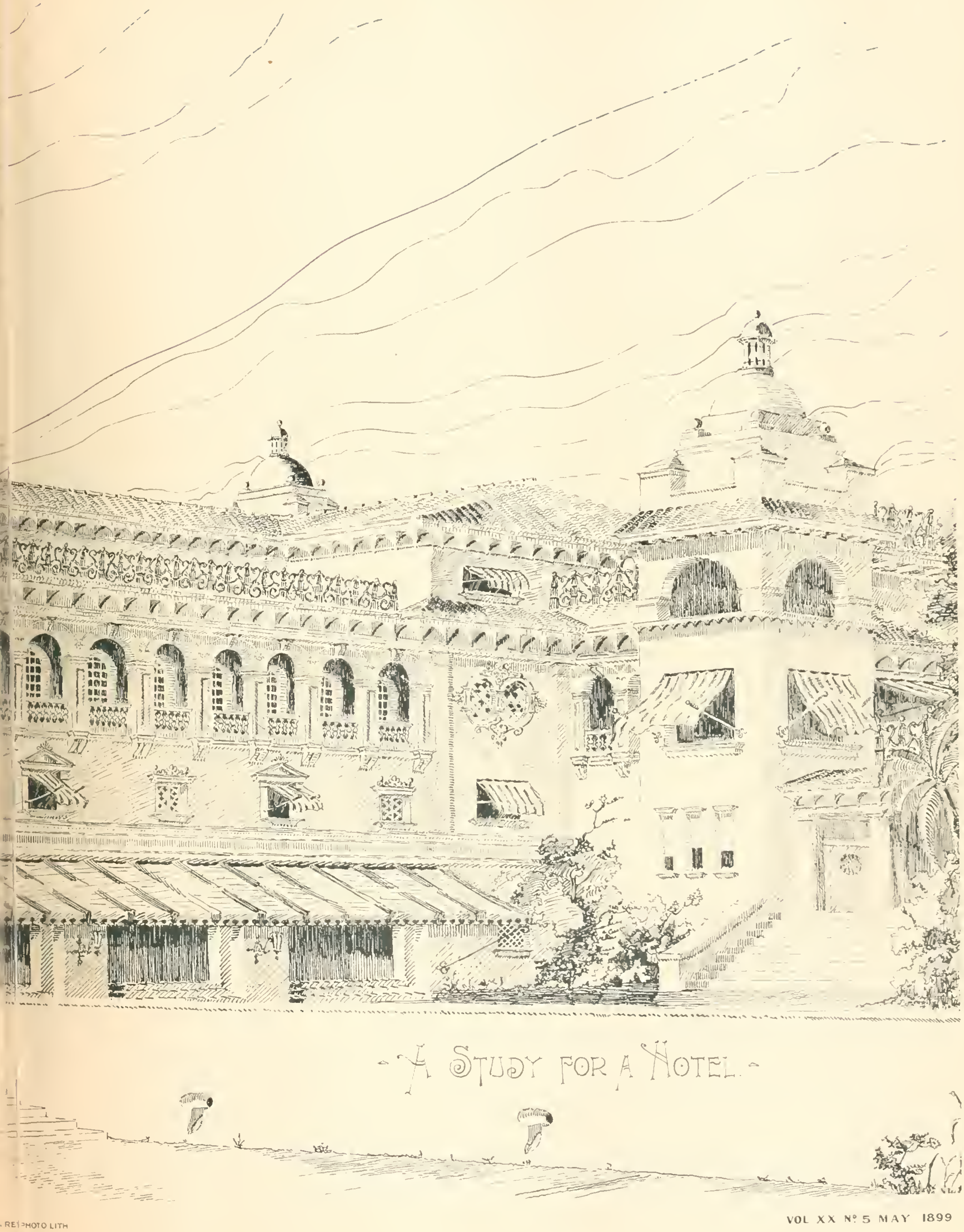
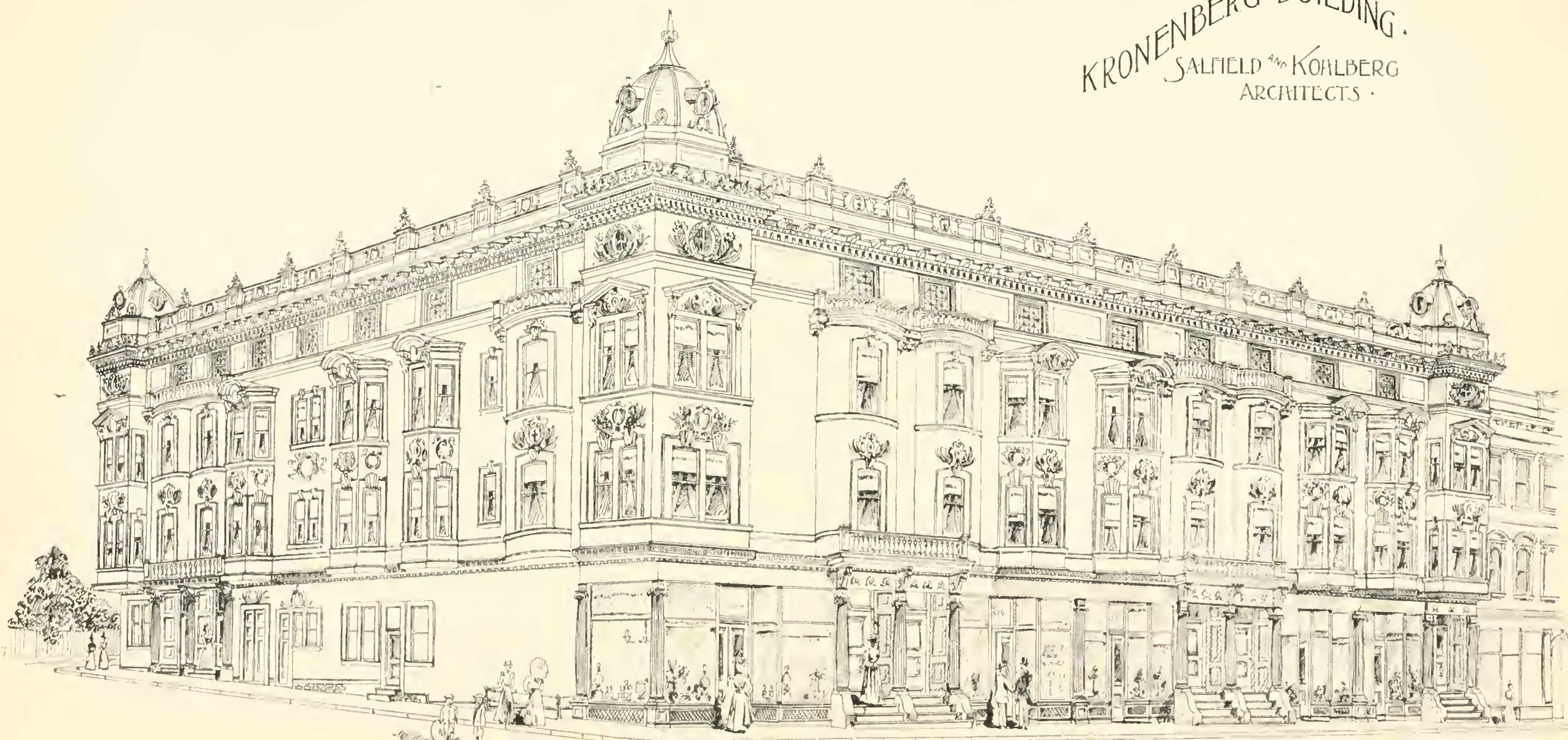


- A STUDY FOR A HOTEL. -

KRONENBERG · BUILDING .

SALFIELD AND KOHLBERG
ARCHITECTS ·



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SAN FRANCISCO

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THE REAPER CLAIMS A PIONEER ARCHITECT.

William Patton Dies at His Home in Alameda.

WILLIAM PATTON, one of the pioneer architects of the Pacific Coast, who designed a portion of San Francisco's new City Hall, died this month at his home, 2253 Central avenue, Alameda. He had been ill for a number of months, suffering from cancer of the throat, and his death had been expected daily. Deceased was a native of Sunderland, England, aged 78 years. When a boy he entered an architect's office and served his apprenticement. When news of the gold discoveries in California reached the old country he was among the first to start for the new El Dorado.

After passing several years in the mines, Mr. Patton returned to San Francisco and opened an architects office on Washington street, where he followed his profession with great success and amassed a fortune, part of which, however, was lost in late years by unprofitable speculation. Mr. Patton married in San Francisco. About twenty years ago he built his home at 2253 Central avenue and took up his residence in Alameda.

Many of San Francisco's early landmarks were designed by Mr. Patton. Some of them have since been torn down, while others are still standing monuments to the architect's skill. He was a member of the San Francisco Chapter of the American Institute of Architects. Among the San Francisco buildings designed by him are the Sutter street Synagogue, the Safe Deposit building, Donahue block, Mission and Fremont streets; the old Star King church, since replaced by the new structure; the old Chronicle building, Bush and Kearny streets, and the Alcazar building. He was supervising architect of the new City Hall, and designer of the northwest and northeast wings, the City Prison and the Hall of Records. Many of the finest buildings in Alameda were also designed by him.

Mrs. Patton died about fourteen years ago. Two sons, William and Clarence, survive the father. Deceased was a member of the Society of California Pioneeer. The funeral services will be held under the auspices of the society.

A MAMMOTH BLOCK OF STONE.

THE SOUTHERN Marble Company, of Marble Hill, Ga., has won the distinction of taking from its quarries in Pickens County one of the largest blocks of marble that has been quarried in the world dering modern times. The marble was taken out last month, and has been shipped north for use in one of the contracts of the great firm of Norcross Brothers.

The block of marble is almost pure white and measures 27 feet 2 inches long by 4 feet 3 inches wide, having in all the mass 500 cubic feet.

The officials of the company are proud of the fact that the block was removed after careful labor without a break, as it is considered very difficult to remove such a mass without some accident happening to it in the process of removal from the quarry.

The exact weight of the block, according to the statement of the manager of the company, is 100,066 pounds, requiring an immense amount of labor to finally place it on board the car for its journey to the north.

The next largest block of marble ever taken out of a quarry in Georgia was on exhibition at the Cotton States and International Exposition and weighed only 45,200 pounds, or less than half of the weight of the monstrous block taken out last week.

Notice of the removal of the monster monolith was sent to Professor Yeates, of the Geological Survey, and a photograph of the block, just befor it was put upon the cars, will be placed in the permanent exhibit of the survey.—*Stone.*

NOTICE OF MEETINGS.

San Francisco Chapter, American Institute of Architects, meets second Friday of each month at 408 California street, at 4 p. m.

Seth Babson, Pres. H. A. Schultz, Vice-Pres.
J. W. Reid, Sec. John M. Curtis, Treas.

Southern California Chapter American Institute of Architects, meets first Wednesday of each month at 114 Spring street, Los Angeles, Cal.

A. B. Benton, Pres. Arthur B. Benton, Vice-Pres.
John P. Krempel, Sec't. August Wackerbarth, Treas.

Washington Chapter American Institute of Architects, regular meetings at 8 o'clock p. m., the first Friday of each month, except July and August.

Jos. C. Hornblower, Pres. Jas. G. Hill, Vice-Pres.
E. W. Dunn, Jr., Sec. W. J. Marsh, Treas.

Association of Architects of Arizona, meetings held at Phoenix, Arizona.

D. W. Millard, Pres. T. H. Maddox, Vice-Pres.
W. R. Norton, Sec. and Treas.

Technical Society of the Pacific Coast, meets first Friday of each month at Academy of Sciences Building.

Geo. W. Percy, Pres. W. F. C. Hasson, Vice-Pres.
Otto Von Geldern, Sec. Edward T. Schild, Treas.

Master Plumbers' Association, meets every first and third Friday of each month at the Flood Building.

Jas. E. Britt, Pres. J. L. E. Firman, Sec.

Builders' Exchange, Directors meet first Friday in each month at Mission and New Montgomery.

S. H. Kent, Pres. Jas. A. Wilson, Sec.

Masons' and Builders' Association, meet first Friday evening of each month.

Adam Beck, Pres. M. V. Brady, Sec.

ANCIENT AND MODERN BUILDING IN PALESTINE.

AT A meeting of the English Architectural Association in January, Mr. Beresford Pite gave an illustrated lecture on this subject. Mr. Pite declared that it would be impossible for him to cover the subject with any thoroughness in one lecture, and he could only relate what struck him most forcibly when he visited Palestine. The lecturer then showed how the architectural interests of Palestine began with caves and rock tombs, cisterns and oil and wine presses, and then the buildings. The variety of influences which passed over the land in its early history had its effect on the people and their work. Beginning with Egyptian influence, they came to periods when Phœnician, Assyrian, Græco-Roman and Roman styles could be traced. Then the history of the country became obscure as they passed through dark ages to the Arab period. The years of crusading followed, dotting Palestine with interesting examples of Mediæval art. Turkish sway, too, had left its memorials, and as landmarks of modern work and travel some buildings presented the strong characteristics of the Gothic Revival. Apart from the artistic and historic periods there was the material to be considered. The building material most ready to hand was a hard limestone, difficult to work and offering little opportunity for ornamentation. The soil of the land was poor and yielded but scanty crops of coarse grain, so that when seeking to copy from nature the native imitated the heaviness of his surroundings. The country was also the seat of endless wars and disasters, so that durability and not beauty was the great aim of those engaged in architecture. The lecturer then gave some practical hints to those who might have to design for buildings in Palestine. The consideration of aspect was most important. It was always well to avoid an eastern aspect, and near Jerusalem itself it was advisable to turn the building away from the road because of the quantity of dust, which was terrible during the hot months when there was a drought of water. There were only two wells in Jerusalem, and the city was wholly dependent on the rain fall for its supply of water. In the absence, therefore, of a water supply the cost of water had to be seriously considered. If water ran out during building operations it meant an increase in the cost of construction. It was, therefore, necessary to begin building operations by constructing and excavating a cistern for the season's rainfall, thus providing against the drought which would certainly arise during the hottest months. There was an absence of any system of drainage, and no kind of cesspit could be properly adopted because of the hardness of the rock and the small depth of earth which covered it.

When designing a building the arrangements for heating had hardly to be considered. Fireplaces resembling those of the Western nations were not generally used. In buildings established for the protection of Russian subjects Mr. Pite said he noticed more attention had been paid to the heating of the building, and stoves had often been adopted. The carriage of materials was a most important item when doing work in the East. The railway could only carry coal, so that it was impossible to send up heavy material in large quantities. Camels were the beasts of burden. In order that foreigners might erect a building of any size a royal fireman from Constantinople was necessary, and even when this Imperial permission had been obtained the local authorities had to be pacified and a liberal amount of backshish expended before operations could be commenced. If mosques were in the vicinity of the site the permission was more difficult to obtain, the religious traditions and superstitions of the case bearing an important part in the negotiations. There seemed to be no builder, and consequently no contractor, in Jerusalem ; but still the lecturer, with the assistance of a German architect resident in Jerusalem, had overcome such difficulties. Plans made in London had been carried out with the utmost accuracy. The workmen would only recognize one master, and thus the man who gave the orders must also have the paying of the men engaged on the job. There was an entire absence of sand for building purposes, but a good supply of lime was to be obtained.

Mr. Pite then gave a list of the prices charged for work in Jerusalem :

Roofing.—Tiles came from Marseilles and cost 25 francs per 1,000. The work was wired to battens ; rewiring was necessary every ten years.

Bricks.—The best were foreign, the native ones were worth nothing. Bricks cost from 7 to 12 francs per 100 (*i. e.*, 4*l.* to 5*l.* per 1000).

Paving Tiles cost from 6 to 8 francs per square metre.

Timber.—About five times the cost paid at home.

Building cost for cubing about 12 francs per cubic metre, about 10 francs for foundations, and cisterns 10 francs.

Lime costs about one-twelfth of whole buildings ; lime costs about one-fifth of cost of wall, including probably plastering ; for girls' school (not plastered), one-seventh to one-eighth.

Walling.—Stones for inner side 1 piastre each, for outer side, hewn, 2 piastres each. Lime, 5 to 6 piastres. Wages and hauling, 10 piastres, or, in all, 12½ francs per square metre. Foundation walls, 10 to 11 francs, above ground, 14 to 16 francs ; partition walls, 10 francs ; dolma walls, *i. e.*, wooden framework filled with framing, 6 francs ; vaulting, 8 francs—all per square metre.

Various Details.—Facade stone, 100 pieces, from 10 to 14 francs. External pointing, ½ franc per square metre. Corner stones or quoins, 2 francs each. Lintels and cornices; 3 francs per lineal metre, or 40 francs per door and window opening. Plastering, 1½ to 2 francs per square metre. Cementing new cisterns, 3½ to 4 francs. Plastering ceiling, 2½ francs. Tile roofs, including wood, labor, nails, etc., 12 francs; with heavier woodwork, 15 francs. Carpentry for window, glazed, painted and fixed, 50 francs. Per internal door complete, 50 francs ; per pair of shutters complete, 40 francs. Iron bars fixed, ½ franc per kilo. Girls' school, Jerusalem, including boundary wall, gate-house and cistern, and clearing site, about 12 francs per cubic metre. Not plastered.

In the discussion that followed the lecture, Mr. A. C. Dickie said : The more modern Jerusalem had really few attractive features as regarded the construction of buildings. New settlements were springing up outside the walls of the old city, and German shops were being opened. One of these settlements or villages had become famous, inasmuch as old and empty petroleum tins had been largely employed in its construction. The Kaiser's visit to the Holy Land would long be remembered by those interested in the antiquities and beauties of Palentine. Prior to the Kaiser's visit to Jerusalem, when the authorities were trying to improve the look of streets, etc., several acts of vandalism were committed. Although the streets were then said to present a cleanly appearance, it was hardly true, as the refuse and dirt of the principal streets were merely swept into the smaller and less frequented ones. Where old gilt-work in mosques had become dull, a little yellow pain was used to restore (such was the taste of the Turk) its first charm.—*Stone.*

VALUABLE INFORMATION CULLED FROM OUR EXCHANGES.

THE first contract in the construction of the largest grain elevator in the world was let a few days ago by the great Northern railway. Schmidt Brothers of West Superior got the contract for the foundation, their bid being $85,000. The elevator is to be located at West Superior, and will be built of steel, at a total cost of over $2,000,000. Its capacity is to be 6,500,000 bushels of grain, or 2,5000,000 more than the largest existing elevator.

THE Treasury Department last week sent invitations, under the provision of the Tarnsey act, to twenty leading architects to submit competitive plans for the new custom house building, to be erected on the Bowling Green site in New York City.

JAMES G. Hill, of Washington, D. C., has been selected selected to design the new building for the government printing office, for which Congress appropriated $2,000,000.

ARCHITECTS and engineers are watching with much interest the character of foundations now being put in for the new office building which is being erected at 57 Washington street for the Western Methodist Concern, after plans by Architect H. B. Wheelock. The entire structure with rest on 32 caissons or concrete wells, each 4 feet in diameter, with a bearing of 9 feet at the bottom on hardpan, which is about 75 feet below the street grade. The maximum load on each well is 617,500 pounds, including the weight of the concrete, or about 9,700 pounds per square foot. This will not create any perceptible impression on the hardpan found in this location. The manner in which the concrete is lowered and tamped in these wells will also cause a friction against the walls of clay for its entire height. There is practically no settlement in this form of foundation, only that due to the shrinkage of the concrete, thus avoiding the uncertain settlement experienced in most all of our skyscrapers having the steel floating foundation; the particular preference over the pile foundations is the fact that surrounding property and buildings are not disturbed in any way, add that every concrete column acually rests on hardpan.—*The Construction News.*

THE Report of the Pennsylvania State Capitol Commission has been made public, and the politicians are busy extracting from it nutriment for their respective views of public affairs. With these, of course, we have nothing to do, but it is interesting to observe that the Commission seems simply to have thrown the instructions of the Legislature overboard, at the suggestion of the architect. That the latter should have thought it desirable, instead of scattering the departments among a cluster of separate buildings, to gather them under a single roof, is quite intelligible; in fact, the same idea would occur to most architects; but that the Commission should have thought itself authorized by the statute under which it acted to adopt such a scheme is extraordinary, and it seems to us more extraordinary still that their action should have been supported by the Courts. If a man should commission another to buy him a coat for $50 mentioning that he expected at some latter time to get the rest of a suit, and his agent should bring him back a shirt, with the information that he had expended the fifty dollars for this, and had ordered in his name a four-hundred-and-fifty-dollar suit, he would hardly think that he had been well served; yet this is practically what the Commission has done for the State of Pennsylvania; for, according to its report, it will cost four million dollars, in addition to the amount already expended, to complete the building according to the designs prepared by the architect with the Commission's approval. If this is what Pennsylvania people like, and what Pennsylvania courts consider proper, we have nothing to say, except to warn architects and other unsuspecting people from trusting either in future. Meanwhile, we commend the closing paragraph of the Commission's report, with which it presents the shirt to the would-be purchaser of a coat, to the attention of the curious. "That the building in which the General Assembly now sits is not as handsomely decorated and finished, either internally or externally, as many people of the State would desire, arises solely from the fact that the Commission did not have at its disposal any money to expend upon unnecessary ornamentation." We hope that the owner of the shirt will be quite satisfied with this explanation.—*The American Architect.*

THE London Chamber of Commerce recently appointed a committee to inquire into the subject of secret discounts and commissions, by which many persons endeavor to secure business, at the expense, of course, of honest people. The report of the committee showed the extent of the evil, but without proposing any definite means for correcting it; and the architects, who see more than other professional men, perhaps, the injustice done to innocent persons by frauds of this sort, seem to have been roused to an earnest desire to have them corrected, if possible, by some sort of concerted action; and as the same evil flourishes here, our architects will watch with interest the course of their English brethren. In England, as here, the trouble does not seem to lie so much with the giving of bribes, which have small attraction for architects, whatever they may have for official persons, as with the practice of certain dealers and manufacturers of having a variety of prices for the same thing, varying in inverse proportion to the honesty or inexperience of the purchaser. We heard of a case recently, for example, where a certain appliance for steam-heating was called for by name in the specification for a building. The article was a good one, and the architect undoubtedly thought he was doing his employer a service in demanding it in the specification. About the same time, another contract of nearly the same importance was carried out for steam-work, in which the contractor, although not restricted except by a general provision that he should do a good job, used the same appliance. In everything but price the articles used under the two specifications were exactly similar, but the contractor who was required by his contract to use that particular thing, and no other, had to pay more than three times as much for it as the contractor who was left at liberty in the matter; and, of course, the extra cost came out of the pocket of the owner of the building. As any architect knows, this is a very common experience, and notwithstanding the impassioned appeals of manufacturers to specify their goods, and their gratuitous supply of specifications mentioning them, the older men in the profession are very reluctant, and with good reason, to call for any appliance or material whatever by name in their specifications. In many cases, knowing the superior quality of a certain article, they would be glad to do so, if it were not for their conviction that they would in that way expose their clients to the risk of being robbed; and they prefer to leave the matter open to competition, even if they have to accept something not quite so good as they would like. That this state of things is not satisfactory either to architects, who wish their cliants to have the best things made, or to the manufacturers, who think that their efforts to improve their goods ought to be encouraged, is evident; but the latter have only themselves, or more probably, their selling agents, to thank for rhe view which architects take of the matter. No doubt injustice is done to some honoroble manufacturers by the suspicion and discredit which the tricks of the other sort have aroused in the profession; but this is not the fault of the architects, who have no means of judging, except by analogy, of the conduct of parties not personally known to them, and are columns are always open to the affidavits of dealers who can lay their hands on their hearts and swear that the net price of their goods to contractors is exactly the same where they are called for in the contract as where they are struggling to "introduce" them in competition with other articles of the same sort.—*American Architect.*

THE twenty architects invited to enter the competition for the New York custom house have all signified their acceptance, and the Treasury Department has mailed them the programme upon which the competition will be based. The new custom house will be one of the most important structures ever erected by the government outside of Washington, its cost being variously estimated between three and four million dollars. The architect who will compete for the plans for the new building are: In Chicago—D. H. Burnham & Co., Henry Ives Cobb; in New York, McKim, Mead & White, George B. Post, Bruce Price, Carrere & Hastings. Francis H. Kimball, James B. Baker, Cady, Berg & See, Clinton & Russell, Robert W. Gibson, Israels & Harden, Babb, Cook & Willard, H. J. Hardenbergh, Cass Gilbert, Trowbridge & Livingston, George Martin Huss, Howard, Cauldwell & Morgan; in Boston, Peabody & Stearns, Shepley, Rutan & Coolidge. The programme for the building, as sketched out roughly to the proposed competitors, suggests a structure six stories hight, with 212,000 feet of floor space the absolute requirement. A hint is thrown out that it may be desirad to add two more stories later, and designs may be drawn with reference to this possibility. The material of which the building is to be constructed is not designated, but is left to the discretion of the designers. According to press dispatches, it is the intention of the Secretary of the Treasury to award to the successful competitior the full five per cent commission on the total cost of the building. A commission, composed of the supervising architect of the Treasury and two architects or experts in the construction of buildings, are to be th judges, and report to the Secretary of the Treasury as to the relative merits of the designs and plans submitted.—*The Construction News.*

MILL-CONSTRUCTION is being severely criticised in Chicago, and, if the underwriters have their way, it will soon be a thing of the past. The loss-record for this class of buildings even sometimes when equipped with automatic sprinklers—has been unsatisfactory, and before the committee of the Board of Underwriters the argument was made that such structures are destroyed even more quickly than buildings of ordinary construction. Rapidly-spreading fires and total losses, it was stated, seem to be characteristic of the class. The Kaestner, Armour, Felt, Traders' warehouse, Jackson Street, and other buildings recently wholly destroyed, are cited to prove their lack of fire-resisting qualities. It is therefore, proposed to suspend all allowances for unequipped mill-constructed buildings, and a sub.committee has been authorized to make the necessary investigations, and report as soon as possible. The underwriters' association has for years made liberal allowances for mill-construction, upon the theory that such bnildings were slow-burning, and fires in them could be extinguished with moderate loss. Possibly for this reason, and because so many rates would be upset by withdrawing all existing allowances, it is xuite likely that whatever action is taken will apply only to new structures. But the day of mill-construction has probably passed, not to return.—*Exchange.*

A COMMITTEE appointed by the American Institute of Architects reported upon the subject of architectural education at the last annual convention. The first architectural school in the United States was established in 1869, at the Massachusetts Institute of Technology, by Prof. W. R. Ware, who is now Professor of Architecture in Columbia University. Since that time flourishing schools have been established at Cornell, the University of Illinois, Columbia University, Syracuse University, University of Pennsylvania, University of Chicago, Harvard, Tulane, and McGill Universities. Since their establishment no less than 3250 students have received instruction; 650 have hraduated, and a large number are now in practice. The committee favored the establishment of an educational requirement for admission to the Institute, and suggested that the diploma of a graduate of a recognized school might be accepted in lieu of an examination.

A MONUMENT to General Lafayette is now in course of construction on the Brandywine battlefield, in Chester County, Pennsylvania, near the spot where the general was wounded. The height of the structure is to be 78 feet, and the size of the base 24 feet square. The material is Brandywine granite, and the largest stone, which is the die, is to weigh fifteen tons. On this stone are to be four bronze panels, inscribed with the full record of General Lafayette, setting forth the battles he was engaged in and designating on what spot he was wounded. The monument is to be crowned with an historic broze figure of Lafayette 12 feet in height. The memorial is the gift of John G. Taylor, of West Chester, who nat only builds the monument but has set asid a sum for the perpetual care of the surrounding grounds.—*Exchange.*

FIRE PROTECTION OF TALL BUILDINGS.

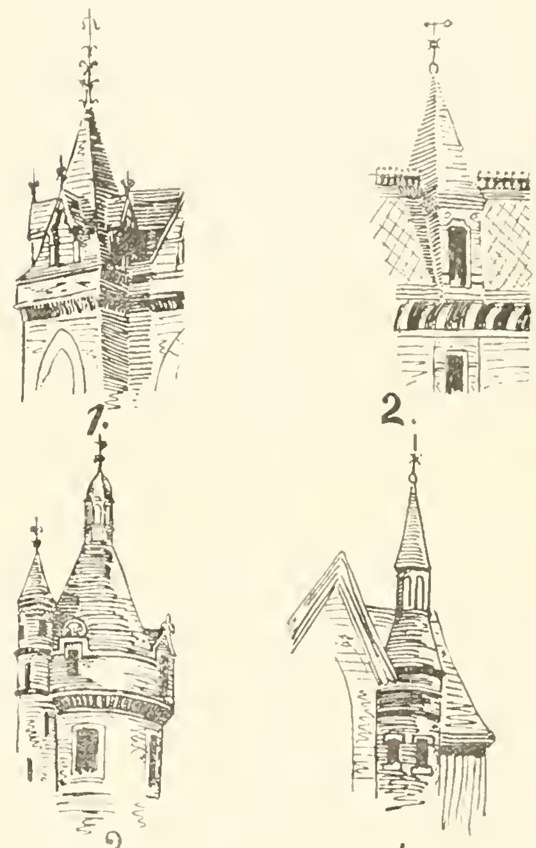
IT WILL be remembered that when the upper eight stories of the Home Life building were out in the recent fire, the chief of the New York Fire Department stated that the failure of the firemen to do any effective work above the ninth story was what he had predicted whenever one of these tall buildings came to be tested by a serious fire. There is a limit of height above which the ordinary methods of fire-fighting by pumping water through a hose are inadequate. Much valuable time is lost in dragging the hose from floor to floor; it is always liable to injury from fire or falling debris; and of course there is the danger of bursting from overpressure, a risk that naturally increases when the water has to be forced to the upper floors of a twenty-story building.

The New York Fire Department has recently made a test of the height at which an effective stream of water can be delivered from its engines, which shows that our tall buildings are better protected than is generally supposed. A fire engine was connected to the mains and to a standpipe that extends the full height of the St. Paul building, and succeeded in forcing a considerable stream of water from the roof—at a height of 307 feet above the street level. With a pressure of 180 pounds at the engine, the water was thrown over St. Paul's Church, on the opposite side of Broadway, and fell into the churchyard beyond, a horizontal distance of about 250 feet. Unfortunately, the failure of one of the couplings on the standpipe within the building prevented the test being made with the maximum pressure at the engine of 300 pounds to the square inch; but enough was done to prove that the engines of the department can deliver water at a satisfactory pressure on any of the floors of our tall buildings. At the time the standpipe failed the engine was throwing over 250 gallons a minute at a height of over 300 feet, with only 60 per cent of the maximum pressure.

While it is true that the tall buildings are provided with their own fire service in the shape of tanks on the roof or special fire pumps in the basement, experience has shown that the system is not very reliable. The tanks are liable to be empty, or the pumps may not be available because of insufficient steam supply in the boilers, or the whole plant may be crippled by the flooding of the basement during the progress of a fire. But by the new system, if a fire should break out in a building supplied with adequate standpipes and a good elevator service, the firemen will be enabled to command a good service of water on any of the highest floors within a few minutes after reaching the scene of the fire.

The failure of the standpipe in the St. Paul building suggests that the fire system of these tall structures should be put in under the rigid inspection of the Building Department; that it should be of ample capacity; and that it should not be passed by the department until it has been subjected to a test pressure considerably beyond that which will obtain in actual service.

A further development of the idea of having the service of these buildings operated by the engines of the Fire Department would be to lay down separate salt water mains at stated intervals from Broadway to the Hudson and East Rivers, with connections at the water front to enable the powerful pumps of the fireboats to be concentrated upon a fire. This system is already installed in some Western cities, and it provides a supply of water far in excess of anything that could be secured by the use of the ordinary fire engines. A combination of both systems and the provision of ample standpipes in every tall building would render these structures practically proof against destruction, so great would be the flood of water that could be let loose upon a fire. It should also be borne in mind that these towering buildings would not only be indestructible themselves, but they would afford an excellent protection against the spread of a conflagration. Their great mass would form an efficient fire-screen, tending to localize an outbreak, while they would serve as giant watertowers, from the upper floors of which a vast amount of water could be thrown upon the burning buildings below.—*Scientific American.*



PORTLAND CEMENT MADE FROM SLAG.

PORTLAND cement from iron slag has been so profitably and successfully produced from the refuse at the Sparrow's Point Works in Maryland, and at the works of the Illinois Steel Company, that a plant is to be established at Birminghrm, Ala. The supply of slag will be drawn from the Ensley furnaces of the Tennessee Coal and Iron Company, the plan being to have an initial capacity of 1000 barrels a day. Machinery has been ordered for the plant, which will be in working order, it is expected, in about four months. This utilization of what was heretofore a useless by product of pig-iron works is one that promises to add largely to the profits of the ironmakers, even though the production of the cement, as in this Birmingham case, is turned over to an independent company.—*Boston Transcript.*

BOOKS AND PERIODICALS.

BRIDGES AND FRAMED STRUCMURES, an illustrated monthly magazine, has made its debut with the April number. It is published by The Ranck Publishing Co., Chicago, at $3 a year. The initial number contains the following interesting and readable contributions: A review of the life and works of Sir John Fowler; Pneumatic caissons for ordinary foundations; Assumptions made to determine draw span stresses; The architecture of bridges; Modern Spanish bridge engineering; The bridge work's estimating department; Chemical and physical construction of steel. Measurements for granite viaduct.

The matter is well edited and digested as well as pertinent to the field of enterprise which the title indicates. The articles are aptly illustrated, and the magazine printed on good paper. We bespeak for it a wide field of usefulness.

TRADE NOTES.

THE Grand Rapids Carved Moulding Company are known all over the country as the only concern that manufacture the real thing in carved mouldings. There are imitators and pressed mouldings and pressed pot metal that is in use in ornament, but when you want the genuine article in carved mouldings the above firm are the people who can supply your wants. Why? Because they are cut, the wood is displaced. They bear the same relation to the hand carved work that the machine stuck or shaped mouldings of the present have to the old hand worked. They are more even and perfect than can possibly be produced by hand and at a very small per cent of the cost. Where can you find ornaments that are acknowledged as correct as the Egg and Darts, Dentals, Fliets, Beads and numerous others that they produce? Send for their catalogue. See advertisement on page iii.

THE TALLEST CHIMNEY IN AMERICA.

THE trade press throughout the country has been giving considerable time and attention to the tall chimney and the electric power station of the Metropolitan Street Railway Company, in New York. New York City will soon be the possessor of two of the largest electric power stations in the world, says *Clay Worker*, designed to furnish current to two street railways. The delay in introducing electric traction has been a very advantageous one, since it is now possible to utilize the latest advancements in electrical engineering in both the generation and transmission of high potential currents. A further advantage is the concentration of all the current-generating machinery in a single enormous station, so located that coal can be obtained and ashes deposited at the lowest possible cost, and where an ample supply of condensing water is available.

Alternating current at high potential will be transmitted from this central station to small sub-stations scattered throughout the system, where it will be transformed to direct current at low voltage, and fed directly into the mains along the road. The new power-house has been designed for a normal output of 45,000 horse-power.

It will be divided into two parts, one containing the boilers and coal bins and the other the engines and generators. There will be 87 water-tube boilers arranged in three tiers, each having a maximum capacity of 800 horse-power. The storage bin will be capable of holding about 10,000 tons. The engine room will contain 11 engines, each direct-connected to a three-phase 6000 volt generator. The engines have a maximum capacity of 6000 horse-power each, but an economical load of about 4000 horse-power.

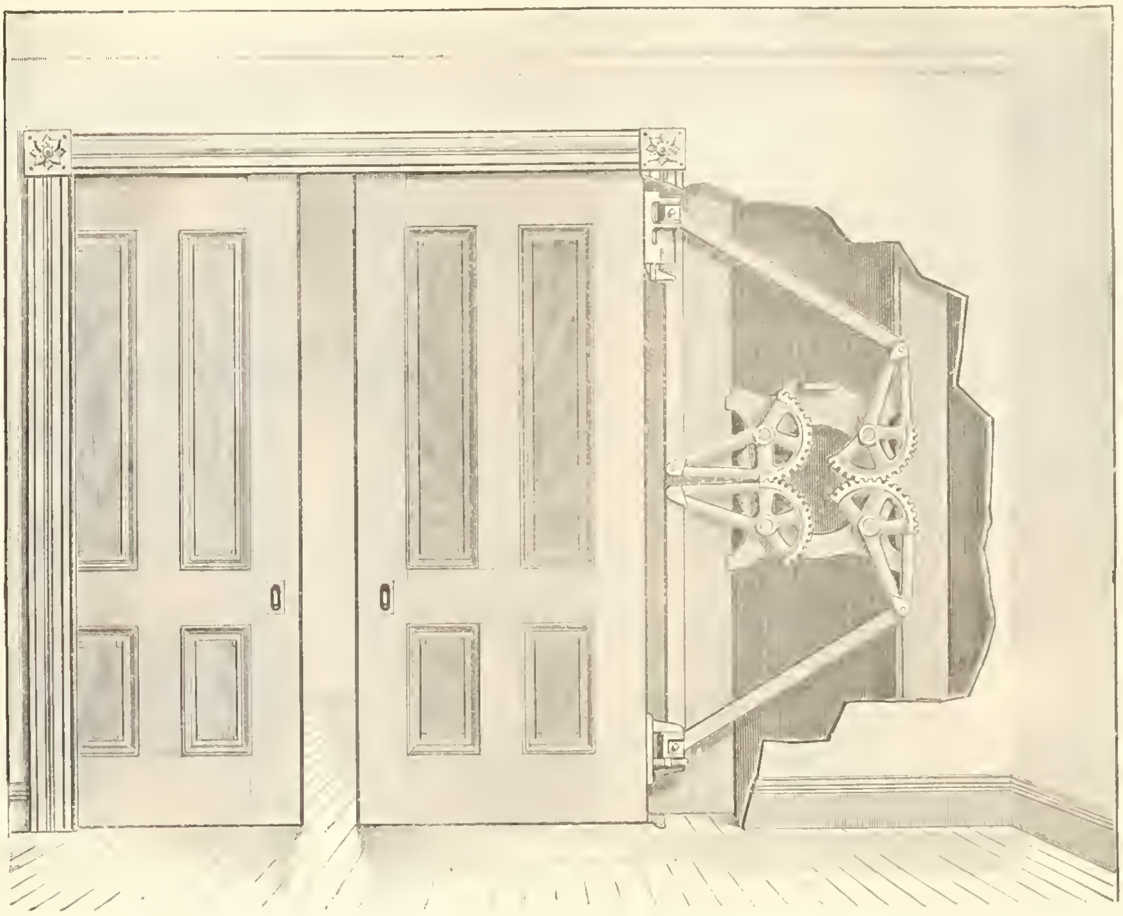
The most conspicuous feature of this new plant is the immense brick chimney, the largest ever constructed. A solid block of concrete 88x85 1-3 20 feet forms the foundation. Starting with a square pyramid base 55 feet on a side, it gradually diminishes until at a height of 15 feet from the ground it is but 40 feet, at which point it continues up to 80 feet, with a side dimension of 38 feet, 10 inches. At this height it begins to change to a circular section, which change is completed at 95 feet, from whence it continues with a taper of five sixteenths-inch to the top. The ornamental top begins at a height of 317 feet, the chimney at that point having a diameter of 26 feet, 10 inches.

A 12-inch fire-brick wall extending up 85 feet divides the chimney into two semi-circular compartments, preventing the current of hot gases from one set of boilers having any influence upon the gases coming from the flues on the other side. About four feet below the floor of the lowest flue, the fire-brick lining of the chimney commences, and extends about 8 inches in thickness to 5 feet above the upper flue, and from that point, 4 inches in thickness up to 115 feet.

The weight of the overhanging enlarged portion at the top is counteracted by three steel rings, the first at a height of 333½ feet and the other two at 3 and 6 feet respectively above the first. In the thickest portion of the cap the brick work is 6½ feet thick, sloping off to 20 inches at the top. The chimney is protected at the top by an iron cap made up of 40 cast-iron sectors bolted together into a complete ring and anchored to a steel ring embedded in the brick work about 14 feet below the cap. The diameter of the cap at its widest portions is 35 feet and the inside or flue diameter is 22 feet, or the same as the interior of the chimney all the way up.

The chimney is well protected from lightning by ten copper rods, 1¼ inches in diameter, projecting 6 feet above the top, terminating in four pronged points, each tipped with platinum for about 2 inches.

The fact that mechanical draft will be used at the other station, will furnish available data for drawing interesting comparisons. This station will have four stacks of modern height, sufficient only to discharge above the nuisance level. Taking the cost of the immense chimney at about $100,000 and the cost of the induced draft plant at about one-third of this, and considering interest, depreciation and all standing expenses, it will be very interesting to calculate the relative merits of the two systems of producing furnace draft.—*Clay Record.*



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TREASURY DEPARTMENT Office, Supervising Architect, Washington, D. C., May 18, 1899. SEALED PROPOSALS will be received at this office until 2 o'clock P. M. on the 20th day of June 1899, and then opened, for the construction, (except heating apparatus, elevator and electric wire conduits), of the U. S. Public Building at Helena, Montana, in accordance with the drawings and specification, copies of which may be had at this office or the office of the Custodian of the site at Helena, Montana. JAMES KNOX TAYLOR, Supervising Architect.

T EASURY DEPARTMENT Office Supervising Architect, Washington, D. C., May 20th, 1899. Sealed proposals will be received at this office until 2 o'clock P. M., on the 22th day of June, 1899, and then opened, for Repairs to Stonework, etc., of the U. S. Branch Mint San Francisco, Cal., in accordance with drawing and specification, copies of which may be had at this office or at the office of the Superintendent of Construction of the U. S. Post Office, Court House, etc., at San Francisco. Cal. JAMES KNOX TAYLOR, Supervising Architect.

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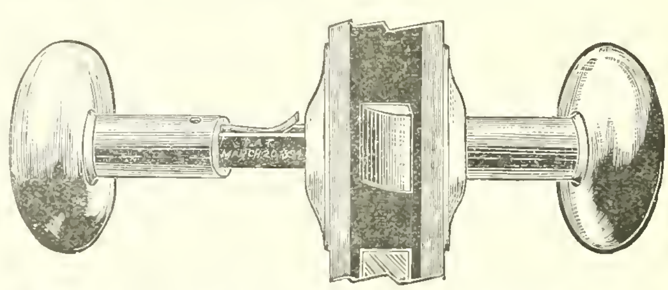

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BUILDING NEWS.

ALAMEDA

Encinal Park Track. To build; o, Capt. J. C. Eschen c, D. Straub & Son; cost $6600.

St. Charles and Louisa. To build· o, E. H. & J C. Lancel; cost $3347.

BERKELEY

Bowditch and Chaoning. To build; o, S. J. Davis; a, Wm. Mooser & Son; c, Petterson & Persson; signed, April 26· filed; May 6; cost $9556. Plumbing, etc; c, R. Rice; cost $1510.

Crystal Spring Track, lot 9 block G. To build; o, Fannie Ashbury; a, J. T. Kidd; c, John E. Bigelow; cost $1450.

Lot 45 block 3. To build; o, Mr. Harmon; c, John G. Adams; signed, April 13; filed, April 27; cost $3700.

ELMHURST

Carpentry, etc; o, Josephine Wallace; a, J. F. Freeman; c, H. Wharton; signed, April 24· filed, May 5; cost $12,970. Concrete, etc; c, Mr. Stone; cost $2450. Mason work· c, J. A. Wilson; cost $1225. Plastering, etc; c, W. C. Watson; cost $1200. Plumbing, etc; c, Shepard Bros; cost $2730. Painting, etc; P. N. Kuss & Co; cost $1185.

OAKLAND

Broadway and Tenth. One-story brick; o, Lillian M. McPike, Nellie R. Lutz and Mary H. Miller; a, A. W. Smith; c, Ben O. Johnson; signed, May 16; filed, May 17; cost $5194.

Jayne Ave. and Lee St. To build; o, Mary S. Cope; a, Cunningham Bros; c, Mr. Lake; cost $4141.50.

Mountain View Cemetery. Granite coping, etc; o, Mt. View Cemetery Ass'n; c, Daniel Dwyer; cost $2942.

Santa Rita Road. Alterations; o, Chas. B. Charlesworth; a, J. L. Weilbye; cost $2110.

Thirty-second near Markes. To build; o, Fred and Zine Jepson; c, A. W. Pattiani & Co; signed, May 17; filed, May 20; cost $1578.

HEALDSBURG

Two-story brick; o, Mr. Norton; a. Martens & Coffey signed, May 1; filed, May 4; cost $9000.

SAN LEANDRO

Factory; o, H. W. Bodwell; c, C. W. Duffie; signed, May 10 filed, May 11; cost $2600.

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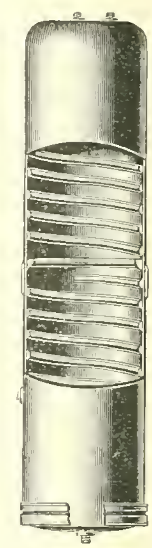

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THE CALIFORNIA ARCHITECT AND BUILDING NEWS

$3.00 PER YEAR

VOLUME XX. No. 6. JUNE, 1899.

CONTENTS

PRICE THIRTY CENTS.

D. J. Patterson '98

OFFICE 408 CALIFORNIA ST.

BUILDING NEWS.

Broadway near Fillmore. Alterations and additions· o, B. Sheideman; a, Salfield & Kohlberg; c, J. Bucher· signed, June 19; filed, June 20; cost $650. Plumbing, etc; c, Ickelheimer; cost $1125.

Bush and Battery. Concrete work; o, H. and S. Sachs; a, Salfield & Kohlberg; c, Cal. Concrete Co; signed, June 14; filed, June 17; cost $1565.

California street, No. 1916. Alterations; o, Joseph Hyman; a, Percy & Hamilton; c, F. W. Kern.

California near Franklin. Painting, etc: o, Kaspar Pischel; c, J. H. Keefe; signed, June 1; filed, June 5; cost $1745.

Central Ave. near Page. Four two-story dwellings; o, D. Einstein; cost $20,000.

Central Ave. and Page Two-story frame; o. D. Einstein; cost $6500.

Chestnut and Pierce. Filling in and grading; o, John N. Kennedy; signed, June 2; filed, June 3; cost $16,237.

Clay near Laurel. To build; o, Chas. F. Hunt; a, E. A. Hermann; c, Petterson & Persson; signed, June 17; filed, June 20; cost $6399.

Clay near Gough. Carpentry, etc· o, Mrs. Marietta Sheeline; a, Salfield & Kohlberg; signed, June 15; filed, June 19; cost $5200. Plumbing, etc; c, E. R. Tutt; cost $1689

Devisadero near Grove. To build; o, W. H. Mocker· a, R. Zimmermann; c, Chesney & Muller; signed, June 8; filed, June 9; cost $1588.60.

Drumm near Pacific. Additional story to brick building; o, A. B. McCreery; a, H. B. Maggs; c, J. W. Wissinger; cost $7200.

Eddy street No. 430. To build; o, J. Moloney; a, Curtis Tobey; c, J. B. Gonyeau; signed, June 8; filed, June 18; cost $8349.

Eighteenth and Stanyan. To build; o, Jennie E. Strauss; a, A. J. Barnett; c, W. R. Kenny; signed, May 25; filed, June 8; cost $1600.

Ellis street No. 712. Alterations; o, A. G. McFarland; c, J. B. McKenzie; signed, June 8; filed, June 9; cost $ 650.

Folsom near 6th. Alterations and additions; o, Aaron Shenson; a, C. M. Rousseau; c, H. Wilson; signed, June 20; filed, June 21; cost $1386.

Fremont near Market. Re-building; o, W. R. S. Foye; a, Wright & Sanders; c, Robin on & Gillespie; cost $33,452.

Geary near Grant Ave. Additions and alterations o, Mr. Kimber; c, F. V. Acker; cost $4000.

Golden Gate Park. Stone and brick work for music stand; o, Claus Spreckles; a, Reid Bros; c, Colusa Stone Co; signed, June 14; filed, June 16; cost $51,040. Concrete and cement work, cct; o, S. Giletti & Co; cost $4637.

BUILDING NEWS.

Gough near Grove. Excavations, etc; for two three story frames; o, Ellen and Eharlette E. Dore; a, Thos. J. Welsh· c, S. A. Born; signed, May 24; filed, May 27; cost $8090. Sewering, plumbing, etc; c, James E. Britt; signed, May 24; filed, May 27; cost $2297.

Grove near Lyon. To build; o, S. Garber; c, R. D. Cranston & Son; signed, June 12; filed, June 17; cost $4250.

Haight near Steiner. To build; o, Andrew Burke; a, Shea & Shea; c, Paul Demartini; signed, May 27; filed, June 3; cost $5250.

Jackson near Baker. Carpentry, etc; o, Lizzie Peiser; a, Salfield & Kohlberg; c, W. Horstmeyer; signed, June 16; filed, June 20; cost $3654.

Jackson near Buchanan. To build; o, E. S. Tucker, a, Wm. Koenig; c, I. W. Coburn; signed and filed, June 3; cost $4040.

Kearny and Washington. Metal grille work, etc; o, City and County of S. F.; a, Shea & Shea; c, Geo. H. Fuller; filed, June 1; cost $45,486. Gas and electric combination fixtures; c, S. F. Novelty Works; cost $16,950. Water filter system; c, Cal. Art Metal Works; cost $2450. Tinting and decorating; c, Geo. J. Smith & Sons; cost, $900. Electrical apparatus, etc; cost $3235.

Lombard near Fillmore. To build; o, Edward Ehrborn and wife; c, Martin Weber; cost $1150.

Lombard and Stockton. Alteration and additions; a, Depierre & Righetti; c, E. Dalgero; signed, May 29; filed, June 1; cost $2350.

Market and 5th. Electric elevator; o, Desire Fricot; a, I. I. Brown; c, W. L. Holman; signed, June 15; filed, June 19 cost $2400.

Masonic Ave. near Frederick. To build; o, Kate W. Healey; a, A. R. Denke; c, Denke Bros; signed, June 4; filed, June 5; cost $1592.

Montgomery near Pacific. Iron work, etc; o, Ferdinand; a, R. Zimmermann; c, H. L. Peterson; cost $1351.

Noe near 14th. Carpentry, etc; o, John Stelling; a, A. Gelifuss; c, A. Howking; signed, June 15; filed, June 19; cost $4425. Plumbing, etc; c, Jos. Flood; cost $1105.

O'Farrel near Powell. Carpentry, etc; o, Emilie M· Chabot; a, Shea & Shea; c, B. Dyrer; cost $10,481. Brick, etc; c, J. S. Fennell; cost $14,198. Constructional steel, etc; cost $2947. Lath of expanded metal; c, Western Expanded Metal Co; cost $1035. Plastering etc; c, Floodberg & McCafferey; cost $2898. Plumbing, etc; c, Allen & Looney; cost $2879. Ornamental plaster c, J. R. Schroeder· cost 1340. Electric work; c, Will & Finck Co; cost $1335. Marble work, etc; c, Lowry & Daly; cost $1326.

Pacific Ave. near Octavia. Roofing, etc; o, Abe Stern; a, R. Hunt; c, Conlin & Roberts; signed, May filed, June 22; cost $2490. Plastering, etc; cost $2993.

BUILDING NEWS.

Pierce near Filbert. To build; o, Mrs. Elizabeth Gugelsberger; c, L· Cuneo; signed and filed, June 1; cost $2250.

Page near Central Ave. To build; o, D. Einstein; cost $4500.

Pine near Octavia. Painting and graining; o, Jonas Schoedfelt; a, Salfield & Kohlberg; c, Lutge & Nagel; cost $1450. Plumbin , etc; c, Ickelheimer; cost $4950.

Russ street Nos. 114 to 120. Addition; o, R. McNeil; a, M. J. Welsh· c, S. Doyle; cost $3000.

Second and Stevenson. To build; o, J. S. Morgan; a Havens & Toepke; c, Weismann & Whittle; signed, June 3; filed, June 9; cost $17,280.

Second and Minna. Elevators; o, Christian Froelich; a, A. Sutton; c, Cahill & Hall; cost $1800.

Seventeenth near Howard. To build brick; o, City of San Francisco; a, Shea & Shea· cost $16,925.

Seventeenth near Channel. Fire-proofing, etc; o, City of San Francisco; a, Shea & Shea; c, D. T. Pierce; sub-c, Western Expanded Metal; signed, June 9; filed, June 21; cost $4360.

Spruce near Sacramento. To build; o, Margaret K. Foulkes; a, J. Mora Moss; c, C. M. Depew; signed, June 10; filed, June 14; cost $3725.

Steiner near California. To build; o, William Trost; c, C. Zwierlein; signed, May 27· filed, May 31; cost $1275.

Sutter near Grant Ave. Wainsboting, etc; o, Goldberg; a, Edward R. Swain; c, California Marble Co; signed, June 16; filed, June 20; cost $1030.

Taylor and Post. Painting ond decorating; o, Congregation Sherith Israel; a, Salfield & Kohlberg; c, D. Zelinsky; signed, June 10; filed, June 15; cost $1200.

Tennessee near 22d. To build; o, Thomas and Alice M. Cummins; c, Wm. W. Rednall; signed, June 2; filed, June 3; cost $2310.

Third and South Park. Three-story frame to contain 10 flats and 6 stores; o, James D. Phelan, Alice P. Sullivan, and Alice Phelan executors of Phelan estate; a, Curlett & Mccaw; c, A. McElroy; signed, June 3; filed, June 9; cost $25,974.

Twenty-sixth near San Jose. To build; o, Mr. Corvell; cost $1800.

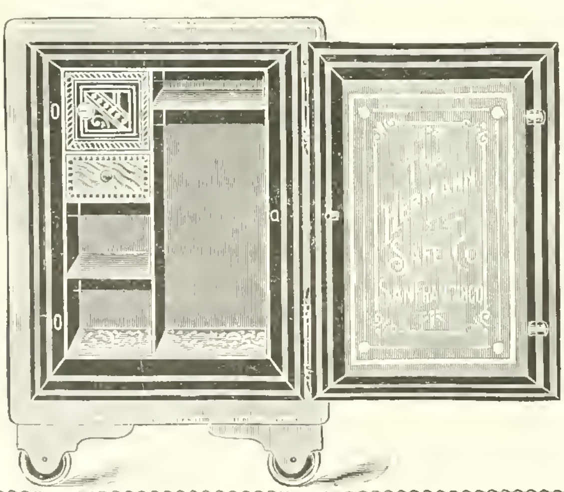
Twenty-third and Noe. To build; o, Jacob Kugel; c, J. T. McInnis; signed, May 23; filed, May 27; cost $3705.

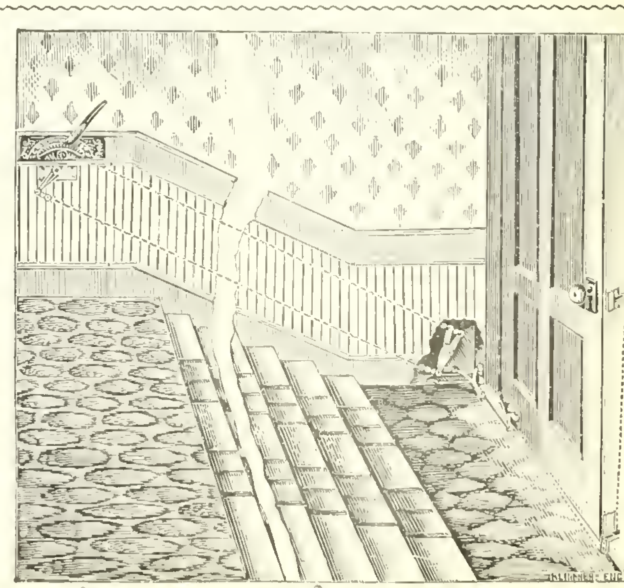
Turk near Webster. To build; o, Wm. Rotrosky; c, P. Rive; signed and filed, June 8; cost $1231.50.

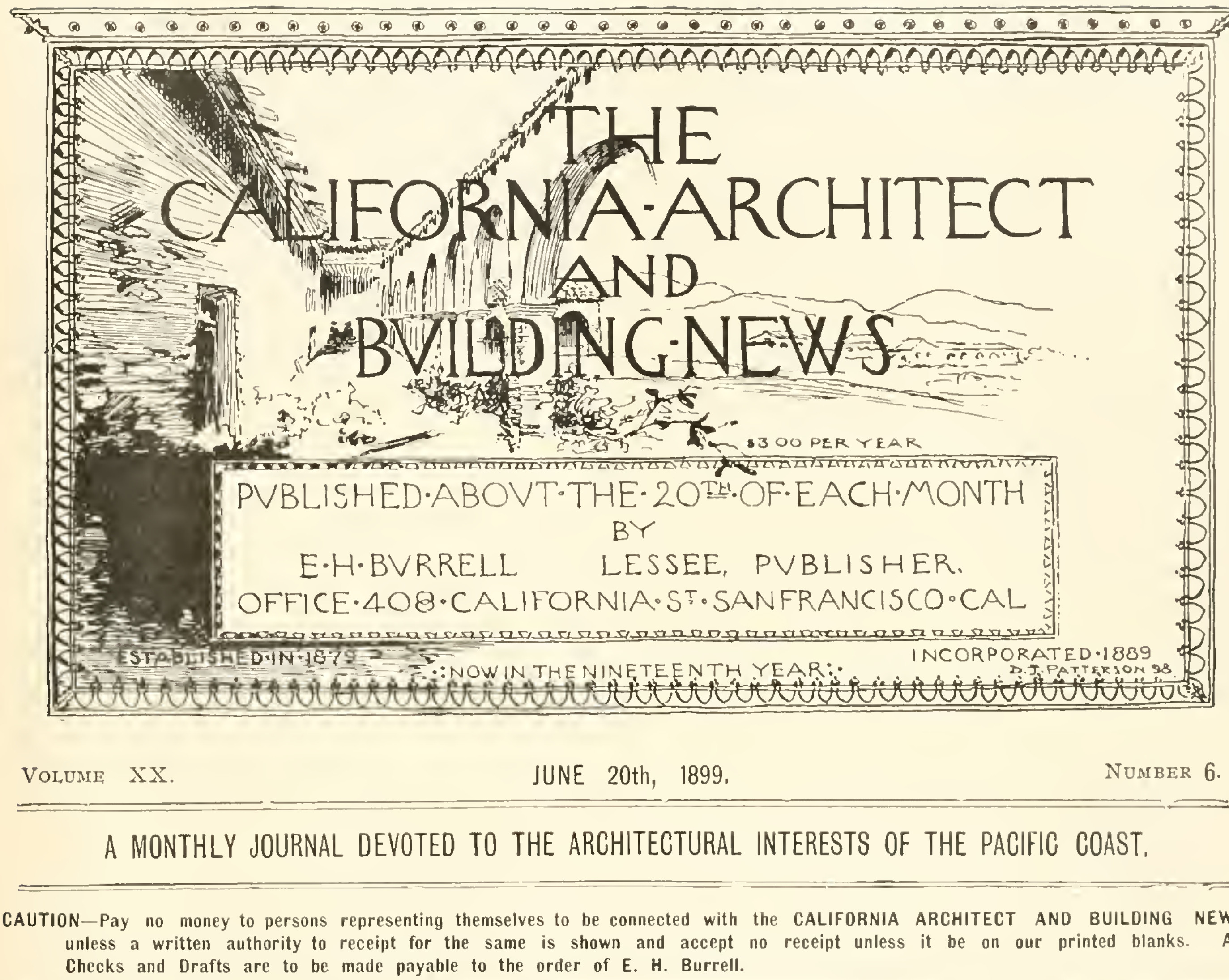
Union Square Ave. near Grant Ave. Brick building; o, Bernard Schweitzer; a, Percy & Hamilton c, J. W. Miller; signed, June 6; filed, June 10; cost $3178.

GENERAL INDEX OF ADVERTISEMENTS.

CLASSIFIED INDEX.







VOLUME XX. JUNE 20th, 1899. NUMBER 6.

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

AS A FEATURE in building designs, color is receiving some attention. There is here a field for exploitation, the subject being one of greater interest than at the first glance appears. Asthetically it belongs to high art, and should be handled by artists in color, and by students of art such as Ruskin.

There is, moreover, the natural side to it, nature being the first teacher of art. Nature decrees that the sky and the sea should be blue or gray, in different shades; that the earth should be brown, in many shadings, from the yellow brown of the desert to the dark muck of the bog; and that the herbage and foliage that cover the earth should be in various tints of green. Gray is also a strong hue on nature's palette. With this she paints rocks and the stems of trees, and softens her too vivid greens everywhere they occur in large masses.

But nature does not confine herself to these general colors. She illumines the sky occasionally with rainbows and clouds edged with the strongest prismatic hues. She decorates the fields with flowers of many dyes, and plants in endless shades. She variegates her rocks, and richly colors her minerals. She beautifies with consummate skill inorganic, organic, and animal life by means of her wondrous pigments.

All this is for some purpose. The color scheme of the universe is intentional. It is not an accident nor a vagary of the infinite mind. That it largely contributes to the welfare and happiness of man there can be no question. That we have failed to appropriate to ourselves all the good there is in it, goes without contradiction. But how to make it apply to our house-building—that requires some thought.

If we were to undertake to follow the painter of the Universe, we should make all large masses of building of some quiet color, using brighter tints only for decoration, and that sparingly. But we moderns have not yet ventured upon the experiment to any considerable or appreciable extent. No doubt we shall make many blunders before we master the art of building houses singly, or in rows, made beautiful by color effects.

There is something, however, which can be done in the interest of dwellers in cities—and especially in the city of San Francisco—whose eyes are being ruined by having to see by sunshine reflected from light-colored walls. Bad as it is to strive to see by insufficient light, it is worse to have to endure the torture to the eyes which comes from the glare thrown into rooms frome neighboring house, painted, as a majority of San Francisco houses are, of a tint closely resembling the sands of Sahara. The desert itself could hardly be more fatal to vision than this reflected light inflicted upon helpless dwellers in buildings on the north or the west side of lots or streets built up on the opposite side with these colorless houses.

The effect of such light upon the optic nerve is entirely different from that of pure sunshine. Your room may be flooded with sunshine and no harm come to you, but light thrown against a wall and returned into your eyes, has the same effect that is produced by shimmering water or bright metal. Yet thousands of women sew, or write, or pursue other nerve trying occupations in just such light. Doubtless also, some schools are similarly situated, and the children are having their eyes ruined. Men's offices do not suffer so much from this cause, being in more closely built up districts, and among darker walled buildings.

Here is an opportunity for experiment in house coloring. From the expedient we may reach the beautiful, and cities be made studies of art instead of ugliness. Science must be invoked even in such matters as house painting.

ARCHITECTURE OF THE AMERICAN COLONIES.

THERE is no such thing in America, in the United States, at least, as a distinctive order, or a strictly American style of architecture. The aboriginal dwelling was usually a moveable one, owing to the wandering habits of the native races. Those tribes who lived by fishing, hunting and corn-growing, as along the Atlantic Coast, built more substantially, out of logs and bark of trees, than those on the western prairies who lived by the chase and root digging. These being almost constantly on the move, sheltered themselves in tepees or tents of a circular or conical form, with an opening at top for the passage upwards and outwards of the smoke of their fires. Constructed of dried skins of animals, they were impervious to wind, and protected their inmates from the cold of the severe winters of the plains, especially as they were usually placed in sheltered locations.

Still farther west, under the milder skies of the Pacific Coast, a brush tent, or wickiup, sufficed for the gathering place of the family, and could be abandoned at pleasure. This was the style of dwelling of the California coast tribes. But farther north, in and above the Columbia River region, rude houses were constructed of planking made out of the easily split cedar of the northern coast.

These houses consisted of a basement a couple of feet in depth, often of from thirty to fifty feet in length, and twenty o thirty feet in width, over which was built the wooden part of the structure. This was done by setting posts at the corners, and between, to which the planking was fastened by such means as were at hand. The wooden walls being set back two or three feet beyond the earth wall of the basement, left a bench of earth quite around the interior, which, being covered with grass matting, and skins, served for seating and sleeping accommodations. The roof, of planking and cedar bark, was supported by a ridge-pole and stringers. The only light admitted came through the doorway, which was at one end, and a square opening in the roof, left for the escape of smoke, the fire being built upon the earthern floor in the center of the house. It will be perceived that this dwelling, which cannot be classed under any recognized style, belonged nevertheless to what is known as the trabeated, or beamed style, like the Egyptian and Grecian structures. It is easy to trace the differences to their causes, while recognizing the single underlying idea of an oblong structure, with upright posts or columns in certain positions, and flat, or nearly flat, roofs.

Still farther north, indeed, we come upon detached columns outside the walls, rudely carved with genealogical emblems, or tokens, much after the Egyptian example of a goddess-faced capital. The human intellect, it would appear, starts out upon similar lines of progress throughout the world.

* * *

The first buildings by the white races in America were mere make-shifts—architectural accidents—due to unusual circumstances or exigences, like those found at Newport and Woods Holl, Rhode Island, believed to have been erected by Norsemen, about 1507. That one at Newport, known as the "Old Mill," is a round structure of stone, supported upon short pillars and arches, in the early Roman or Etruscan style. The other, at Woods Holl, is also round, and of stone, but is built up from the ground, and has a battlemented top. It is without openings in the wall, except the entrauce, and narrow windows immediately under the cornice, suggesting the idea of a fortification.

* * *

The second oldest building by white people in what is now United States territory, and the oldest known residence, is in St. Augustine, Florida, which was settled in 1564, when the monks of St. Francis erected this house for their occupation. It is constructed of coquina, a mixture of sea shells and mortar, which forms a cement as solid as natural rock.

Sir. Francis Drake, while roving the seas in quest of riches, in 1585, destroyed the town of St. Augustine, but was unable to demolish this monastery. Its age, quaintness of design, and historic interest, has of recent years lead to repairs, and to its preservation as a museum, where has been gathered relics of past centuries. The round tower and the walls of the lower story are intact, the latter being sustained by heavy buttresses. The frame work of the second story gives evidence of being more recent by a century; and some even more modern features appear, in windows and balconies.

A deputy of the Spanish government in 1590 came into possession of the building, which remained in the family until 1882, when it was sold to Dr. C. P. Carver, who more recently transferred it to J. H. Henderson, Esq., the present owner.

A feature of the house is a curiously designed door-knocker of wrought iron, weighing twelve pounds, which was taken from the ducal palace of Ponce de Leon in Seville, Spain. Evidently, it was not intended that the inmates should yield too much to the sleepy influences of the Florida climate.

The furniture of the house is antique. Among the art treasures are an elaborately carved bedroom set of the time

The Oldest Hnuse in the United States at St. Augustine. Florida

of Louis XII, and a rosewood sideboard which was the property of Napoleon I. On the walls are paintings by the old masters once the property of the Spanish nobility. To these relics have been added a collection of ceramics representing all the rare colonial designs, including the Martha Washington plate, presented by La Fayette and other Frenchmen.

This building gives us the first and the last glimpse of a power which once possessed the continent. It is the irony of fate that just as every vestige of former empire is being wiped off the map of the new world discovered by Spain, we, her latest conquerers, should be carefully preserving relics of her earlier occupancy. We pay to a glorious past the reverence which even a recreant present cannot overcome.

* *
*

There is still standing in Jamestown, on the Potomac, the bell-tower of a church erected by the first colonists of Virginia in 1610—three years only after the settlement of that place. The building was sixty feet in length by twenty-four feet in breadth, and constructed of brick. It had "a baptismal font, a tall pulpit, a chancel of red cedar, and in the tower two bells." The tower, which is still as firm as stone, stood over the vestibule, which had an arched entrance.

This first Protestant church in America was the type after which colonial churches were built for many generations, and after which they are still built in new settlements generally—the steeple, with a single bell, being substituted for the more costly and dignified tower. The portico was often omitted, puritanic plainess dispensing with whatever was unnecessary, or paucity of means rendering architectural effects impracticable. But churchbuilding for at least two centuries adhered to that early Christian type, which, as we have seen, was born in Rome, and was descended primarily from the Egyptian plan of temple-building. The Gothic graft which modified it fourteen hundred years later still continues to derive its sap from the ancient root.

Williamsburg, the old capital of Virginia, was the seat of the second church in this colony, and was founded in 1632. As befitted a church of England edifice, where royal governors and other titled personages joined in the liturgy, and listened to mild discourses upon the divine right of kings, was a more costly building than its predecessor, as well as a larger one.

Families of ordinary mortals sat in large square pews, much at their ease, but the king's representatives and their families sat in the "royal gallery," a room of considerable size, which they entered and departed from by a private door, as did royalty itself in Old England. An American lady, a republican, is to-day supporting similar vice-regal customs in the Queen's possessions in the East Indies. "So runs the world away."

There are no detached columns in the Williamsburg church, which is still in a good state of preservation, but simulated square pillars support the cornice beneath the ceiling, which is decorated. There are tall arched windows, and a square altar-rail guards the sacred and spacious enclosure where stands the reading desk, and the actual gray marble baptismal font from which the Indian princess Pochahontas was baptised into civilization, and marriage with John Rolfe. The silver communion service was a gift of Queen Anne.

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William and Mary College, built in 1693, and burned, was rebuilt in 1705, and may be taken as an example of college architecture in the latter part of the seventeenth century. Sir Christopher Wren had furnished the plan of the original building, which is now lost. That which succeeded it is a severely plain two-story structure, with a long frontage, and having many right-angled windows at equal distances apart. The roof is low, rather than high, and hipped at the ends. It has a portico, carried up to the roof, supported by arches, and supporting a pediment above the cornice. A small cupola or bell-tower rises from the center of the roof. Many similar college buildings have arisen all over the United States—all equally repellant to the artistic sense.

The house of the president of the college was built of brick made in England, of two colors, red and gray, used to present a checkered effect, a fashion which prevailed in the mother country two centuries ago.

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A hundred years had brought to the colonies many of the architectural ideas prevailing or developing in England. These were not of the better sort, for art was again in a decline. Such as they were, they were modified and adapted to the climatic and other conditions in the new world.

The style of house most in favor with the Virginians was square, or nearly so, with a wide hall in the center extending through it, and large rooms opening on either side. A feature rarely omitted was the wide portico, with columns usually extending to the roof, and supporting a pediment. If the roof was low, it was hipped; if high, it had also dormer windows. Wings and supplementary buildings were addsd as required, but this was the central plan of the colonial "mansion house." The spacious hall had a grand staircase, sometimes spiral, sometimes with square landings to break the steep ascent, and with niches in the wall for statuary, or a place for the high-cased eight-day clock. The balustrade was high, and the posts supporting the rail often quaintly twisted or carved. If the house were large, the long hall might be divided by arches. In the immense rooms were fireplaces with decorated mantels of the hardest wood or the finest marble. The furnishings were imported from Europe, and indicated the taste or the wealth of the owner.

* * *

The Dutch, who settled New York in 1614, brought with them from Holland certain architectural tastes and predelictions, which were shown in the thick walls of their low houses, their steepley-pitched and windowed roofs, and the indispensable "stoop," wherever it could be attached. Like the Virginians' portico, the stoop was the hospitable reception-room of the house.

In that rare and delightful book, "An American Lady," by Mrs. Grant of Scotland, is the following concerning the Dutch manner of living at Albany in ante-revolutionary times:

"The city of Albany stretched along the banks of the Hudson. One very long wide street lay parallel to the river, the intermediate space between it and the shore being occupied by gardens. A small, but steep hill rose above the centre of the town, on which stood a fort, intended (but very ill adapted) for the defence of the place, and of the neighboring country. From the foot of the hill another street was built, sloping pretty rapidly down until it joined the one before mentioned that ran along the river. This street was still wider than the other; it was only paved on each side, the middle being occupied by public edifices. These consisted of a market place, a guard-house, a town hall, and the English and Dutch churches. The English church, belonging to the Episcopal persuasion, and in the diocese of the Bishop of London, stood at the foot of the hill, at the upper end of the street. The Dutch church was situated at the bottom of the descent, where the street terminated. Two irrgeular streets, not so broad, but equally long, ran parallel to those, and a few even ones opened between them.

The town, in proportion to its population, occupied a great space of ground. This city, in short, was a kind of semi-rural establishment: Every house had its garden, well, and little green behind; before every door a tree was planted, rendered interesting by being co-eval with some beloved membered of the family. Many of their trees were of prodigious size and extraordinary beauty, but without regularity, every one planting the kind that best pleased him, or which he thought would afford the most agreeable shade to the open portico at his door, which was surrounded by seats, and ascended by a few steps. It was in these that each domestic group was seated in summer evenings to enjoy the balmy twilight, or the serenely clear moonlight.

"Each family had a cow, fed in a common pasture at the end of the town. In the evening the herd returned all together, of their own accord, with their tinkling bells hung at their necks, along the wide and grassy street, to their wonted sheltering trees, to be milked at their masters' doors. * * A town which contained not one very rich or very poor, very knowing or very ignorant, very rude or very polished, individual. * * These primitive beings were dispersed *in porches*, grouped according to similarity of years and inclinations."

Of New York Mrs. Grant says: "Society was there more various and more polished than in any other part of the continent. * * Unless a man, by singular powers or talent, fought his way from the inferior rank, here was hardly an instance of a person getting a subaltern's commission whose birth was not at least genteel, and who had not interest and alliance."

These allusions to New York colonial customs help us greatly to understand architectural features. The long, low, hip-roofed house of Albany, or of the manors along the Hudson, became in the capital city the aristocratic three-storied house of brick or stone, but without losing its distinctive Dutch style. New Jersey, also settled by the Dutch, still affords many examples of colonial buildings—of houses constructed of brown stone, the blocks thick enough to furnish window-seats eighteen or twenty inches deep.

These houses have, usually, the main building of one-story and an attic, in whose steep roof dormer windows are inserted; and a wing at one end, without the attic, which was devoted to domestic uses. Stout oaken doors, called "Indian doors," that opened across the middle, immense fireplaces and high mantels, with cupboards in every available space, were interior features of these houses, that often contained imported furniture and pictures of great value.

* * *

Perhaps the best example of the New York manor house is that of the Philipse family, at Yonkers, erected in 1682, which is in a good state of preservation. The plan is simply that of an oblong building of considerable size, and two-stories high. The roof is a mansard with dormer windows, and a balustrade running around the flat space at the top. The main entrance is by a door in the front end, which opens into a central hall. A small square portico, the roof of which slants forward from the wall, and is supported at the corners by two columns, shelters the doorway.

The windows, of which there are two on each side of the entrance, and five in the story above, are oblong, with twenty-four small panes of glass in each. Windows are placed at equal distances on the sides, six in the lower, and eight in the upper story. Two doors open on the side which faces a street, one having the porch with seats, the other being a walled porch, or "winter door," and leading to the kitchen. A delicate cornice is carried along the side of the building over the lower windows and doors, and a heavier one, of the same design, beneath the roof.

Certainly, a very plain, unostentatious house. But on the interior was lavished a wealth of decoration, architectural and applied. Painted ceilings, columns supporting tall carved mantels and mouldings, doorways crowned with sculptured pediments, handsome staircases, with quaintly-fashioned balusters, rich imported furniture and selections from European art-galleries revived in colonial homes recollections of a more settled, but scarcely more enjoyable existence over seas.

* * *

The Jumel mansion, or Fort Washington, in New Jersey, is an equally good example of the suburban New York mansion. It is in a style very similar to that of the Virginia town, or suburban house, being of brick, nearly square, with the imposing Roman portico whose pediment rises above the cornice of the upper story, supported by columns in the graceful Ionic order. The roof is hipped and balustraded, with the further relief from plainness afforded by a central chimney and a single painted dormer window. In the rear is a second detached building in a similar style, where the servants were quartered.

The interior of this house, built in 1758, at Harlem Heights, was finished and furnished as not many American houses were in that day. It had been erected by Roger Morris for his bride, Mary Philipse. In 1810 it passed into the hands of Stephen Jumel, a merchant of New York, who had married the beautiful Miss Eliza Bowen of Providence, Rhode Island. His wedding gift to her was this now celebrated mansion, which was refurnished with all the splendors of the wealth and taste of the period.

In addition to the contents of drawing room, dining-room, hall, tea-room, and many private apartments, was a gallery of paintings selected from art centers in Italy, France, Holland and Germany. Twenty-five thousand dollars was paid to the widow of a French count for furniture and jewels which had belonged to Napoleon I and Josephine, including articles which had previously belonged to Charles X.

After the death of Monsieur Jumel, his widow married Aaron Burr, whom she outlived, dying at the age of eighty-nine, in 1866. From first to last the house on Harlem Heights, back of Jersey City, sheltered at different periods the most distinguished personages of colonial times, military and civil, royalist and republican.

* * *

Turning to the New England colonies, we find a prevailing style not altogether dissimilar to the Dutch, yet with characteristics of its own equally well marked. Lands were

not possessed in large holdings by individuals, as in Virginia and New York; hence we have not the manor-house with its aristocratic dimensions and accessories, but the farm and the town house. The former was, for the first century, a very plain, and often a very uncomfortable residence. It seldom achieved more than a single story, with a steep roof that slanted backward from the ridge pole, covering the lean-to. The door was in the middle of the front, opening directly into the kitchen or living-room, and without the shelter of a porch. The windows were few, and glazed with small panes. Before the door was a flat stone, in place of steps.

This entire absence of architectural effects in the early New England house was not so much the expression of the English Puritan character (although undoubtedly it affected that of their descendants, as it was a revelation of the poverty of their resources and the qualities of the climate. Having to contend with a niggarly soil, short, scorching summers, and long arctic winters, at the same time defending themselves from Indian attacks, left little time to think of anything beyond the primary wants of existence. Whatever pause came to them was required by their religion, in the cultivation of that self-abnegation which their circumstances called for.

The interior of the early New England homestead was in keeping with the exterior. The kitchen was the only habitable room in winter. Whatever of comfort it afforded was imparted by the immense fireplace and chimney, where during the winter months the hardwood logs were kept burning continually. When bed-time came the huge "back-log" was heaped over with coals and covered with ashes, as carefully as a steamer's engineer banks his fires when his ship is at rest. If it chanced that a heavy snow storm sifted an avalanche of snow down the wide chimney during the night, so much the worse for the early riser next morning. To the New Englander fire-worship should have seemed perfectly logical.

In commending the ventilation afforded by colonial "interiors," where the "great room" of a mansion might have nine doors, and a chimney twelve feet square at its foundation, we must not forget the frequency of deaths by consumption, and the sufferings of rheumatic old age, consequent upon the unavoidable draughts. Our colonial ancestors usually had several wives in the graveyard, and a good many of the fathers died before their time.

Notwithstanding these drawbacks, as time wore on the homes of New England gradually acquired, and by very reason of the difficulties to be overcome, more of the real comforts of life than those of the more western or more southern colonies. All the exigencies of Indian wars, hard winters and hot summers were provided for.

Brick and stone houses were erected with particular care for their solidity. Wooden buildings were constructed with double walls interlined with brick, to resist Indian bullets. Hidden closets and under-ground passages were in some instances provided, with a view to the safety of the family in case of attack. Attached to the kitchen was the wood-house in which the year's store of cordwood was neatly piled. Close by, and often under its roof, was the well which supplied the household with water. In the tightly-walled and capacious cellar were bins for fruit and vegetables. Somewhere off the kitchen were the pantry and dairy.

In supplying these numerous needs, colonial domestic architecture became picturesque by its very homeliness. The better class of houses in the early part of the eighteenth century were still severely plain on the exterior, with steep roofs, giving if needed, extra rooms in the attic, which usually however, was used for storing unused articles, and relics.

The increase of wealth, and the residence among the colonists of royal appointees, led gradually to the introduction of more varied and attractive styles. Porches, pediments, balustraded roofs, projecting wings and gables, marked the later colonial dwellings. But the stately, columned manor house of New York and Virginia was never a feature of New England.

If we would study the life of the first half-dozen generations of Americans in this quarter of the United States, we must look for it at the fireside, in the library, or in the halls of old Harvard, founded in 1638, when Massachusetts Colony was but eighteen years old. The founders turned from heavy toil and savage warfare to religion, philosophy, poetry, and patriotism, and were ever busy in "building better than they knew," the only really free republic on earth. They could afford to wait for results.

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When we speak of colonial architecture, it should be remembered that the several colonies represented separate nationalities, and that America, like Rome, drew to itself many peoples. Without the wealth of Rome, it adopted that which was most convenient, rather than that which was artistic. It will be well for us when our day of luxury is at hand, if we observe, as did the Greeks, simplicity with refinement.

THE ELDORADO SCHOOL BUILDING, STOCKTON, CAL.

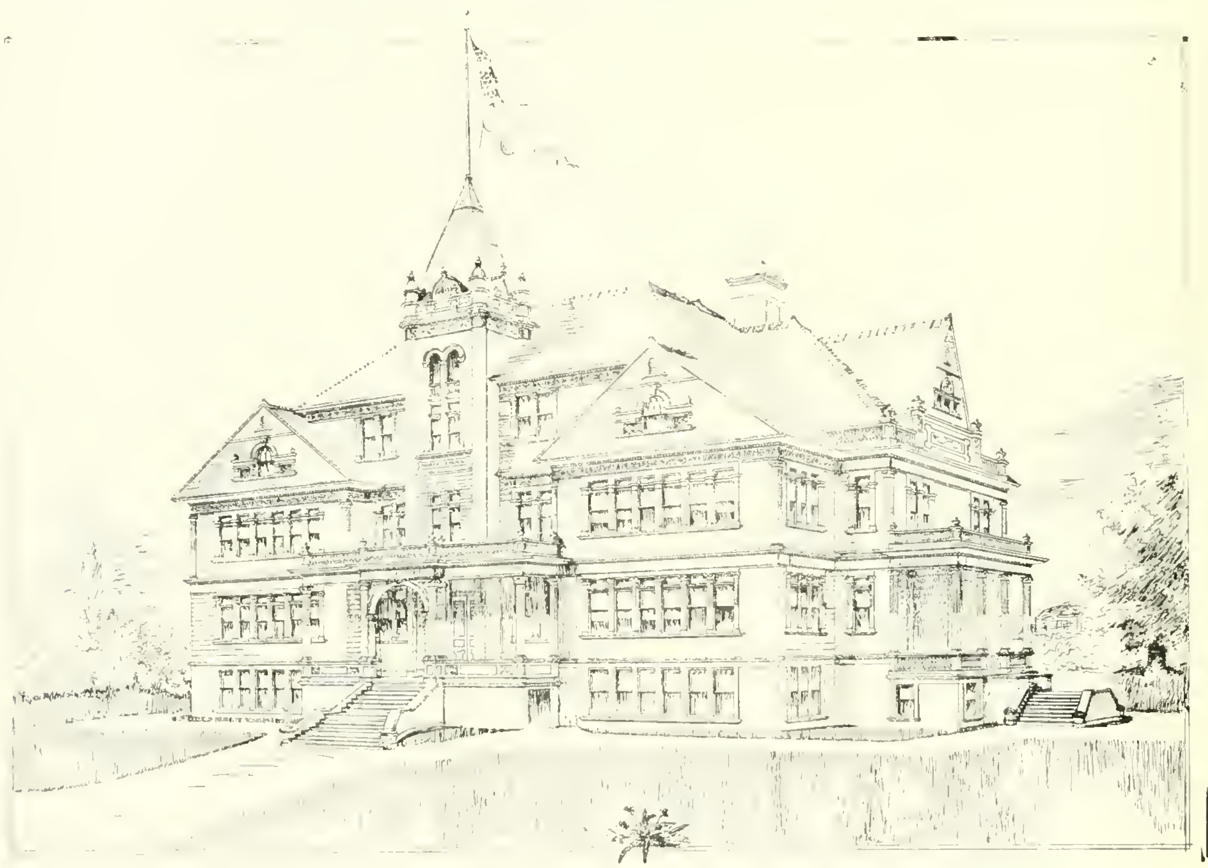
WE PUBLISH in this issue, accounts of three recently erected Public School Buildings in this State. During the last five years more attention has been paid to the construction of this class of building than ever before, and the work has resolved itself into various specialties, the architect assuming the general responsibility for the exterior design and planning the interior to best meet the requirements.

The matter of "lighting" has been one under discussion for several years and has resulted in the general acceptance of strong light from one side of class room only. Recent opinion also proves "green" in place of "black" for the boards in the room. Perhaps of all specialties, the one commanding the most thought and attention at present time is the matter of proper "warming and ventilating" and thorough sanitation of this class of buildings. Every thinking man will at once realize the importance of pure air in these crowded class rooms and how to obtain this at a nominal expense has engaged the thoughts of leading engineers and mechanics throughout the world.

From the above it would appear that one duty of the architect, at the present time, is to give his clients the benefit of whatever he may know or possess and also (by being well informed as to the various specialties) by combining the knowledge of several, give his clients a completed structure possessing all the modern features that make a building perfect.

In the matter of "plumbing" and "sanitation" work a like advancement has been made and the toilet rooms in these buildings are as free from disagreeable odors as are our parlors in our private homes.

A recent report from the Board of Health, on the "heating, ventilating and sanitary system" in the El Dorado School Building, Stockton, Cal., in connection with this subject, will be of interest.



EL DORADO, SCHOOL—W. W. OATES, ARCHITECT.
Warmed and ventilated by Morgan & Co.

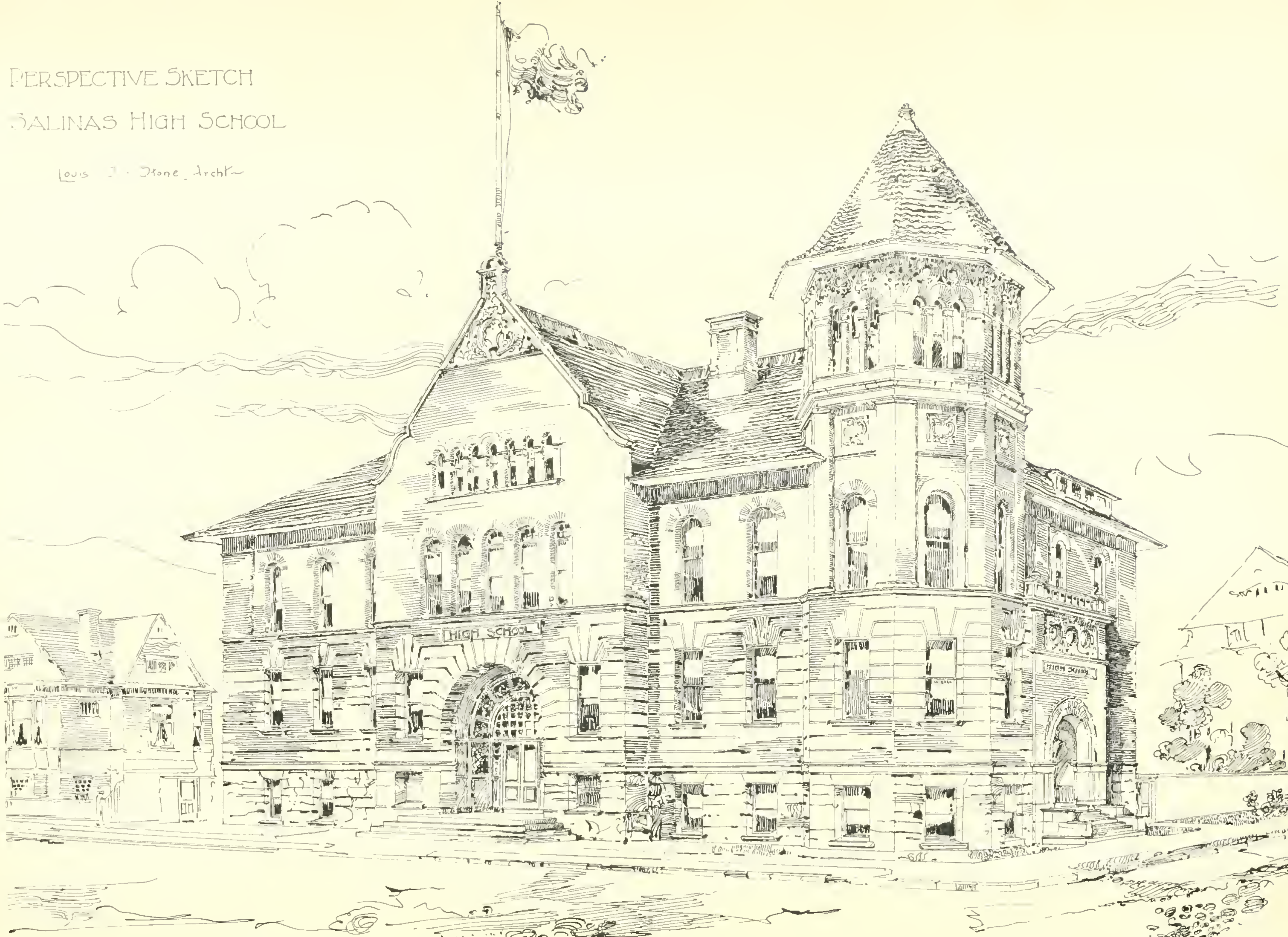
STOCKTON, CAL., Dec. 23, 1898.

To the Honorable Board of Education of the City of Stockton.

LADIES AND GENTLEMEN:—The request of your Honorable Body that the Board of Health examine the heating and ventilating system and water flush closet apparatus inserted in the El Dorado School Building, was referred by said Board to the Committee on Public Buildings, consisting of the undersigned and Dr. Fitzgerald.

Accompanied by Dr. Fitzgerald and Health Office Ruggles, I have made a close inspection of the El Dorado School Building as regards its sanitary condition, its warming and ventilating system, lighting, etc.

The building seems well adapted to its requirements as to room and arrangement. The water closets and urinals are the most perfect system that could be possibly had, being free from all possible odor and so ventilated as to make it impossible that any air or odor from them can enter any


PERSPECTIVE SKETCH
SALINAS HIGH SCHOOL
HIGH SCHOOL
HIGH SCHOOL

~ FOR STORES & FLATS ~

Martens & Coffee, Architects.

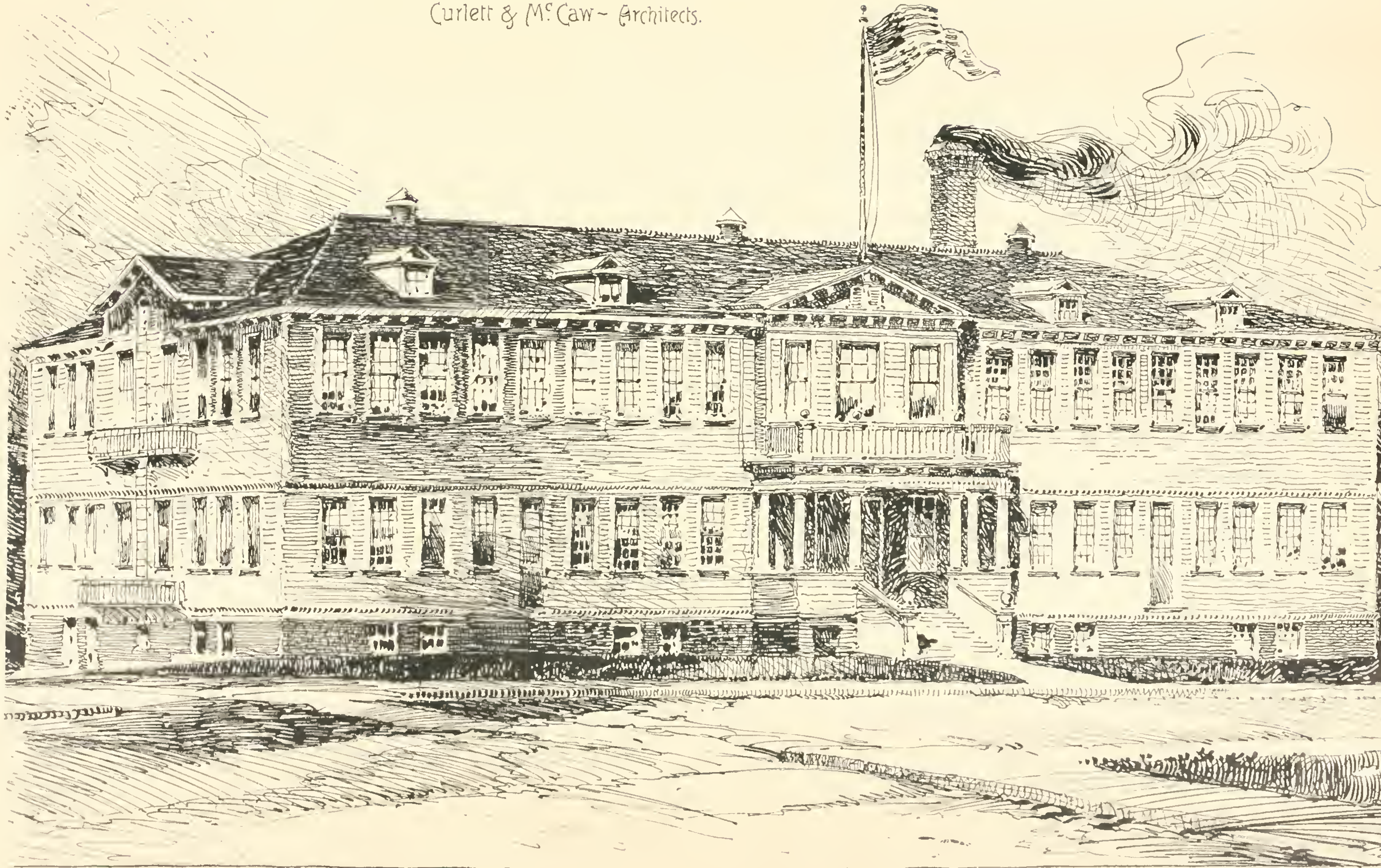
BRITTON & REY, PHOTO LITH

STORES & FLATS FOR
THE PHELAN ESTATE
Cor. South Park and Third Street.

WILMERDING SCHOOL OF INDUSTRIAL ARTS

Cor. of 17th & Utah Sts.

Curlett & McCaw – Architects.



other part of the building. The closets and urinals are arranged with automatic flushes that can be regulated to flush any number of times per hour desired.

The heating and ventilation are accomplished by a most perfect system, by which a large amount of fresh air is warmed but not overheated, and admitted into the rooms in such a manner as not to produce a draught, an amount of impure air equal in volume to the pure air admitted being withdrawn from the floor where the impure air is most apt to be found.

By the most careful tests we found that the entire air of the room was changed at least 7½ times an hour, keeping the air fresh and pure and giving the room a fresh, spring-like feeling. A test for carbonic acid gas the most contaminating element to be found in crowded and poorly ventilated rooms, gave as a result an amount of said gas scarcely above that of the out door air, thus proving beyond a doubt that the system is a perfect success and that the children who attend the El Dorado School have nothing to fear from a cold or vitiated atmosphere. Contageous disease in such a school if once introduced, would not have the tendency to spread, as in those without these very excellent sanitary advantages. The children would average better scholars and brighter students and make better citizens, when grown to manhood or womanhood, than will those attending schools unprovided with equal sanitary appliances.

During the past school year Drs. Ruggles, Fitzgerald and myself have visited many of the school buildings of this City to investigate and if possible suggest improvements in their sanitary condition.

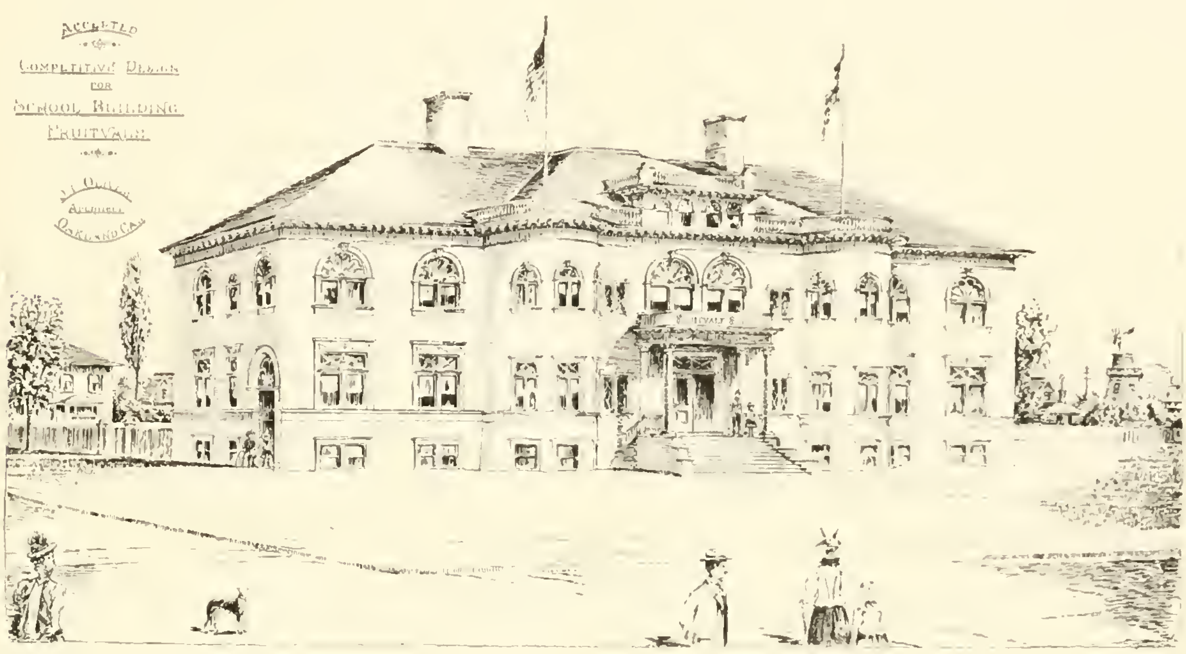
We found in most buildings, the heating and ventilating were about as imperfect as possible. Many of the rooms crowded with from 40 to 55 children are warmed with stoves and have no means of ventilation provided, excepting such as is most likely to remove the warm air and admit the cold air in such a manner as to give draughts affecting the children within the immediate vicinity. Thus some of the children are too warm, some too cold and all with cold feet and hot heads. To fully appreciate the condition of most of our schools and to understand what they should be, one should read a paper which I carefully prepared and read before the San Joaquin County Medical Society in March 1895, after having visited most of the school buildings in company of the School Board.

With due appreciation of its importance, this report is respectfully submitted.

(Signed) S. B. Davis, M. D.
Chairman Com. on Public Buildings of Board of Health.

We have carefully read the above report submitted by Mr. Davis, Chairman of the Committee on Public Buildings, and heartily endorse it and concur in all its suggestions and recommendations.

(Signed) William E. Gibbons, M. D.; W. W. Fitzgerald, M. D.; S. N. Cross, M. D.; C. A. Ruggles, M. D.



THE ACOUSTIC PROPERTIES OF BRICK AND TERRA COTTA.

ALTHOUGH a great deal is known concerning the acoustic properties of wood, and of various metals used in construction, it is not a little remarkable that analogous properties in brick, tile, faience and terra cotta should be so little understood. This ignorance arises in great measure from the circumstance that both physicists and architects have contented themselves hitherto by considering acoustics from the point of view of the shape of interiors of buildings only. Or, in a secondary way, the materials lining the walls, and such as may be regarded as capable of reinforcing sound.

have received some attention. As a matter of fact, in many large buildings such things as resonant boards, reflectors, and match-board dados are quite subservient to the chief materials of construction as often laid bare in the walls of the higher part of the building inside. Again, we commonly find that at least some considerable part of the walls is lined with clay goods in some shape, such as tiles, glazed panels, and the like.

Everybody who has studied the acoustics of large buildings admits that the chief enemy to deal with is reflection of sound, which produces echoes and general uncertainty in hearing, no matter whether the lecturer be strong or weak in voice. Consequently we find that when, the building having been newly put up, the acoustic properties are bad, the first thing the architect flies to is that which he understands best, namely wood. During the present century utilized for the performance of music, we commonly find that attempts are made to lessen it by using drapery. An interior, designed by the architect to show off its noble proportions, or enriched by the frescoes of some Royal Academician, or embellished by beautiful marble panelling and mouldings, is thus ruined. For the right interpretation and appreciation of orchestral music it is absolutely essential to stifle echo at its birth. We should hear only that which proceeds direct from the executants to our ears, and the harmony should not be disturbed by the reverberation of the musical notes from side to side of the building. It is to be noted that intensity of the sound is not the leading factor in such a case as this. If a little water be violently thrown on to the surface of a smooth-faced wall it glances off, and the same thing will happen with a large quantity; on the other hand, if either the large or the small quantity be

HIGH SCHOOL AND LIBRARY—SAN RAFAEL, CAL.

there has been quite a boom in that material, though we ought not to forget the metal reflector placed over the pulpit in St. Paul's Cathedral, which has been so successful in that particular case.

Yet, but a little consideration of some elementary problem in physics suffices to show that wood is by no means always desirable, or can be in any way successful, in the interior of many edifices. Wood is a great reinforcer of sound by reason of its elasticity, but that very property is disastrous in certain interiors.

Sound is most perfectly reflected from smooth surfaces, and when acoustics of the interior are bad owing to form of construction, and reflection is wanted, what could be better than glazed surfaces? Large glazed tiles or faience work in panels, are most admirably adapted for the purpose, but how often do architects use them for their acoustic properties. On the other hand, when owing to interior shape of the building reflection from the walls is not wanted, where can any better material than porous clay-goods be found? When echo is too manifest, and the building is largely thrown on to a wall having a porous surface much in either case will soak in. And so it is with sound. If the grand interior which we have just been alluding to were constructed of porous clay-goods, the architect, the Royal Academician, and the embellisher still have their chance, and the drapery could be done without.

We do not ask modern artists, with all their fanatic and æsthetic ideas, to succumb to science or to pander to the worker in clay, but we are perfectly justified in reminding them that many of the ancient works of art which they all but worship are the work of clayworkers. They seem to forget this. Their ideas are confined (like the latest craze in art) in straight lines and angles; they have set up for themselves a certain number of cast-iron regulators, which may be likened unto the by-laws of a county Council. They can see art in ancient clay-work, but not in modern—that is because they have moulded themselves into that train of thought. Once get rid of that, and we can furnish both the artist and the architect with materials such as the ancients had in the interior of their buildings, which were then, and are now, in many respects acoustically perfect, which were then, and are now (in ancient structures) admired for their artistic beauty.

We have said that clay work is often superior to wood work for acoustic purposes; we will substantiate that point by referring more particularly to the merits and defects of both for the uses named. Let us begin with wood. Here we have a material with a fibre; we cannot get wood without fibre. Fibres act as wires and are conductors of sound like the latter. Consequently if sound strikes a match-board surface, much of it is immediately given a biased direction in the direction of the fibres. This bias is useful when the wood is to act as a species of sounding-board, but when echoes are to be minimized (as is more frequently the case) it is to be deprecated. Wood with knots is better as retarding the propagation of sound within the fibres, than is wood with straight fibres.

But for sound-proof walls, if wood is to be employed, it has to be cut in such a way as to make the general construction somewhat expensive. Now all this can be done away with if such a material as terra-cotta be employed. The velocity of sound in a body is a fair index of the use of that body for acoustic purposes. As would naturally be supposed, the velocity is not so great in loosely compacted materials as in those more closely aggregated. If the object in the wall be to stop sound from going through it, then it might be lined with exceedingly porous terra-cotta. If, on the other hand, the surface is to be of a neutral character, terra-cotta with a "semi-vitreous" face is more suitably employed. If, as in many small country churches, the upper parts of the wall above the dado are to be left bare, the bricks showing should always have a fairly hard surface so as not to soak in the sound too much. But, for a church having a central dome, underneath the centre of which the pulpit is to be usually placed, the interior of the dome if left bare (commonly the case with small churches) should be made of strong rubbers, and we should not object to the light porous kieselguhr brick for such a purpose.

It may be taken for granted that the velocity of sound is greatest in hard brick, such as ruabon-reds, metalline, hard blues, firebrick, and stocks, and least in gaults, ordinary reds, and sand rubbers. To recapitulate, therefore, the former class should be employed for conducting and reinforcing sound, and the latter for the reverse—as sound-proof materials, and in stifling echoes.

Majolica and faience, when used in broad and flat surfaces, must increase echo, and when used very thin must be fairly resonant; when much broken up, however, either by frequent jointing, or when projecting in pattern, sunk or raised, its effects must be mainly of a neutral character.

The problem of the obnoxious party wall may be readily solved by using soft brick jointed with good mortar, taking that the wall is solid throughout; the difficulty of noise in flats from one floor to the other might be very considerably done away with by using majolica and faience ceiling mouldings for all angles, and by constructing the face of the wall of the porous brickwork, faced by plaster of a more or less porous character. Sound reflectors for public building, not for reinforcement of sound, but for giving it direction, would be more suitable when of porous earthenware, and this would be much less unsightly than metal reflectors and tubes.

In short, the capabilities of clay goods in the directions indicated for assisting and modifying sound, are much more worthy the attention of architects than has hitherto been thought: less worthy materials have had a long trial, now give "brick, tile and terra cotta" a better chance.—*Clay Record.*

ILLUSTRATIONS:

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.

WILMERDING SCHOOL of Industrial Arts, Corner of Seventeenth and Utah Streets. Curlett & McCaw, Architects.

STORES and flats for the Phelan Estate corner South Park and Third street, Curlett & McCaw, Architects.

COMPETITION Design for frame business block, Martens & Coffee Architects.

PERSPECTIVE View, Salinas High School, L. P. Stone, Architect.

VALUABLE INFORMATION CULLED FROM OUR EXCHANGES.

THE results of some experiments to ascertain the most effective material for checking the percolation of water through brick or stonework are given by Mr. A. W. Hale in a recent number of the Engineering and Mining Journal. The investigation was mainly carried out in connection with the new Croton aqueduct of New York, and the substances employed in the experiments were numerous and varied. It was found that Portland cement gave the best results, and that the hydro-carbons, which are commonly regarded as suitable materials for rendering brick or stone impervious to water, oxidized by exposure to air and gradually disappeared. It was also found that a brick was rendered impervious to water by cement more rapidly when the cement was applied as a wash by means of a brush than when applied with a trowel in the usual manner. A brick which had been treated with four cement washes was found at the expiration of two months to be quite impervious to water, even under a pressure of two hundred pounds per square inch.

IF Andrew Carnegie has mastered the art of making money, he has been equally conspicuous in a discreet but munificent manner of giving it away. In the course of the last twenty-five years he is credited with giving away $17,000,000 for public purposes. He is evidently a robust believer in educating the people, and in the forces for good that are the dynamics of intelligence. His benefactions to libraries have been ungrudging and wide-spread. Among nineteen of these the iron king has distributed not less than $5,483,000, ranging from $8000 to $3,000,000. These are big figures, and are but a portion of what has really been a massive benefaction to human good. Nor has the water all gone over the dam.—*The Age of Steel.*

A FARM of three hundred and fifty acres is being worked by electric power in the state of New York. There are two waterfalls on the farm, and these furnish the power for operating the electric plant. One motor, of ten horse-power, operates a hay cutting machine, another a threshing machine, and another a circular saw for cutting logs. The dwelling house is well lighted and is also heated by electricity. Cooking is done by electricity and churns, milk separators and other dairy appliances are operated by the same agency. The power is also used for lighting barns and other buildings. As more power is generated than is necessary, the surplus is rented to two knitting factories. This is claimed to be one of the most complete and unique installations ever yet made on a farm, and its success will probably lead to others of its kind, with like facilities of water power being on equal terms. —*The Age of Steel.*

AT a meeting of the Franklin Institute long since past Prof. Edward J. Houston speaks of the physiological effects of alternating currents of high frequency. He divides electric discharges into three varieties. First, galvanic currents; second, alternating current, commonly called faradic; and third, electro statis discharges which may be called Franklinic currents. It seems as though Franklinic and faradic currents produce about the same effect upon the muscles. Another fact is equally true that as the rapidity of alternation increases, the severity of the physiological effects decreases until when enormously high frequencies are reached, the discharges become harmless. These facts have been demonstrated by Dr. Tatum for comparatively high frequencies and by Nikola Tesla for enormously high frequencies. To quote from Tesla, we conclude with the following: "I have found that by using the ordinary low frequencies the physiological effects of the current required to maintain at a certain degree of brightness a tube four feet long provided at the ends with outside and inside condenser coatings is so powerful that I think it might produce serious injuries to those not accustomed to such shocks; whereas with 20,000 alternations per second the tube may be maintained at the same degree of brightness without any effect being felt."—*The Electrical Age.*

NOTICE OF MEETINGS.

San Francisco Chapter, American Institute of Architects, meets second Friday of each month at 408 California street, at 4 p. m.

Seth Babson, Pres. H. A. Schultz, Vice-Pres.
J. W. Reid, Sec. John M. Curtis, Treas.

Southern California Chapter American Institute of Architects, meets first Wednesday of each month at 114 Spring street, Los Angeles, Cal.

A. B. Benton, Pres. Arthur B. Benton, Vice-Pres.
John P. Krempel, Sec't. August Wackerbarth, Treas.

Washington Chapter American Institute of Architects, regular meetings at 8 o'clock p. m., the first Friday of each month, except July and August.

Wm. E. Boone, Pres. Jas. G. Hill, Vice-Pres.
Charles W. Saunders, Sec. W. J. Marsh, Treas.

Association of Architects of Arizona, meetings held at Phoenix, Arizona.

D. W. Millard, Pres. T. H. Maddox, Vice-Pres.
W. R. Norton, Sec. and Treas.

Technical Society of the Pacific Coast, meets first Friday of each month at Academy of Sciences Building.

Geo. W. Percy, Pres. W. F. C. Hasson, Vice-Pres.
Otto Von Geldern, Sec. Edward T. Schild, Treas.

Master Plumbers' Association, meets every first and third Friday of each month at the Flood Building.

Jas. E. Britt, Pres. J. L. E. Firman, Sec.

Builders' Exchange, Directors meet first Friday in each month at Mission and New Montgomery.

S. H. Kent, Pres. Jas. A. Wilson, Sec.

Masons' and Builders' Association, meet first Friday evening of each month.

Adam Beck, Pres. M. V. Brady, Sec.

THE STATES AGAINST THE TRUSTS.

WHILE it is unfortunate, it was inevitable, that the anti-trust agitation should develop a difference of views as to where the proper power is lodged for the suppression of the trusts. The dual character of our government affords a basis for honest differences on this point, especially as to many of the suggested methods of heroic procedure against the evil. Hence it happens that we find the opinion of the Attorney-General of the United States opposed to that of Justice Harlan, of the United States Supreme Court, on the general proposition that the Federal Government is competent to deal with the trusts. The Attorney-General holds, in effect, that domestic corporations must be controlled by the States ; while in his dissent from the opinion of the Supreme Court in the Sugar Trust case, Justic Harlan expressed himself in this wise :

"We have before us the case of a combination which absolutely controls, or may, at its discretion, control, the price of all the refined sugar in this country. Suppose another combination, organized for private gain and to control prices, should obtain possession of all the large flour mills in the United States ; another of all the grain elevators ; another of all the oil territory ; another of all the salt-producing regions ; another of all the cotton mills, and another of all the great establishments for slaughtering animals and the preparation of meats. What power is competent to protect the people of the United States against such dangers except a national power—one that is capable of exerting its sovereign ruthority throughout every part of the territory and over all the people of the nation ?"

It is not to be denied, to be sure, that Congress may not in a variety of ways hamper and discourage the trust movement—as, for instance, by the enactment of a law placing all foreign merchandise competitive with trust products on the free list ; but as against congressional power of extirpation by taxation, or by means quite as drastic and even more direct, constitutional questions are interposed in number.

Inasmuch as delay favors the trusts ; gives strength to their commercial and financial standing, and opportunity and encouragement for their further formation—it is evident that if the evil is to be checked before it has run its full course, the States must attack it upon their own account, without reference to anything the Federal Government may or may not do in the fulness of time.

This is the Texas view of the situation, and it is a sensible and business-like one. Governor Sayres of that State has determined, according to newspaper reports, to call a conference of the Governors and Attorney-Generals of the Southern and Western States for the purpose of "discussing and agreeing upon a concerted and effective policy and line of legislation against trusts and monopolies." This conference will recommend to the Legislature of the several States represented in it such measure as will, if enacted, insure uniform and effective laws for trust suppression.

There is no doubt that if such a programme as this is followed by fifteen or twenty, or more, of the Southern and Western States the subjugation of the trusts will be assured. But can such concert of action be had ? Still, the plan is a good one, even if it cannot be carried out—and it is certainly worth the trying.—*The Age of Steel.*

TALKING ALONG A RAY OF LIGHT.

IT SEEMS very much like a fairy tale to hear of a public exhibition being given showing how human intelligence can be transmitted along a beam of light. At the Electrical Exhibition, on Saturday afternoon, May 13th, the radiophone was shown in operation. This is an instrument of such construction that by means of a search light beam, speech can be transmitted a distance of seventy-five yards and heard with distinct enunciation. The property of selenium makes it immediately susceptible to the influence of light so that if used in conjunction with some variable light producing apparatus a telephone in circuit with it will give issuance to sounds in perfect harmony with these optical changes. A system of this kind can truly be called wireless telephony thus giving prominence to this latest exposition as the first in the world's history in which telegraphing and telephoning was carried on without a visible intervening medium between the transmitter and receiver. We remember iu the fables of the Arabian Nights of the magic eye piece by means of which one of the characters delineated there was able to see the actions and motions of his friends though miles away from them. We have practically reached that state of ideal development, for at this present hour it is possible to send sketches over the wire through a distance of hundreds of miles, to send speech and signals through the ethereal atmosphere without employing the familiar means hitherto in use. Tesla's idea of transmitting power in vast quantities without wires at a distance far above the upper strata of clouds is one which may receive considerable attention in the near future. Within the last fifty years Americans have begun to invent and apply the forces of nature for many utilitarian purposes. If progress keeps up at the rate indicated there is much truth in the statement "that the marvels of the times have not yet appeared" for it seems very likely that many of our fondest delusions will be shattered by scientific successes which may strike out from Funk & Wagnall's dictionary the word "imposible." The radiophone represents an old principle through a new construction, but selenium, the metal utilized, seems to be permanently associated with all experiments that lead us to hope that images and speech will some day be transmitted commercially without wires. In our efforts to reach a higher efficiency in mechanical and commercial operations we are not over-reaching ourselves in directing investigations along such a channel of inquiry. The wireless telegraph system has come to stay. Why not wireless telephony ?—*The Electrical Age.*

NOTE.

IT PLEASES us to notice the return to this city of Mr. M. S. James, agent of the J. L. Mott Iron Works, whose office in San Francisco is in the Flood Building. This firm has agencies in all the large cities of the United States, and furnishes the latest improvements in plumbing to builders throughout the country. Mr. James is a genial gentleman, and all around, up-to-date man. Call on him.

NEW YORK SURPRISED HIM.

A YOUNG Frenchman, wealthy, educated, and of an investigating turn of mind, departed for home a few days ago, taking with him some remarkable impressions of New York. He spent two weeks in this city, and, having some excellent letters of introduction, he met many persons well qualified to show him the sights of the American metropolis. Although an experienced traveler in European lands, this young Frenchman had never before been in the United States, and he frankly admitted that objects were presented to his view here such as he never saw before. Being impressionable, he naturally fell a victim to the irrepressible New York practical joker.

The tall office buildings astonished this visitor, and after luncheon one day on the thirty-sixth floor (as he believed) of one of them, he readily swallowed the yarn that vegetables and poultry were raised on the roof, because it would cost too much to get them at the markets.

While riding up Broadway with a waggish friend a few days before he went home, he noticed for the first time a slender thread of steam curling up from a manhole. "What is that?" he asked.

"Oh, that is one of the vents of the public radiator," was the reply.

"Public radiator," exclaimed the Frenchman. "You don't mean to tell that the streets here are heated by steam?"

"Certainly, in cold weather," was the unblushing answer. "Don't you feel warm and comfortable?"

"Indeed, I do," responded the Frenchman, enthusiastically. "But I never heard of such a thing as heating the streets of a great city. Well, well, New York certainly does beat the world."—*Heating and Ventilating*.

HYDRAULIC MORTAR.

CEMENT and mortar tests have been so extensively made and discussed that the subject may seem almost exhausted, but the value of such tests depends so much upon the manner in which they are conducted and investigated that a study as scientific as that made by M. Feret, the head of the laboratory of the Ponts et Chaussees at Boulogne, and published in the Bulletin de la Societe d'Encouragement demands recognition.

M. Feret first describes and tabulates the extensive series of tests for resistance to tension, compression, piercing, and shearing which were made in the laboratory under his charge, the same Portland cement being used in all cases, in connection with various kinds of natural and artificial sands, the intention being to investigate rather the physical properties of various mixtures than the comparative merits of different cements. The results are given in tabular form, and also plotted in curves, showing graphically the general behavior of the materials, after which the effect of variations in a series of test samples is discussed.

Attention is called to the fact that widely different results may be obtained from the same material, according to the manner in which the tests are made, and emphasis is strongly laid upon the point that tests are not comparable unless they have been made in the same manner.

In tests for flexure, for instance, the size of the specimen of great importance, since the distance of the outer and more resistant portion from the neutral axis has a great influence upon the result, and in general the greatest resistance of any specimen is found in that portion nearest the exterior. An unequal distribution of stresses must, therefore, appear in tension tests as well as in those for flexure, and this equality is still greater when the mixture is not perfectly homogeneous.

According to the theory of resistance of materials, tests by flexure and by tension should lead to the same ultimate strength, but deductions based upon materials of supposedly perfect elasticity do not hold good for mortars, especially as the point of rupture is approached. M. Durand-Claye has shown that the resistance deduced from flexure tests is almost double that obtained from direct tension, and the tests of M. Feret bear out the fact that there is a definite ratio between the two resistances—namely, the resistance by flexure is to that by tension as 1.89 to 1, or, in round numbers, as 2 to 1.

Similar relations were deduced between the resistance to compression and to shearing and punching, a constant and proportional ratio being found. There does not appear, however, to be any such proportionality existing between the results obtained by tension and by compression tests, and two different mortars having the same resistance under compression may show very different results in tension. As a result of much experience deduced from many tests, M. Feret states that he believes the test by compression gives the real measure of the coherence of a mortar more nearly than does a tension test. In all cases the compression tests gave more uniform and consistent results, both for large and small specimens and for various conditions of homogeneity.

The most important part of M. Feret's paper, however, is that relating to the physical constitution of a hydraulic mortar, especially with regard to the size of ultimate particles of the materials employed, and to the thoroughness of the admixture.

For a fine sand the resistance to crushing is much greater than for a coarse sand, the proportion of sand to cement being the same in both cases. A tabulated series of tests, using a constant quantity of cement and sand, but with different proportions of fine and coarse sand, showed that the resistance to compression was two and one-half times greater with find sand than with coarse, and corresponding variations appeared with the other mixtures.

An approximate measure of the nature of a mortar in this respect may be obtained by determining the density, or, as M. Feret calls it, the "compactness," of the mixture, since this bears a relation to the proportion of voids between the particles, which doubtless plays an important part in the strength of the mortar. In plotting the results of the tests made with sands of various degrees of fineness M. Feret uses the ingenious form of triangular pyramid adopted by Professor Thurston in his investigation of the strength of various bronzes, and in this manner the results are shown with a clearness not otherwise possible. Similar diagrams are given for mixtures of sand, cement and pulverized slag, and the paper closes with data as to the effect of the addition of a proportion of puzzolana to cement and sand, especially for hydaaulic mortars which are to be exposed to the action of sea-water.—*Clay Record*.

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	Box No.
Abrahamson, P.; patent ventilators	123
Adams, John G.; contractor and builder	270
Alameda Brick & Tile Co.; brick	170
Arizona Sandstone Co.; building stone	326
Bass-Huter Paint Co.; paints, oils and varnishes	136
Bateman Bros.; contractors and builders	236
Beck, Adam; mas n and builder	11
Bell, Wm.; contractor and bu lder	75
Bibb Lumber Co., D. H.	
Bellingham Bay Im'p. Co; lumber	241
Boyd, Robert; mason and builder	77
Brady, M. V.; mason and builder	31
Brady, O. E.; mason and builder	360
Brennen, D. J.; mason and builder	51
Brennan James, plasterers	159
Britt, James E.; plumber	36
Brode, R.; iron works	295
Burden, W.; mason and builder	260
Burnham, Stanford Co.; planing mill	28
Burrell, E. H.; building material	146
Burt, W. J.; house mover	296
Butler, Wm. A.; mason and builder	255
California Art Glass Works	63
California Electrical Works	223
California Mills; planing mills	300
Campbell, Alex L; contractor and builder	105
Carey, J. E.; brick manufacturer	282
Bignami and Masow	133
Cartwright, D. S.; teaming	10
Central Lumber & Mill Co.; lumber and planing mill	345
Chatham, Wm.; contractor and builder	62
Chemical Paint Co	317
Chisholm, C.; contractor and builder	44
Clark, N. & Sons; terra cotta, etc	290
Clawson, L. E., & Co.; patent chimneys	66
Coghlan, Frank; plasterer	91
Collin & Gunn; lathers	114
Concannon Wm., contractor and builder	24
Conlin & Roberts; metal roofers	90
Coppieters & Mockel; grill work	
Cowell, H. & Co.; lime, cement, fire brick, etc	7
Crichton, Peter; contractor and builder	339
Crocker, Wm.; planing mill	12
Cronan, Wm.; Eagle Sheet Metal Works	313
Currie Donald; contractor and builder	227
Currie, Robert; contractor and builder	143
Cushing-Wetmore Co.; concrete and artificial stone	218
Curry, J. M.; stone dealer	35
Daniels, Gus. V.; painter and decorator	85
Davies, E.; plasterer	42
Davis, Geo. & Son; house movers	293
Day, Thos. H., & Sons; contractors and builders	131
Degan, Patrick; stone contractor	366
Dillon, David; teamster and contractor	139
Donovan, M. J.; painter	121
Dunbar, Wm.; mason and builder	364
Dunham, Carrigan & Hayden Co.; hardware	4
Dunlop, Chas.; plasterer	59
Dwyer, L. J.; painter and decorator	197
Dyer Bros.; Golden West Iron Works	64
Elam, & Knowles, carpenters and builders	202
Excelsior Mill Co	72
Feely, M. J.; contractor and builder	180
Fennall, M. & Son; masons and builders	58
Field, Wm. J.; contractor and builder	89
Field, Z. O.	128
Flanagan, L. G.; lime and cement	53
Foley, Michael; grading and teaming	254
Forderer Cornice Works; patent sky lights, roofing, etc	164
Fortin Brick Co	98
Frazer, J. P.; painter and decorator	50
Fuller, W. P. & Co.; paints, oils and glass	333
Furness, John; contractor and builder	152
Geier, Frank A.; Market Street Planing Mills	252
Giletti, Secondo; artificial stone	308
Gillogley, Geo.; teaming	324
Girvin & Eyre; Importers	
Gladding, McBean & Co.; architectural terra cotta	162
Golden West Iron Works, Dyer Bros	64
Goodman, Geo.; artificial stone, etc	334
Grannis, J. G. & Co.; steam heating, etc	331
Gray Bros.; artificial stone and concrete work	86
Griese, Carl; artificial stone and concrete work	231
Hammond, Philip; metal roofer	43
Hansen, A.; planing mill	3
Hansen, F. L.; contractor and builder	108
Hansen, M & Co.; planing mill	187
Harmon Lumber Co.; lumber	314
Harris & Jones, Lumber Dealers	
Haustein, H.; tiles	82
Heidt, W.; cornice works	264
Henzel, Ed. F. & Co.; electricians	375
Herring, R.; mill work	70
Hille, Wm.; cornice works	210
Hindes, Ed. B., & Co.; patent blinds	174
Hobson, B. Y.; painter	25
Hock, T. & Son; masons and builders	232
Hoffmann, V.; mason and builder	9
Holmes, H. T., Lime Co.; lime, cement, etc	268
Hooper, C. A., & Co.; lumber	341
Huber, Frank; sash, blinds and doors	342
Hurlbut, R. P.; builder	156
Ickelheimer, Samuel & Bro.; plumbers	353
Ingerson & Gore; contractors and builders	37
Jacks, Henry; contractor and builder	267
Jackson, P. H. & Co.; Illuminating tiles	27
Jackson, W. E.; curbing	301
Jesse, Geo. R.; stair builder	102
Jordan D., & Son; masons and builders	57
Joshua Hendy Machine Works	188
Judson Mnfg. Co.	363
Keating, M. Artificial Stone	127
Keatinge, R., Artificial Stone	13
Kelleher, M.; house raiser and mover	23
Kendall, A.; Pacific Coast Lumber and Mill Co.	52
Keefe, J. H.; painter and decorator	199
Kent, S. H.; contractor and builder	190
Kern, F. W.; contractor and builder	225
Kittredge, E. H. & Co.; sash, doors and blinds	201
Knox & Cook; contractors and builders	244
Kuss, P. N.; painter, decorator and wood finisher	307
Lang, Geo. R.; contractor and builder	214
Larsen, H. H.; mason and builder	33
Leahy, D.; plasterer	344
Leonard, J., Concrete and Artificial Stone	306
Leprohon, P.; steam and hot water heating	239
Logan, J. F.; adjuster and builder	21
Lovett, A. E.; roof repairing and painting	258
Lucas & Co.; Golded Gate Plaster Mills, calcined plaster	31
Lynch, M. C.; contractor and builder	274
Macdonald & McKinnon; lumber	348
Maguire, A. B.; lime, laths, plaster, cement, etc	263
Maguire, James A.; manufacturer's agent	120
Manglesdorf, M.; Electrical Maintenance Co.	350
Mangrum & Otter; heating, ventilating, tiles, etc	294
Market Street Planing Mill	252
McCarthy, John; mason and builder	168
McClure, H. N.; teaming and grading	169
McElroy, A.; contractor and builder	211
McGilvray Stone Co.; stone contractor	340
McGowan, M.; mason and builder	17
McKee, John; stair builder	262
McLachlan, T. M.; contractor and builder	92
McMahon, Henry; stair builder	113
McPhee & Co.; stone contractors	256
Mennie, Alex., plasterer	84
Miller, J. W.; mason and builder	208
Mitchell, R.; mason and builder	74
Montague & Co., W. W.; tiles, mantles, etc.	237
Moore, C. Parker; contractor and builder	80
Moore, G. Howard; contractor and builder	358
Morehouse, C. C.; plasterer	301
Morehouse, J. J.; plasterer	97
Mulcahy, J.; mason and builder	55
Niehaus, Edward F. & Co.; hardwood lumber	205
Niehaus Bros. & Co.; planing mill	20
North; J. J., Brick manufacturer	98
Nutting, C.;	49
O'Brien, Jas. J.; carpenter and builder	107
O'Brien, P. R. & Son; plumbers	65
O'Connor, Thomas, mason and builder	47
Ogle, John; contractor and builder	215
O'Sullivan, D.; mason contractor	277
Pacific Bridge Co	40
Pacific Refining & Roofing Co	346
Pacific Lumber Co	365
Pacific Manufacturing Co., Mill Work	
Pacific Rolling Mills	192
Pachtz, Gus. J.; electrician, etc	81
Palace Hardware Co.; builders' hardware	292
Paraffine Paint Co.; roofers, building paper	144
Patent Brick Co.; brick	172
Peacock & Butcher; masons and builders	122
Petersen Brick Co.; original red pressed brick	68
Petersen, H. M. & Co.; concrete	245
Pfingst, F. L., hardwood	76
Please, Henry; mason and builder	*299
Pool, Jas. R.; house mover and raiser	217
Rae, James; stone contractor	56
Ralston Iron Works	175
Raymond Granite Co.; contractors for stone work	165
Reichley Geo.; contractor and builder	109
Reigle & Jamieson; machine white washing	240
Remillard Brick Co.; pressed stock and common brick	278
Richardson & Gale; masons and builders	328
Richmuller, Geo.; door opener	355
Riley John F.; masons and builders	329
Ringrose, R.; mason and builder	18
Robinson & Gillespie; contractors and builders	111
Rocklin Granite Co.; granite work	69
Rosenbaum, Fr. H.; glass	96
Ruffino & Bianchi; marble	219
Sacramento Transportation Co.; patent and stock brick	332
S. F. Lime & Mortar Co. C. Bennet,	216
San Francisco Lumber Co.	157
San Francisco Novelty and Plating Works	291
San Francisco Planing Mill; Wm. Crocker	12
San Joaquin Brick Co.; brick	288
San Jose Brick Co,; brick	5
Saunders, J. S. W.; contractor and builder	250
Schroeder, Wm.; art glass	63
Scott & Van Arsdale Lumber Co.	193
Sessions, M. P.	304
Smith, J. W.; carpenter	71
Smith & Young; building supplies	374
Smith & Quimby; street contractors	67
Snell, E. L.; lime and plaster	101
Snook, W. S. & Son; plumbers	372
Soule Bros.; carpenters	61
Steiger, A., Sons; architectural terra cotta	134
Stevens, F. M.; patent chimneys	15
Stockton Brick & Terra Cotta Co.	297
Stratton, Jno. S.; house mover	362
Sullivan, J. F.; painter and decorator	1
Sullivan, Tim; carpenter	83
Sullivan M. F.; grading and teaming	148
Sweeney, Daniel; carpenter	325
Sweeney, G. C.; plumber	135
Tacoma and Roche Harbor Lime Co.	289
Tay, Geo. H., Co.; plumbers supplies	321
Tobin, J. R.; plasterer	173
Towle & Broadwell	298
Trotter, John; contractor and builder	251
Tupper, O. M.; lime	281
Tuttle, John; teamster, plasterers' supplies	79
Union Lumber Co.; lumber	335
Vermont Marble Co.	
Vulcan Iron Works	284
Wagner, Henry F.; painting and decorator	312
Wagner, J. Ferd; mason and builder	181
Walker, George H.; carpenter	367
Warren, C. A.; grading	272
Washburn & Moen Mnf'g. Co.	310
Washington Street Planing Mill	48
Waterhouse, C. J.	78
Watson, W. C.; plasterer	99
Western Granite & Marble Co.	316
Western Iron Works	171
White Bros.; carpenters	257
White Bros.; hardwood lumber	145
Whittle, H.; mason and builder	60
Williams, F. A.; contractor and builder	178
Wilson, Bros. & Co.; lumber	354
Wilson, W. F.; plumber	238
Wilson, James A.; mason and builder	221
Wilkie, Andrew; planing mill	305
Wilkie Andrew, Jr.	125
Worrel, C. R.; mason and builder	2
West Coast Wire Works	273
Western Expanded Metal & Fire Proofing Co.	
Yates & Co.; paints	349
Young, S T., grading and teaming	336

BUILDING NEWS.

Vallejo neaa Webster. To build; o, Mrs. Jessie T. Boyce; a, A. Nordin; c, C. Koenig; cost $3391.

Van Ness near Green. To build· o, Chas. Heinz; a, C. A. Meussdorffer; c, H. T. Greib; signed, May 29; filed, June 2, cost $4750. Plumbing, etc; c, W. J. J. Weekes; cost $900.

Van Ness Ave. and Jackson. Additions and alterations; o, M. Heller; a, J. Krafft; cost $1789.

Washington and Laguna. Wiring for electric light; o, W. G. Irwin; a, Reid Bros; c, Cal. electric works; signed, Sune 6; filed, June 19; cost $1241. Carpentry; c, Hansbrough & Roberts; cost $4296. Tin and galvanized iron work; cost $1419. Plumbing etc; c, W. F. Wilson; cost $6139.

Washington near Devisadero. To build; o, Jeanette Clabrough· a, C. A. Meussdorffer; c, Masters & Creamer; cost $6195.

ALAMEDA

San Antonio near Willow. To build; o, A. Merle; c, F. Bammann; cost $2250.

BERKELEY

Channing Way near Telegraph Ave. To build; o, John W. Richards; a, F. A. Mathews; signed, June 5; filed, June 6; cost $5267.

Vine and Arch. To build; o, B. M. Newcomb; a, Cunningham Bros; c, W. T. Veitch & Bros; signed, May 29; filed, June 2; cost $8105.

OAKLAND

Additions to dwelling; o, J. L. Fogg; a, S. Babson; c, Anderson & Stockholm.

Telegraph Ave. and 30th. To build; o, Pauline Sanders; a, Chas. Mau; c, J. H. Dingwell; cost $3591.

PALO ALTO

Stanford University. Carpenter work, etc; o, Mrs. Jane Stanford: a, H. A. Schulze; c, R. P. Hurlburt; signed, May 16; filed, May 31; cost $32,000. Grading, etc; c, Geo. Goodman; cost $20,645. Sand stone, etc; c, McFilvray Stone Co; cost $79,879.

SAN LEANDRO

Block 31. To build; o, R. C. Archbishop of S. F; a, C. J. I. Devlin; c, Phil. Sheridan. cost $3537.

SAN RAFAEL

Fourth and B. Two-story brick· o, Mr. McNear; a, Chas. Paff; c, Rodd & Rodd; cost $8450.

STOCKTON

West Popular. Cottage; owner, Frank Goodell; architects, Beasley & Son; contractor, C. M. Long; cost $1869.

Foundation for Stockton "Mail" Building; W. W. Oates architect; brick and stone work by Doyle & Son, contractors; balance of work by R. Powell, contractor, cost $28,000.

Residence for H. Williamson, corner of Sutter and Oak streets; Geo. Rushforth, architect; H. W. Murray contractor; cost $4800.

West Acacia near Elkorapo. Residence; Franklin Davis owner; Geo. Rushford, architect; C. M. Long, contractor; cost $3157.

THE CALIFORNIA ARCHITECT AND BUILDING NEWS

$3.00 PER YEAR

VOLUME XX. No. 8. AUGUST, 1899.

CONTENTS

PRICE THIRTY CENTS.

D J. Patterson 98

OFFICE 408 CALIFORNIA St.

BUILDING NEWS.

Arlington Ave. near Miguel. To build; o, Mary Hansen; c, Andrew Christiansen; signed and filed, July 28; cost $8000.

Baker and Broadway. To build; o, D. L. Bliss; a, Bliss & Faville; c, W. H. Bagge; signed, Aug. 21; filed, Aug 21; cost $18,125.

Beale near Howard. Excavation, etc., for two-story brick; o, W. F. Whittier a, Edward R. Swain; c, Richardson & Gale; signed, July 28, filed, July 29; cost $3750.

Beale near Howard. Driving 270 piles, etc o, Edward E. Kentfield; a, Percy & Hamilton c, Darby Laydon; signed, Aug. 17; filed, Aug. 18; cost $3982.50.

Broadway and Steiner. Grading, etc; o, E. Avery McCarthy; a, M. G. Bugbee; c, A. Stettin; signed, Aug. 23 filed, Aug. 24; cost $1250.

Broadway near Laguna. To build; o, A. S. Damon; a, W. H. Wharff; c, A. L. Whitney; signed, Aug. 21; filed, Aug. 29; cast $2050.

Bush near Scott. Alterations and additions; o, Mrs. Annie Langdon a, Thos. J. Welsh; c, J. R. Faulkes; signed, Aug. 9 filed, Aug. 16; cost $2280.

Rush and Battery. Tinning, etc; o, H. & S. Sachs; a, Salfield & Kohlberg; c, J. F. Forderer; signed, July 19; filed, July 25; cost $1431. Brick work, etc; c, Richardson & Gale; cost $4750. Carpentry, etc; c, John Furness; cost $2250.

Capp near 16th. Plumbing, etc; o, John Weise; a, Martens & Cotley; a, R. Trost; signed, July 29; filed, July 31; cost $3050.

Chestnut near Polk. To build; c, Ellen Kruger; a, W. A. Graves; c, Walter Sorensen; signed, Aug. 1; filed, Aug. 8; cost $1505.

Cole near Haight. To build; o, and b, Cranston & Son; cost $4500.

Clement and 7th Ave. Carpentry, etc; o, Directors of the Richmond Congregational Church; a, J. W. Rowell; c, C. F. Sheibley; signed, July 20; filed, Aug. 26; cost $3655. Plastering, etc; c, J. R. Schroeder; cost cost $1450.

Clement and 8th Ave. To build; o, Felix Marcuse; c, Marcuse & Remmel; signed, Aug. 22; filed, Aug. 24; cost $2400.

Devisadero and Post. To build; o, Will C. Hayes; a, C. J. Colley; c, Wilson & Long; signed, Aug. 23; filed, Aug. 24; cost $15,100. Plumbing, etc; c, G. C. Sweeney; cost $2455.

Devisadero near Pacific Ave. Two-story brick; o, Clinton Jones; a, Edgar A. Mathews; c, Edward T. Mathews; signed, Aug 15; filed, Aug. 16; cost $11,837.

Dupont near St. Mary's Cathedral. Two-story brick o, Tong Bong of Song Fat & Co; a, J. J. Newsom; c, Moore & Cameron; signed, Aug. 22; filed, Aug. 23; cost $,400.

Eddy near Devisadero. To build; o, E. G. Black; a, B. J. Clinch; c, J. B. Pene; signed and filed, Aug. 5; cost $5496.

Eddy near Gough. To build; o, Deutsche Evangelisch-Lutherische St. Paul's Gemeinde (Inc.); a, John Smith & Co; c, A. H. Wilhelm; signed and filed, July 26; cost $5183.

Eighth Ave. near C. To build; o, Thomas George Obram; c, Chesney & Muller; signed, July 26, filed, July 27; cost $1934.

Ellis near Laguna. To build; o, Mrs. Mary Hyman a, Philip Schwerdt; c, C. M. Lindsey; signed, Aug. 9; filed, Aug. 15; cost $8560. Excavations, etc; c, H. L. Peterson; signed, Aug. 9 filed, Aug. 15; cost $834. Plumbing, etc; c, G. C. Sweeney; cost $2018.

Fillmore and Waller. To build; o, Philipp Grethel; c, T. R Bassett; signed, Aug. 8; filed, Aug. 11; cost $3080.

Folsom near 25th. To build; o, Patrick Clancy; a, M. J. Welsh; c, Fred Miller; signed and filed, Aug. 10; cost $4600.

Folsom near Twenty-first. To build; o, H. P. Smith c, Fred Miller; signed, Aug. 14; filed, Aug. 17; cost $5300.

Frederick and Tremont Ave. To build; o, Robert B. and Emma O. Mitchell; c, A. W. Pattiani & Co signed, Aug. 1; filed, Aug. 3; cost $7613.

Fulton and Steiner. Alterations and additions; o, Wm. F. Ambrose; a, Havens & Toepke; c, A. Stevens cost $1180.

Geary and Stockton. Mezzanine story; o, C. C. Butler; a, G. A. Behrnd; c, Wm. Bell; signed, July 11; filed, July 28; cost $1900. Alterations; c, Wm. Bell; cost $8700.

Geary near Powell. Alteration and additions; o, Herbert Law; a, Albert Sutton; c, Chas. M. Depew; signed, July 26; filed, July 27; cost $1650.

Golden Gate Park. Stone and brick work for music stand; o, Claus Spreckels; c, Colusa Stone Co; signed, June 14; filed, Aug. 8; cost $13,801.28.

Grant Ave. near Sutter. Carpentry work, etc; o, Bohemian Club; c, Geo. R. Lang; signed, Aug. 1; filed, Aug. 2; cost $4417.

Grove near 7th. To build; o, Lizzie E. Collins; a, Whalin & Sons; c, J. S. and W. Whalin; signed and filed, Aug. 14; cost $1840.

Green near Mason. Alterations and additions; o, Thomas and Selina Rowlands; c, P. L. Roberts; a, T. Paterson Ross; signed, Aug. 16; filed, Aug. 23; cost $2975.

Green near Van Ness. Cottage; o, Robert and May Kelly; c, Douglass & Campbell signed, Aug 8; filed, Aug. 10; cost $1463.

Green near Hyde. To build; o, Peter Scully; a, Shea & Shea; c, Jas. McInerny; signed, Aug. 2; filed, Aug. 7; cost $3284.

Harrison and Stanley Place. Carpentry; etc; o, W. F. C. Schmidt; a, H. Geilfuss; c, A. H. Wilhelm; signed, July 28; filed, July 31; cost $8481. Plumbing, etc; c, H. Williamson; cost $1819.

Hartford and 18th. To build; o, William Fay; a, C. M. Rousseau; c, George C. Nall; signed, July 25; filed, July 27; cost $3398.

Howard and Beale. Additional holding up bulkheading, etc; o, W. F. Whittier a, Edward R. Swain; c, Mathew Kellaher; signed, and filed, Aug. 19 cost $2500.

Howard near 20th. To build o, H. C. Somers; a, E. A. Hermann; c, A. F. Hellmuth; signed, July 21; filed, July 22; cost $9200.

Hayes near Franklin. To build; o, F. A. Meyer; a, D. V. Denel; c, R. O. Chandler; signed, and filed, June 28; cost $10,460.

Market near 6th. Excavation; o, John and Agnes M. Agar; a, Albert Pissis; c, Mahoney Bros; signed, July 24 filed, July 25; cost $61,350.

Market and Front. Carpentry, etc, for four-story brick; o, Alexander Boyd; a, Copeland & Pierce c, S. H. Kent; signed, July 24; filed, July 25; cost $5500. Plumbing, etc; c, R. Rice; cost $3316. Elevator work; c, Cahill-Hall Elevator Co; cost $2150. Painting, etc; c, W. Hannemann; cost $1300.

Mason near Turk. Carpentry, etc; o, Herbert Estate Co; a, E. J. Vogel; c, Petterson & Persson; cost $6201. Plumbing, etc; c, H. Hufschmidt; cost $1010. Pressed brick, etc; c, H. H. Larsen & Bros; cost $4800.

Mission near Montgomery. Six-story brick; o, Edward McLaughlin; a, Chas. Geddes; c, Ed. T. Leiter cost $17,075. Brick and stone work, etc; c, John McCarthy; cost $24,390. Cast and wrought iron; c, Vulcan Iron Work; cost $15,400.

Mission and Fremont. Grading, etc; o, Louis Sloss, a, Albert Pissis; c, Cotton Bros; cost $13,895.

Mission near 5th. Concrete, etc; o, W. J. Bryan; a, Cunningham Bros; c, W. L. and O. V. Fortin; cost $8942. Plumbing, etc; c, Fisher & Spencer; cost $1228.

Natoma near First. Concrete work, etc; o, Geo. E Dow; a, H. B. Maggs; c, S. Giletti System Co; cost $4971. Brick work; c Thomas Butler; cost $10,125. Carpentry, etc; c, F. H. Masow; cost $8623. Iron work o, George Dow; cost $2670. Excavations, etc; c, Chas A. Warren; cost $1620. Structural steel work; c, Carnegie Steel Co; cost $2741.

Nineteenth near Vermont. Cottages and two-story frame; o, Jos. B. Coreyll; c, Wm. Helbing; cost $16,000.

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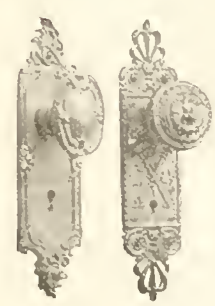

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GENERAL INDEX OF ADVERTISEMENTS.

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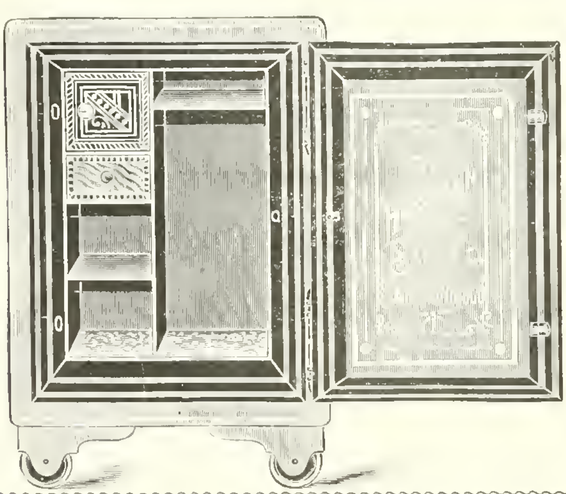

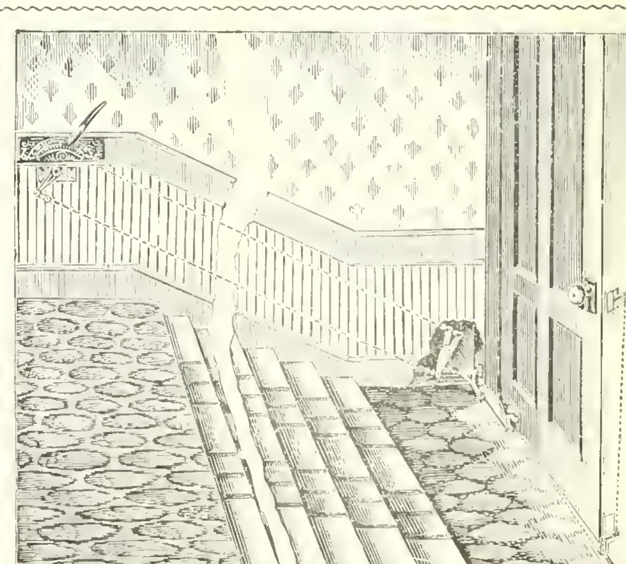

VOLUME XX. AUGUST 20th, 1899. NUMBER 8.

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

WE HAVE often found consolation for hard times in the thought that the mere money makers in the professions get squeezed out, and are obliged to seek employment in occupations they can do less to discredit. But with returning prosperity we are disappointed to find the genus fakir as busy as ever in the architectural profession. If the lines were distinctly drawn, so that the incompetent, irresponsible schemer could be readily distinguished we should waste neither thought or words on the influence such can exert on our architecture, through the medium of inexperienced gulible clients; because such evils work their own cure. But the methods of the curb stone architect seem to have poisoned the very atmosphere till it has become a common practice to breathlessly manufacture irresponsible shams, called architectural designs, in a few hours, and then run about trying to induce real estate owners to enter into some engagement to pay something for them.

This state of things may be a result of the general competitive system, but we are sorry to believe that many well established architects are working for commissions that are insufficient to meet the expense of doing their work thoroughly; to say nothing of providing a fair living. Under these conditions of course the mills and all the manufacturers of specialties employ draughtsmen, and not only furnish the materials and work but the designs; so that the average architect shirks as much of his proper work as possible.

Any nice adjustment of requirements in a building, as a result of careful study and conscientious application in a professional spirit, is not very rare; while the defrauded and deluded clients are hugging the flattering unction to their souls that they have saved half of a first rate architects commission. They have in fact got rather less than they paid for, as far as services are concerned; and who shall say how much they have lost besides, directly and indirectly. The discomfiture and loss of the average parsimonious client is of no great consequence, but the steady deterioration of professional pride, honor and standard of performance is a serious calamity.

WE HAVE been at some pains to discover who is responsible for the disfigurement of Stockton street at S. W. corner of Geary street; and while we are aware that the owner is primarily responsible, his professional tool has at least the shame to conceal his own identity. It may be that such people are after all unconsciously engaged in awakening public sentiment to the necessity of some intelligent supervision of the design as well as the construction of our street architecture: If it is just and necessary to assess the cost of public improvements upon the adjacent property, on the plea of enhanced value, it follows that no citizen should be permitted to diminish the value of property adjacent to his own by erecting mean and hideous structures. The fire ordinances are only a short step in the right direction, even when they are enforced. Again if it is just and necessary to limit the height of buildings, it is reasonable and proper to prescribe the height within such limits as shall not prevent individuality in design.

We have laws and ordinances for the protection and preservation of our lives, our health, our morals, and even our olfactory nerves; but any grasping pinch penny of a real estate owner is permitted to "cleave the general (eye) with horrid (forms)," which if they do not "make mad the guilty" certainly "appall the free".

IT IS A CURIOUS fact that San Francisco spends annually a very much smaller sum in building improvements than many other cities in the United States of much smaller population, and fewer natural advantages in resources and climate. Whatever reasons may be argued to account for their conditions, we are satisfied that not the least important reason is the unreasonable expectation of the real estate owner that his improvements should return a net income on his investment so much larger than the same investment yields in other cities. The investor in New York city is satisfied with a net four per cent on large investments in first class commercial property, and five to six per cent on small investments in domestic property. When we consider that the exigencies of climate necessitate larger investments to obtain the same results, the difference in enterprise is apparent.

In addition to this grasping propensity there is a general disposition to grudge even a living profit to the contractor; the usual procedure being to peddle every item of expense until it is plain that no man can be found who is willing to risk attempting to pretend to do the proposed work at a lower price. These conditions must necessarily result in confusion, discouragement and loss; because the elements of character, good faith, and first class work are inconsistent with the whole proceeding.

It is not customary in Eastern cities to furnish bonds for the performance of a private contract and as might be supposed, there are rarely instances of final settlement on the *pro rata* basis; because what financial institutions call *the moral risk* is an important element in the selection of a contractor as well as his financial standing and actual resources. With us many a man who could not earn a day's wages as a journeyman, or obtain employment in any other position of trust, find no difficulty in carrying on some sort of contracting business by virtue of the bond system and the supposed safe guards of the lien law.

These safe guards are practically a disadvantage to all concerned, because reliance upon them induces people to make engagements that without the lien law they would not consider for a moment—and when trouble finally does occur the provisions of the law are found to be in the interest of the least scrupulous persons concerned.

Whatever special legislation is enacted the fundamental principles of law remain in force, and no man can in practice be forced to pay more for labor or materials than he has contracted to pay, provided he is careful to pay the persons entitled to receive the money under the circumstances.

It is a curious and anomalous state of things when it is dangerous for an honest man to enter into a simple definite contract either as owner or contractor, without carefully consulting the statute and complying with arbitrary rules of procedure that assume villany on the part of all persons concerned.

Logically all contracts whatever for the delivery of materials or the performance of labor should be recorded, with the price to be paid and the manner and times of payment, together with a complete description of the goods and stipulation of the work to be performed. And if a spool of cotton were delivered before the date of recording a contract to use one thousand spools in a number of completed shirts, the contract should be void as regards essential provisions. Other comparisons could be made going to show that if all business were conducted on the same basis as the building business, the whole machine of civilization would become intolerably inconvenient—and we maintain that there is as much reason for apply restraints and arbitrary hindrances to one business as to another—masons, bricklayers, carpenters, plumbers, etc., etc., are not the only laborers in the world, and why they should have special laws enacted for their supposed benefit it is difficult to explain. As to the material men the same reasoning holds good and in fact has been held to be good by the courts of last resort in more than one of our United States.

ARCHITECT AMD PUBLIC.

THEIR RELATION ENTERTAININGLY DISCUSSED BY MR. EDMUND G. LIND, DESIGNER OF THE PEABODY, MASONIC TEMPLE AND OTHER PROMINENT STRUCTURES, GIVES SOME INTERESTING VIEWS ON THE SUBJECT.

THE DISTINCTION of being the oldest working architect in Baltimore belongs to Mr. Edmund G. Lind, whose skill and creative ability is seen to-day in many of the most prominent buildings buildings of the city. He has not only labored in his draughting room but has made a life-long study of his profession's progress also, noting as the years passed by the gains and losses it has made. Now, his verdict is that architects are on a better footing than ever and that they are paid for originality and ideas, the public having recognized that this ability was essential and worth paying for.

Some years ago Mr. Lind delivered an address before an assembly of his associates on the topic: "Relation of the Architectural Profession to the Public." At the request of the *Journal* he has revised his manuscrip and it is now presented with the belief that the bright and entertaining manner in which the subject is handled will make it doubly interesting.

WHAT THE ARCHITECT SHOULD BE.

The architect should be a man of good education; have a natural taste for art design, and ought to be well grounded in the practical details of the profession, besides having a complete theoretical training. He must know all about style and styles, be fully posted on the history of architecture of every land and clime; thoroughly versed in *use* and *abuse* of all known and unknown building materials; he must be an expert mathematician; a first-class engineer; a good deal of a merchant; a smart lawyer, of unquestioned and unquestionable integrity; a modest, affable and agreeable gentleman, always ready and willing to work, with or without pay (money is a very minor consideration, so it would be as well if he were a millionaire), and ought to possess patience of at least one Job.

If we add to all of these qualifications two others, which I was taught in my youth were indespensable, viz: that he should be able to perform on some musical instrument and to speak at least two languages, then you would have a model man—architect. I don't know how it is with my brethren about the musical portion of their education, but I take it for granted each one can blow his own horn. And I will guarantee none of you were very long in business before you were able to speak two languages, good and bad very effectively.

Now whether the public expects to find such a *rara avis*, such a multum in parvo in one man, or whether it would appreciate him if it did, is another question. My private opinion is, that the public cares very little about him any way, and thinks a great deal more of the "practical man," the carpenter who is ever ready to furnish plans for nothing and puts up his building for less. If the public employs an architect at all it is only because it cannot help itself. He is a necessary evil, a very costly luxury, and the thrifty public has very little use for such. Why an architect should be paid five per cent for merely a few sheets of drawings and specifications, and how he dare to pretend to be superintendent of a building which he visits only once a day, or perchance once a week, is more than the public can understand. If the public built a house every day, or even every year, it would become better posted, and the architect, as a consequence, be in greater demand. But it doesn't. Not one-thousanth part of the public ever builds at all, and the portion that does build seldom does so more than once in a lifetime. So you see it has taken the public and the architect a long time to get acquainted.

Why this state of things should exist is, perhaps, after all, not entirely the fault of the public. There never was a time in the world's history when professions of every kind were so full of pretenders. We have not only "quack doctors" (why "quack" I don't know) but "quack" everything else, architecture coming in for its share of the genus.

A young man with a little smattering of drawing and a big spattering of ambition suddenly rushes to the front, opens an office, hangs up his shingle, and blows his horn to such good purpose, that a patron is forth-coming much earlier than to his more intelligent and better qualified rival, the *rara avis* before alluded to, and for half the usual fee he *serves* his client, and generally serves him out. But what can we expect for two and a half per cent? After a few years of practice and the ruination of several unfortunate speculators, he in time acquires a respectable knowledge of the business he only professed to know, has made a living and goes on his way rejoicing. But in the meantime he has done much mischief to the profession. No wonder then, with such an experience, if the despoiled client should feel somewhat aggrieved, and telling his tale of woe to others, warn them from the evil doer.

As a remedy for this unfortunate condition of affairs, I would suggest that all of our best efforts be used in getting the profession of architecture placed on the same platform with that of divinity, medicine and law, whose professors are not permitted to practice until they have undergone a rigid course of study, passed an equally rigid examination, and then properly certified that they are what they profess to be. This would be architect would then be stimulated, if not compelled to read up and work for his degree, and it would bring with it not only education, but an amount of respect *for* the profession and *of* the profession which never comes to it now.

WHERE HE COMES FROM.

Where does the architect come from? He comes from anywhere and everywhere. There is no land under the sun where an architect may not be found. He is of every clime, every nationality, all sorts and all sizes; and is as necessary to the comfort and well being of mankind as food and clothing. It would be impossible to enumerate the number and variety of styles which emanate from this vast number and variety of genus, as he made his advent on earth with Adam, the first man, so he will be the last to take his leave, if he ever leaves at all. So you see, he is somebody of consequence. And if a necessary evil, he is also a long abiding one. You and I may estimate him at his true worth, but we want the public to be equally sagacious and well-informed.

Time was when the architect and builder were but one but with the increased demand for civilization the one was one too few. The architect could not find time to plan and build likewise, so a division of labor became necessary, the artist and designer becoming the architect, and the constructor and mechanic the builder, much to the advantage of the employers of both and to the profit of all. Thus the architect evoluted into existance, and might spend a very pleasant one but for the thousand and one littly annoyances, as common to his calling as to every other; so he takes as little heed of them as need be.

In the not very distant past the domain of art in this country was occupied almost exclusively by foreigners. The natives of the soil were too busy tilling it and making crops by the sweat of their brows to give much time to luxuries. As a consequence the arts flourished with a foreign accent. Less than fifty years ago the greater portion of the buildings in this country were designed by foreigners, while to-day these re-united states occupy as conspicuous a place in the domain of fine art as any country in the world. The accumulation of wealth by the older generation, as a reward for their constant toil and steady habits, gave to their children the advantages of better education, facilities for travel and a contact with the outer world, which has resulted in an improved race, with minds expanded and enlarged, filled with the love of the beautiful, and purses equally well filled for gratifying their improved tastes. The results are to be seen everywhere in the beautiful and costly buildings which have sprung into existence, so that few countries can boast of superior. The fine arts are cultivated and flourish to an extent hitherto unknown, and if they go on at the same rapid and American pace for another half century, this country will be the most magnificent—and let us hope, the best—on top of the globe.

WHAT THE ARCHITECT WANTS.

What does the architect want? He wants recognition as an artist and as as a scientist; he wants to be placed in his rightful position before the public he desires to serve. He wants to work for fame as well as fortune. Wealth is not everything in this life; a little *well fed* and *well feed* pride and vanity is very acceptable now and then, and very often the best efforts and best qualities of a man are brought out by a little—ever so little—well-timed praise and commendation.

He wants to be believed in and trusted; he wants his client to feel that in employing him his best interests will be subserved, and his work faithfully performed. He wants to be as promptly paid for his services as a mechanic is for his; he wants the same rights as are given the mechanic, a lien upon the building his patience and skill have caused to be erected. While his modesty may be too great to admit of his forcing himself into prominence, he wants to feel that he is somebody, and then he will be somebody; let him feel that anybody can be he, and he will soon be nobody, if he has any pride at all about him; and when he has finished his work and indulges in a commendable pride upon surveying his own creation, he wants to have the full credit of the design, and not have the wind taken out of the sails by such expressions from the secretly gratified owner:

"Oh, well you know I designed the building myself, but just got my architect to put it in shape for me."

Yes, I often wonder when I am compelled to listen to such foolish boasts, what the building would have been had the architect not put it "in shape."

Now, what an architect does not want is to be classed with the "jacklegs" who never did learn the business nor ever could. He does not want to be invited to go into competition where he is expected to put a dollar "in the slot" and take out a nickel. It is all very well to say "competition is the life of trade," and that it ought to bring out the best points of an architect. Experience does not bear out the statement: "The battle is to the strong"—the man is the ring. The race is to the swift; the fellow who does the most drumming. In short, it is the thick-skinned, half-taught, not-to-be-downed, strong, hearty, pushing interviewer who wins the prize. The modest, quiet, unassuming architect who may have spent much money and many years in fitting himself for the art he professes and adorns, has but a poor show in most competitions; and if he enters upon them at all he is almost sure to find the prize awarded to a design as inferior to his own as he may be superior to his opponent.

I need scarcely tell you that in many a competition the award is made beforehand, and if, out of policy, half a dozen men are invited to send in competitive designs, it is only because the committee wish to get half a dozen ideas for the price of one.

One more word about competitions and I have done. It not infrequently happens—let us hope very infrequently—that after an architect has done his best and won the prize, he finds he has been underbid by a rival and is forced to accept half the regular fee for his services or leave the prize untouched. Five per cent is a small remuneration for the services an architect is expected to render. For this he must be held responsible for the safety and stability of the building, see to every minutiae of detail; must undergo much anxiety, spend many toilsome days and sleepless nights perfecting his work, and when all is done, perhaps has to wait many weary months before he can collect his fees.—*Architects and Builders Journal.*

SLAG-PORTLAND CEMENT.

THE FOLLOWING communication has been received by the Engineering Record from a gentleman engaged in cement manufacture, although in no way interested in slag cements. The substance of the communication is that the term "Slag-Portland" conveys the distinction without much difference:

The descriptive term "Portland," applied to cement, is simply an arbitrary name for an artificial mixture. The name was first so used by a brick mason of Leeds, in England, who had made a cementing substance. On account of its close resemblance in color to a popular building stone taken from the Portland sandstone quarries of the English channel he called his invention "Portland cement." In fact he took out a Royal patent for his hydraulic composition in 1824 under this name.

As it was the first use of the descriptive title, and the patentee in his application minutely specifies therein the mixture and method of manufacture, it will be in order to transcribe the substance of his explanation.

"My method of making cement, which I call Portland cement, is as follows: I take a specified quantity of limestone and calcine it. I then take a specific quantity of clay and mix them with water to a state approaching impalpability. After this proceeding I put the above mixture into a slip pan for evaporation, till the water is entirely evaporated. Then I break the said mixture into suitable lumps and calcine them in a furnace, similar to a lime kiln, until the carbonic acid is entirely expelled. The mixture so calcined is to be ground to a fine power, and it is then in a fit state for cementing. This powder is to be mixed with a sufficient quantity of water to bring it into the consistency of mortar and thus applied to the purposes wanted."

There is nothing intricate or mysterious in these particulars of manufacture. The main difference between the processes of making primitive Portland and present Portland is in the dual calcination adopted at first. If double burning constituted the only real Portland, then surely there is no true Portland made now. The name is a misnomer under modern methods. The patentee might as well have called his mixture marl or Medway cement, as to have given it the name of Portland, for he made his experiments with material from the river bed and mecadamized roadways.

In this latter part of the nineteenth century the following definition among a score of different scientific statements may be given. "Portland cement is made by thoroughly mixing in suitable proportions clay and finally pulverized carbonate of lime (either chalk, marl or compact limestone), burning the mixture in kilns at a high heat and then grinding the burnt product to fine powder."

Pure Portland cement as known to-day by architects and engineers is strictly a mechanical mixture. Some manufacturers use as raw material clay and chalk, some marl and clay, others use an argillaceous limestone rock properly dosed, while the first original Portland was made from mud dredged out of the river beds of the lower Thames and the Medway, together with limestone.

from the same limestone quarries that furnish other rock which is put into Portland cement kilns. In one instance the limestone is burned to cinder; in the other case it is calcined to clinker. In both processes the carbonic acid is eliminated from the rock. The main difference in the results is the proportion of impurities left therein. Both slag cinder and cement clinker, when emerged from their fiery trial, retain some detrimental qualities. But both contain the same essential elements of a good cement, though in different proportions. There are foreign substances in both that are inert which, of themselves, have no cementing value; but in Portland cement are allowed by architects and engineers, without debarring the brand from admittance into competition with accepted standards. Just how the best Portland cement is doctored varies with the different manufacturers, yet all of them do it. It is conceded by expert engineers of the highest authority that "there may be added

NEW SCHOOL, MAYFIELD, HEATED BY THE MORGAN HEATING SYSTEM.

A German chemist formulated the first scientific theory of the action of ingredients contained in cement. Eliminating all mystery of its manufacture he showed that portland cement could be made anywhere and from a variety of materials abundant in many localities. Reid, in his treatise on cement, says: "Wide as the field of selection is from which may be obtained all the necessary materials for the manufacture of Portland cement in the various geological formations and which may be regarded as the natural supply there are still to be found valuable supplies of an artificial character, of which we may select as most noteworthy the slags of various kinds resulting from iron making and other allied industries. The analysis of this slag is usually favorable as a cement making agent, from the high percentage of the lime it contains."

Furnace slag is de-carbonized limestone. This limestone rock placed in the furnace to fuse with iron is often taken

foreign material up to two per cent of the weight, without necessitating any change of name."

By a proper treatment the slag cinder is mixed with such necessary ingredients as will produce a cement comparing favorably with any other brand called by whatever name. A comparison of the chemical consistency of both substances before and after decarbonization, will be instructive to many persons. The following analysis show the average and fairly representative proportion of constituent elements of raw material in furnace slag and limestone rock. Slag has silica, 29.96; alumina 10.45; lime, 50.40; magnesia, 3.35; sulphur, 1.44, with traces of alkalies. Portland cement rock has silica, 14.73; alumina, 5.57; lime, 70.34; magnesia 4.47; iron, 2.98, and traces of sulphur.

As a resultant cement after proper calcination and mixture with adulterants the accompanying statement is approximately accurate for a good Portland brand: Lime, 60.1; silica, 23.16; alumina, 8.5; ferric oxide, 5.3, with less than five parts of magnesia and sulphides.

The chemical composition of properly made slag cement of domestic manufacture will vary in these proportions: Lime, 48 to 55 per cent; silica, 23 to 28 per cent; alumina, 10 to 18 per cent; a trace of iron oxide and the balance of ingredients—sulphur, potash, soda and magnesia—not exceeding 7 per cent.

It should make little difference what name is given to a cementitious substance if the desired purpose is satisfactorily accomplished by its use. If a slag cement in a briquette made according to requirements of the American Society of Civil Engineers, will show two hundred pounds tensile strain in twenty-four hours, five hundred pounds in seven days and seven hundred pounds in three months, surely it may be considered of good construction material. These figures are known to the writer as the results of one good brand of slag cement made in the United States. Ordinary imported Portland seldom averages better. This for neat cement; sand tests are still higher in proportion. With a mixture of one part slag cement to three parts sand, a resistance is obtained of two hundred pounds in seven days and three hundred and fifty pounds in ninety days. This is a good showing for a cement that some prejudiced minds refuse fellow-shipping with Portland.—*Clay Record.*

A LULL IN "INDUSTRIAL" BOOMS.

THERE is a lull just now in industrial trust organizations, and one can open his daily paper without seeing the announcement of a single company staring him in the face, whereas a few weeks ago it was no unusual thing to see half a dozen or more, with a capitalization that required a long process of ciphers behind the numerals to express it. It was rapidly getting to the point where anything short of a hundred million would be considered a sort of small potato affair. If the warm weather had not set in there is no telling how high the tide would have reached, for the rapidity and celerity with which the ciphers could be added would have made it just as easy to write $1,000,000,000 as $100,000,000; all that would have to be done was to jot down one more cipher, and presto change. the thing was done. A future Rothschild in reading over his morning paper about a proposed trust that was soon to be launched with an absurdly inflated capitalization that took eight figures to express that amount, remarked to a friend that he would give him a "pointer" on that scheme. "Put a decimal point before the numeral, knock out the other punctuation points and go in on that basis for all you are worth."

The hitch and delays in exploiting of several trust consolidations shows that the conditions prevailing in the early part of the year have almost entirely changed, when new companies were being organized with such surprising rapidity. A promoter who has been prominently identified with the organization of several industrial companies remarked recently, when interviewed in regard to the present status of trusts, said : The only way of organizing an industrial corporation can no longer be worked. It is now impossible to raise cash on any 'two for one' proposition

The public will not take any more 'wind.' A good project can still be carried through, but there is no chance for poor ones. If a consolidation is to be effected now the plants must be put in on the basis of actual value, and the sellers must be willing to take pay in the securities of the new company. The public will not put their money into stocks unless they can be shown to have real value." That some of these trusts have real value and have come to stay there can be no question; neither can there be any question that very many of them have been overcapitalized. In some cases, however, where there is apparently an overcapitalization, when the concerns consolidated get into good working condition, they may show such a large saving in operation that good dividends may be earned not only on their preferred but common stock. By closely watching the quotations of "industrials" in the stock market the public will soon determine the amount of water which "industrials" contain, the quotations being a just reflection of their intrinsic value.—*Boston Journal of Commerce.*

BOOKS AND PERIODICALS.

A NEW BOOK for Engineers and Architects. The author has treated his subject in this work in a very exhaustive manner—providing Formulae, Tables, Drawings and Designs, both general and in detail, for the construction of foundations and flues :—Giving a general history of this most important appendage of modern Architecture and Engineering.

The whole work comprising eleven chapters, is treated under the following heads :

Chapter 1—Introduction and History.

Chapter 2—Theory of Chimney Drafts.

Chapter 3—Chimney Formulae.

Chapter 4—Chimney Tables, Mud-Pressure, Air-Space in Gates.

Chapter 5—Foundation Materials, Brick Chimney Materials.

Chapter 6—Steel Chimney—Theory Pertaining to the Same and Examples From Existing Structures.

Chapter 7—Chimney Performances Special Types, Straightening Chimneys—Flues.

Chapter 9—House Chimneys.

Chapter 10—Lightning Protection.

Chapter 11—General Information.

The Work contains one hundred and sixty four pages and forty Illustrations, and is one of the most complete work of its kind for practical use in the English language.

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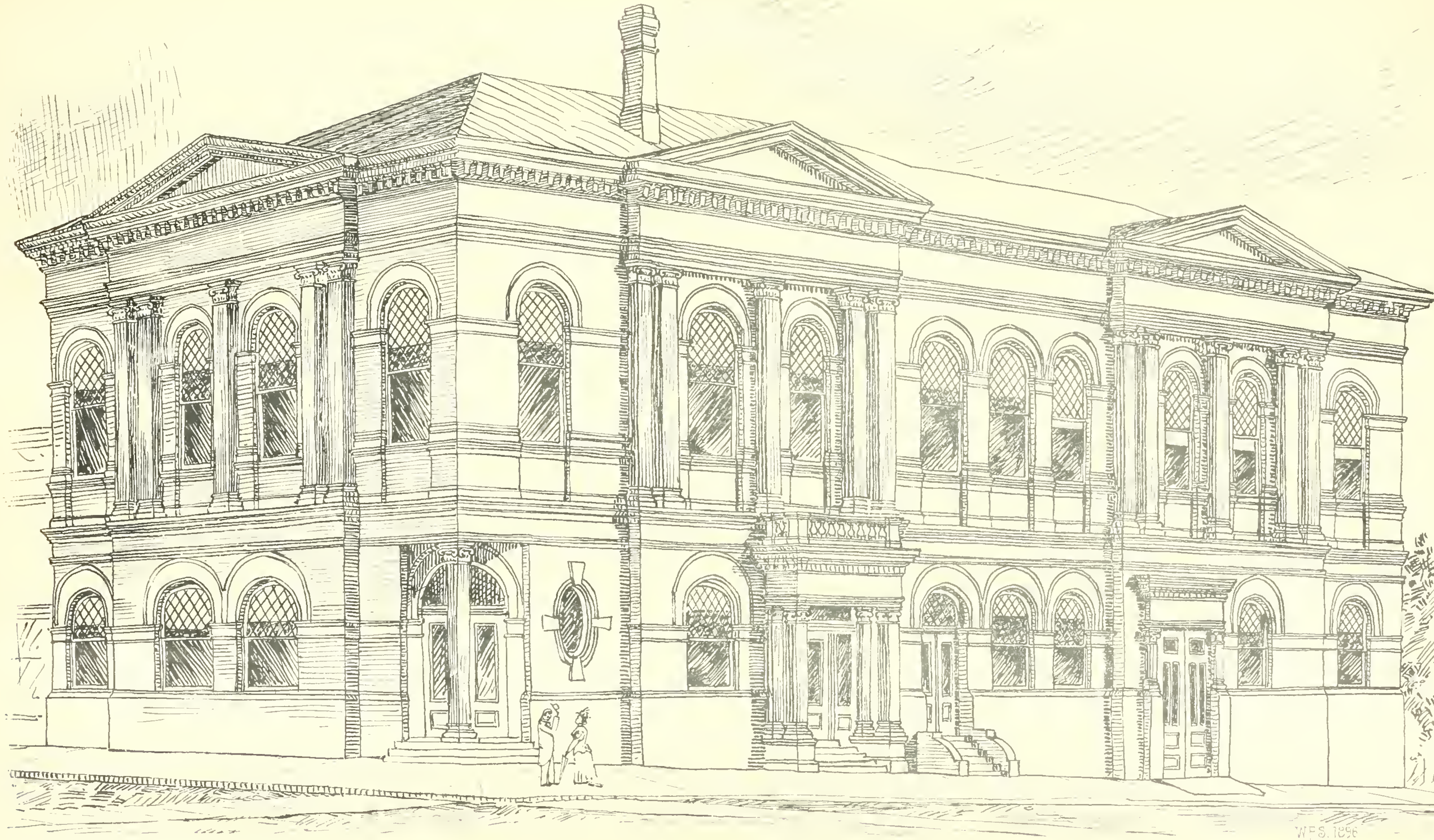
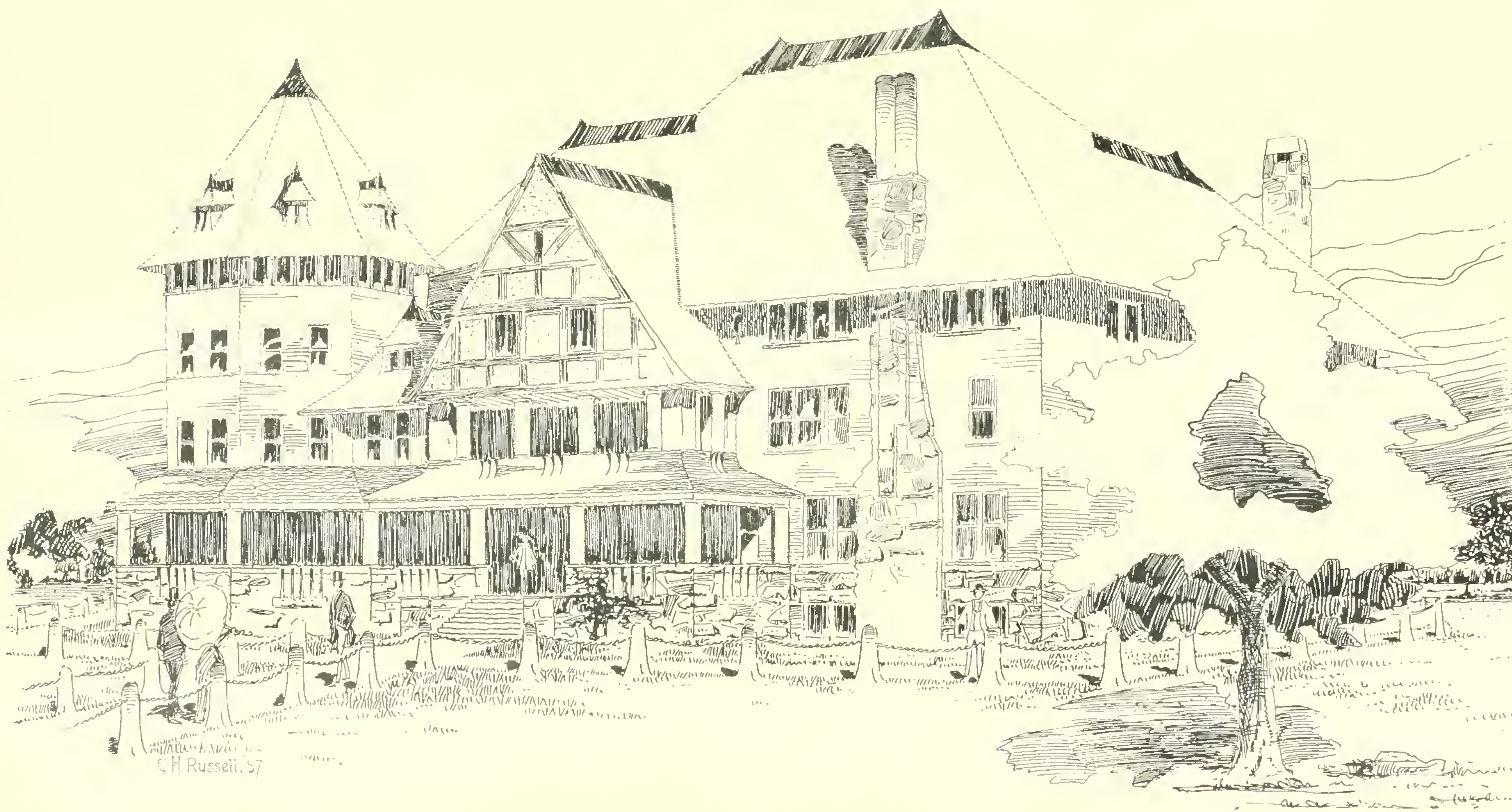


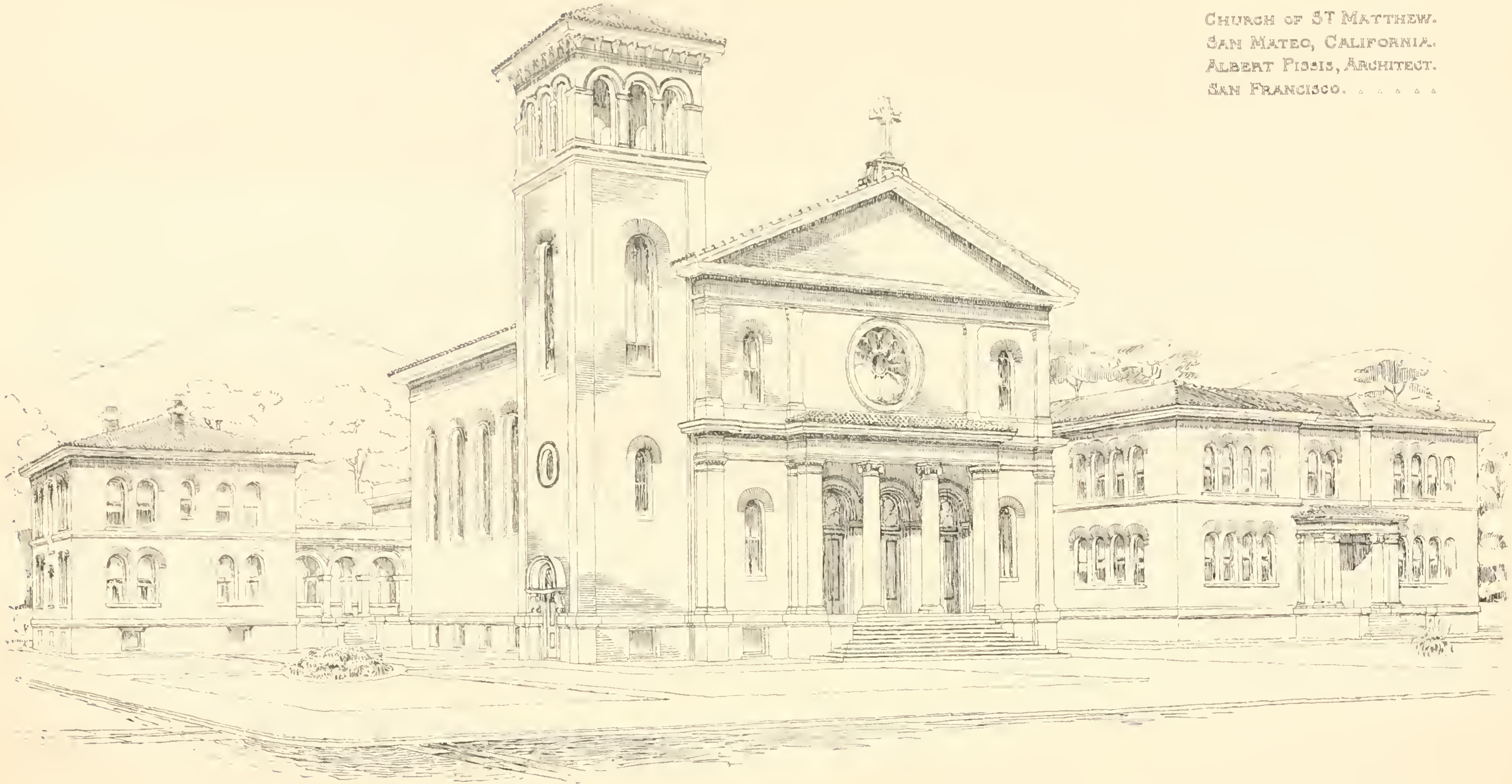
BRITTON & REY PHOTO LITH

SKETCH FOR A FRATERNITY BUILDING.



BRITTON & REY, PHOTO LITH

Church of St Matthew.
San Mateo, California.
Albert Pissis, Architect.
San Francisco.



CALIFORNIA ARCHITECT & BUILDING NEWS
SAN FRANCISCO

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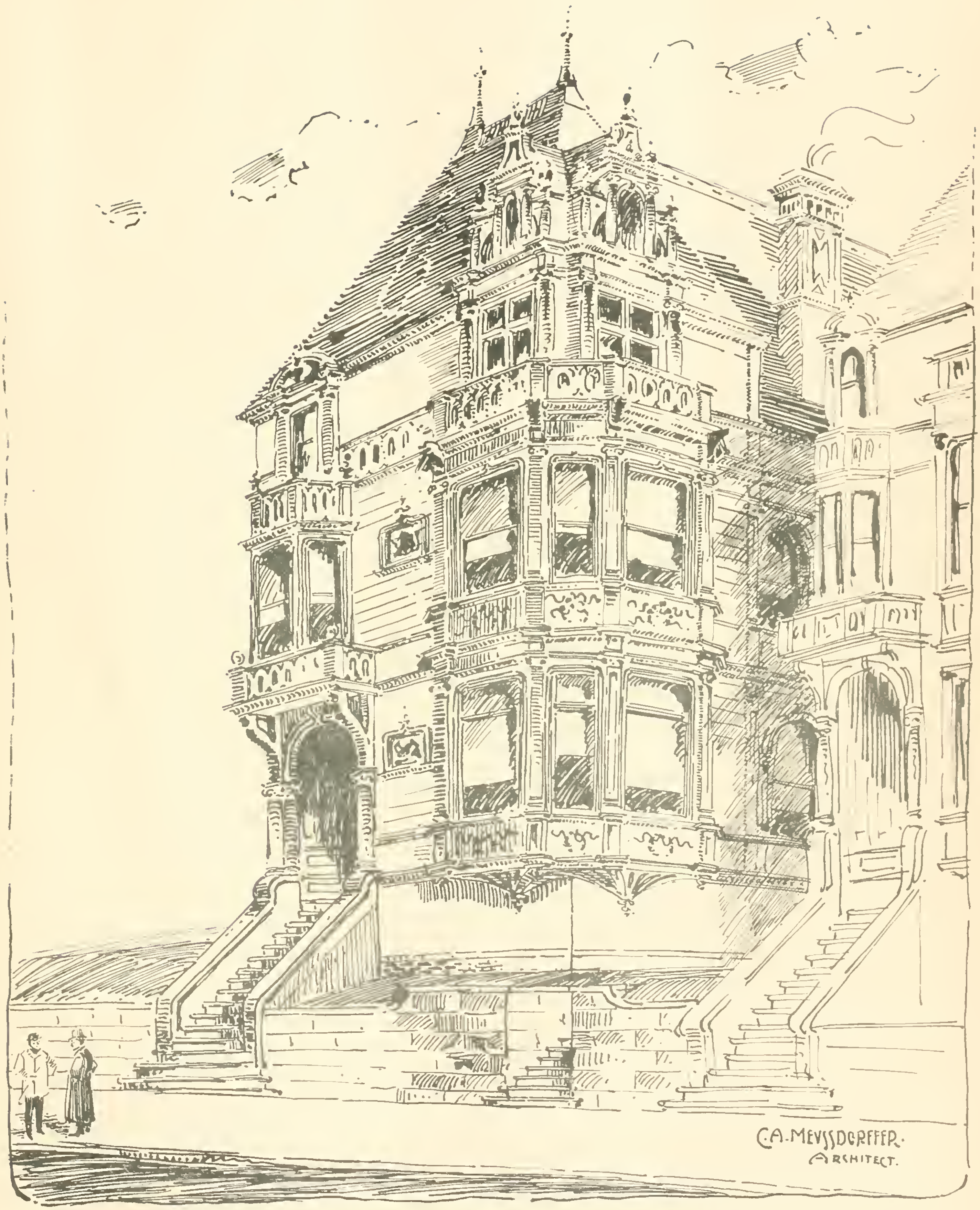
VOL. XX No 8 AUGUST 1899.



BRITTON & REY PHOTO LITH

TRIUMPH OF AN ART GLASS DESIGNER.

THE State of California has set an example of thoughtfulness and kindness to the rest of the Union in its treatment of those soldiers and marines, residents of the state, who, having gallantly fought the enemy on sea and land return to their grateful countrymen to resume the rights and duties of good citizens which their presence with the army lasting gratitude to the ten thousand men who have made the name of California glorious from one end of the world to the other of the choicest fabrication and most artistic design; nothing less than the very best that art can conceive or our mines produce. That this purpose might be attained the committee, having the selection of an appropriate design in view, issued an invitation to all the artists of the Pacific Coast to submit their choicest conceptions and embodiments, offering, not only the rich distinction of success but a financial reward of great liberality and extent. The demand of

and navy temporarily interrupted. To each and all of these brave men it is intended to present a scroll bearing a record of the regiment or ship to which they were attached: the actions in which they were engaged and the particulars of their enlistment and, accompanying this certificate of honorable service there will be given a bronze medal, beautiful in design and exquisitely executed, upon which their names are to be inscribed

These two gifts, precious memorials of the days when these men risked life and fortune in furious combat, will form a splendid legacy to posterity; a title of nobility, founded upon a real service of patriotism to be cherished with as great affection and pride as are those given to the participants in former wars in which this great and glorious republic was engaged. It would be beneath the honor and ignity of this great state were not these memorials of its

the committee required artistic excellence, original design and felicitious expression.

The invitation met with a hearty response from every artist of prominence in the west. Designs without number were submitted. Many of them original and exquisitely artistic. A few were of surpassing excellence and beauty. A choice was difficult. The designs were all submitted to a new committee, especially competent to decide and by unanimous vote the design of Mr. H. R. Hopps, head artist of the California Art Glass Cutting and Bending Works, 103 and 105 Mission street, of which Mr. William Schroeder is President, was declared the successful one.

Aside from the large pecuniary reward the artistic distinction achieved is great. Mr. Hopps is of the younger generation, with a reputation already widely extended among connoiseurs of judgement and capability who admire his conscientious and perserving talent and look forward with well grounded confidence to the time when the works of his brush and palette will be known and admired throughout the world of art.

And here it may be remarked that among the employees of the California Art Glass Cutting and Bending Works, Mr. Hopps is not the only one who has distinguished himself in patriotic ardor. Four others have served their country in active service George T. Ballinger, who left here as First Lieutenant of Company A N. G. C., has been promoted to a commission in the Regular army for gallantry in the field. Another, Sargeant J. Ross of Company K. First Regiment N. G. C. has received commendation for bravery. William Williamson, served gallantly on the Olympia and J. Weidlein, as private in the First California has won the encomiums of his officers for soldierly bearing.

The design for the scroll which will be readily understood by a study of the accompanying illustration merits a farther description. The theme is classic. The motto translated is "A Crown for a Spear" the ancient greeting of the Romans to their victorious armies returning from victory over their enemies. The angel of peace, with an American flag in the back ground stands in striking attitude to the left, holding forward a crown with her left hand and a spear in her right. Around this figure, instinct with life, are grouped, artistically blended, the leading incidents of the late war.

In the left hand corner is a representation of life in camp, below is a spirited delination of the march to the battles. Like an animatascope the scene changes from land to sea. "The last shot of the Oregon" is the artists designation of the scene in which that famous battle ship is presented, reminiscent of the great naval fight off Santiago and the destruction of Cervera's fleet of ironclads. At the right hand corner is the Olympia in action at Manila and at the base, screened by palms, is a scene in Cuba, a dying Union officer in the foreground and an attack by the enemy upon an ammunition train.

Comparing this brief description with the picture, it is a matter of surprise that in so small a space so full and comprehensive an epitone of the stirring incidents and localities of the war should have been so successfully depicted. Only by an artist of commanding ability and intelligence could such an undertaking have been accomplished.

That such ships as the Oregon and the Olympia could have been, not only designed but built on these western shores is a fact that has surprised the world but, it is not alone in the building of war ships that California genius excels. There was a time when it was thought impossible for a first class work of art or utility to be produced on this coast. It was hastily declared that the artist or designer did not exist west of the Rockies, but this impression has long since been dispelled. The days of slavish dependence upon the east and Europe, has passed away since, in almost every branch of manufacture, where beauty and originality were desired California, of late years, has far surpassed those hitherto supposedly unassailable artisans of Europe.

There was a time when, if a choice art glass window, for instance, for church, dwelling or public building was required only an artist of Munich or New York could be intrusted with the commission, even if the price was most exhorbitant it was believed that artistic work was assured but, it was in time discovered that the work of these foreign artists was often slighted and disappointing and frequently inferior to that produced by our own workmen. Too many examples of bad imported work are to be seen in our large churches to escape the discriminating eye of the competent judge. Moreover the buyer of foreign work has no protection against fraud. Orders are frequently paid for in advance, and whatever may be returned must be accepted whether it be inferior or not. How immeasurably greater is the advantage of having a work of art executed under ones own direction and oversight and this is the privilege where local artists are employed.

So many have been defrauded with inferior imported fabrications that the demand for foreign work from the west has almost ceased.

It is to demonstrate the fact that California art glass is equal to any produced else where in the world that this article is written The California Art Glass Cutting and Bending Works is prepared to prove this and challenges comparison with any similar manufactory in the world for beauty and appropriateness of design and the harmony and permanence of its work.

The triumph of its chief designer in a competition which, by the rich reward offered the successful artist attracted the finest talent of the Pacific Coast is a distinct proof of the superlative character of the working aids which is employed. The credit resulting in this instance demonstrates that the California Art Glass Bending and Cutting Works has the finest talent engaged not only in the designing, but in every other department of its great works. The company refers, with full confidence, to the most discriminating judgment, to hundreds of instances, in every class of building, throughout the state, in support of its claim to equality with any foreign work.

Let the inquirer inspect the memorial window at the Maria Kip Orphanage and judge whether in design or finish the work could be surpassed. St. Pauls and St. Marks Lutheran churches; St. Pauls, Episcopal; Grace, Episcopal; Ohabic Shalome, Synagogue; Howard Presbyterian; Westminister; The New Holy Cross, St. Roses, St. Bridgids, Catholic; and hundreds of others of the finest churches in the west exhibit choice samples of art glass made by this company.

As for residences a review of only a small number of the mansions in which the company's art glass furnishes the most striking interior decorations, proves that its patronage comes from the wealthiest and most artistic of the public and is convincing testimony of the superlative excellence of the company's work.

The list, which could be indefinitely extended, includes the homes of J. W. Hellman, L. Schwabacher, Claus Spreckels, Rudolph Spreckels, I. Upham, Clinton Jones, D. Ghirardelli, W. B. Wellman and hundreds of others throughout the state and ranking as among the most beautiful homes in California.

This article cannot be closed without extending to the interested public a most cordial invitation to visit this interesting manufactory, the largest and best equipped in the far west. So large is the demand for the productions of the California Art Glass Bending and Cutting Works that a new building is being erected for its occupancy on the corner of Second and Minna streets where all its great facilities will be combined and where the most advanced methods will be employed. Long before the first of the year the company will be prepared to welcome its many friends in its new, enlarged and permanent home.

NOTICE OF MEETINGS.

San Francisco Chapter, American Institute of Architects, meets second Friday of each month at 408 California street, at 4 p. m.

Seth Babson, Pres. H. A. Schultz, Vice-Pres.
J. W. Reid, Sec. John M. Curtis, Treas.

Southern California Chapter American Institute of Architects, meets first Wednesday of each month at 114 Spring street, Los Angeles, Cal.

A. B. Benton, Pres. Arthur B. Benton, Vice-Pres.
John P. Krempel, Sec't. August Wackerbarth, Treas.

Washington Chapter American Institute of Architects, regular meetings at 8 o'clock p. m., the first Friday of each month, except July and August.

Wm. E. Boone, Pres. Jas. G. Hill, Vice-Pres.
Charles W. Saunders, Sec. W. J. Marsh, Treas.

Association of Architects of Arizona, meetings held at Phoenix, Arizona.

D. W. Millard, Pres. T. H. Maddox, Vice-Pres.
W. R. Norton, Sec. and Treas.

Technical Society of the Pacific Coast, meets first Friday of each month at Academy of Sciences Building.

Geo. W. Percy, Pres. W. F. C. Hasson, Vice-Pres.
Otto Von Geldern, Sec. Edward T. Schild, Treas.

Master Plumbers' Association, meets every first and third Friday of each month at the Flood Building.

Jas. E. Britt, Pres. J. L. E. Firman, Sec.

Builders' Exchange, Directors meet first Friday in each month at Mission and New Montgomery.

S. H. Kent, Pres. Jas. A. Wilson, Sec.

Masons' and Builders' Association, meet first Friday evening of each month.

Adam Beck, Pres. M. V. Brady, Sec.

ILLVSTRATIONS:

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.

CHURCH of St. Matthew, San Mateo, Albert Pissis, Architect.

SKETCH for a Fraternity Building, C. H. Russell, Del.

SKETCH by C. A Meussdorffer, Architect.

MASONIC HALL Public Library, County Offices Arcata, Humboldt Co., Wm. F. Smith, Architect.

VALUABLE INFORMATION CULLED FROM OUR EXCHANGES.

THE DAYS of the underground cast and wrought-iron gas pipes are about numbered, a Boston electrician is quoted as saying. "Electrolysis is playing high jinks with the iron pipes in all the big cities, and in a few years from now the water-pipes will become so weak that they will burst every time any pressure is put on them on account of being corroded by the action of the powerful currents. I will venture the prediction that seven years from now nothing will be used for underground piping of all kinds where high pressures are carried except glass.

A LETTER from the west gives an account of a curious matter. Under date of July 8, the Superintendent of Schools of a certain town issued a circular to architects, informing them that plans and specifications would be received until noon of August 7, for a high school building, to be built of stone or of pressed brick with stone trimmings, to contain accommodations for six hundred pupils, including "a large number of good class-rooms": an assembly-room with six hundred seats, "a spacious library or reading-room": laboratories, "plenty of cloak-rooms, wide hallways, broad and easy stairs, etc.," and to cost complete, including ventilating apparatus, plumbing, electric-wiring and black-boards, not more than forty-five thousand dollars. For such plans and specifications as might be accepted by the School Board, which did not bind itself to accept any, one thousand dollars was offered payable only when a contract had been signed for the erection of the building for a price within the limit of cost fixed. Certain architects to whom this invitation was sent forwarded it to us, says *The American Architect*, with a copy of their letter in reply, it which they point out that the compensation offered for the accepted design is entirely inadequate, while it would be impossible to secure a building of the style and accommodation required for the amount specified. Most probably the cost would be at least twice the specified limit, and these architects expressed their conviction that no conscientious architect would enter the contest.

A FIREPROOFING material named "scagliol" is a German product which is attracting considerable attention in Europe. It has been in use in Germany for some time, and is now being introduced into England. The exact composition of the material is not revealed, but it is said to be made up of a combination of plaster of paris, slacked lime and other ingredients, subjected to an elaborate chemical treatment, sand, coal ash and other materials being afterward added. It is moulded into slabs, with grooved edges in which are holes, a few inches deep, at intervals. For the construction of walls which are not required to carry much weight, several of these slabs are set up in a row lengthwise and a special form of scagliol mortar is poured down the tubes formed by placing the grooved edges together. The cement fills the grooves and holes, making a solid structure of the whole.

At a recent fire test in London a small room formed four-inch walls of this material, with a middle partition of three inches, was filled on one side with several hundred-weight of wood soaked with paraffin. This was lighted, and the temperature in that part of the structure rose to about 2000 degrees, while a thermometer hangling on the other side of the three-inch wall registered only 78 degrees. As a further test of the non-conducting properties of the material, pieces of sulphur and pitch were placed in blocks of scagliol and left in the middle of the fire, where they remained for about half an hour. The sulphur was not affected in any way and the pitch showed only a slight melting. The walls in the room in which the fire occurred were not injured by the heat.—*Builders' Weekly*.

HYDRAULIC engineers often experience considerable difficulty in obtaining a cement capable of resisting the action of salt water. Dr. Michaelis, an Austrian authority on cements, has announced that his investigations have led to the opinion that a mixture of Portland cement, puzzolana (volcanic tufa), and granulated blast furnace slag is better than Portland cement alone where structures are to be exposed to salt water.

HYDRAULIC PILE-SINKING MACHINE.

DIFFICULTY has often been experienced in driving wooden piles into certain soils by the drop hammer. In some cases, after many blows, the piles split at the head and pieces have to be sawn off at the top. A new method of sinking piles has been adopted in the United States, namely by first boring holes by means of a special hydraulic tool. A drawing of this pile-sinking machine is given in the "Gas World" of April 29, and the following are the particulars: It consists of a vertical metal cylinder with hemispherical ends 6¾ inches in diameter and 17⅝ inches high over all. The shell is made in two parts, put together with a screw joint, and at the middle is a partition forming a turbine chamber. The hollow boring bar extends up through the partition and has a cap bearing on the upper side. On the upper end of the shaft is secured a turbine wheel, while at its lower end it is fitted with a pair of blades set spirally. At the top of the machine is a screwed end for receiving a line of wired hose from a duplex steam pump, supplying water under a pressure of 100 pounds per square inch. The water in the upper part of the chamber passes through suitable ports to the tubine, which is caused to revolve, together with the shaft and cutting blades. The waste water from the turbine passes into the lower part of the cylinder and escapes through bottom openings under pressure, thus serving to loosen the surrounding material. Some of the water also passes through the hollow shaft and forms a central jet at the bottom. The machine is lowered from the pile driver and cuts its way to the required depth. It is then quickly drawn up, and the pile is dropped in and sent home with a few taps of the pile hammer. By this method it is said that while at work at Owen Sound, Ontario, 80 to 100 piles were driven at a depth of 20 feet in a working day of ten hours.

REFINEMENT IN BUILDING.

IN HIS recent address before the Royal Institute of British Architects, Mr. Bodley suggests a new meaning to the word architecture, viz: "Refinement in Building." In pointing to English Gothic as he does, he seems to place a limit to his definition and suggests that there is another element than the historical development of architecture which can hardly be included in the ordinary meaning of the term "Refinement in Building." Commenting on this, the editor of *The Builder* says:

"To explain our meaning we may refer to the well known address of Ben Jonson to Shakespeare, where he says, 'Small Latin hadst thou and less Greek,' as conveying the idea of an art little dependent on education in the sense of scholarship. Similarly the definition of architecture as the refinement of building' would cover admirably that school of art which is the outcome of natural taste and slowly acquired experience of actual building, and one which does not draw its strength from historical and academical training. It is impossible to deny that whole schools of architectural design, the work that is not merely of Renaissance times but also of the older classical ages also, have elements of design in their work that did and can appeal only to those possessing sufficient scholarship to appreciate them. Such appreciation, moreover, and the power to design so as to call it forth, must be dependent, so to speak, on a general education embracing much more than the builder's craft, without being a natural outcome of it.

"The architecture, however, which might be naturally included under the definition 'The Refinement of Building' could be looked upon as the product of natural taste *i. e.*, sense of proportion, of beauty, of form, and of a general artistic perception, developed along with actual experience of building. In the presence of the master-pieces of this school we share in the wonder of Ben Jonson at the native genius of Shakespeare, as at a young David independent of the Saul's armor of scholarship such as Jonson himself was accustomed to wear."

Under this definition and with this explanation we should find architecture relieved very largely of the conditions that have been heretofore and are now hampering it. The conditions prevailing in the times of historical architecture were quite different from those prevailing at present. The one great subject of the architect of that earlier day was ecclesiastical architecture. His supreme work was the great cathedral, but now this class of work occupies only a minor place in the world and his energies must be brought to the construction of a vast variety of buildings, and his artistic taste and skill to refine building as to create harmony and good taste in all while adapting them to the ends desired. Some great palaces were built in those days, but nothing of an allied character to the modern buisness structure or the immense municipal or state buildings. In fact thus far in our work the religious edifices of the ancients have given us the types for these buildings, Gothic types not being so usually adopted, but the Greek and Roman temple structures have furnished the models for our public buildings.

Our Capitol at Washington, and in fact all the mammoth public buildings of that city, except perhaps the Pension Office, get their inspiration from these old classic structures. It was not, perhaps, to be expected that any radical departure should be made from these old forms, if indeed it were desirable. But now we find in consequence of the change in the materials used and in the character of our cities new elements have arisen calling for more independence in design, and perhaps that element of mind in our designers which will enable him to exercise a refinement in building which will produce good buildings even though not conforming to the traditions of the schools.

Evidently the times are ripe for a departure from the rules and dogmas of the art. At no time in this history of the art has the designer been called upon to treat construction in such varied forms, forms heretofore impossible. In treating them the designer has found it difficult if not impossible to abide by the forms and usages he has been bred to, and in his efforts to do so has found his work often crude and unsatisfactory.

FIRST BAPTIST CHURCH, LOS ANGELES—HEATED BY THE MORGAN HEATING COMPANY.

The great office building represents the most radical departure, and in its case, attempt at ornamentation has often been the most utter failure. Erected as at first in Chicago, simply as engineering problems, they were at least simple and dignified, if crude, and the question arises whether the definition refinement of building does not suggest a method of solving this architectural problem. Undoubtedly these buildings must be accepted as they are giants among structures, and the architects province is to refine them and tone them down, not attempt to cloth them in the garb of historic styles.—*Architecture and Building*.

MASONRY CONSTRUCTION.

THE RECENT large advance in the price of steel and structural iron causes one of the prominent building trades journals to speculate upon the possibility of a return to masonry construction, as follows:

We have grown so accustomed of late years to steel skeleton construction that we are apt to lose sight of the fact that it is perfectly possible to construct a building, or at least construct many types of building, without using a steel beam or steel column; and now that prices of structural metal are touching the limit of prohibition it may be a good time to see if we cannot improve our brick and terra cotta construction, perhaps going back to the processes in use when our constructions were more scientifically fireproof, if less knowing, than they are now. Surely, iron can never be seriously considered a fireproof material, and a great deal of the terra cotta and brick which goes into a modern structure is used simply as a protection for what in one sense we would term the weaker material. The path of least resistance and the minimizing of our vertical supports have led us into our present by no means rational construction. One has only to recall the vast spaces which were enclosed by buildings during the late Roman period to appreciate that our dependence upon iron is not a necessary one.

There is no question about the possibility of improvement in the methods of using brick and terra cotta for the structural portions of a building. We have not reached the ideal application, and it is quite likely that the fact that iron has been so cheap, so handy, and can be used with so little thought, has contributed quite materially to our ready acceptance of the forms of brick and terra cotta constructions which, now that steel is becoming so expensive, we might be glad to modify. We should be glad to see the attempt made to construct a building entirely of burnt clay, omitting steel columns and beams entirely. We are apt to think of an all-masonry structure as being necessarily heavy and unsuited to modern needs, and yet there never was in the whole past history of the world a lighter, more open construction than that which prevailed during the height of the gothic development, when the supporting members were reduced to an extreme minimum, and large spaces were vaulted with a daring and skill which we should be glad to see imitated in our day. If the rise in steel has a result of developing the possibilities which lie dormant within our reach, it will have been worth while for our constructors to have paid the high prices which are now prevailing, for, while undoubtedly the prices will go back to somewhere near the quotations of a year ago, the right kind of thought expended upon brick and terra cotta construction will be sure to bring out possibilities which will enable our buildings to be ligher, better built, and more thoroughly fireproof.—*Builders' Weekly*.

NEW PALACE FOR THE CROWN PRINCE YOSHIHITO OF JAPAN.

THE architect of the imperial household, Japan, Mr. Tokuma Katayama, is now in America to purchase the steel and iron to be used in the framework of the new palace for the Crown Prince Yoshihito. He has commissioned the firm of E. C. & R. M. Shankland, civil engineers, Rookery building, Chicago, to design the framework. The palace will extend over an area of 390x270 feet, and will be two stories and basement high. It will be of granite, and the interior will be fireproof. It is stated that the Carnegie Steel Company will probably receive the contract for the steel.

To a reporter of a daily paper Mr. Tokuma Katayama describes the palace as follows:

"The new palace," he said, "will be one of the finest, if not the finest structure in Japan. It will cost between $2,000,000 and $3,000,000, and will take six or seven years in building. In no country are buildings thrown up with such astonishing rapidity as in America. In Japan we require more time, but the building of the palace will be unusually slow, because of the intricate work to be put on it. It will be in the Italian Renaissance style, and in the decorations I shall endeavor to combine what is best of Japanese art and European and American art as well It is likely that we shall import some carvers from America, but it is too soon to discuss that subject, for the building will not be ready for decoration for several years. I do not know, as yet, the amount of steel I shall have to buy. I notice that the price of steel is steadily rising, and I am afraid that my purchase here may run up as high as $300,000. As soon as the material for the framework arrives, work on the palace will be begun.

"Architecture in Japan is in a transitionary stage. The old wooden dwellings are unsatisfactory for many reasons, chiefly because they burn like tinder boxes. The ordinary brick building is even more undesirable, because the first hard earthquake shock will send it tumbling down upon the heads of its occupants. When you consider that Japan has, on an average, about three hundred earthquakes, of more or less violance, in a year, this is not an unreasonable objection. The steel frames, however, have solved the problem. Japanese houses in the future will have steel frames and the walls may then be built of brick or stone, with perfect safety. But the height must be limited, I should say that no building over four stories high, even though it had steel framework, would be safe in Japan. The palace of the Crown Prince will be only two stories. In the matter of architecture, Tokio or Yokohama can never be like New York. They may be as wide and as long, but not as thick. There is a tendency in Japan to adopt the American architecture as far as possible. It varies so widely that monotony has no chance to creep in.

"I think the next class of buildings to undergo a change will be the railroad stations. At present the are almost invariably of the old wooden shanty style. We have none of the fine trainsheds, with great steel arches, that you have in America, but I think the time is coming when we will. I predict that the next few years will witness a wonderful revolution in Japan architecture."—*Construction News*.

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BUILDING NEWS.

Oak near Steiner. To build; o, Mary A. Dryden; a, Martens & Coffey; c, John Peccarich; cost $1760.

O'Farrell and Mason. Excavation, etc; o, Robert Hampton; a, C. J. I. Devlin; c, Henry Jacks; signed, Aug. 3; filed, Aug. 6; cost $13,912. Elevator; c, W. L. Holman; cost $1900. Plumbing, etc; c, Duffey Bros; cost $3405. Plastering; c, M. Carrick; cost $1300.

Pacific Ave. and Laguna. Removal; o; John D. Spreckels; a, Reid Bros; c, Geo. Davis & Son; signed, June 18; filed, June 27; cost $2350. Rough carpentry, etc, [for stone residence; c, Veitch Bros; cost $5777 Plumbing, etc; c, Duffey Bros; cost $7085. Terra cotta. c, Gladding, McBean & Co; cost $54,300. Fireproofing, c, Western Expanded Metal Co; cost $7489.15. Steel and iron work; c, West Iron Works; cost $14,600. Stone and brick work; cost $24,150.

Pacific Ave. near Gough. To build; o, Rudolph Spreckels; a, Newsom & Meyers; c, C. M. Depew; signed, Aug. 12; filed, Aug. 15; cost $19,300.

Page near Cole. To build; o, N. H. Hickman; c, J. F. McDonald; cost $5000.

Portola near Steiner. Three two-story frames; o, G H. Moore; cost $15,000.

Second and Jessie. Excavations; o. Louis Schoenberg; a, S. Schnaittacher; c, Peacock & Butcher, cost $12,200. Carpentry, etc; cost $4200.

Second and Minna. Four-story brick; o, Christia Froelich; a, A. Sutton; c, James A. Wilson; cost $18,59.

Seventh near Lake. To build; o, Ina G. Cushing; a, W. J. Cuthbertson; c, McLeod & Baughman; signed Aug. 12; filed, Aug. 14; cost $2069.50.

Shrader near Frederick. To build; o, Maurice Rosenthal; a, Wm. Koenig; c. W. H. and T. Kinread; cost $1790.

Sutter near Kearny. Wrought iron work, etc; o. Goldberg, Bowen & Co; a, Edward R. Swain; c, Pacific Plating Works; cost $1050. Elevators; c, A. J. McNicoll; cost $2700.

Washington and Buchanan. To build; o, Joseph H Sisson; a, T. Paterson Ross; c, C. M. Depew; cost $9000.

COLMA

Grand Stand, kennels, etc; o, San Mateo Coursing Ass'n; a. P. R. Lewis; c, L U Grant; cost $6620

SAN MATEO

Carpentry work on Catholic Church; c, Father T Callaghan; a, A Pissis; c, M C Lynch; cost $10,000.

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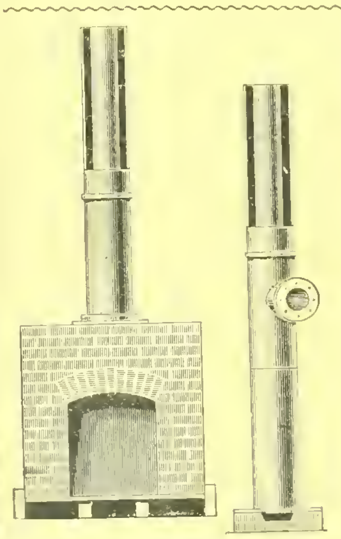

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BUILDING NEWS.

Bryant near Spear. Reconstruction of wharves; o, Board of Harbor Commission; c, City Imp. Co; cost $30,?90.

California near Leavenworth. To build, etc; o, Metha Mehrtens; a, Havens & Toepke; c, O. A. Kraemer; signed, Sept 18; filed, Sept 20; cost $2625.

California near Fillmore. Additions; o. William Franey; c, L. T. Fenn; cost $1525.

California near Devisadero. To build; o, Julien Smith; signed, Sept. 8; fled, Sept. 14 cost $1775.

Cook near Point Lopos. Cottage; o, William Hindle and wife; signed, Aug. 29; filed, Sept 30; cost $1325.

Division and Kansas. Carpentry, etc; o, John Rapp & Son; a, Salfield & Kohlberg; signed, Sept 6; filed, Sept. 11; cost $5755.

Fillmore and California. Alterations; o, E. F. Preston; c, W. T. Veitch & Bros; signed and filed Sept 12; cost $5127.50.

First and Jessie. Tinning, etc, for five-story brick; o, Louis Metzger; a, S. Schmaittacher; c, Jos. Forderer signed, Sept 2; filed, Sept 7; cost $1455.

Folsom near 8th. Alterations and additions; o, Michael Gleeson; a, J. P. Brady; c, James Geary; signed and filed, Sept 15; cost $1335.

Folsom near 17th. Excavation, etc, for one-story brick; o. Enterprise Brewing Co; a, H. Geilfuss; c, Adam Beck, signed and filed, Sept 22; cost $3097. Cast iron and steel construction; c, Otto Schrader; cost $1694.

Folsom near 23d. Carpentry woak, etc; o, James Gaughran; a, J. F. Dunn; c, Richard Sinnott & Co; signed, Sept. 8; filed, Sept. 7; cost $3720.

Franklin near Washington. To build· o, Mrs. Rosalie Greenebaum; a. Newsom & Meyer; signed, and filed, Sept 2; cost $1850.

Frederick near Stanyan. To build; o, Samuel Glass a, Wm. Koenig; c, Ira W. Coburn; signed, Aug. 30; filed, Sept 8; cost $6325.

Fulton near Devisadero. To build; o, George P. Allen; a, Aug. Nordin; signed, Sept. 13· filed, Sept. 16; cost $3210.

Geary near Larkin. Carpentry, etc; o, Mary A. Harriss; signed, Aug. 29; filed, Aug. 21; cost $5840. Plumbing, etc; c, J. F. Ford; cost $1220.

Geary near Powell. Excavations, etc; o, Charles J. Behlow; a, Curlett & McGraw; c, Gray Bros; signed, Sept. 22; filed, Sept. 23; cost $10,960.

Golden Gate and Laguna. Marble work; o, Mark Sheldon; a, McDougall Bros; signed, Aug. 31; filed, Sept 1; cost $1651.

Guerrero and Dorland. Cargentry, etc; o, James and Katie Smith; a, C. J. I. Devlin; c, Mallory & Swenson; signed, Sept. 16; filed, Sept. 21; cost $6530. Plumbing, etc; c, Schanz & Grundy; cost $1560.

BUILDING NEWS.

Kansas and Division. Excavations; o, John Rapp & Son; a, Salfield & Kohlberg; c, H. R. Stettin; cost $2120.

Leavenworth near Pine. Carpentry, etc; o, P. Flatow, I. Flatow· a, C. A. Meussdorffer; c, A. Olson; signed, Sept. 11; filed, Sept. 15; cost $9280. Plumbing; c, E. Wolfe; cost $1945.

Linden street No. 720. Alterations and additions; o, Neal Boyle, Sr; c, R McBeth; signed, Aug. 19; filed, Aug. 23; cost $1030.

Lombard and Baker. Alterations and additions· o, Albert White; a, Copeland & Pierce; c, Val Franz; signed and filed, Sept 7; cost $3148

McLea Court near 9th. To build; o, Terence and Elizabeth Derham; a, Thomas J. Welsh; c, Frank Boerner; signed, Seyt 18; filed, Sept 19; cost $3280.

Main and Mission. Brickwork, etc; o, C. S. Laumeister; a, Havens & Toepke; c, J. S. Fennell; signed, Sept. 23; filed, Sept. 25; cost $1967.

Mississippi near 18. To build; o, S. C. Symon; c, L. G. Bergen; cost $2280.

Natoma and First. Nine steel trushes; o, Geo. E. Dow; a, H. B. Maggs; c, Judson M'f'g Co; cost $692.

Mission and 7th. Drainage system; o, United States of America; c, Schanz & Grundy; cost $5030.

Ninth near Howard. Carpentry work, etc; o, E. McLaughlin; a, H. Geilfuss; c, Fred Miller; signed, 14; filed, Sept. 16; cost $7420. Plastering, etc; c, Frank Coghlan; cost $1365. Plumbing, etc; c, G. C. Sweeney; cost $2998.

Noe near Hedry. To build; o, N. Hansen; c, L. G. Bergren; signed, Sept. 21; filed, Sept. 25; cost $3850.

O'Farrell near Mason. Carpentry, etc; o, Leon Kauffman; a, Albert Pissis; c, F. W. Kern; signed, Au . 17; filed, Sept 15; cost $14,99? C. C. Morehouse; cost $3280. Plumbing; c, W. F. Wilson; cost $6500.

Pacific Ave. near Scott. To build; o, Mrs. Minnie E Bowes· a, F. S. Van Trees; c, W. R. and T. Kinread; signed, Sept. 1; filed, Sept. 13; cost $5865. Concrete work, etc; cost $2735. Plumbing, etc; c, E. R. Tutt; cost $1000. Painting, etc; c, J. H. Keefe; cost $710.

Pacific Ave. and Gough. So build; o, Rudolph Spreckels; a, Newsom & Meyer; c, C. A. Depew; signed, Aug. 23; filed, Aug. 21; cost $31,990. Plumbing etc; c, Gulick & Wetherbee; cost $2850. Steam heating; c, Geo. H. Tay & Co; cost $1040. Painting, etc; c, Kuss & Storz; cost $1890.

Polk near Washington. Excavations, etc; o, J. P. and E Trouillet· a, Everett & Berger; c, M. Buzzini; signed and filed, Sept. 2; cost $2038.

Polk near Washington. Plumbing, etc; c, J. P. and E. Trouillet; c, M. Levy; cost $1165. Carpentry, etc; c, Hughes & McDonald; cost $7175.

BUILDING NEWS.

Post and Gardner. Fire proof floors, etc o, Crocker Estate Co; a, Tharp & Holmes; c, Western Expanded Metal Co; cost $37,440.75.

Seventeenth near Guerrero. To build; o, Julia Sullivan; c, Russell & Stahl; signed, Sept 2; filed, Sept 6; cost $9450.

Seventh and Mission. Iron work; o, U. S. Government; c, Phœnix Iron Works; cost $18,000.

Sixteenth and Capp. Alteratirns and additions; o, Wm. H. Taylor; a, Martens & Coffey; signed, Sept. 2; filed, Sept. 12· cost $6642.

Spruce near Vine. To build; o, Grace T. and J. W. Pack; a, Cummingham Bros; cost $3100.

Stanyan near Parnassus. To build; o, Felix Marcuse; c, Marcuse & Remmel; cost $6000.

Steiner near Folsom. To build; o, Emily Harlter; a, Martens & Coffey; signed, and filed, Sept. 12; cost $5540.

Steuart near Mission. Brick work, etc; o, John F. Boyd; a, McDougall Bros; c, J. W. Miller; signed and filed, Sept. 6· cost $2795· Carpentry, etc; c, Ingerson & Gore; cost $6772.

Tenth near Folsom. To build; o, Charles H. Erken; c, Wilson & Long· cost $3300.

Thirteenth and Clay. Brick building; o, L. H. Briggs; a, D. F. Oliver; c, W. W. Childs, J. A. Pierson cost $3495.

Waller near Pierce. To build; o, Albert Muhlmann; c, Val Franz; signed, Sept. 12; filed, Sept 13; cost $3420

Vallejo near Dupont. Fixing church; o, Roman Catholic Archbishop; a, C. J. I. Devlin; c, M. Carrick; cost $2241.

BERKELEY

Bancroft Way and Chapel St. Owner, Calvin Esterly; c, S. S. Quackenbush; cost $2800.

Benton, lot 13. To build; o, Mrs. Bertha Rickoff; a, A. W. Smith; c, Kidder & McCullough; cost $3159.

Daily Scenic Park Tract, lot 5, block 14. To build; o, Evelyn H. Shippee; a, A. W. Smith; c, Kidder & McCullough; cost $3500.

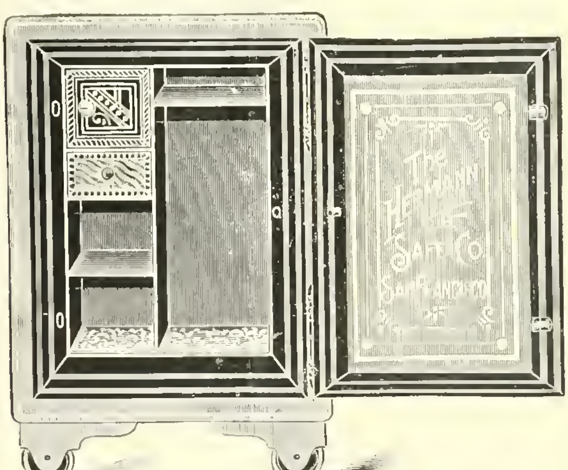
Hillegass Tract. To build; o, J. A. Vernon; c, C. M. MacGregor; cost $2427.

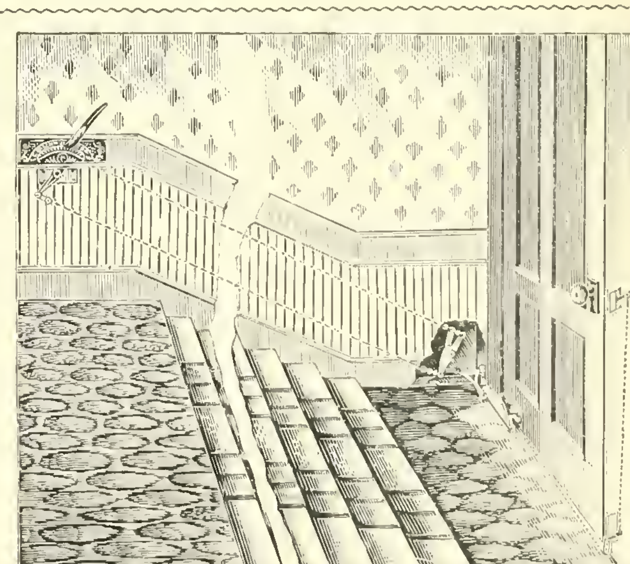
OAKLAND

Lot 11 on Map of Suburban. To build; o, Ira Bishop a, Cunningham Bros; c, M. S. Libbey; cost $5803.

GENERAL INDEX OF ADVERTISEMENTS.

CLASSIFIED INDEX.





VOLUME XX. SEPTEMBER 20th, 1899. NUMBER 9.

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

IT IS A LITTLE OVER TWO years, since a Prospectus was issued containing the following statements: "The University of California has undertaken an enterprise which it is hoped to make one of the most notable in the history of architecture; and in this hope it asks, through the wise and loving kindness of Mrs. Phebe A. Hearst, the co-operation of the architects and artists of every land and clime, in the preparation of a plan for an ideal home of education.

"The purposeis to secure a plan to which all the buildings that may be needed by the University in its future growth, shall conform. All the buildings that have been constructed up to the present time are to be ignored, and the grounds are to be treated as a blank space, to be filled with a single beautiful and harmonious picture as a painter fills his canvas.

"The site of the University of California, at Berkeley, California, comprises two hundred and forty-five acres of land, rising at first in a gentle and then in a bolder slope from a height of about two hundred feet above the sea level to one of over nine hundred feet. It thus covers a range of more than seven hundred feet in altitude, while back of it the chain of hills continues to rise a thousand feet higher.

"It has a superb outlook over the Bay and City of San Francisco, over the neighboring plains and mountains, and the ocean. It is the desire of those who have charge of this enterprise, to treat the grounds and buildings together, landscape gardening and architecture forming one composition, which will never need to be structurally changed in all the future history of the University.

"It is seldom in any age that an artist has hada chance to express his thought so freely, on so large a scale, and with such entire exemption from the influence of discordant surroundings. Here there will be at least twenty-eight buildings, all mutually related and, at the same time, entirely cut off from anything that conld mar the effect of the picture, In fact, it is a city that is to be created—a City of Learning—in which there is to be no sordid or inharmonious feature. There are to be no definite limitations of cost, materials, or style. All is to be left to the unfettered discretion of the designer. He is asked to record his conception of an ideal home for a University, assuming time and resources to be unlimited. He is to plan for centuries to come. There will doubtless be developments of science in the future that will impose new duties on the University, and require alterations in the detailed arrangement of its buildings, but it is believed to be possible to secure a comprehensive plan so in harmony with the universal principles of architectural art, that there will be no more necessity of remodeling its broad outlines a thousand years hence, then there would be of remodeling the Parthenon, had it come down to us complete and uninjured.

"In the great works of antiquity, the designer came first, and it was the business of the financier to find the money to carry out his plans. In the new building scheme of the University of California, it is the intention to restore the artist and the art idea to their old pre-eminence. The architect will simply design, others must provide the cost.

"About five million dollars have already been pledged for a beginning, and such a general desire to contribute has been manifested, that it is thought that all the funds required will be forthcoming as fast as the work can be carried on.

"Mrs. Phebe A. Hearst, widow of the late United States Senator George Hearst, and a lady well known for her philanthropy and public spirit, and her interest in and taste for all things artistic, has provided ample funds for securing the architectural plan. For this purpose she has appointed a Board of Trustees consisting of the Governor of the State, James H Budd, representing the State ; one of the Regents of the University, J. B. Reinstein, representing the Board of Regents, and one of the Professors of the Faculty, William Carey Jones, representing the University.

"The University of California is destined in no long time to be one of the great seats of learning of the world, and the architect whose plans for it a home worthy of its future, and of what a famous authority has called 'the most beadtiful site on earth for the purposes of a University,' will make his name imperishable."

Mrs. Phebe A. Hearst.

We are now enabled after a long lapse of two years to present to the world the successful plan of Mons. Benard, a plan chosen after the most elaborately conceived, the most systematically carried out and the most lavishly endowed Architectural Competition known to history.

THE very simple and graceful design for the cover of this number of the CALIFORNIA ARCHITECT, especially devoted to the great Phebe Hearst Competition, was specially drawn for us by Mr. H. R. Hopps a local artist of versatility and experience.

A DESCRIPTION OF THE FIRST PRIZE PLANS DRAWN BY MONS. E. BENARD OF PARIS.

THE long and severe course of training and the repeated experience of handling immense architectural problems which must necessarily fall to the lot of a winner of the Grand Prix de Rome is in itself a more varied and a more exalted career in his art than has fallen to the lot of the average American architect when he is ready to retire permanently from business. Therefore when it is realized that Mons. Benard won this, the highest distinction that the *Ecole des Beaux Arts* can confer as far back as the year 1867, the identical year in which the writer of this article was born, it is not to be surprised that the writer feels a certain sense of awe in the presence of the final outcome and flowering of such an almost appalling experience in all the grander movements of architectural design. For Mons. Benard has been all his life engaged on works of more or less heroic proportions. The general design of the Fine Arts Building at the Chicago Fair was based on the lines of one of his studies and is an example that will appeal to everyone layman and architect alike. These facts alone are enough to assure us that any work from his hand is bound to be excellent in every way. Added to this it may be mentioned that Mons. Benard is a member of the Paris Jury of public Works, the official architect of the District of Havre, the designer of the Franco-American Club in Paris, the Casino in Nice, of the club house of Fecamp, of the Palace of Compiegne, of the churches of Blaville and Marc aux Clercs, and many other architectural monuments of France.

J. B. Reinstein John Belcher Walter Cook J. L. Pascal Paul Wallot

Before attempting to describe Mons. Benard's solution of the problem offered it would be well to go back to the original announcement contained in the prospectus furnished to architects and briefly enumerate the requirements of the University as therein set forth as follows:

The general scheme will comprise:

1st. Provision for the general and collective purposes common to all the departments, as follows:

Administration,
University Library,
University Museum,
Auditoriums,
Military Establishment,
Gymnasia,
Printing Establishment,
Habitation,
Club Houses,
Infirmary,
Approach and Communication.

2d. Buildings for all things pertaining to the general service of the several departments, such as central power, heat and light station, postal, telephone and telegraph systems, etc.

3d. The Departments of Instruction, so far contemplated, number fifteen, and the buildings for their accommodation differ much as to their relative size and importance.

These departments are as follows:

A. *Higher Historical and Literary Instruction.*

1. Department of Philosophy and Pedagogy.

2. Department of Jurisprudence.
3. " " History and Political Science.
4. " " Ancient and Modern Languages.

B. *Higher Scientific Instruction.*

5. Department of Mathematics.
6. " " Physics.
7. " " Astronomy.
8. " " Chemistry.
9. " " Natural History (Zoology, Botany, Geology and Mineralogy.)

C. *Technical and Applied Instruction.*

10. Department of Fine Arts.
11. " " Agriculture.
12. " " Mechanical Engineering.
13. " " Civil Engineering.
14. " " Mining.
15. " " Draughting and Graphical Analysis.

All are to be so connected as to insure easy communication, both open and covered, between the groups or buildings and to contribute to the stately aspect of the whole.

Following this synopsis of requirements is a detailed account of the composition of each individual group which includes estimates of the various number of students to be provided for. Without therefore going into the full details let it suffice to supplement the above general program with the following facts reduced to their simplest form of expression.

The Library is to have 750,000 volumes.

The Auditoriums are to seat 1500 and 5000 persons.

The Military Establishment includes huge drill sheds and an armory with 2000 stands for arms.

The Gymnasia are to contain two large halls and two swimming tanks for males and females, also

"A large drilling and exercising field in the open air for athletic games with stands and seats." The program then adds

"This athletic ring should be treated in a monumental and majestic style"

The Habitation must be for 3000 students, male and female.

The Departments of Instruction are to provide accomodations for students about as follows:

Philosophy and Pedagogy	1250	students
Jurisprudence	800	"
History and Political Science	1600	"
Ancient and Modern Literature	4000	"
Mathematics	700	
Physics	1400	
Astronomy	275	
Chemisty	1375	
Natural History	1400	

The Department of Fine Arts is thus briefly but comprehensively described in full:

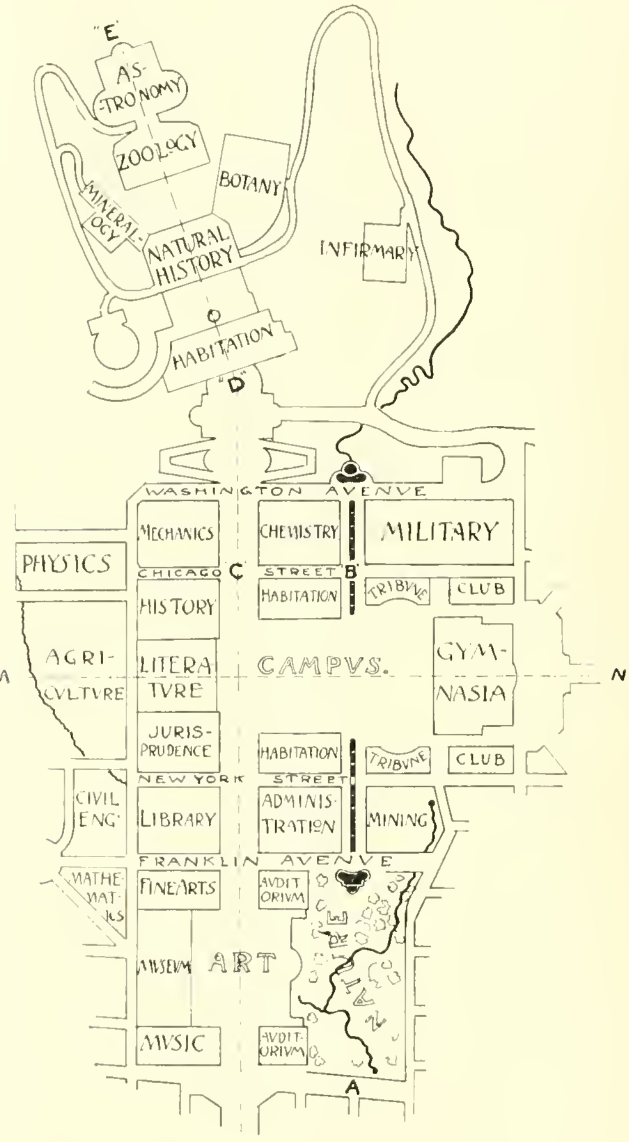
1 "A department of Painting, Sculpture, Architecture (Drawing and Modelling class rooms, exhibition and competition halls, galleries of models, studios, library, etc.) with a special division devoted to Decorative and Industrial Art.

2. "A department of Music, with all its elements (class rooms, lecture study rooms, etc., hall for exercise in common."

Agriculture	575	students
Mechanical Engineering	1125	"
Civil Engineering	650	students
Mining	1100	"
Drafting and Graphical Analysis	125	"

This then in brief is the program with many details omitted to which reference will be made further on.

Mons. Benard's solution is herewith shown in a series of photographic reproductions. The printed names of the various Departments do not show up with sufficient distinctness on the General plan. The accompanying skeleton plan



Key to General Plan

will make clear at a glance the position of the various buildings and their purpose.

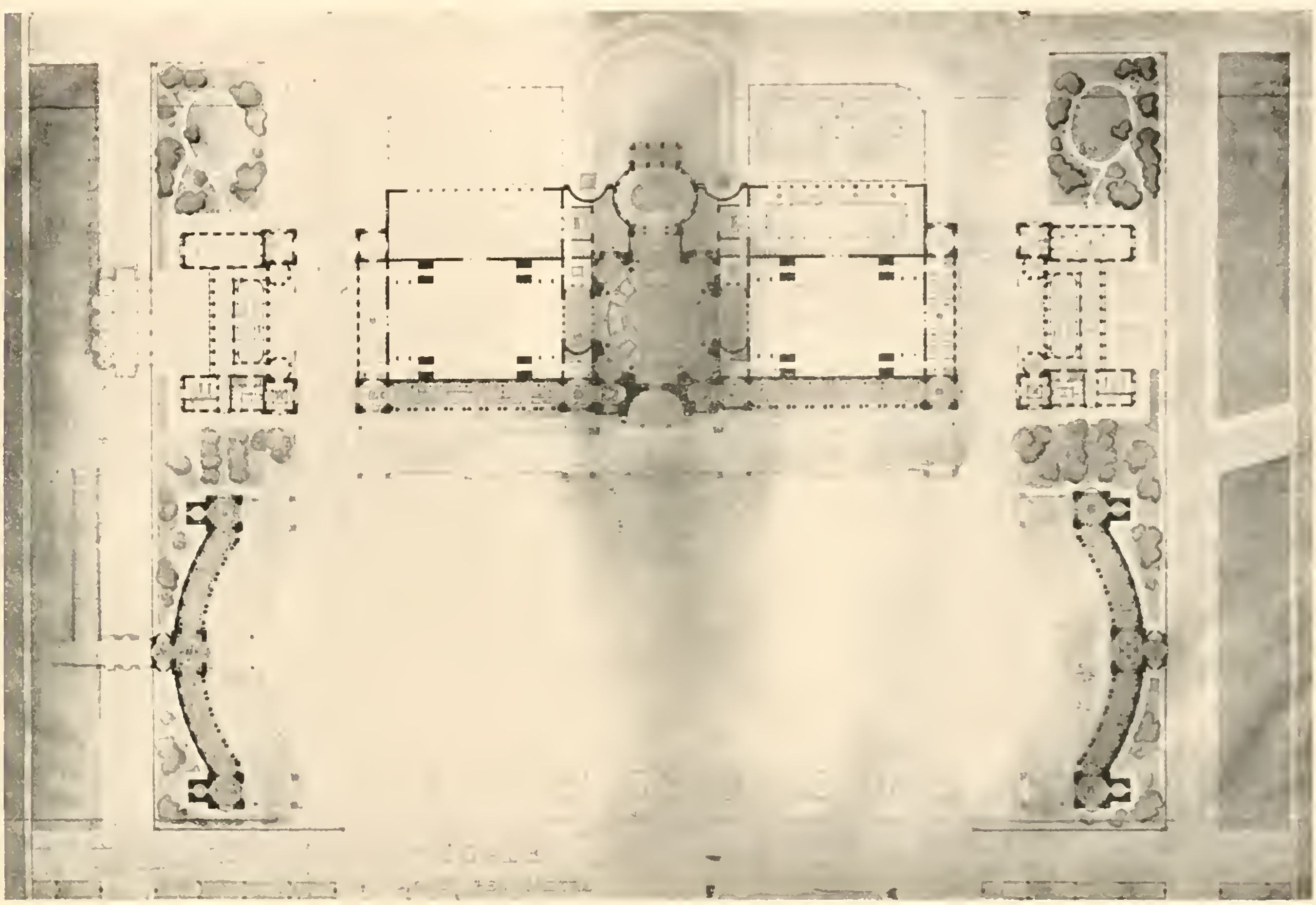
The first thing that an architect notices about this plan of grouped buildings is what appears to be a lack of homogeneous character, especially in contrast to the more integral conceptions of some of the other competitors, notably those of Messrs. Howard Stokes & Hornbostle and Messrs. Despradelle & Codman. These latter conceptions aim at a single grand effect of architectural elements grouped symmetrically upon a single axis and growing in interest from the lower portions along an area of gardens and terraces and the social and minor necessities of a university up to higher regions on the ledges of the hills where the full architectural glory of the main buildings burst on the view in one immense stretch of monumental structures dominated in the center by a vast Auditorium or Library. There is much to excite the imagination in such a treatment. One feels an element of the sublime in the mere attempt to accomplish such a grand effect. Moreover, the close analogy that these arrangements afford to the hightest type of organic unity, namely the human body with the arms out stretched, is not a fact to be ignored. It shows an effort towards an ideal expression of perfect form in thorough accord with what we know of the laws of beauty.

Both of these designs show symmetry to right and left of of a median line and variety from bottom to top. And just as in the human body—the head is the dominating member, so again in these conceptions furnished us from New York and Boston, the Central uppermost building whether Auditorum or Library, is the crowning glory of the entire scheme.

The man from Paris on the other hand has not striven to realize any such sublime dream of a grand architectural unit. No doubt his vast experience has shown him that such an effort is impossible of satisfactory realization. And the more one thinks of it and studies the problem the more one is apt to agree with Mons. Benard. And he is not the only architect who entered this competition who came to the same conclusion. Undoubtedly the number of buildings required and the topography of the University Site render it necessary to conceive the whole design as a compound composition of three integral parts. One division which should dominate the entire scheme from the hillside and do duty for long distance aspect. While the remaining two divisions should sit lower on the land and connect more or less easily with one another at the intersection of their common avenues.

Precisely in this way has Mons. Benard conceived his plan. He has realized that the human eye cannot take in more than a limited area, if that area is to be bounded by architectural monuments dedicated to the practical purposes of a University.

The entire scheme then is arranged in three groups. A Major Group and a Minor Group arranged in more or less free bilateral symmetry about two axes running parallel from north to south (that is from left to right) and passing respectively through the Campus and the Fine Art Square. The third or Auxiliary Group is also arranged in more or less free bilateral symmetry about the axis marked E D running obliquely and nearly at right angles to the Major and Minor axes before mentioned.



Plan of Gymnasium, Tribunes and Campus.

Each of these three axes exhibits balance and equality on either side and variety or inequality from top to bottom following the correct general law of all highly developed organic forms. So that while there exists likeness from side to side of each main axis there obtains antithesis from end to end.

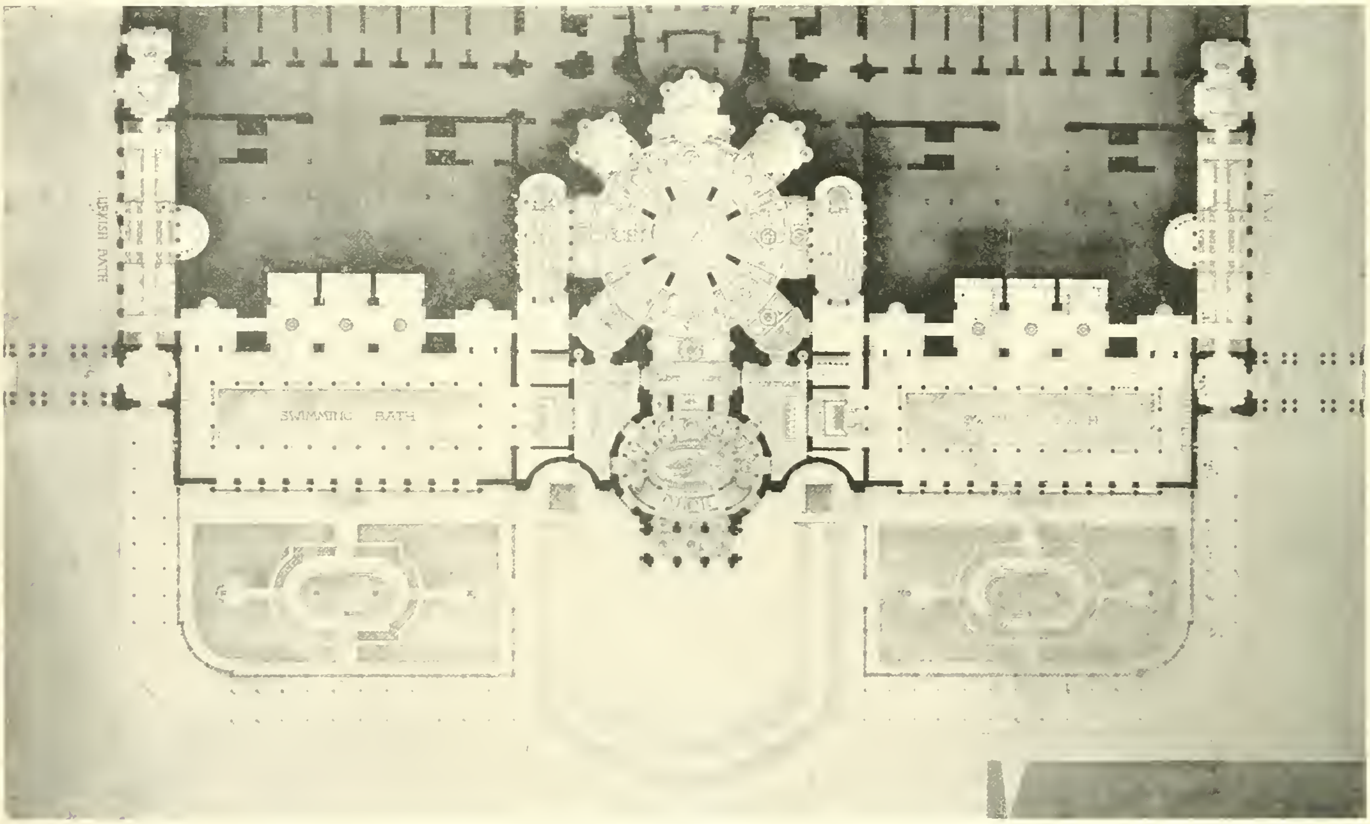
Bearing these facts in mind let us analyse the three groups one by one, noting how they exhibit this likeness from side to side of their axes and this variety and antithesis from end to end, and also how each group consists of a series of regular solids arranged about a series of regular voids, and how nicely the solids are proportioned to the voids; and how all the Groups, especially the Major and Minor, have their various portions divided off and yet in a sense bound together by avenues of communication which are in no sense to be identified with what is strictly speaking an architectural axis.

The Major Group then lies on each side of the line M N. Its dominant mass is the largest single block of buildings in the entire University. It comprises the most extensively patronized and the most important branches of the curriculum, viz., the Literary and Historical Branches. A glance at the section will show how this solid spread of sober buildings is relieved by the great central tower rising from its rear, whose lines are repeated in the obelisk in front. Opposite this, the largest block of buildings, is the largest open space in the entire scheme, half of which is wooded and half of which is plain. And at the foot of the axis and at a much lower level, in splendid opposition stands the sumptuous gymnasium with its flanking Tribunes. Observe the antithesis of purpose as well as the contrast of form. On the one hand the quiet cloistral lecture rooms enveloped in a rigid architecture of level line, though set on high ground, and crowned by a soaring tower. On the other hand the animated Gymnasiums and Swimming Baths echoing the exuberance of a full pulse, the yelling in the Campus, and the gay throng at the games. And all this encompassed by an architecture of curved colonnades and vaulted halls, of arched pavilions and spreading domes. Yet with all its sumptuous statuary and aspiring towers the entire group sits on a lower level and in no sense vies with the superior altitude of the colleges opposite. Thus to the antithesis of purpose is added the contrast of form; studious quiet and rectangular outlines being the foil to offset boisterous athletics "mid a whirl of curves."

Midway between these extremes on either side in perfect symmetry arise the massive though elegantly designed Habitation buildings, adapted respectively for male and female students. The trees encompassing these buildings on all sides gives them a restful, healthful aspect well suited to their purpose. Here then in brief, grouped around this great rectangular space which is about 1250 feet long and 650 feet wide, is the nucleus of the University with provision for for all three phases of its existence. The Mental at the upper end, the Physical at the lower end, and the Social dividing the sexes on either side, the one in every sense the equal of the other.

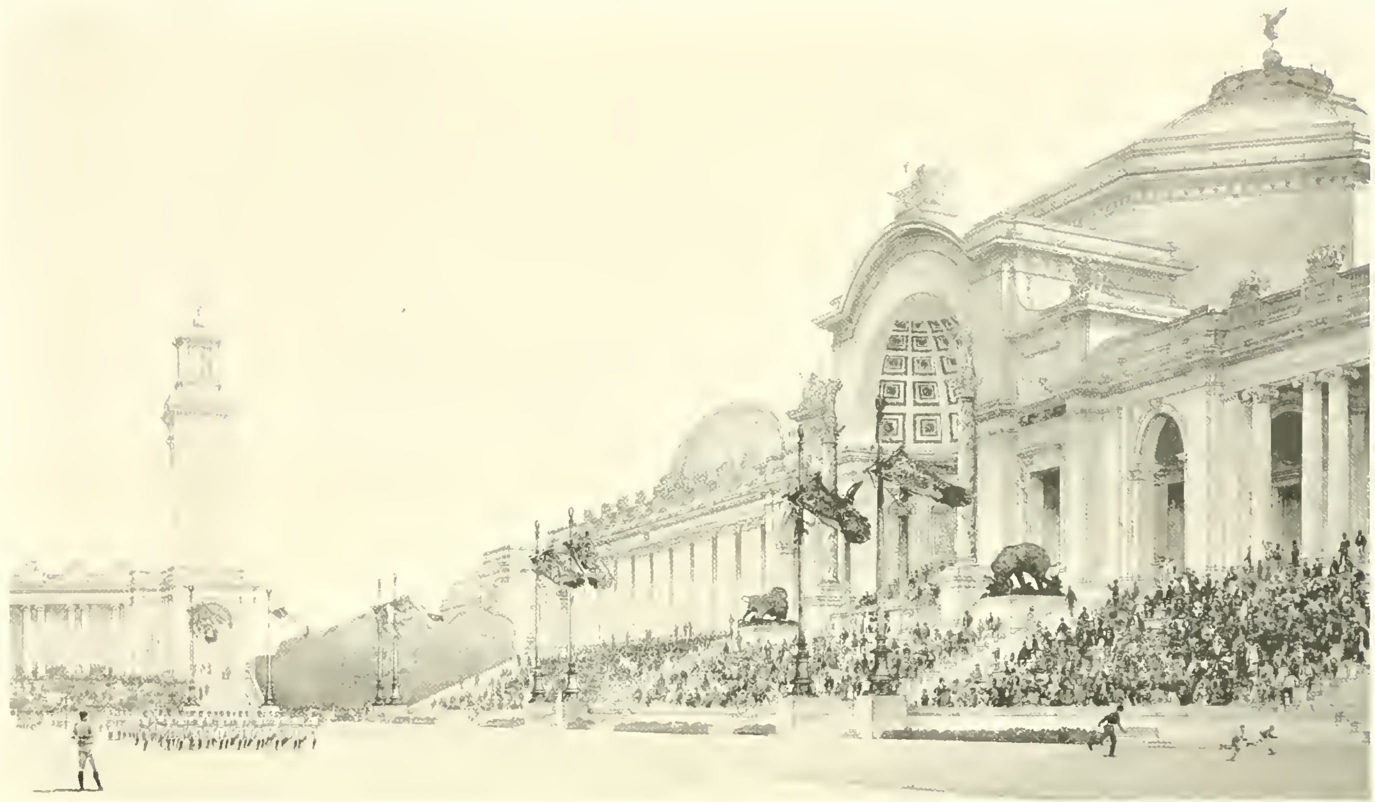
This dual character is carried through the entire gymnasium group also, so that below the obelisk one side of the central axis is devoted to the uses of male students and the other side to the use of female students—habitations, gymnasia and swimming baths included—all of which is a point of some significance at this the dawn of a new century.

Extending beyond on either side and at back of this Nucleus of four great structures are nine other blocks of buildings, one on the center line and four on each flank. To make it clear they are expressed by the letters B which arranged around the letters K form the original nucleus.



Detail Plan of Grand Central Hall and Swimming Baths.

			Washington Avenue		
		BBB	BBB	BB	
	BBB	BBB	BBB	BB	
			Chicago Street		
		KKK	KKK	KKK	
	B	KKK		K	
M	B	KKK		K	N
	B	KKK		K	
		KKK	KKK	KKK	
			New York Street		
	BB	BBB	BBB	BB	
		BBB	BBB	BB	
			Franklin Avenue		



General Perspective View of Tribunes and Gymnasium—The Phebe Hearst Architectural Plan of University of California—First Prize Design Mons. E. Benard.

CALIFORNIA ARCHITECT AND BUILDING NEWS.
SAN FRANCISCO.

VOL. XX. No. 9. SEPTEMBER, 1899

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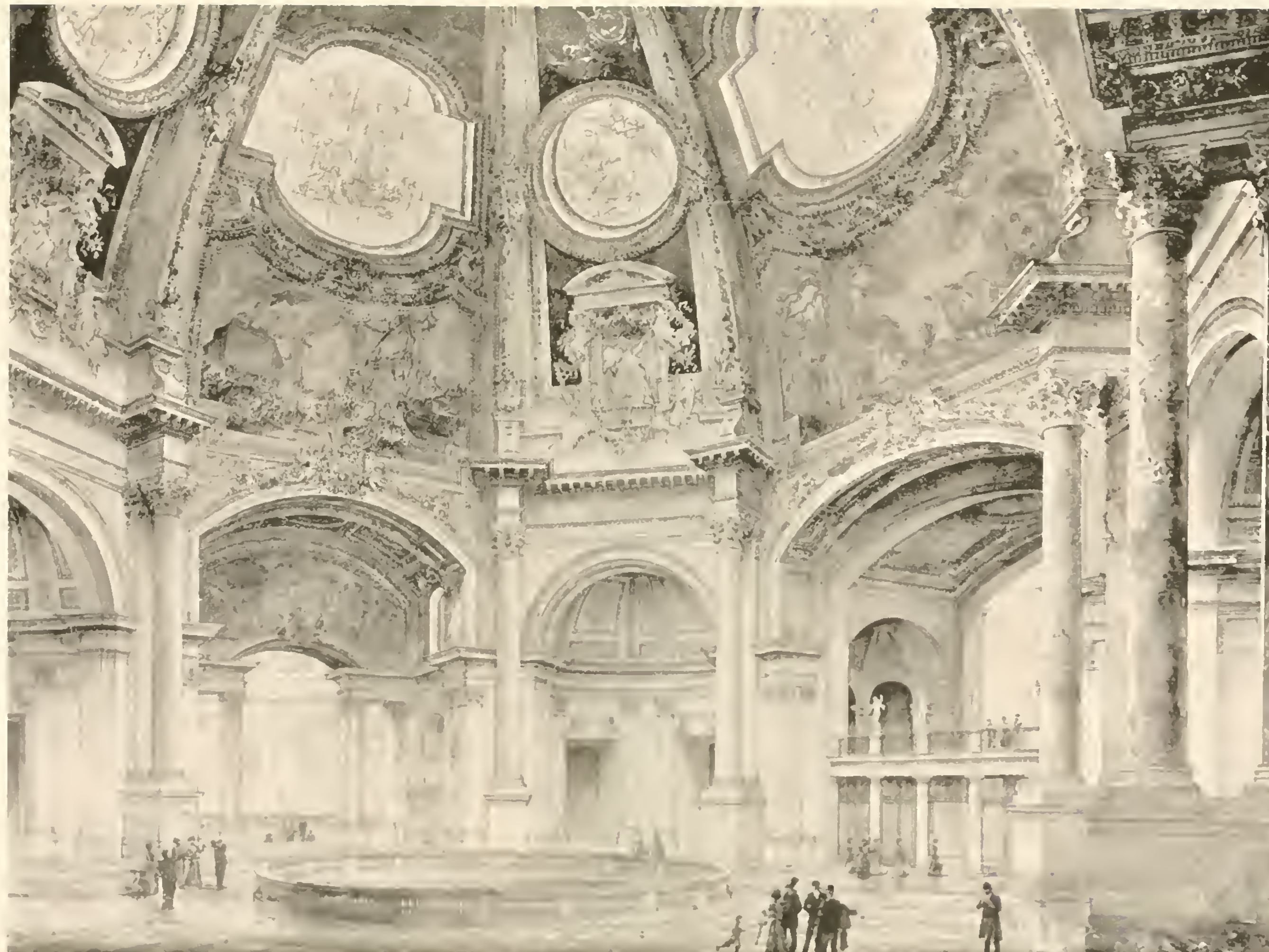
The Phebe Hearst Architectural Plan of University of California.

First Prize Design Mons. E. Benard

General Plan and Section.



Interior Perspective of Grand Reception Hall—The Phebe Hearst Architectural Plan of University of California First Prize Design—Mons. E. Benard.

The buildings marked B while they belong to the Major Group, are by reason of their outlying character and wide dispersion not strictly amenable to the laws of symmetry either in the matter of equality from side to side of the axis M. N. or in diversity from end to end. In no way very emphatic, other than on the plan, can their balancing parts be seen at once by the eye. Moreover, it must be remembered that the foundations of the buildings bounded by Washington Avenue are above the roofs of those bounded by Franklin Avenue.

The purposes to which these buildings are devoted can be seen by a glance at the Key Plan. It shows them grouped about the Central Nucleus in this order:

	Physics	Mechanics	Chemistry	Military
M	Agriculture			N
	Civil Eng	Library	Administration	Mining

The Administration Building and Library occupy positions well in the center of the entire scheme, while the Mining Building, the first to be built, lies on an unobstructed and central site on the West line of Telegraph Avenue extending West about 350 feet, its South walls being on a line with Allston Way. The center of the building will therefore just about touch the entrance to the present Gymnasium.

The various departments comprised in the outer ring of the Major Group are admirably placed with regard to their size and purpose with the additional advantage that if advisable they can be redisposed and altered without at all disturbing the general equipoise of the scheme.

This is a very decided advantage of the block system adopted by Mons. Benard. It is so eminently practical. The College of Chemistry for instance might perhaps with some small advantage be transposed with the College of Mechanical Engineering so as to be brought in to closer and more logical relation with the Colleges of Physics and Agriculture.

Such a transposition *might*, on utilitarian grounds, commend itself to the faculty; it could never be objected to by the architect on esthetic ones. And that is the point that this suggestion is meant to establish.

An analysis of the Minor Group whose axis also runs from North to South (that is parallel with the axis M. N. of the Major Group described above), reveals the same happy principles of constructive art in a more compact and even more beautiful form. Indeed there are so many evidences of thought and masterful composition, about Mons. Benard's Plan that in the limits of so short an article it is only possible to lightly touch on the more important ones.

The central dominating building at the head of this group then, is the Museum, unquestionably the most beautiful building in the entire scheme. It is planned on a scale, that is generous to the point of lavishness, while its exterior proportions are very simple and very beautiful. Since this building is to be open to the people one façade faces directly on the public high way. The other looks in onto Fine Arts Square. This open space which is admirably proportioned measures about 600 feet each way and is flanked on either side by buildings dedicated to Art and Music, and also the two Auditoriums. At the foot of the Group is a monumental arch and beyond it is a balustrade with grand flights of steps and curved terraces abruptly terminating the plateau on which these buildings repose. In this way Fine Arts Square overlooks, at an altitude of thirty feet or more the entire South West corner of the grounds as it exists to-day with its shady nooks and winding paths, its gnarled old oaks, and towering eucalypti.

Elevation of the Gymnasium, etc., from the Campus

Here the law enunciated further back is still more strikingly exemplified though in an entirely different way. There is symmetry from side to side, and variety from end to end; and finally extreme antithesis from the domain of *Art* on the upper level to that of *Nature* on the lower. Were this portion of the University alone to be carried out according to the spirit of Mons. Benard's masterful design, California would even then possess a group of buildings hardly surpassed by another such any where in the world.

To return to our analysis of the Minor Group, it will be noticed that the Colleges of Mathematics and Draughting which are united under one roof, belong strictly speaking, to neither group. One of its façades is opposite the College of Civil Engineering which it matches architecturally, while another façade faces the School of Fine Art, to which it is allied functionally.

In other words the transition from Fine Arts to Draughting and from Mathematics to Civil Engineering is as easy figuratively as it is literally. This triangular building therefore not only fills out a corner of the boundary but acts as a connecting link between each of the two main Groups not only in the form of the building's corner turret (an echo from the one opposite) but by its being allied in purpose with both buildings which it so happily confronts.

Considering the Major and Minor Groups as a whole, it will be seen that they are also more effectually united by a broad open avenue passing entirely athwart them. To demonstrate however how clearly distinct in the architect's mind the Major and the Minor Groups really are it is instructive to note his treatment of University Avenue. From Washington to Franklin Avenue, i. e., across the Larger Group, it is treated in a larger way, made distinctly broader, and to further identify it with this group about the axis M. N. there are groves of trees extending from one side to the other but no further. In crossing the lesser or Art Group this Avenue is perceptibly narrower and without trees.

Moreover the laws of proportion prescribe, or better, one's sense of proportion insists, that the buildings in the Minor Group lie closer together than those in the Major Group. Hence the reason why University Avenue is so much narrower between the Fine Arts Building and the Auditorium than between the Library and the Administration. Moreover to still further emphasize the lateral extent of the Major Group on each side of its axis M. N. we have the evidence of Center Avenue with its series of overflow pools of water collected in an artificial pond from the creek in the hills above and emptying into a similar pond below, whose plan is inverted. This plainly indicates that one idea is included between these two ponds as we include a sentence within brackets thus (   ).

Finally, as it were to clinch the matter, not only are the buildings massed in symmetry on either side of the line M. N. but the streets are designed to balance one another not only in their equidistance from the center but in their width and character and even their names, thus New York and Chicago Streets enclose the inner nucleus of the Major Group just as the avenues named after Washington and Franklin define its outer boundaries.

All this is very logical and very clear : and while so far we have only considered the massing and general principles underlying the two main groups, the same logic and clearness characterises the various parts of each building down to the smallest detail. It is this combination that so distinguishes the French school above all others and enables its disciples to attack hugh problems of this nature with so much more success than their less trained competitors.

Coming to the last or Auxiliary Group of Building situated on the steep hillside and whose axis lies obliquely along the line, D. E. we observe the same general law govering its composition. The whole group is characterized by an irregularity and picturesqueness due to its position in striking contrast to the simplicity and repose of the Minor Group. High aspiring Science is here contrasted with the quiet symmetry of Fine Arts below. The dominant building is the large tripledomed Museum of the department covering the exhibits peculiar to the study of Zoology, Comparative Anatomy and Palaeontology, respectively. Below this is a trapezoid shaped garden flanked by the Botanical and Mineralogical annexes, and terminated still lower by the College Building proper devoted to these allied Sciences. Back of the Museum on the highest point of all sits the Astronomical Observatory and its adjacent residences for "three astronomers and their families." Continuing to descend along the axis are various ramps and flights of steps, terraces "lifts;" and ultimately two Habitation Buildings on the lowermost plateau of the group. While this group is well conceived, it is doubtful whether it will be expedient to establish colleges so high up on the hillside. The impression prevails that a consensus of opinion will induce Mons. Benard on his arrival from Paris to set about rearranging his admirable plan in such a way as to include the department of Natural History in the Major Group of Buildings below. Were the College boundary extended on the North a little beyond the brook, and the College of Agriculture with its fields removed to the region of the Infirmary, two whole blocks of land would be available on the axis M. N. for the group now shown on the hillside.

Mons. Benard has shown such mastery in marshalling his forces so far, that not the remotest difficulty attaches to his remodelling the scheme to any extent conformable with the practical requirements of the University authorities and the sanction of his own artistic conscience.

So far nothing has been said of the buildings in detail. The more their planning is studied, the more admirable it seems. Words cannot do justice to the extraordinary nicety

Section through the Campus and Gymnasium

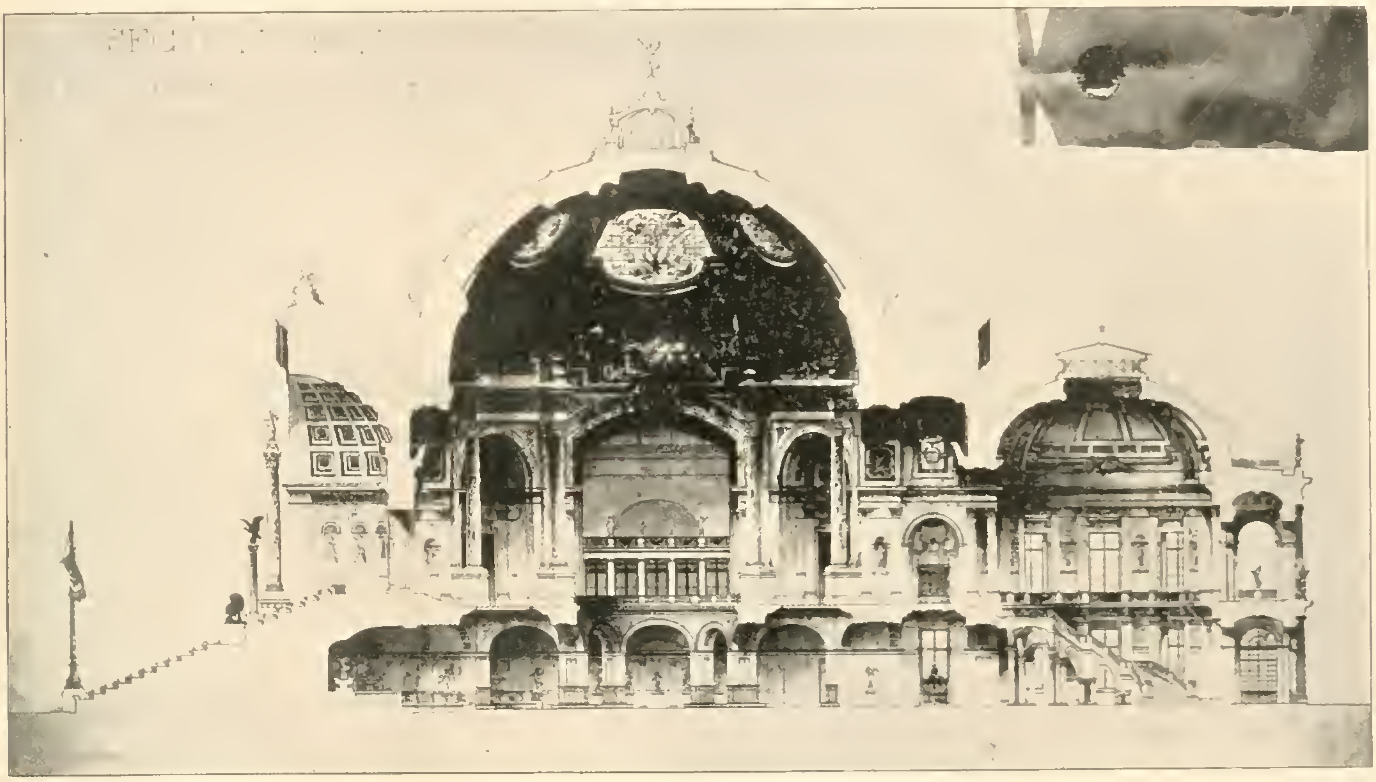
with which the requirements of each department are provided for; how Lecture Hall, Corridor, Quad and Class-room are harmoniously and straightforwardly disposed; how the relative value of Pavilion, Dome or Turret is indicated in rhythmical figures of black and white, which alone are delightful to look at so varied are their proportions, so clear the tale they tell. Indeed so logical and excellent is the *point de pochet* throughout, that the buildings do not need to be named. As one knows the programme intimately, so one can see the purpose of the plan at a glance, just as an accomplished musician can, by looking at the score of a symphony, and without sounding a note, hear in his mind the whole composition.

For example, let us briefly examine the principle College building, the Literary Group, etc. Instantly we see the tower the tallest structure of the entire University calling attention to its centre of activity so to speak. Just as easily do we recognize the three large lecture rooms. One on the north serves the History and Political Science Division. The three class rooms to seat two hundred each in this division can be just as easily located, as also can the galleries for maps and charts, and the tables at which students can sit and spread the same.

In the center, besides the lecture room for five hundred students, are five well defined quads. It needs little guessing to recognize here the five divisions "of about equal dimensions" reserved for the English, Classic, Frankish, Teutonic and Semitic languages. Here too, as plain as day, are the three class rooms for two hundred students each, while the fifty smaller rooms additional are of course arranged in between and in the stories above.

The Department of Philosophy and Pedagogy has its large lecture room for five hundred, and also its psychological laboratory disconnected with any building, and "four small isolated rooms for delicate experiments." There they are at a glance. The Jurisprudence Branch is a small one. The one lecture room for two hundred looks onto an open court crossed by an arcade at the main entrance which faces the Library and has a good foreground of garden and evergreens. Distinctly dignified is the College of Jurisprudence, small though its requirements be. It will be noticed that each department is punctuated on the plan with a solid dot, which of course stands for some pedestal surmounted with suitable statuary. Every other building is just as clearly planned as the preceding, while accessories, ornaments, gardens and trees are arranged so as to help in the expression of the whole idea.

Indeed *clearness* seems a peculiarly French virtue. Whoever has read French criticism or philosophy has delighted in the absolute clarity of language and thought that so distinguishes it from the German variety for instance. Not that clearness is the only virtue, but it is a great one, and perhaps in architectural delineation the greatest. Architecture deals with facts — facts of thought, if not facts already clothed in material vestiture.



Section through the Grand Central Hall of the Gymnasium.

Here again Mons. Benard's designs have transcendent merit. They represent his conception with the utmost directness in a clean, clear, forcible language of lines and washes, that had not a rival among the other ten competitors. Indeed the writer has never before seen such a simple, incisive set of drawings, that so adequately presenting so vast and complicated a theme.

All those who saw the general perspective view were charmed by its simplicity, to cite one drawing alone. Nowhere is there an unnecessary line, much less an unnecessary fact. A light wash of umber to shade the building; one shade of green on the trees; neutral tint on the adjacent blocks of property; a spot of blue on the ponds, and a wash of the same to indicate the sky line—and that is all! The half-tone illustration gives some idea of the result achieved.

The plan also was handled with the utmost delicacy, without straining after any effect, other than to tell its tale in a clear simple manner. It would be considered a flawless model of draughtmanship any where, even in the Rue Bonaparte.

In conclusion there can be no doubt that Mons. Benard's scheme is the best offered. It is Monumental, Logical and Practical. What is even more, it is *pliant*, and this quality more than all guarantees its Realization.

B. J. S CAHILL.

Detail of a Balcony over Entrance to Habitation Building

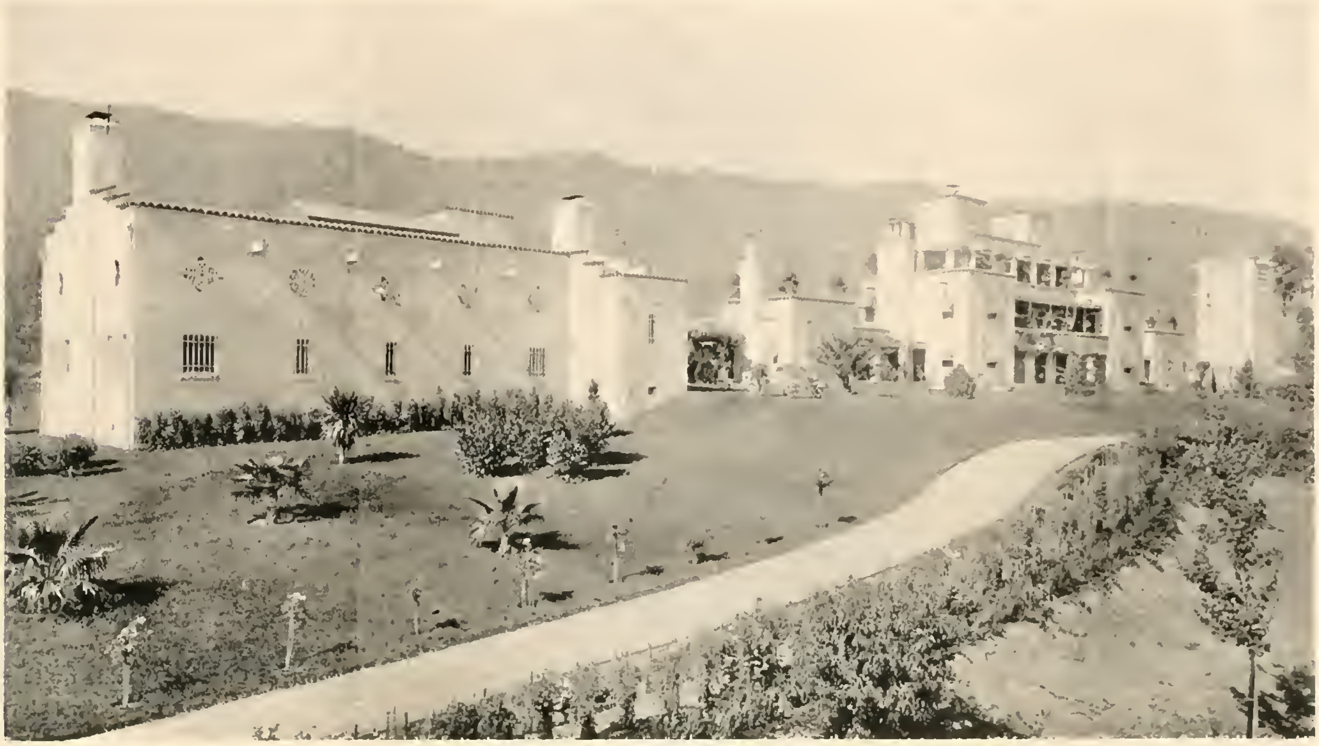
THE LUNCHEON AT THE CLIFF HOUSE.

THE RECENT VISIT of the renowned European and Eastern Architects to San Francisco was one of the most notable events in the history of the profession in this City. Many and varied were the entertainments provided for them by our representative citizens. Outside of their prolonged sessions at the Ferry Building where the Phebe Hearst Plans were exhibited for their verdict their visit to California was one long fete from their journey across the continent in a special observation car to their last farewell at the Oakland mole.

San Francisco is notoriously cosmopolitan. Her architects are of varied nationality, varied tongue and varied training. We have men from the *Beaux Arts* from the Royal Polytechnicum from the Boston Institute and from South Kensington. Our architects in the aggregate have travelled perhaps more than the average architects of any other city on earth. They are broad minded men of the world as a body, and singularly free from provincialism.

Nothing could better prove this than the way in which local practitioners accepted the international conditions of the Phebe Hearst Competition. In a country where the doctrine of Protection is a trumphant policy and in a city removed at an enormous distance from the existing centers of art and civilization it is no small matter of credit that a great architectural competition has deen inaugurated and carried to a most successful issue on a basis so radically international that one might well infer from its conditions that we already lived in the Millennium: that all the world was one happy community, with one flag and one tongue: no arsenals and no custom house—that narrowness and selfishness were obsolete words, and that the sole object of existence was to get hold of the *best* things on earth—no matter whence.

When it was proposed that foreign architects should be invited without limit—and that *foreign judges* should decide upon their merits the World looked incredulous. Such a thing was unheard of and inconceivable in Paris and Berlin; almost inconceivable in London and New York. Consequently London, Paris, Berlin and New York shook their heads. Now that the award has been made—and that to a foreign architect by a majority of foreign jurors—and that no demur has been made by an American, least of all by a Californian architect—the World of Art is slowly waking up to the fact that a very big thing has been done here on the edge of the Pacific, one of the biggest on record. So big indeed that it is hard to realize its full import. Posterity will put its signature to this affirmation and History will endorse it.



Hacienda del Poso de Verona. Residence of Mrs Hearst.

Since this Competition was conceived in such a large spirit it goes without saying that when the judges arrived here they were greeted in a whole souled cordial way by our citizens at large and especially so by our architects.

Some slight expression of their good will took the agreeable form of a drive out to the Cliff House and a luncheon tendered the distinguished visitors by the San Francisco Chapter of the American Institute of Architects.

The honored guests invited were of course primarily the five jurors—J. L. Pascal of Paris; Paul Wallot of Dresden; John Belcher of London (who came as a *locum tenens* for Norman Shaw) Walter Cook of New York and J. B. Reinstein of San Francisco. In addition to these four famous architects and the Regent of the University of California; invitations were also sent to J. M. Carrere, Esq., the well known New York architect; B. R. Maybeck, Esq., Professor of Architecture at the University; Max Junghaendel, Esq., the writer and critic; A. B Spreckels, Esq., J. C. Hooe, Esq., P. B. Tuzo, Esq., John McLaren, the Superintendent of Golden Gate Park and Mrs. Phebe Hearst. Mrs. Hearst was unable to attend as also were Messrs. Reinstein, Spreckels, Junghaendel, Hooe and Tuzo.

The hosts of the occasion were the following local architects: members of the San Francisco Chapter of the American Institute of Architects: Seth Babson, B. J. S. Cahill, John M. Curtis, Robert H. Daley, B. F. Henriksen, E. Kollofrath, E. A. Mathews, Chas. C. McDougall, G. W. Percy, Albert Pissis, M. J. Reid, J. W. Reid, H. A. Schulze, T. J. Welsh, G. A. Wright and Herman Barth.

Among the non-members were:—Clinton Day, E. Depierre, U. B. Faville, E. L. Holmes, H. B. Maggs, B. J. McDougall, S. Newsom, P. Righetti, E. R. Swain, N. J. Tharp, F. S. Van Trees.

On the morning of Tuesday, September 12, the above named gentlemen assembled in the Palace Hotel rotunda where commodious wagonnettes were in attendance for the long drive to the Cliff. And indeed it was an enjoyable ride including by a wide detour the Presidio, the shores of the Golden Gate, the French Hospital and the Park. The keen air of Strawberry Hill put an edge on appetites already well sharpened by an unusually long morning — for it was not until past two that the company had found their places round the well spread and beautifully decorated table of the Cliff House dining room. It was not long before the attention of those present was diverted from the welcome task of discussing

Carriage Entrance and Patio.

a well served luncheon to matters of a more elevated nature. Mr. Seth Babson, the president of the Local Chapter of Architects, had arisen to his feet to make an informal address of welcome to the guests of the day. He said that speaking for the architects of California he realized what an undertaking these European jurors had embarked on, how at no doubt much inconvenience to themselves, they had crossed an ocean and a continent and broken away from their professional and domestic ties in order to pass mature judgment on these architectural plans so magnificently provided for by the generousity of Mrs. Hearst. In so doing he considered that they had conferred a great honor on the State of which California was both proud and grateful. President Babson alluded to the vast number of students who went to all parts of Europe for scientific and artistic training. That the masters of science and art of Europe should be brought over here to decide a momentous question of a scientific and artistic nature, was natural and satisfactory, and decidedly a matter for congratulation. After some more appropriate remarks of a like character the speech making began in good earnest, and was continued with very happy results to the conviviality and good feeling of all those present. Mons. Pascal being called upon, read in excellent English a little address which he had prepared for the occasion and in which he felicitated California in her fortunate possession of so enterprising a patroness of art as Mrs. Hearst, and that this glorious State was to have at some future date a University designed on such splendid lines as those so skilfully delineated by Mons. Benard. Mr. M. J. Reid proposed the health of Mons. Benard. Every one present rose, Mr. Maggs led the chorus, and the roof was lifted with the rousing old refrain.

"For he's a jolly good fellow."

If champagne and shouting can ever attest enthusiam there was no lack of it manifested in the good will shown towards this studious veteran of the T square: architect, artist, sculptor, scholar and enthusiast, away their in Paris who had, after a life time of successful campaigns in the field of Art, carried off one more of its grandest trophies. Mons. Bernard should have been there to see and hear.

Dr. Wallott, the eminent architect of the German House of Parliament in Berlin made a very humorous speech, if we are to judge by the laughter his remarks evoked. He spoke in German, and the many architects who listened with delight to his happy periods aver that his was the speech of the day. Equally felicitous were the remarks of Mr. Belcher whose neat address brought down the house. Mr. Cook of New York, took for his text the American Institute and preached a little homily on the duty of supporting that institution which went home to every architect present. Some frank and very just conclusions drawn by Mr. Carrere as to the beneficial effect of this great Concours on the architecture of the West, were followed by perhaps the most fruitful reflections that the occasion called forth. Mr. Schultze gave expressions to a general feeling when he said that not the least of the benefits of this great competition was this very occasion when the architects of San Francisco were brought socially together and introduced to one another. Such gatherings he thought should be encouraged and repeated and much good would come from them to individual architects and the profession at large.

Mr. Welsh waxed eloquent on the Berkeley theme and Mr. Percy wanted to know if just such another project had ever before been conceived, and if there was any on record now that would rival the University *ensemble* when carried out according to Mon. Benard's plans.

Mr. Pissis proposed the health of Mrs. Hearst and Mr. Maybeck spoke in response. After some remarks from Mr. Clinton Day, Mr. Daley, Mr. Henriksen and Superintendent McLaren, the party broke up and returned in their carriages to the City after one of the pleasantest days in the social annuals of the local Chapter.

HACIENDA DEL POSO DE VERONA.

UNDER the above romantic designation Mrs. Phebe Hearst's country residence rests peacefully amid the sunny hills of Pleasanton, California.

Nothing could better attest Mrs. Hearst's interest in architecture and her loyalty to California than the painstaking care with which she has caused to be planned and built this most interesting expression of one of the phases of architectural aspiration peculiar to this Coast. The early conversion of California to Christianty and civilization effected by Junipero Serra and his faithful padres has given California a background of romance and history denied to many of the States of this Republic. The sunny climate and the sub-tropical vgetation also have united to give a definite turn to our architecture along the lines of Spanish Renaissance. The word is hardly comprehensive enough to cover a style that is so elastic. From the massive Mission style, including a dash of the Indian and Aztec spirit, it is a long way to the full glory of the old architecture of Spain, the florid Gothic of Santiago di Compostello and the oriental splendor of Cordova. It is quite conceivable that if our architects made a study of Spain's glorious architectural past, a vital, adaptable style of extraordinary beauty could be evolved, capable of meeting the requirements of every conceivable building from a steel sky-scraper to a country railway station.

Mrs. Hearst's house was designed by Mr. Schweinfurth, one of the most talented architects of the United States. He stands to this style somewhat as Norman Shaw does to Queen Anne. The one using a creamy colored stucco where the other employs a deep rose brick work. The one style in clear California light being as happy as the other is in the thick grey atmosphere of London.

THE NEXT number of the CALIFORNIA ARCHITECT AND BUILDING NEWS will contain an exhaustive article of extraordinary interest, not only to the architects of this city, but to every one who has the interests of San Francisco at heart and wish it to assume as soon as possible the Metropolitan character which is undoubtedly its right by reason of its commerce, its climate, its situation and its glorious destiny as the Empire City of the Pacific.

Mayor Phelan and many prominent citizens of artistic insight have taken much interest in this scheme recently given to the public through the columns of the *Examiner*.

Our forthcoming issue will amply illustrate the scheme described in detail by the architect who conceived it, viz., Mr. B. J. S. Cahill. The article is entitled "A Plan to Beautify Market Street—To Open up The City Hall—To Open up the Post Office—To Provide a New Public Library—To Provide Monument Sites, Parks and Trees for the Adornment of the City AT NO COST TO THE CITY."

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BUILDING NEWS.

Grove near 1st. To build; o, Standard Electric Co; a, Walter J. Mathews; c, J. C. Caldwell; cost $2544.

Bonita Ave. near Oakland Ave. To build; o, Lucile E. Brady; a, E. A. Mathews; c, A. S. Ruch; cost $4580

EAST OAKLAND.

Lake near Jackson. Alterations and additions; o, Geo. H. Wheaton; a, W. J. Matthews; c, C. A. Littlefield; cost $1620.

Peralto Ave. near Watson. Cottage; o, Olaf J. Hansen; c, Anderson & Stockholm; cost $1772.

SAUSALITO

Two-story rame. Owner, Arthur H. Mays; a, W. E Milwain; c, Frank Lindsay; cost $3600.

Two-story frame. Owner C. E. Cooper; a, O. Everett; c, Frank A. Blanchard; cost $2220.

VALLEJO

Marin and Main. To build; o, Mr. J. Brownley; a, A. W. Smith; c, B. C. Allyn; cost $1000.

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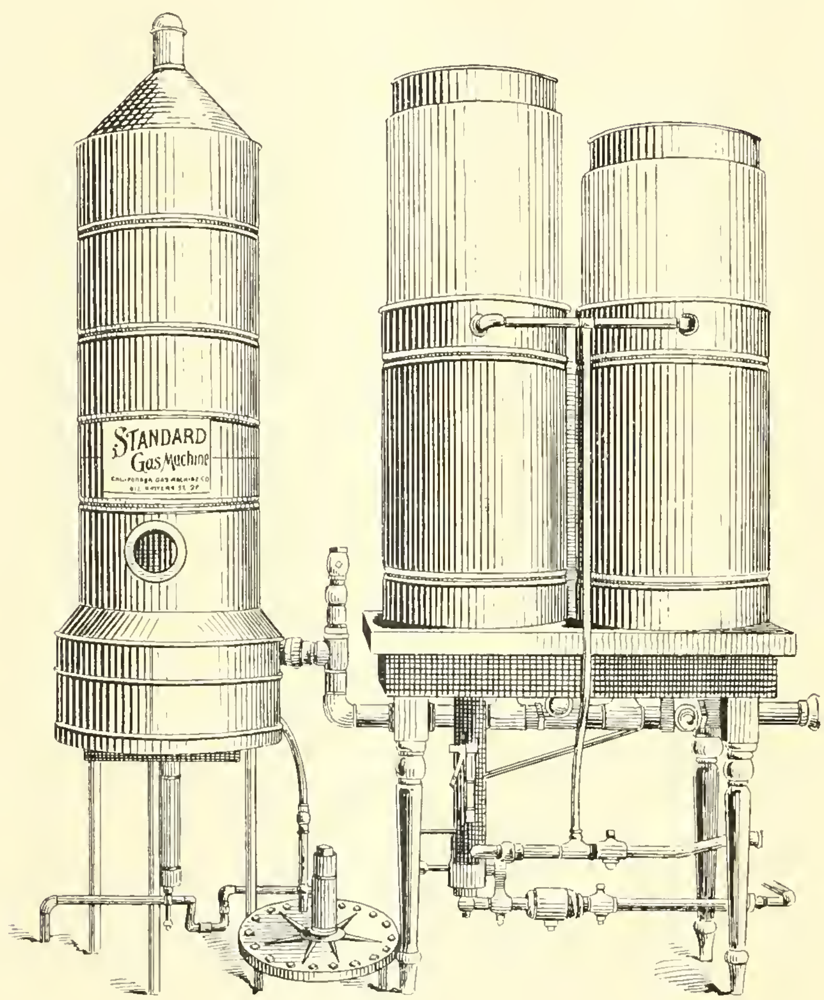

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JANUARY 1900.

VOLUME XXI. No. 1.

THE CALIFORNIA ARCHITECT AND BUILDING NEWS

THE PHEBE HEARST ARCHITECTURAL COMPETITION

OFFICE 408 CALIFORNIA ST.

$3.00 PER YEAR

PRICE 50 CENTS

DESIGN BY H. R. HOPPS

BUILDING NEWS.

Brannan and 6th. Excavations, etc; o, Adam Andrew; a, Havens & Toepke; c, Thomas L. Wand; signed, Jan. 17; filed, Jan. 23; cost $1770. All work except plumbin ; c, John T. Long; cost $10678. Plumbing, etc; c, Gulick & Wetherbee; cost $1662.

Broadway near Buchanan. Concrete work, etc; o, J. L. Flood; a, J. E. Krafft; signed, Jan. 11; filed, Jan. 13; cost $12,595.

California and Mason. Painting, etc; o, San Francisco Art Association; a, Edward R. Swain; c, John H. Keefe; signed, Jan. 17; filed, Jan. 24; cost $3025.

Clay near Locust. To build; o, Samuel J. Hendy; a, E. A. Mathews; c, J. C. Caldwell; signed, Dec. 27; filed, Jan. 12; cost $7783.

Commercial near Dupond. Alterations to four-story brick; o, Chun Sie Chow and Chang Hun; a, C. Z. Soule; c, M. V. Brady; signed, Jan. 12; filed, Jan. 13; cost $1576.

Dolores near 22d. To build; o, Fred T. Roberts; c, J. A. McCullough; signed, Jan 20; filed, Jan. 22; cost $3984.

Ellis near Mason. Plumbing work, etc; o, Jacob Frowenfeld; a, Salfield & Kohlberg; c, Ickelheimer Bros; signed, Jan. 2; filed, Jan. 9 cost $4369. Plastering; c, Martin Carrick; cost $1300. Carpentry, etc; c, C. Schultz; cost $5837.

Elgin Park near Hermann. Carpentry, etc; o, C. Johnson; c, W. W. Rednall; signed and filed, Jan. 24; cost $2165.

Falcon Ave. and Moss Ave. o, M. N. Callender; c, H. A. Tett signed, Jan. 2; filed, Jan. 3, cost $1030.

Front near Pacific. Five-story brick; o, Estate of James G. Fair; a, Edward Owen; c, E. Coleman; signed, Jan. 8; filed, Jan. 11; cost $3100.

Fifth Ave. near California. Cottages; o, Jennie B. Greenwood; signed and filed, Jan. 30; cost $7712.

Geary near Grant Ave. Six-story brick; o, Frank H. Woods; a, Percy & Hamilton; c, McGalvray Stone Co; signed, Jan. 15; filed, Jan. 16; cost $4313. Cast iron etc; c, Vuncan Iron Works; cost $2950. Structural steel work; c, Judson Mnfg. Co; cost $3000. Carpentry etc; c, F. W. Kern; cost $13,940. Plumbing, etc; W. F. Wilson; cost $13,818. Plastering; c, C. Dunlop; cost $5460.

Golden Gate near Devisadero. To build; o, William Giselman; a, Copeland & Pierce; c, J. F. Logan; signed, Jan. 10; filed, Jan. 11; cost $4692.

Golden Gate near Jones. Steel beams, etc; o, M. Neumann; a, Martens & Coffey; c, Judson Mfg. Co; gned, Dec. 18; filed, Jan. 22; cost $7064.

Green near Buchanan. Excavation, etc; o, Morris Cornison; a, H. Geilfuss; signed, Jan, 19; filed, Jan. 20; sost $3 90.

BUILDING NEWS.

Green near Dupont. Carpentry, etc; o, Frank Dibelia and M. Gamber; a, H. D. Mitchell; c, D. P. Benson; signed and filed, Jan. 18; cost $1060.

Greenwich near Jones. To build; o, H. T. Greib; cost $5000.

Grove near Polk. Repairs; o, Western Amusement Co; carpentry; c, W. H. Johnson; painting; c, C. F. Hagman; cost $5000.

Guerrero and 16th. Lumber; o, H. C. Lunt; c, Fred Miller; signed, Jan. 19; filed, Jan. 20; cost $2134.

Harrison near 7th. Carpentry; o, Mrs. M. Robert; a, F. S. Holland; c, Ira W. Coburn; signed and filed, Dec. 20; cost $3070.

Hoffman Ave. and 23d. Cottage; o, Oscar Heyman; cost $1800.

Humboldt near Georgia. Concrete, etc; o, Independent Electric Light and Power Co; a, Reid Bros; c, G. Goodman; signed, Dec. 27; filed, Jan. 12; cost $1786.90. Brick work; c, J. McCarthy; cost $46,000.

Indiana near 25th. Cottage; o, Andrew Johnson; c, John Keneally; signed, Jan. 30; filed, Jan. 22; cost $1075.

Kearny and Washington. Doors; o, City of San Francisco; a, Shea & Shea; c, J. T. Long; signed and filed, Jan. 11; cost $6550.

Lake and 7th Ave. Laundry machinery; o, Marin Kip Orphanage; a, Percy & Hamilton; signed, Jan. 11; filed, Jan. 12; cost $1615.

L. and 15th Ave. To build; o, John O'Connor; c, Christ Schweitzer; cost $1500.

Market near 6th. Excavations, etc; o, Hale Bros; a Reid Bros; c, Gray Bros; signed, Jan. 2; filed, Jan. 4; cost $6685.

Market St. Nos. 818-820. Alterations; o, Will & Finck Co; a, Curlett & McCaw; c, Robinson & Gillespie cost $1347.

Mission near 18th. Painting, etc; o, Sarah B. Averill a, C. J. Colley; c, Edward Cox; signed, Jan, 12; filed, Jan. 13; cost $2700. Plumbing, etc; c, G. C. Sweeney; cost $1075.

Mission near 3d. Plumbing, etc; o, Edward McLaughlin; a, Chas. Geddes; c, Jas. Shepard; cost $3024.

Montgomery and Sutter. Alterations and additions; o, Estate of James G. Fair; a, Tharp & Holmes; c, Andrew Wilkie; signed, Dec. 26; filed, Dec. 28; cost $1880.

Ninteenth and K. Eight two-story frame dwellings; c, W. F. Grant; signed, Dec. 4; filed, Jan. 11; cost $2900.

Pacige Ave. near Octavia. Hardwood finish; o, Abe Stern; a, R. H. Hunt; c, C. Chisholm; signed, Jan 10; filed, Jan. 11; cost $1550.

BUILDING NEWS.

Post and Gardner. Plastering, etc; o, Crocker Estate Co; a, Tharp & Holmes; c, J. R. Tobin; signed, Nov. 28; filed, Dec. 30; cost $7470. Elevator work; c, Otis Elevator Co; cost $9250. Carpentry, etc; sup. Mahoney Bros; cost $150,000.

Post and Gardiner. Counters, etc; o, W. and J. Sloane & Co; a, Tharp & Holmes; c, J. Trounson; signed, Jan. 20; filed, Jan. 22; cost $2896.

Post near Jones. Concrete foundations, etc; o, A. Aronson; a, Hemenway & Miller; c, Gray Bros; signed, Dec. 26; filed, Dec. 28; cost $2200. Brick work; c, John W. Miller; cost $3650. Carpentry, etc; c, F. W. Kern; cost $10,975.

Presido. Stone wall; o, U. S. of America; c, R. C. Mattingly; cost $5000.

Sacramento near Montgomery. Concrete work; o, Independent Electric Light and Power Co; a, Reid Bros; c, George Goodman; signed, Dec. 28; filed, Jan. 12; cost $3195.59.

Sansome near Pine. Alterations and additions; o, The Floyd Trustees; a, J. W. Dolliver; c, R. P. Hurlbut; signed, Jan. 29; filed, Jan. 31; cost $1150.

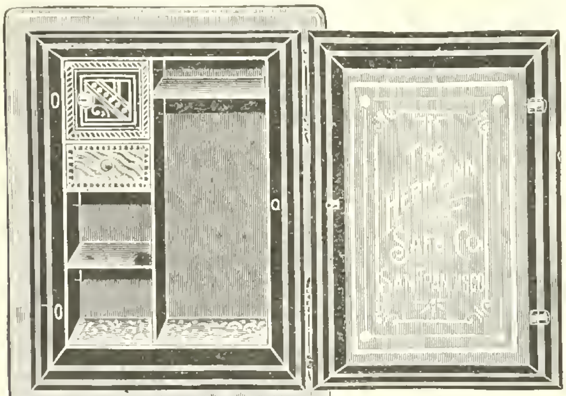
Spear near Folsom. Excavation, etc; o, Charles L. Tilden; a, Tharp & Holmes; c, Thomas Butler; cost $18,100.

Stockton and O'Farrell. Plumbing; o, Hyman Bros. Co; a, G. W. Percy; c, Shepard Bros; signed, Jan 9; filed, Jan. 12; cost $1924. Electric elevator; c, W. L. Holman; cost $1900.

Thirteenth and Jessie. To build; o, Jos. M. Furter and wife; a, H. Hess; c, J. H. Hughes; cost $6777.

Van Ness Ave. and Broadway. Gradsng, etc; o, Leah Meyer and Carrie Ackerman; c, Cal. Concrete Co; signed, Dec. 28; filed, Dec. 30; cost $2950. Carpentry etc; c, W. Knowles; cost $14,300. Painting, etc; c, G. A. Petterson; cost $1100.

Washington near Polk. Painting, etc; o, Laura M. Taylor; a, Martins & Coffey; c, L. J. Dwyer; signed, Jan. 25; filed, Jan. 27; cost $4715. Lathing, etc; c, Weisman & Whittle; sub-c, A. Knowles; cost $1865.



GENERAL INDEX OF ADVERTISEMENTS.

CLASSIFIED INDEX.

VOLUME XXI. JANUARY 20th, 1900. NUMBER 1.

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

CAUTION—Pay no money to persons representing themselves to be connected with the CALIFORNIA ARCHITECT AND BUILDING NEWS unless a written authority to receipt for the same is shown and accept no receipt unless it be on our printed blanks. Al Checks and Drafts are to be made payable to the order of E. H. Burrell.

OWING TO THE INCREASED interest a generous public have taken in our Journal during the last six months, and the variety of matter which the Proprietor has been called upon to bring before the public, in which its patrons have taken an unusual interest, together with the increased demand for a more general circulation, the Proprietor feels assured that a reduction of the subscription price to two dollars a year, will meet the approval of all its old patrons, and attract the attention of new subscribers.

Though not being a money-making-concern the Proprietor feels under some obligations to patrons who have given him encouragement in the past to continue his efforts in supplying the Pacific Coast with at least one publication especially devoted to Art and Architecture, and matters relating thereto, and will endeavor to voice the citizens in their struggles for a more successful administration of good government in our city affairs, and for rebuilding and beautifying its Streets and Parks.

IN SECTION 9, of Article 6, Chapter 1, of the New Charter the powers of the Board of Public Works are defined as follows:

"The Board of Public Works shall have charge, superintendence and control, under such ordinances as may from time to time be adopted by the Supervisors, * * * . Of the supervision of any and all building construction in the City and County.

This means that the Board of Public Works has absolute control over building operations in San Francisco, and can prevent the erections of those curious conceptions of the jerry builder and the amateur architect which deface many sections of our city.

There is no other large city in the civilized world where such erections are permitted, there being always some sort of governmental control, such as the examining and licensing of architects, or the submission of plans to a building commission or Board of Public Works, which can refuse to grant a permit for the erection of any building which is n sanitarily planned, architecturally pleasing or which would be a detriment to the neighborhood in which it is proposed to be erected.

The architects of San Francisco have for many years tried to have a law passed by the State Legislature requiring that architects be examined and licensed before being permitted to practise.

The public is protected by law from incompetent lawyers, doctors and those of other professions, but is entirely at the mercy of any incompetent or unscrupulous individual who by announcing himself as an architect can pray on the ignorant and inexperienced, and the result is the ruin of many neighborhoods, and the loss of much money to many people who put the savings of a lifetime into a home or small investment.

The Legislators from the country districts have always opposed any measures tending to the licensing of Architects claiming that in case they wished to make any improvements on their farms, they would be compelled to come to San Francisco for plans, so that while legislation of this kind would be of material benefit to them, they cannot be made to see it.

The wealthier class are not affected, as no man of intelligence ever thinks of building without employing a competent Architect; it is only the man of small means, and without experience, who is putting his few thousands into a house, that suffers; (the lone widow is also one of the most frequent victims), and these could and would be protected by the Board of Public Works if the Board of Supervisors would require permits to be issued for all building operations by the Board of Works, and would empower them to refuse permits when the plans are not worthy of a permit being issued.

While the charter does not so specify, the idea was that the Board of Public Works should consist of an architect, an engineer and a builder. Let us hope that Mayor Phelan in his next appointment will appoint an architect.

Architects should interest themselves in this, as the enforcement of the proper legislation would bring a considerable increase of business to our junior architects without interfering with the work of any competent person who chooses to combine the occupations of architect and builder.

MONS. BENARD WILL REVISE HIS UNIVERSITY PLANS.

MONSIEUR E. Benard will completely revise his plans for the University of California buildings on the basis of practicability. The revision will in no degree impair the general architectural beauty of the design submitted by him to the Phebe Hearst competition, in which he was awarded first prize, but will afford greater utility than would be possible were the original design carried out in its entirety. Professor William Carey Jones, one of the Hearst trustees for the development of the State University, has prepared the following statement of the status of the plans:

University of Califomia, January 18, 1900.

Architect Benard is now on his way to Paris, full of enthusiasm in the work of revising his designs for the Phebe A. Hearst architectural plan. The purpose of his visit to California was entirely completed before his departure. After the award of the jurors, M. Benard was invited by Mrs. Hearst and the trustees of the architectural plan to come to California to confer with them and consider the modifications necessary in his designs. Now, having gotten together all the necessary data and authentic information, he has returned to Paris, there to elaborate his plan. He felt that he could do his work to much better advantage in his own atelier and with his own trained draughtsmen than in California, where he would be subject to many distractions.

It is well that the public should know exactly what is being down and what is contemplated. In the international competition, closed by the award last September, absolute freedom from all restrictions as to cost was given to the architects. They were likewise given large latitude to exceed the space limits of the university grounds. They were not required to regard the existing buildings. The success which attended the competition must, in great measure, be attributed to this liberty of treatment allowed the architects.

But now after this try out, a different condition of things presents itself. It is no longer an ideal problem. It is now a practical problem. M. Benard quickly comprehended this, and says that he will give us a practical plan as perfect and beautiful as is his ideal one. In fact, he says that we shall be even better pleased with the results of his new work than we were with his former.

The great general lines of Benard's scheme will be preserved. The axis will remain the same, the broad avenues, the spacions squares, the generous flexible features of the prize plan, will be found in the new. The dimensions of the buildings and of groups of buildings will be reduced to proper porportions. Buildings which are not needed in the near future will be omitted from the plan. For instance, only one auditorium will be provided. This will have a maximum seating capacity of 3500. It will be so arranged that portions can be shut off, and the seating accommodation will come down to 2000 or 1500.

The groupings of the buildings will be rearranged. All of the structures appearing on the hill-slope in the prize plan will be placed in other positions. The astronomical observatory alone will be left to crown the summit of the 900-foot hill. Circling the base of this hill, space will be left for dormitories and other dwellings. There will be two main groups of buildings; one group for natural and applied science, and the other for the literary and philosophical studies.

The science group will comprise agriculture, botany, zoology, geology and mineralogy and mining as the main elements. In the center of the group will be the museum for natural history. Close by the college of mining will be the college of mechanics and electricity, and convenient to them both the buildings for civil engineering, mathematics and drawing. The buildings for physics and chemistry will have places apart from this group.

The heads or representatives of all the departments at Berkeley conferred with M. Benard and gave him specifications of the needs of their several departments. All the data thus gathered were gone over in several conferences, which included Mrs. Hearst, President Wheeler, Regent Reinstein, Professors Jones and Maybeck and M. Benard. As a result a definitive programme was agreed upon for the elaboration of a plan by M. Benard.

The present limits of the University grounds will not be greatly if at all exceeded by the revised plan. The cost of the completed scheme of buildings will not be excessive, will not be more than will commend itself to the judgment of the people of California. The trustees of the architectural plan have held as their extreme standard of cost that buildings should not represent in interest a figure that exceeded the income for educational purposes. It is believed that the revised plan will be a scheme of beautiful and useful buildings constructed in enduring material well within this standard.

As was said M. Benard is zealous and enthusiastic in the development of this new scheme. He has all the data necessary for its execution and the general features are worked out in his head. He agrees within a few months to deliver all necessary drawings, including a general plan and perspective, to the trustees, who will then present to the Board of Regents a definitive and realizable Phebe A. Hearst architectural plan for the University of California. Upon its acceptance by the board detailed plans and specifications for one or more buildings will be made and before the year is out ground will be broken on the University campus for the erection of the structures.

PRESENT TENDENCY OF AMERICAN ARCHITECTURE.

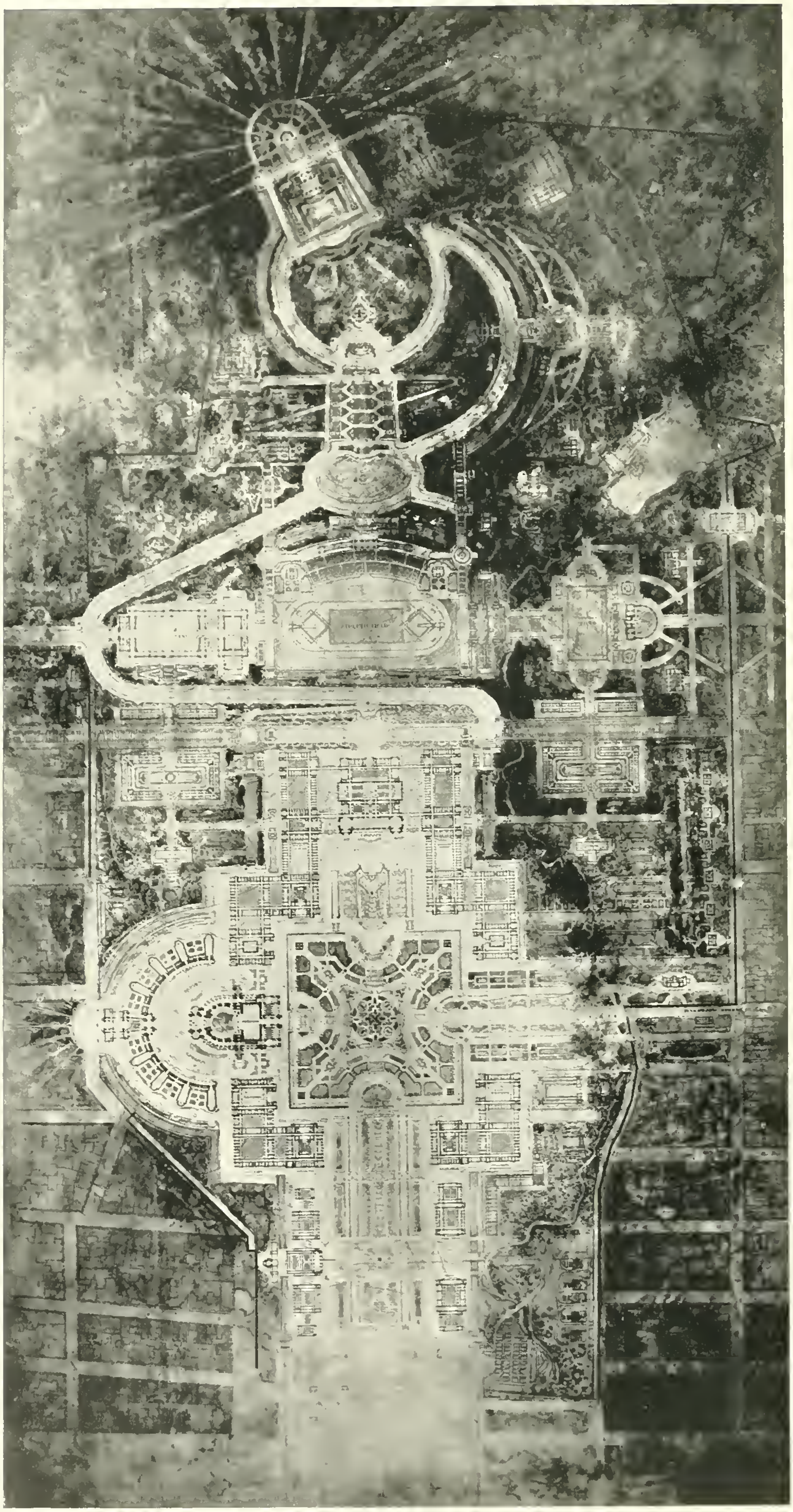
THE VOTE recently taken by the Brochure Series of Architectural Illustration affords an interesting illustration of the present tendency of American architecture. While the vote was very light and without doubt largely confined to eastern architects, it nevertheless indicates a more cosmopolitan tendency in our architecture and a decline of fads for certain styles. In comparison with the vote taken by the American Architect in 1885, it is found that but three of the ten buildings then selected are among those chosen in the vote of 1899. Eight of the buildings chosen in the former vote were in Romanesque or Gothic style, while in the recent vote the following rough classification of style may be made: Romanesque 1, Gothic 2, Classic 2, Italian Renaissance 2, French Renaissance 3. In discussing the vote in the Brochure Series, Professor Hamlin of Cornell observes that the first and most obvious conclusion to be drawn from the vote is that American architects, so far as represented in the recent vote, have no hidebound traditions or ingrained prejudices as to style. There is, it is true, in the list selected a preponderance of buildings in the various styles of the Renaissance and Classic Revival—seven out of ten—but the third in the list, with 96 per cent of unanimity in its favor, is a Romanesque building, Trinity Church, Boston. Two others, standing sixth and eighth, are Gothic—Trinity and Saint Patrick's churches in New York. The remaining seven, although they may all be included under a broad extension of the term "Renaissance," exhibit wide divergencies of style. The Capitol at Washington and the Columbia Library represent two different phases of the Classic Revival, nearly a century apart in date; the New York City Hall, a version of the style of Louis XVI. The Boston Public Library was avowedly inspired from the "neo-Grec" Bibliotheque Saint Genevieve of Labrouste, as far as its facades are concerned, and yet differs from that building more than it resembles it; and although, in the above classification, both this and the Baltimore mansions are classified as in the French Renaissance style, they are really much farther apart than the classic capitol and the Louis Seize city hall. The Congressional Library follows Italian rather than French precedents, and the Madison Square Garden suggests both Italian and Spanish prototypes. Evidently our architects are not bound by allegiance to any one style or kind of beauty, but are ready to find subjects for admiration in buildings of the most diverse character, and to recognize beauty alike in point and round arches, in domes and in spires, in acanthus leaves and crockets, in new buildings and in old. This catholicity of taste is interesting, and on the whole hopeful, for its suggests the ability and readiness to appreciate realities instead of names, style rather than any particular historic dress, essentials rather than externals—an eclecticism which recognizes beauty, quality, excellence, wherever they can be found, and adopts what is best without regard to names or categories. And if we consider the buildings themselves, instead of the motives of the voters, the same statistics indicate, as we might expect, a like catholicity of taste in the designs of recent American buildings, and what is more to the point—a conspicuous measure of success in fusing together and adapting to modern American needs the multifarious suggestions of the "historic styles," so that the results are neither copies nor patchwork, but consistent, intelligent and harmonious units.—*Construction News.*

AN EARLY SUSPENSION BRIDGE.

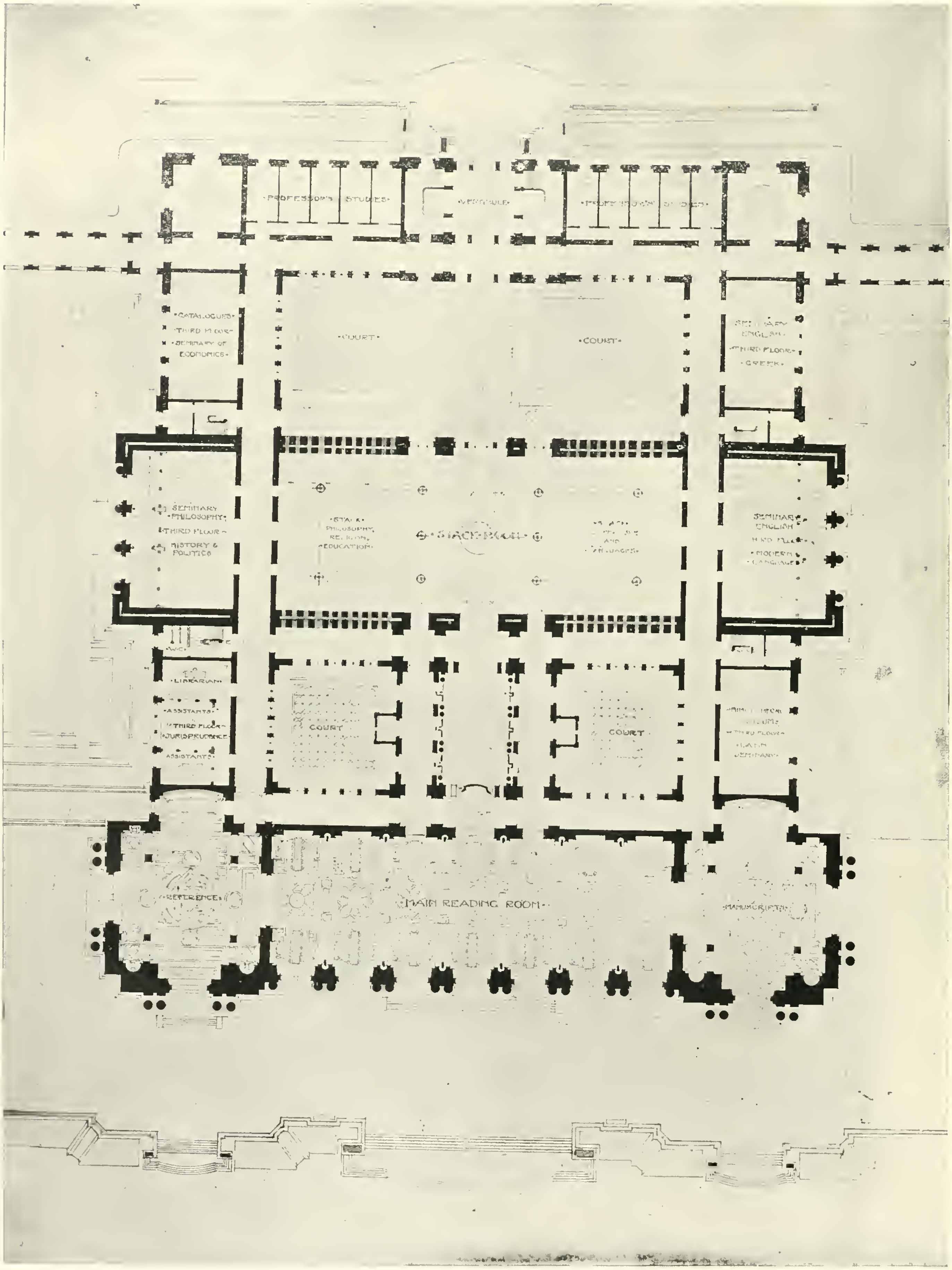
THE first bridge built across the Merrimac River, at Newburyport, Mass., was built by Timothy Palmer in 1792. The structure consisted of two bridges resting upon Deer Island. An arch of 160 feet span and 40 feet above high water connected the island with the mainland on one side, and several spans did a like service upon the other. In passing, it may be said that an old legend relates that the island derived its name from the fact that a deer jumped upon it from the mainland across the channel. Passengers upon the old steamer "Merrimac" can even now see a pair of antlers fastened to a tree trunk standing upon the island a little above the bridge, said to be the antlers of the deer which made the remarkable leap. The present chain bridge replaced the 160-foot arch in 1810, and was built by John Templeman of the district of Columbia. According to the tablet upon one of the towers this was "the first chain suspension bridge built in New England." The distance between the centres of the towers is about 244 feet, and the length of the roadway carried by the cables about 230 feet. The towers above the roadway are built of heavy timbers protected with a shingled covering. The bridge consists of two independent roadways, side by side, each about twelve feet in the clear; each roadway is carried by two sets of cables, each set being composed of three chains made of links 24 inches long. The floor system is of wood. The anchorage is about 100 feet from the towers and the cables run to the tops of the towers without any vertical load. The cables hang in vertical planes, and there is no lateral bracing of any kind other than the floor-planking. Electric cars have crossed this bridge some eight years, a line of rails being laid in each roadway. To one who has not experienced seeing the rails rise up in front of the car as it moves forward and downward, the sensation is anything but pleasant at first. A light summer car in the centre of the span causes a vertical deflection of at least two feet. A car crossing the bridge, as viewed from a boat upon the river a little above the structure, gives a beautiful illustration of wave-motion. In the modifications which are contemplated to prevent so much wave-motion in the floor, it is to be hoped the general appearance of the structure may be preserved.—*The Railroad Gazette.*

General Section.

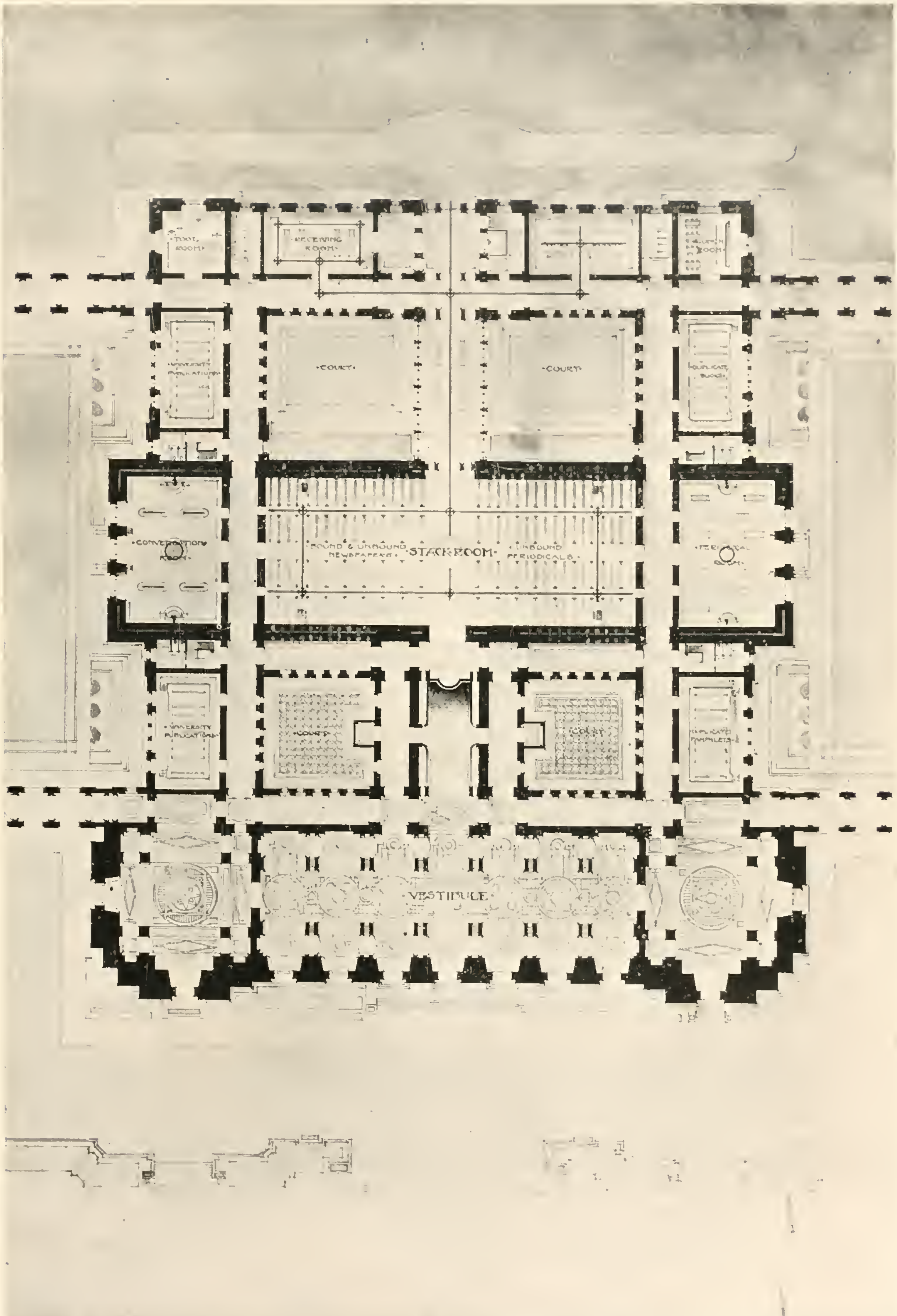
General Elevation — Fifth Prize — Messrs Lord, Hewlett & Hull, Architects.



General Plan Fifth Prize Messrs. Lord, Hewlett & Hull, Architects.



Detail Plan of Second Floor of Library — Fifth Prize — Messrs. Lord, Hewlett & Hull, Architects.



Detail Plan of Ground Floor of Library — Fifth Prize — Messrs. Lord, Hewlett & Hull, Architects.

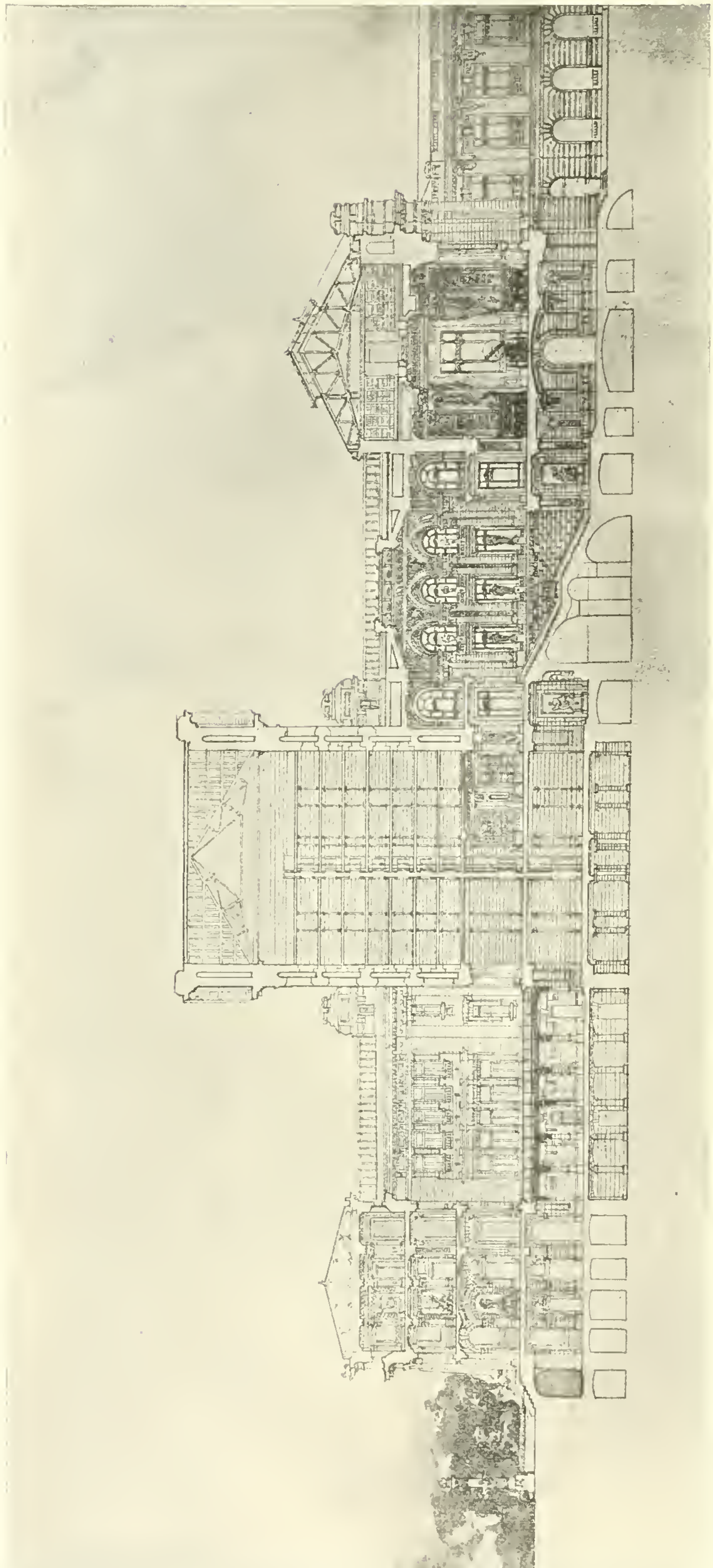
CALIFORNIA ARCHITECT AND BUILDING NEWS.
SAN FRANCISCO.
VOL. XXI, No. 1, JANUARY 1900.

General Perspective—Fifth Design—Messrs. Lord, Hewlett & Hutt.

CALIFORNIA ARCHITECT AND BUILDING NEWS.
SAN FRANCISCO.

VOL. XXI. No. 1. JANUARY, 1900.

Detail Elevation of Library—Fifth Prize—Messrs. Lord, Hewlett & Hull, Architects.



Detail Section of Library — Fifth Prize Messrs. Lord, Hewlett & Hull.

CORROSION OF WATER-PIPES BY ELECTRICAL CURRENTS.

IT IS, NO DOUBT, unfortunate, but, at the the same time, equally inevitable, that the practical application of all new and advanced scientific principles in the interest of the comfort, convenience, and welfare of the community at large, should be invarialy accompanied by a certain number of drawbacks or obstacles, which must be either removed or nullified before any real progress can be recorded. The exercise of a considerable amount of patience, ingenuity, invention, and skill is frequently demanded before the way is cleared ; but the attempts in the long run are pretty sure to be successful. In the development of electrical railways and tramways a new source of apprehension and disquietude has arisen which, if not checked, may be fraught with grave consequences to all pipes of metal laid beneath the surface of our roads, streets, and the thoroughfares of all our towns and cities. The whole question, sufficiently indicated by the title of our article, has now assumed a phase which calls for public attention and consideration, and, consequently, in the following brief account we bring the matter to the notice of our readers. As some proof of the urgency of the case, it may be mentioned that the evil has attained to such proportions in the United States that an electrical expert of eminence has been specially appointed to investigate and report upon the whole subject. He has also been instructed to ascertain, as far as possible, what measures should be adopted to mitigate or entirely prevent the present damage by corrosion to underground metallic pipes by the action of return electrical currents. It will not be necessary for us to refer to any purely technical details in our short *resume*, but simply to allude to the general principles of electricity with which all are now familiar.

It was about eight years ago that, in the city of Boston, in the United States, the effects of the electrolytic action of the return current of electric tramways was observed for the first time upon the leaden pipes in which telephonic wires were laid. Some years later, in Brooklyn, upwards of three hundred miles of similar lead-piping were so seriously attacked that they became perfectly useless, and had to be removed.

It is well known that in, for instance, an ordinary electrical tramway belonging to the overhead or trolley-system, the current starts from one of the poles of the dynamo, and follows the course of the overhead wire until it arrives at the tramcar. Passing downwards towards the axle of the wheels, it sets the motor in action, and then using the rails as its home conductor finally returns to the opposite pole of the dynamo from which it started. So far, everything is quite satisfactory, and confirms a well-recognized fact, that the simple transit of an electric current through metallic water-pipes is not *per se* productive of any injury or damage of any kind. Were this statement not fully established, electric tramway companies would never have been allowed, as they have beeu by the municipal and local authorities of towns, to use, when they wanted, the water-pipes as return conductors for the current. Here is where the mischief comes in. When the return current is passing along the rails, it constantly occurs that it, or at least a portion of it, deserts its natural conductor, the rails—so to call them—leaves its normal circuit, and attaches itself to any underground conductor that may accidentally come in its way. This abandoment of its proper conductor and the taking up of another not in connection with its own normal circuit will, in many cases, givs rise to the electrolytic action, attended with corrosive deterioration. It appears that a very small difference of potential is required to enable a current to pass from one conductor to another through an intervening space, particularly if the ground be of a damp description.

In addition to the existence of the underground currents themselves, electrolysis and corrosion will not take place without the active interference of other agents. The presence of soluble salts, consisting chiefly of the nitrates, the sulphates, and the chlorides, is imperative, and the magnitude and intensity of corrosion produced depends not only upon the strength of the current, but also upon the proportions in which the salts are present in the soil. It frequently happens that a very small quantity of the salts is sufficient to start the evil, which will continue contemporaneously with the existence of the current itself. The corrosive effect that the nature of the soil in combination with the electric current has upon metallic pipes is well evidenced by the fact that in Kansas a length of pipe, 6 inches in diameter, when taken up so terpibly corroded that it was easily cut through and chopped up in pieces by an ordinary knife. In this district the deterioration of the pipes proceeded at such a rapid rate that in many localities the pipes were renewed nearly every six months. Up to recent date it has usually been taken for granted that the electrolytic corrosion of pipes was restricted to their external surface ; but subsequent experiments have disproved this fallacy, and the existence of internal corrosion is thus accounted for. At the joints of the pipe, owing to the greater thickness and the greater amount of metal, the resistance to the transit of the current is increased, and becomes much stronger than that of the pipe. When it arrives at a certain intensity, the current, in attempting to pass from one part of the pipe to the other, seeds naturally an alternative and less-resisting path which is open to it, either *via* the soil, or the water in the pipe. If then, as often occurs, the water flowing through the pipe should contain even a minute quantity of the soluble salts already enumerated, electrolysis supervenes, and the damage is effected in the interior of the pipe as well as on the exterior, on the assumption that a part of the current might pass by the one route and the remainder by the other. In support of this statement, which is no doubt perfectly accurate, it may be mentioned that a very careful inspection and examination of several lengths of pipes in Brooklyn, where the water is singularly destitute of soluble salts, detected no signs of internal corrosion. On the other hand, at Kansas City, a locality in which the water supplying the population is rich in salts, pipes 6 inches in diameter were found quite incrusted on the internal surface. To such an extent was the corrosion carried that when some of the pieces chipped off were submitted to analysis, they were found to contain 23 per cent of carbon, whereas the normal proportion varies between 2 and 5 per cent. It is obvious that this great surplus quantity of carbon must be accompanied by a corresponding reduction in the metal, due to electrolytic action.

A crucial test was undertaken, which may be considered as both conclusive and unimpugnable. A piece of perfectly clean and unused tubing 4 inches in diameter was placed in a bath impregnated with soluble salts, and a current of 20 amperes passed through it. At the end of three or four hours the corrosive influence was strongly apparent, and the parts attacked evinced 30 per cent of carbon. Some valuable and interesting experiments were also made the object of ascertaining the actual ratio between the respective resistance of the joints and that of the body of the pipe. Without entering into the question of the electrical units employed, it will be sufficient to mention that the resistance of the joints was found to be a couple of hundred times greater than that of the pipe itself. Taken altogether, these facts established beyond all possible doubt that internal corrosion does take place in water-pipes. It is also true that the process is considerably slower than when the deterioration attacks the outside, and it is moreover, more difficult to detect; but, given a certain proportion of soluble salts in the water, and a sufficient resistance in the joints to the passage of the current, the one result is as certain as the other. Besides, from its comparative slowness of growth, and its insidious character, internal corrosion is really more to be feared than external, though each is in itself sufficient to account for an enormous amount of damage inflicted upon water-pipes. While there are certain remedial measures in the form of palliatives available for the treatment of the evil, there is only one real remedy which constitutes the moral of the whole subject—do not allow your water-pipes to be traversed by electric currents.—*T. C. in the Building News.*

VALUABLE INFORMATION CULLED FROM OUR EXCHANGES.

A TYPICAL American machine shop, rigged with all modern appliances, and in actual operation, is to be one of the special side features of the Paris Exposition. A number of exhibitors of iron and wood-working machinery will put their machines at work in a building erected for that purpose. The Berlin Iron Bridge Company have charge of the structural work, and some of the material is reported as on the way. The idea is creditable to American machine builders, and the plant will no doubt be an eye-opener to thousands of visitors to the Exposition, and it will do a great work in popularizing American methods.—*Age of Steel.*

THE NEW Federal Building for Baltimore is the subject of a competition, the program for which, as for all competitions for Government work under the present law, has been arranged by the Government officials. It is hardly necessary to say that amateurs are apt to utilize such opportunities to introduce novelties of their own invention, and one of the suggestions made in the Baltimore program was that the successful competitor should pay out of his own pocket a "consolation prize" of five hundred dollars to each of his unsuccessful rivals. The Government officials say that this was not included in the program as a condition, but only as a suggestion, and that they were led to propose it by the reflection that, as the law does not permit the award of secondary prizes in Government competitions, and as the successful competitor would save some of the cost of duplicating plans and specifications, which the Government would do for him, it would promote "the interest of abstract justice, and of good feeling among the competitors," to have him share his profits among him brethren. It is said, not greatly to the credit, as it seems to us, of the ten competitors, that all of them acceded to this suggestion, but the profession generally took a different view of this ingenious method of producing "harmony" among the invited competitors, and Messrs. Post, McKim, Carrere and Cook, who were invited to act upon the jury of award, declined to serve, on the ground that the competition was unprofessional and unsatisfactory. Four others, of more obliging disposition, were therefore selected, and it appears that the competition will be carried out according to the original scheme—*The American Architect.*

NOTICE OF MEETINGS.

San Francisco Chapter, American Institute of Architects, meets second Friday of each month at 408 California street, at 4 p. m.

Seth Babson, Pres. B. A. Schultz, Vice-Pres.
M. W. Reid, Sec. John M. Curtis, Treas.

Southern California Chapter American Institute of Architects, meets first Wednesday of each month at 114 Spring street, Los Angeles, Cal.

A. B. Benton, Pres. Arthur B. Benton, Vice-Pres.
John P. Krempel, Sec't. August Wackerbarth, Treas.

Washington Chapter American Institute of Architects, regular meetings at 8 o'clock P. M., the first Friday of each month, except July and August.

Wm. E. Boone, Pres. Jas. G. Hill, Vice-Pres.
Charles W. Saunders, Sec. W. J. Marsh, Treas.

Association of Architects of Arizona, meetings held at Phoenix, Arizona.

D. W. Millard, Pres. T. H. Maddox, Vice-Pres.
W. R. Norton, Sec. and Treas.

Technical Society of the Pacific Coast, meets first Friday of each month at Academy of Sciences Building.

Geo. W. Percy, Pres. W. F. C. Hasson, Vice-Pres.
Otto Von Geldern, Sec. Edward T. Schild, Treas.

Master Plumbers' Association, meets every first and third Friday of each month at the Flood Building.

Jas. E. Britt, Pres. J. L. E. Firman, Sec.

Builders' Exchange, Directors meet first Friday in each month at Mission and New Montgomery.

S. H. Kent, Pres. Jas. A. Wilson, Sec.

Masons' and Builders' Association, meet first Friday evening of each month.

Adam Beck, Pres M. V. Brady, Sec

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VC

THE CALIFORNIA ARCHITECT AND BUILDING NEWS

THE PHEBE HEARST ARCHITECTURAL COMPETITION

OFFICE 408 CALIFORNIA ST.

$3.00 PER YEAR

DESIGN BY G. H. KOPPS

PRICE 50 CENTS

BUILDING NEWS.

Broadway and Steiner. Stone work; o, Mrs. Clara P. Morton· a. W. Koensg; c, Neish Stone Co; signed, Feb. 27; filed, March 5; cost $1500.

Battery near Pine. Cast iron work for 4-story brick o, Levi Strauss; a, A· Pissis; c, Josh Hendy Machine Works; signed, Jan. 23; filed, Feb. 28; cost $11,450. Steel work; c, Western Iron Works; cost $2600. Carpentiy, etc; c. C. Chisholm; cost $19,303.

Chattanooga near 21st. Carpenter work, etc; o, F. Hartje· a, Copeland & Pierce; signed, March 22; filed, March 23; cost $2900.

Eddy near Franklin. To build; n, I. Mensor; a, D. V. Deuel; c, W. Helbing; signed, Feb. 27; filed, March 5; cost $8750.

Ellis near Laguna. To build; o, C. T. Ryland; a, Mahoney & Ryland; signed, March 20; filed, March 22 cost $7575.

Eighteenth near Church. Cottage; o, Peter J. McGlynn; c, P. Rive; signed, Feb. 24; Filed, Feb. 26; cost $235.

First Ave. near California. To build· o, Lena L. Mills; a, B. E. Remmel; c, F. Marcuse; signed, Feb. 19; filed, Feb. 26; cost $3250.

First Ave. and California. To build; o, Louise Bee· a, B. E. Remmel; c, F. Marcus: signed, Feb. 19; filed, Feb. 26; cost $3350.

Filbert near Pierce. To build; o, Thomas and A. P. Hill; c, A. Olson; cost $1360.

Frederick near Stanyan. To build; o, Hans Peterson; cost $8000.

Florida near 20th. To build; o, Fannie Arnheim; c, J. Wikman; signed, March 12; filed, March 15; cost $2650.

Franklin near Ellis. Carpentry, etc; o, Theresa and Herman Asher; a. Salfield & Kohlberg; c, W. Helbing cost $7500.

Geary near Larkin. To build; o, Amelia Tucker; a, R. H. White; c, C. M. Lindsay; cost $6550. Plumbing, etc; c, C. C. Sweeney; cost $1474.

Humboldt and 23d. To built; o, Independent Electric Light; a, Reid Bros; c, Gray Bros signed, Feb. 16; filed, 16; filed, Feb. 24; cost $4553.

Howard near 17th. Carpenter work, etc; o, O. J. Meade; a, J. H. Littlefield; signed, Feb. 28; filed, Feb. 29; cost $3380. Plumbing; Snook & Son; cost $685. Brickwork; T. W. Butcher; $489. Concrete; M. Keatin Plastering; D. Leahy; $448.

BUILDING NEWS.

Herman and Webster. Excavation, etc; o, G. and K. Samsreither; a, H. Geilfuss; c, C. Schutt; signed, March 13; filed, March 15; cost $6960. Plumbing, etc; c, Hufschmidt· cost $1599.

Howard and 12th. To build; o, Henry Campe· a, Martens & Coffey; c, A. H. Wilhelm; cost $3598. Plumbing, etc; c. G. C. Sweeney; cost $1233.

Lombard and Van Ness. To build; o, H. E. Law; a. A. Sutton; c, C. M. Depew; cost $4100.

Mission and Fremont. Setting steel work; o, Leon Sloss, Jr; a. A. Pissis; c, E. F. Jones; cost $1.00 per set up.

Market and East. Plumbing; o, F. A. Hihn; a, C. A. Meussdorffer; c, G. C. Sweeney; signed and filed, March 28; cost $1554.

Mission near Fremont. Fireproofing; o, Louis Sloss, Jr.; a, Albert Pissis; c. Western Expanded Metal Co; signed, March 21; filed, March 23; cost $20,670 25.

Montgomery and Sutter. Additions and alterations o, W. S. Goodfellow; a, Tharp & Holmes; c, A· Wikle Jr., signed, Feb. 23; filed, Feb. 26; cost $1116.

O'Farrell and Mason. Store and bar fixtures; o, Stunkers & Ehlers; a, C. J. I. Devlin; c, H. Jacks; signed, Feb. 1; filed, March 3; cost $1070.

Page near Central Ave. To build; o, N. D. Newman; a, P. Schwerdt; c, N. D. Newman; signed, Feb. 28; filed, March 3; cost $4700.

Pine near Fillmore. Carpentry, etc· o, J. Pailasson a, J. Godart; c. L. B. Perramont; signed, Feb. 16; filed, March 3; cost $3835. Brick, etc; c. A. W. Lawson; cost $965.

Pt. Lobos Ave. and 15th. Alterations; o, J. D. La Montneya; a, James Wolfe; cost $2500.

Pierce near Broadway. To build; o. R. H. Pease; a, Clinton Day; c, Robert Greig; cost $25,742.

Ridley near Waller. Four two-story frames; o, I. Anderson; cost $20,000.

Spear near Folsom. Carpentry, etc; o, Charles L. Tilden· a. Tharp & Holmes; c, Thos. H. Day & Sons· signed, March 20; filed, March 27; cost $14,491.

Stanyan near Carl. To build; o, Mrs. Augusta M. Triebel; a, Salfield & Kohlberg; c, G. G. Gillespie signed, March 22; filed, March 23; cost $5205.

BUILDING NEWS.

Scott near Washington. Excavations, etc; o, Mrs. Helen Strybing; a, Kollofrath & Deane; c, Richardson & Gale; signed, March 18; filed, March 15; cost $1685. House raising, etc; c, John Furness; cost $6298. Plumbing, etc; c, H. Williamson Co; cist $1627.

Scott near Sutter. Cottage; o, Mrs. H. M. Solomons a, M. G. Bugbee; c, Hughes & McDonald; signed, March 1; filed, March 5; cost $1700.

Sutter near Grant Ave. Carpentry, etc; o, Alice Phelan Sullivan; a, C. J. I. Devlin; c, H. Jacks; cost $6745.

Townsend near 7th. Additions; o, Timothy Hopkin a, H. A. Schulze; c, Ingerson & Gore; sgned, March 1; filed, March 5; cost $5230.

Twentieth and San Carlos. To build; o. Mary Smith a, C. M. Rousseau; c, L. T. Fenn; signed, March 14; filed, Feb. 15; cost $3267.

Twenty-sixth and Noe. Cottage; o, Julian F. Hetty a, H. Barth; c, A. Wilkie, Jr; cost $2122.50.

Twenty-ninth near Dolores. Alteration and additions; o, J. W. Timon and Mary A; c. John Keneally signed, Feb. 26; filed, Feb. 26; cost $1797.

Washington near Spruce. Excavation, etc· o, G. Arnold; a, F. S. Van Trees; c, C. M. Depew; signed, Feb. 26; filed, March 1· cost $12,300. Plumbing, etc; c, Allen & Looney; cost $1380. Painting, etc; c, J. H. Keefe; cost $1500.

William near O'Farrell. Excavation, etc; o, Mrs. L. Meyer; a, Salfield & Kohlberg; signed, Feb. 28; filed, March 2; cost $3320.

GENERAL INDEX OF ADVERTISEMENTS.

CLASSIFIED INDEX.

VOLUME XXI. MARCH 20th, 1900. NUMBER 3.

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

CAUTION—Pay no money to persons representing themselves to be connected with the CALIFORNIA ARCHITECT AND BUILDING NEWS unless a written authority to receipt for the same is shown and accept no receipt unless it be on our printed blanks. All Checks and Drafts are to be made payable to the order of E. H. Burrell.

ONE OF THE PECULIAR features of architectural professional practice is what is known as public competition; no one knows where or when the custom originated, and while in recent years many of the leading architects have opposed it as being against the interest and dignity of the profession it seems to be taken for granted by the public that it is the only proper way to settle the disposal of public work, and in fact the Civil Code of California makes it obligatory in the erection of all public buildings, and no doubt the practice will prevail for many years to come.

No other profession has any such features. We never hear of a competition between doctors, lawyers or clergymen, possibly because there is nothing tangible or definite about their results, so that possibly it is a compliment to the profession and a recognition that their is something higher and broader in the products of architectural skill.

No doubt it is of great benefit to our junior architects, in many cases affording a young architect of ability or genius to attain at once a standing which in the ordinary cause of practice would take many years.

The most notable competition in the history of the world is the recent competition for the proposed buildings for the University of California, the terms offered were so munificent and fair that it brought out the best talent in the civilized world and the results obtained were so eminently satisfactory that any argument fails as against the custom.

This is almost the only public competition that has been known in California where the competition has been settled on its merits, nearly all others in San Francisco and in other parts of the State, where, in order to follow the letter of the law, a competition has been called for, have resulted not in a competition of designs, but in a struggle of political manipulation, bribery or blackmail those of receut date most notoriously so.

The architects of San Francisco have been agreeably surprised recently in the call for the competition for the Carnegie Library building to be erected in Oakland and no doub many will respond, probably so many as to surprise the Oaklanders; the absence of political manipulation and the high standing of the judges selected make it a pleasant effort to engage in such a contest; the clearness of the instructions, which call for such simple drawings and so few, should make an agreeable pastime for any one with a few hours to spare to try his best and should call out the efforts of the entire profession.

The results no doubt will be unusually good and should lead to a definite organized effort on the part of the architects to have the Code amended so that all public building competitions should be decided by a similar jury.

COLOR IN ARCHITECTURE.

BY JOHN GEMMELL—PAPER PRESENTED AT THE ANNUAL CONVENTION OF THE ONTARIO ASSOCIATION OF ARCHITECTS, TORONTO, JANUARY, 1900.

W U R REGISTRAR suggested that should give a paper on color in building materials at this Convention, there ran through my mind some random readings I had done in chromatics. My first thought was to attempt with the aid of books a learned inquiry into the theory of light and color, and the laws which produce harmony or the reverse, and applying these to the prevalent building materials, get some idea which to combine and what to reject. On second thoughts, however, it seemed to me that an architect was more in the position of an artist, with perhaps his pigments more limited.

Much as the world owes to the patient labors of science, it may well be doubted if these are of help in the domain of art which has to do with the external appearance of things earthly.

Great artists were great colorists from intimate study of nature seen by the naked eye. Indeed, is it not probable that the artistic sense of form may be coarsened by the deeper insight of the anatomist about the framework on which is hung the beauty of a "Venus" or an "Appolo"? I can well believe that Raphael knew less anatomy than Michael Angelo.

Beauty of form in objects, blending and contrasting of color in an autumn landscape or the glory of a setting sun, are appreciated by the artistic temperament perhaps much more intensely than by the learned philosopher discoursing by his side on the complete mathematical precision and proportion of the wave theory of color. It is not to belittle this trend of our time to attain to the Genesis of all things, but to make the claim that the highest skill in arrangement and disposition of color in art is quite possible with no other guides than observation and God-given instincts, which are above rule, and that appreciation of color may in no way be enhanced by a knowledge of the laws of chromatics. If the artist is faithful to catch the changing face of his mistress, Nature, this will be to him a royal road to perspective, color and other sciences.

But what, say you, has the architect to do in common with the landscape painter? Are not his aspirations very much curbed by the limitations of his materials? True! yet is it not most essential that he should have as much as possible of the artist's eye for the beauty in nature, that his work may not prove the discordant note in its surroundings? He it is who rears that which marks the advent of the living and receptive soul on the scene, and it surely were a great pity if his building became a blot and excrescence—spoiling a spot that it may be dear to many—when by more feeling for and study of his site, it may have become the one thing that was necessary. How often have we seen vulgar ostentation think it has achieved fame by painting a whole house in colors that nature uses for her smallest flowers!—brilliant red brick, lilacs, olives, blues and yellows! You remember how the Americans were emulated in their use, speaking of the Canada drab with much scorn. Which of you now, granting your house were good architecturally, would not rather paint it drab than say, pea green? For a country house, therefore, where the beauties of Nature are the chief attraction, and means very rarely forthcoming to build a stone or marble mansion to dominate the scene, the best solution of the color problem is to make the house subordinate and a complement to the lrndscape. If brick is used, let the mortar joint be honest and very preceptible to tone down the color in mass. But perhaps the best mode of construction for such a building is the entirely shingled house, the staining of which affords facility in carrying out color schemes that with difficulty can be made vulgar.

It is the cities and towns, however, that unbridled liberty in the use of various colored building material and coloring of buildings is likely to render any broad and harmonious whole impossible. What should be the prevailing color of a city seen as a whole approached from the water front or from points of vantage in the surrounding landscape, and which architects should, by their individual efforts, endeavor to control?

I may as well here state that in my opinion the palette prescribed by good taste, at least for the exterior of buildings is extremely limited, and that the building material used on this continent has been generally of too positive a color, and it would have been vastly better if no material darker than Ohio stone (which is about the darkest of natural stones) had been used. I think I am justified in saying this, as it is now being found out that the varieties of brown stones are or perhaps should be soiled and spoiled products of nature, taking their color from oxidation of iron, and this oxidation going on more rapidly when exposed to the air, destroys the stone in less than a generation. There is now arisen a craft in New York depending on its skill in restoring lost angles, moldings, etc., to brown stone buildings not thirty years old yet, in a state of decay.

Architecture is a plastic art, concerning itself with outline, light and shade more than color, is akin to sculpture more than painting. Now just think how all the beauty of a piece of marble sculpture would be lost if reproduced in commercial brown stone. If Lily Langtry or others of the world's beauties, with all their perfection of feature, were of Ethiopian complexion, would we still see their loveliness?

Does not nature suggest in the large and clumsily modeled features of the negro that the material was unpromising and fitted for nothing better than a charcoal sketch of humanity? The only virtue I could see lately in the once vaunted brown stone fronts of New York was that this color to a large extent obscures the wretched bad detail of their period, and now when a great deal of their architecture is following better and purer models, New York has for building materials pinned its faith to Bedford limestone, a light grey Buff brick and a brick almost white with a black speck running through it, giving texture. As a result I assure you that city has taken on a smiling look which was not there a few years ago, even from the harbor, but especially in the direction of the river drive, which is the hope of New York, where is to be seen their best in architecture—Columbia College, St. Luke's Hospital and other buildings whose authors with their increased knowledge of true architecture seem to believe also that this is best embodied in materials of light color. In Washington, viewed as a whole, we have perhaps the best example of a beautiful city on this continent and the only one I know of that has a just arrangement of buildings in order of their importance. The capital on a hill dominates the whole, the minor buildings of government surrounding, and all built with some dignity, and best of all, none of the dwellings or mercantile buildings are of that exceeding size which renders a harmonious whole impossible in other American cities, and makes all attempt at temple or public monument futile. The capital library, Washington monument, and the city generally is of light colored material with more than one dome in gold.

To be Continued.

ARCHITECTS' RESPONSIBILITY.

THE American Architect reports an interesting case growing out of the Ireland building disaster, where a column, which seemed to have been set over an old well, sank, allowing the rest of the structure to collapse.

The decision just given by the New York Supreme Court in the case of Fox *vs.* Ireland presents, it says, a new phase of responsibility in building disasters.

Fox was injured in the crash, and sued the owner for damages. The courts below rejected his claim, apparently on the ground that Mr. Ireland had done all that could be expected of an owner, and that the architect and the builder, if any one could be regarded as responsible for the disaster, were the ones at fault.

The Appellate Division of the Supreme Court reverses this decision, and orders a new trial of the case, on the ground that there was insufficient evident "to show that Mr. Ireland could rightfully rely upon the architect he employed." This appears to introduce a new element in such cases. While a man, in other damage suits, must show, in order to clear himself of responsibility, that he employed, or endeavored to employ, men skilled in their business to do his work for him, it has generally been assumed that all architects were skilled, and that a man might employ anyone that he chose, without fear of being held accountable for his mistakes or misdeeds.

From this decision, however it seems to follow that a man in New York who employs an architect must have good reason to believe that he is skillful and sober, so that he may properly be entrusted with important work, or he may find himself called upon to pay heavy damages in consequence of the carelessness or unskillfulness of a person whom he employed without due investigation. Of course, we do not mean to say that the architect of the Ireland building was either incompetent or careless, and the court does not say so, but simply points out that no evidence was produced at the former trial to show affirmatively that he was a person to be trusted, and that, on general principles, this must be done in such cases.

On the whole, the new principle is likely to work to the advantage of the profession. Many a man who ought to know better, employs cheap, so-called architects, with the idea that he is saving money by doing so. Experience shows that this is, in any case, a very doubtful method of saving money; but if it is established that the employer will have to shoulder the consequences of the professional incompetency or carelessness of his architect, he is likely to be much more disposed to seek the aid of men whose skill and reputation will be satisfactory to a jury.—*National Builder.*

MEETING OF CHICAGO ARCHITECTS' BUSINESS ASSOCIATION.

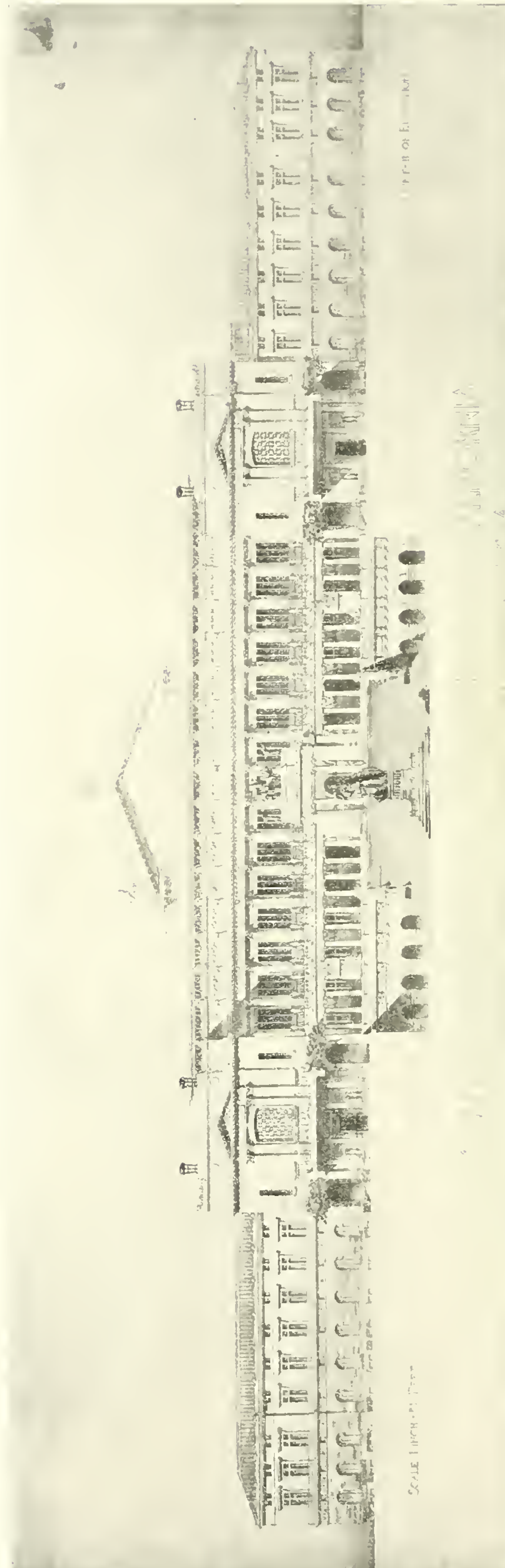
THE MEETING of the Chicago Architects' Business Association at Schiller Hall on March 19 brought together a large number of architects who had the opportunity of listening to a practical and instructive talk by Gen. William Sooy Smith on "Recent Methods of Building Construction."

Speaking of steel construction he referred to corrosion and to the effect of high temperature on the steel. Heated to 1000 degrees it loses its stability and at 1100 degrees it will not hold its own weight; hence the necessity for fireproofing that will bear heating to redness without cracking when cold water is turned upon it. He referred to the Chicago Athletic Club fire, and drew instructive information therefrom. He thought negligence in the matter of fireproofing a crime and felt it the duty of everyone to try to remedy the evil. Asbestic was mentioned as a means to this end. It is composed of silicate of magnesium, talc and silica, and can be heated to a high temperature and plunged into cold water without cracking.

The masonry of former times, he points out, was superior to that of to-day. At the Temple of Jupiter he found at the center of each block a hole 2 inches in diameter and about 6 inches deep, and the joints of the stone had been ground together. He had a column 9 feet high, made in this manner with ground joints by the Western Stone Company, and sent it to the Watertown arsenal for testing, with the result that it withstood a pressure of 900,000 pounds to the square foot and at this pressure the outside merely began chipping.

Great advancement had been made in Chicago in foundations. Fifteen years ago steel and concrete were almost universally used but it is now found that this style of foundrtion is not to be relied upon, the old postoffice building being an example. Wooden piles have come to the front. Driven to hard pan they are in place forever. In New York there is a thick bed of sand that covers many bowlders and consequently they have used caissons. In giving reasons for using piles, General Smith said that they were cheaper and that it was often difficult to put in caissons satisfactorily. He used 2-inch sheathing, which he drove

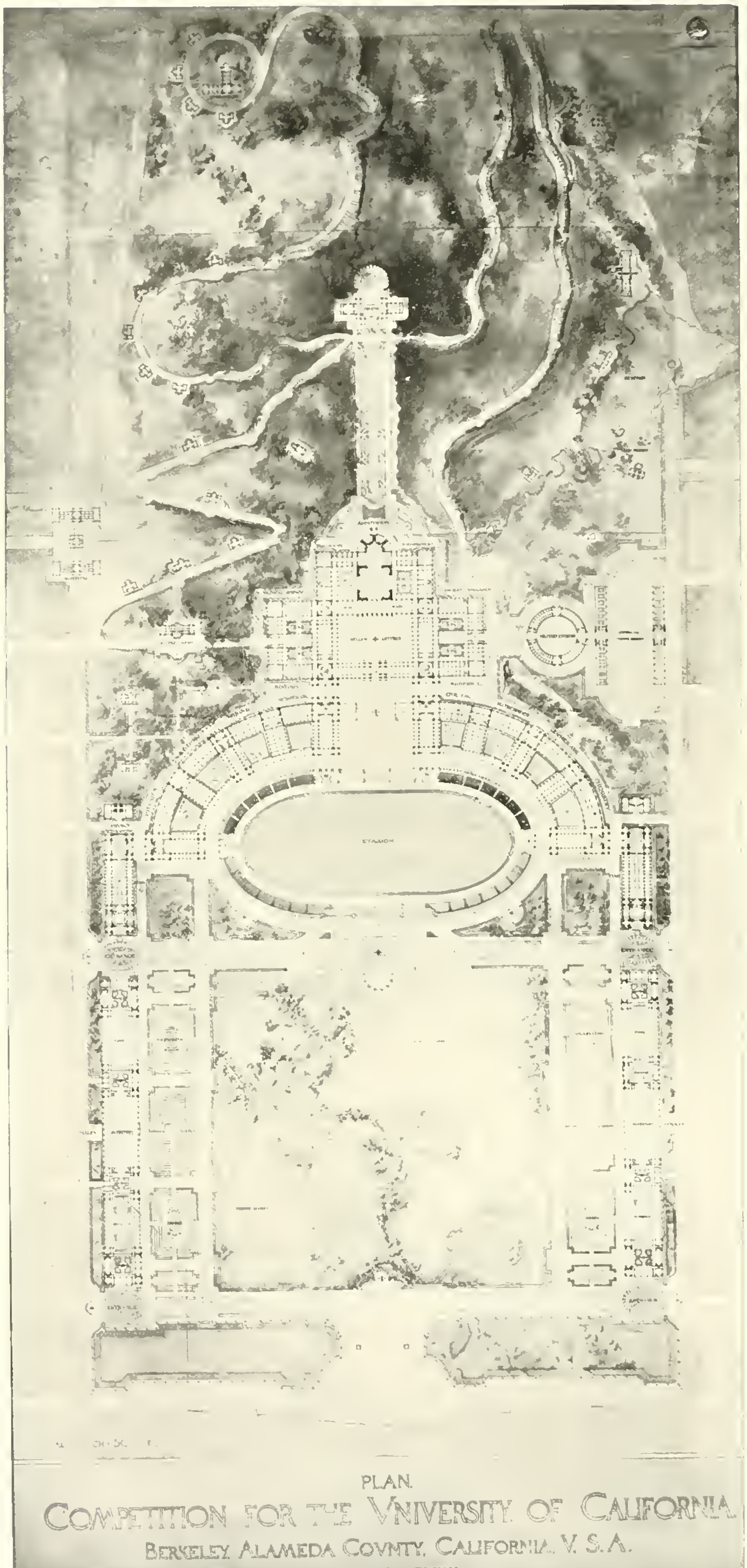
General Elevation — Mr. Whitney Warren, Architect.



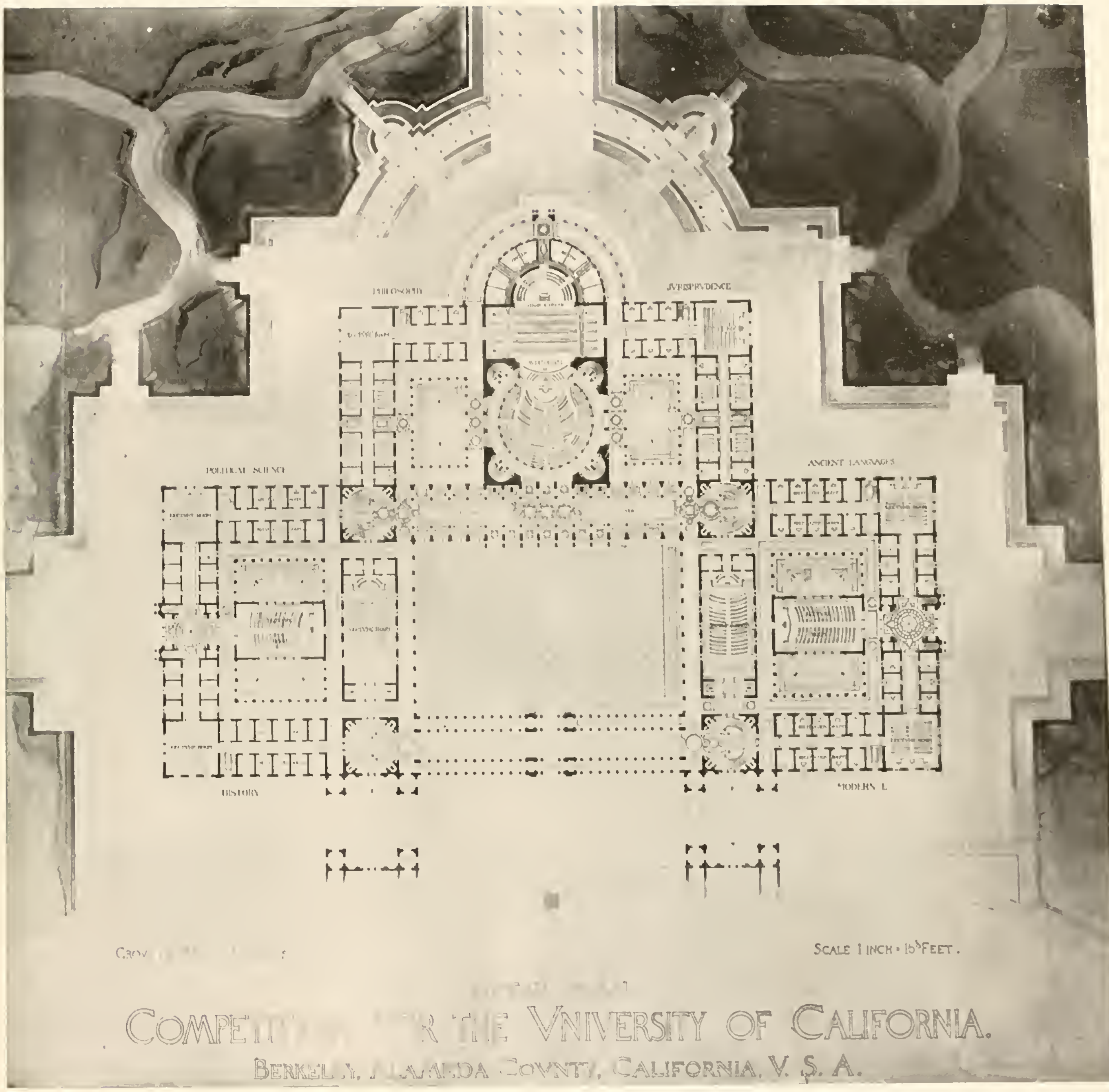
Detail Front Elevation of Auditorium Wing — Mr. Whitney Warren, Architect.

General Section — Mr. Whitney Warren, Architect.

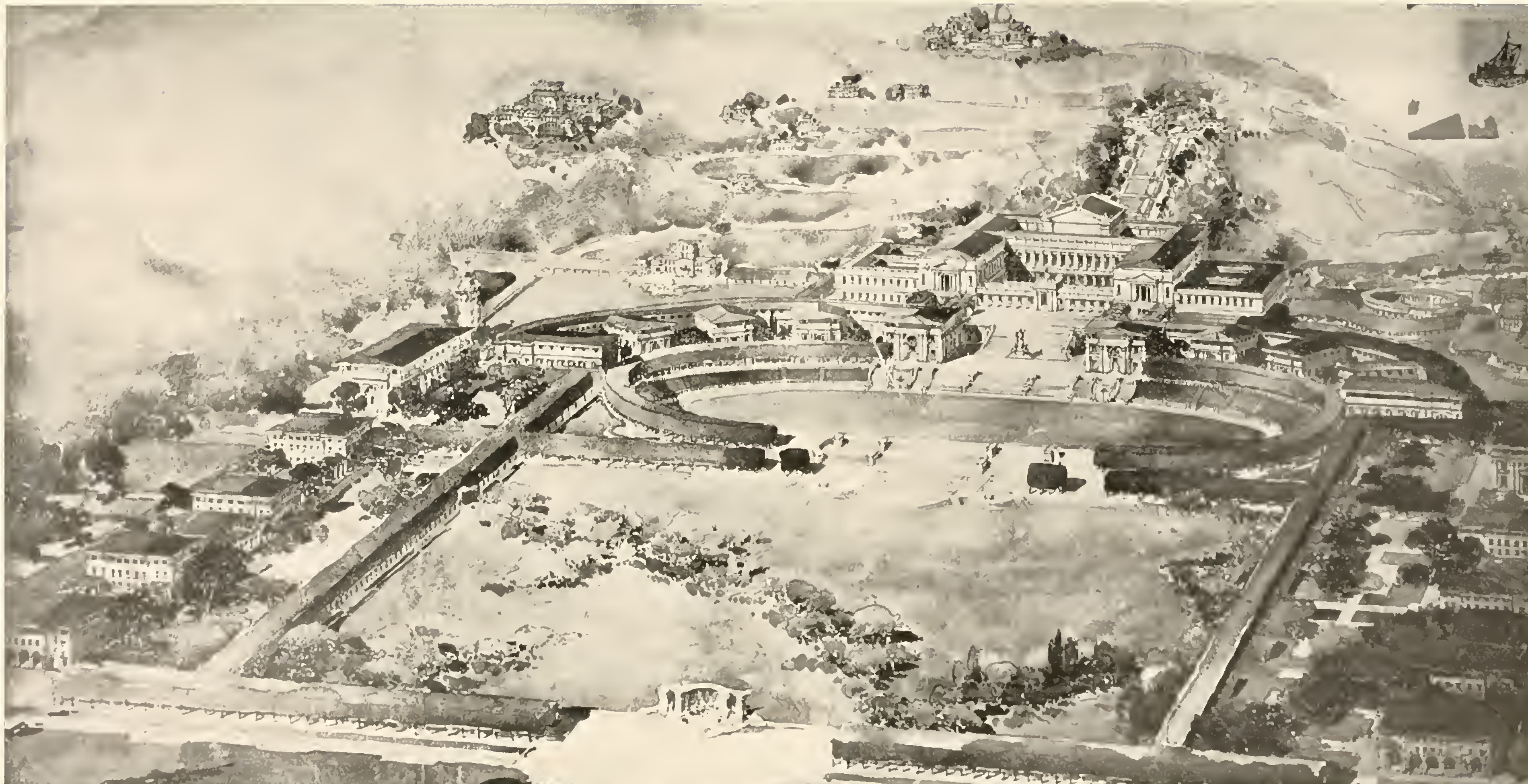
Detail Section of Auditorium — Mr. Warren, Architect.



General Plan — Mr. Whitney Warren, Architect.



Detail Ground Plan of Auditorium Wing — Mr. Whitney Warren, Architect.



General Perspective—Mr. Whitney Warren, Architect.

CALIFORNIA ARCHITECT AND BUILDING NEWS.
SAN FRANCISCO.

VOL. XXII, No. 3, MARCH, 1900.

down, putting in steel rings from time to time; but the rings would sometimes break and the caissons would get out of line. In filling, the concrete is handed down and tamped thus adding to the expense.

Referring to cement, General Smith remarked that cement used in the proportion of 1 to 3, if given sufficient time to set, would become as hard as a mixture of 1 to 1—in seven years there would be no difference. Portland cement and clean sand pulverized together in a mill will take as much sand as pure cement. It has been found that a chemical action ensues, giving vitality to the mixture. There are several such mills in New York, and one is to be set up for grinding sand and cement in Chicago. All materials for mixing should be measured and not guessed at. He advised the use of a hopper with movable partitions, which could be arranged to allow the proper proportions of sand and cement to drop on a rotary cylinder and discharge, properly mixed. Several interesting extracts were read from results of putting in foundations of the new postoffice.

In speaking of corrosion of uncovered steel columns, he said that he found they were affected to the extent of one one-hundredth of an inch per year, and it is a question whether any columns will bear this diminution. In the Eads bridge at Saint Louis sulphurous fumes have eaten away nearly one-thirty-second of an inch and at this rate a steel bridge would be unsafe in twenty-years. He advocated the fireproofing of every individual member of a building. As to the corrosion of iron it was found that this could be prevented by covering with lime, as evidenced at Pompeii, where after 2300 years iron so covered was found uncorroded. In referring to the building ordinance calling for the inside of columns to be left hollow, he thought this should be repealed as corrosion is taking place. He believed that much good could be accomplished if a whitewash could be made that would coat and adhere to iron work.—*Construction News.*

THE LAWRENCE SCIENTIFIC SCHOOL.

THE OBJECT of the courses of study outlined below is to provide the instruction in the elements of technical knowledge and the training in the principles of design which form together the proper basis for the professional practice of Landscape Architecture.

Instruction in the Theory of Design will begin in the first year with the historical and technical courses, Fine Arts 1 and Architecture 1*a*, followed by a special course in the second year on the History and Principles of Landscape Design, consisting of lectures supplemented by collateral reading, conferences and exercises in drawing illustrative of the lectures. This special course will be supplemented by a general course upon the Principles of Design in the Fine Arts (Fine Arts 2) and by a course in Elementary Architectural Design (Architecture 4*a*). The latter, which is a second year course for students of architecture, will be modified to meet the needs of the Landscape students, and tress will be laid upon planning the general arrangement of buildings, upon the treatment of axial arrangement of buildings, upon the treatment of axial arrangements and symmetry in design, and upon the grouping of masses, rather than upon architectural detail. During the third and fourth years will be given successive courses in Landscape Design, including occasional lectures, but consisting chiefly of the actual solution of problems of design by the students under the guidance and criticism of the instructors.

As a prerequisite to intelligent and successful design the students will be given a working knowledge of the materials which are required in the execution of plans and a familiarity with the means by which they are utilized. In this connection particular attention will be given to the study of plants both as individuals and as elements of landscape. In the first year will be given lectures and laboratory work in Botany, supplemented by study of plants and garden-work at the Botanic Garden. The second year includes a course in Horticulture at the Bussey Institution consisting of lectures, with study and practice in the greenhouses and in the field and garden. In the third and fourth years will be given successive courses on Plants in Relation to Landscape Planting, conducted mainly at the Bussey Institution and the Arnold Arboretum. These courses will be carefully related to the courses in design and will be supplemented by special summer work after the third year.

All the other technical instruction, which is closely similar to that required for Engineers and Architects, will be given at Cambridge, with the exception of the summer field course in Surveying, which is conducted at a distance from the University. This course will insure the necessary familiarity with the making and interpreting of topographical maps. For the general training of the eye and hand, and as a necessary preliminary and accompaniment to the courses in Design, much attention will be given to both mechanical and free-hand drawing. The engineering requirements of the profession will be fulfilled in the courses on Trigonometry, Topographical Surveying, Construction and Maintainance of Common Roads, Water Supply and Drainage, Masonry and Foundations, and Contracts and Specifications. The courses in Landscape Design will further include the elaboration of construction plans. The courses in Elementary Architectural Design, and in the Technical and Historical Development of the Ancient, Renaissance, and Modern Styles, will give a valuable training in the principles of design and some knowledge of the treatment of the minor problems of an architectural nature arising in connection with most landscape work and especially in connection with formal gardens and terraces. It will also give a sufficient knowledge of architectural methods to prepare for intelligent conference with architects in regard to the problems in which the two professions overlap.

The four courses in Geology and Geography are included in the programme in order to give a useful, practical understanding of geological structure and weather conditions and to open the way to a better comprehension of landscape forms and a more intelligent sympathy in dealing with them.

With the best of technical training, the professional success of a Landscape Architect must depend largely upon his ability to enter into touch with the wide range of ideals which he is sure to find among his clients. In no way can this ability be fostered more effectively than by the broadening influence of a college education, and while the following programme represents a four years' course open to students who can pass the entrance examinations of the School, it is expected that a large proportion of them will have taken a full college course before devoting themselves to strictly professional work. The college student who arranges his programme with that end in view can take with his other work a sufficient number of semi-technical studies to fit himself for completing the programme in Landscape Architecture in three or even in two years after receiving the A. B. degree. The instruction in the purely professional courses is therefore addressed primarly to those approaching the subject from the point of view of graduate students.

VALUABLE INFORMATION CULLED FROM OUR EXCHANGES.

IN TWO years the commerce of the United States with her new colonies has nearly doubled. The trade with Cuba, Porto Rico and the Hawaiian, Philippine and Samoan Islands, exports and imports together, amounted to nearly $102,000,000 in 1899, as against $55,000,000 in 1897.—*Clay Record.*

THE QUANTITY of steel needed for New York's Great Tunnel has been computed at approximately these amounts:—Steel beams, 21,756 tons; steel riveted work, 20,147 tons; steel viaduct, 23,168—total 65,044 tons of steel, to which must be added 700,901 tons of cast iron.

The bondsmen of the contractor, John L. McDonald, has insured his life for $2,000,000. The amount of the contract is $35,000 000.

THE COUNCIL of the Royal Institute of British Architects has nominated Professor Rodolfo Lanciani, of Rome, as the next recipient of their Royal Gold Medal. No one could object to Professor Lanoiani, who is as well kuown in this country as in England for his zeal and discretions as Government Director of archæological exploration in Rome, and for the charming books which give an account of his work, as a recipient of any honors that an artistic and intellectual body can confer upon him; but it seems a little strange that a person outside of the profession should be chosen. In this country at least, archæology and architecture are two very different things, and, while learning of any sort is commendable in a professional man, we do not see lawyers made eminent by medical societies, or physicians elected to office among engineers. That professor Lanciani's work is of great interest to architects is undoubted and as all architects look upon ancient Rome as the mother of the architecture of the present day, this is natural; but it would be hard to say in what way that work has advanced architecture.—*American Architect.*

THE SOUTH transept of St. Paul's Cathedral, the surmounting pediment, and three of the grim statues upon it is not considered safe. The whole Cathedral has, as a matter of fact, settled somewhat towards the south and east during the two hundred years of its existence. About 130 years ago this south pediment was found to be leaning forward, and tie rods were added to strengthen it. Restoration has again been found necessary, new tie rods have been supplied, the arch of the window has been taken out and rebended, and the whole structure made safe, though it still leans about two or two and a half inches out of the perpendicular. The three statues upon the pediment are to be replaced by new figures which are now executed, and parts of them have already arrived at the Cathedral and are lying in the churchyard. Each statue is in three pieces—feet, centre and upper part. The two seated statues weigh perhaps five tons or less, but the central standing figure (St. Andrew) is a giant of seven or eight tons weight, and the interesting but difficult work of hoisting his component parts into position will shortly be witnessed. The work of restoration has occupied some eighteen months and will cost about £800. —*Illustrated Carpenter and Builder.*

A CIVIL suit was recently brought in Chicago by the Illinois Board of Examiners of Architects, in the name of the state, against the August Maritzen Company, an Illinois corporation, for the use of the word "architect" in describing the services it offered to perform. The Illinois license law, in Section 5, declares that "no stock company or corporation shall be licensed to practice architecture, but that the same may employ licensed architects," and further, that it shall be unlawful for "any person to practice architecture without a license in the state of Illinois, or to advertise or put out any sign, card or other device that might indicate to the public that he or she is entitled to practice as an architect." The suit against the August Maritzen Company was dismissed on February 15, on the condition that the corporation would pay the costs of the prosecution and would abandon the practice of architecture and the use of the word "architect" in connection with its services. Mr. August Maritzen, the head of the company, is a licensed architect, but this fact does not give the corporation the right to advertise itself as an architect, nor to practice architecture. The real question, which still remains undecided, was, whether the license law of 1897 could invalidate the charter granted by the state to the Maritzen Company in 1895, when the company was incorporated "to act as architects, engineers and contractors." The upholding by the courts of Section 5 of the license law would plainly legislate this corporation out of business, so far as its architectural work is concerned. Another phase of the question is to be considered, however, it will be observed that if it is necessary or desirable to examine and license persons who practice architecture, incompetent persons, who could not secure a license, should not be permitted to practice architecture under the cloak of a corporation—*Construction News.*

FLORIDA residents expect much wealth to come to the State through the exploitation of the deposits of hydraulic cement, whose value has just been recognized by scientists and manufacturers. The exceptional quality of the cement is vouched for on the testimony of Uriah Cummings, of Akron, N. Y., who is regarded as an expert on such matters. This authority says that it is "the most remarkable natural hydraulic cement rock deposit in the known world, and the only deposit of white material."

extends from River Junction for several miles along the left band of the Apalachicola river southerly to Aspalaga. It comprises something over 2000 acres, and has a thickness of eighty feet above the river. How far it may be below has not been ascertained. Enough is exposed, however, to warrant the assertion that the deposit contains sufficient raw material to produce over 2,000,000,000 barrels of cement. Several analyses from samples taken from various parts of the formation show a remarkable uniformity of proportions of the ingredients essential to the production of a first-class hydraulic cement. But the distinguishing feature of this deposit consists in its perfect purity of color. The raw material is white, and the manufactured product is as white as the whitest marble. In this respect it is an ideal cement for the architects, as it will not stain the walls of fine masonry. Bricks made of one part of this cement and two parts of white sand are in use in many parts of the South, and they are extremely hard and beautiful.—*Stone*.

AN International Congress of Architects will be held in Paris from July 29th to August 4th. Among the questions which will be discussed during the Congress will be that of the "cheap dwelling house," which has been noted on the programme according to the request of the British architects.—*Canadian Architect*.

SO great is the demand for construction materials for the buildings in the process of construction or renovation in the City of Mexico that the six railways centering in the city are bringing in every day an aggregate of at least 100 flat cars loaded with stone, tepetate, bricks, lime and sand, of all classes. All of this material to-day costs 50 per cent more than it did ten years ago, while the wages of masons, carpenters and blacksmiths have gone up from 50 to 100 per cent and even the peons get 50 per cent more than they did ten years ago.—*Ex*.

A REMARKABLE suit is being tried in Marseilles which has an interest for Americans. The plaintiff is M. Bartholdi, sculptor of "Liberty Enlightening the World," the biggest statue in existence. Another work of the sculptor is the Lion of Belfort, which is probably the best known of the national monuments erected in France after the war of 1870. There are other works by M. Bartholdi which will keep his memory green for many years to come. But he wishes to make assurance doubly sure and to have his name connected with something that is likely to endure longer than his statues. He has set up a claim to share the credit for the Palais des Longchamps, which is one of the sights of Marseilles. It is commonly supposed that the work was designed by Henri Jacques Esperandieu, who is represented in Marseilles by numerous works. For several years he had charge of the cathedral, he designed the church Notre-Dame-de-la-Garde, the public library, etc., in addition to the Palais des Longchamps. Esperandieu has been lying in his grave for a quarter of a century, and his fame mainly depends on the Palais, which consists of two museums with an enormous architectural cataract, or chateau d'eau, between them. There is little doubt, however, that the design was prepared by M. Bartholdi before 1862. All he asks is that on the tablet which records the names of those who were connected with the work his name should be inscribed alongside Esperandieu's. The Municipality of Marseilles as well as the architect's family will not admit his claim, and M. Bartholdi has therfore resolved to invoke the aid of the courts to have justice done to his reputation.—*Stone*.

WE consider it well to call the attention of architects who wish to compete for buildings in Canada to one of the many peculiarities in the administration of the customs of that country. In answer to an advertised public invitation to send school plans to the Educational Department of Ontario, Canada, an architect in the United States wrote to the Minister of Education at Toronto, Canada, requesting information, and also if the invitation extended to architects living in the United States. In response he received a letter from the Deputy Minister of Education saying, "that the Department will be pleased to have architects of the United States among the competitors." Plans were sent in due time by express, and nothing further was heard until some time after, when the architect who sent the plans learned from the express company that the plans remained in bond at Toronto, on account of nonpayment of duty. The architect wrote to the Minister of Education and received answer that—

"The matter of duty is something that this Department has no control over. The customs authorities have refused to permit the drawings to be delivered to the Department without the payment of twenty per cent duty on the value thereof. No refund will be made on the duty that may be paid, whether the plans be returned or retained.

There was doubtless no intention to withhold information, but it would have been well to have stated in the invitation to competitors in foreign countries that the payment of a duty would be a prerequisite.—*Inland Architect*.

ILLUSTRATIONS:

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.

ILLUSTRATIONS in this number were submitted by Mr. Whitney Warren, in the Phebe Hearst University Competition and received a prize of $1000.

PLANS FOR NEW LIBRARY BUILDING.

OAKLAND, April 4.—The Board of Free Library Trustees adopted a resolution last evening binding itself to accept the plans for the new library building that should be recommended by the jury recently appointed by the Board. That jury is composed of Messrs. Pissis, Percy and Rowell. The resolution was adopted owing to the prevalence of a rumor which has it that the Trustees would not accept or abide by any recommendations of the jury unless the plans met with their personal approval.

BOOKS AND PERIODICALS.

THE LADIES' HOME JOURNAL.—"The Return of the Business Woman," by Edward Bok," "the Anecdotal Side of Mr. Beecher," "College Girls' Larks and Pranks," "The modern Son and Daughter," "Where the Founder of the Kindergarten was Born" are among the notable features of the March Ladies' Home Journal. "The Autobiography of a Girl," "The Theatre and Its People," and "The Parson' Butterfly" are continued, and "Edith and I in Paris" and "Her Boston Experiences" are concluded. Howard Chandler Christy contributes the first of his American Girl series of drawings, showing her at church, and A. B. Frost humorously pictures "The Country Store as a Social Centre." An Easter solo and an anthem are timely; and the numerous articles on fashions in woman's wear will be a useful guide just at this time. This is but a hasty glance between the covers of the March Journal. By The Curtis Publishing Company, Philadelphia. One dollar a year; ten cents a copy.

THROWING CHIMNEYS.

THROWING a chimney in a crowded town is under any circumstances a delicate operation. How to do it require s skill, and to lodge the falling shaft without injury to adjoining property, is a task of more than ordinary responsibility. The method used in throwing a lofty brick chimney in Greater New York, a few weeks since, is interesting. The chimney wss 197 feet high, the flue was two and one-half feet square, and the walls were over three feet thick at the bottom. Some half million of bricks were used in the structure, and they were held together with cement. It was a big task, but it was accomplished as follows: The front wall from the base to a height of four feet was cut away by two men with chisels, shoring the superincumbing bricks as they enlarged the hole, by stout wooden uprights. The other corners of the chimney were cut away, leaving a narrow pier on each side. Wood and coal were then piled round the shoring, and a match put to a plentiful supply of shavings, started a fire. It took but a little more than ten minutes for the fire to eat its way through the wooden supports, and as these charred away, the chimney fell slowly forward to the spot intended for the descending shaft. It took two men but one day and a half to throw the chimney. The original intention was to do the tumbling act by screw jacks, but the use of fire as described above was the chosen plan, and ii was accomplished in short order, and with satisfactory results.—*The Age of Steel.*

NOTICE OF MEETINGS.

SAN FRANCISCO CHAPTER, AMERICAN INSTITUTE OF ARCHITECTS, meets second Friday of each month at 408 California street, at 4 p. m.

SETH BABSON, Pres. H. A. SCHULTZ, Vice-Pres.
M. W. REID, Sec. JOHN M. CURTIS, Treas.

SOUTHERN CALIFORNIA CHAPTER AMERICAN INSTITUTE OF ARCHITECTS, meets first Wednesday of each month at 114 Spring street, Los Angeles, Cal.

A. B. BENTON, PRES. ARTHUR B. BENTON, Vice-Pres.
JOHN P. KREMPEL, Sec't. AUGUST WACKERBARTH, Treas.

WASHINGTON CHAPTER AMERICAN INSTITUTE OF ARCHITECTS, regular meetings at 8 o'clock P. M., the first Friday of each month, except July and August.

WM. E. BOONE, Pres. JAS. G. HILL, Vice-Pres.
CHARLES W. SAUNDERS, Sec. W. J. MARSH, Treas.

ASSOCIATION OF ARCHITECTS OF ARIZONA, meetings held at Phoenix, Arizona.

D. W. MILLARD, Pres. T. H. MADDOX, Vice-Pres.
W. R. NORTON, Sec. and Treas.

TECHNICAL SOCIETY OF THE PACIFIC COAST, meets first Friday of each month at Academy of Sciences Building.

GEO. W. PERCY, Pres. W. F. C. HASSON, Vice-Pres.
OTTO VON GELDERN, Sec. EDWARD T. SCHILD, Treas.

MASTER PLUMBERS' ASSOCIATION, meets every first and third Friday of each month at the Flood Building.

JAS. E. BRITT, Pres. J. L. E. Firman, Sec.

BUILDERS' EXCHANGE, Directors meet first Friday in each month at Mission and New Montgomery.

S. H. KENT, Pres. JAS. A. WILSON, Sec.

MASONS' AND BUILDERS' ASSOCIATION, meet first Friday evening of each month.

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Abrahamson, P.; patent ventilators	123
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Bateman Bros.; contractors and builders	236
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Beck, Adam; mas n and builder	11
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Bellingham Bay Im'p. Co; lumber	211
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California Art Glass Works	63
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California Electrical Works	223
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Crocker, Wm.; planing mill	12
Cronan, Wm.; Eagle Sheet Metal Works	313
Cushing-Wetmore Co.; concrete and artificial stone	218
Curry, J. M.; stone dealer	35
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Western Expanded Metal & Fire Proofing Co.	
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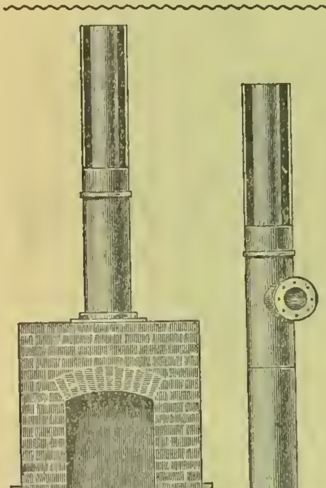

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APRIL 1900.

VOLUME XXI. No. 4.

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BUILDING NEWS.

Hayes near Schrader. Three flats; o, Martin Keating; c, J. V. Campbell; signed, April 21; filed, April 24; cost $6380.

Bush near Jones. Carpentry, etc; o, Frederick Tillman; a, J. F. Dunn; c, C. Schutt; signed, April 6; filed, April 24; cost $13,995. Water heating plant; c, Wm. F. Dugan; cost $1298. Painting, etc; c, F. Schafer cost $1198; Gas fitting; c, Schanz & Grundy; cost $4338.

Devisadero near Grove. Painting; o, P. H. O. A.; c, W. H. Wiggings; cost $1325.

Eighteenth near Church. Cottage; o, Peter J. McGlynn; c, P. Rive; signed, Feb. 24; Filed, Feb. 26; cost $235.

First Ave. near California. To build; o, Lena L. Mills; a. B. E. Remmel; c, F. Marcuse; signed, Feb. 19; filed, Feb. 26; cost $3250.

First Ave. and California. To build; o, Louise Bee; a, B. E. Remmel; c, F. Marcus; signed, Feb. 19; filed, Feb. 26; cost $3350.

Filbert near Pierce. To build; o, Thomas and A. P. Hill; c, A. Olson; cost $1360.

Frederick near Stanyan. To build; o, Hans Peterson; cost $8000.

Florida near 20th. To build; o, Fannie Arnheim; c, J. Wikman; signed, March 12; filed, March 15; cost $2650.

Franklin near Ellis. Carpentry, etc; o, Theresa and Herman Asher; a. Salfield & Kohlberg; c, W. Helbing cost $7500.

Geary near Larkin. To build; o, Amelia Tucker; a, R. H. White; c, C. M. Lindsay; cost $6550. Plumbing, etc; c, C. C. Sweeney; cost $1474.

Humboldt and 23d. To built; o, Independent Electric Light; a, Reid Bros; c, Gray Bros, signed, Feb. 16; filed, 16; filed, Feb. 24; cost $4553.

Howard near 17th. Carpenter work, etc; o, O. J. Meade; a, J. H. Littlefield; signed, Feb. 28; filed, Feb. 29; cost $3380. Plumbing; Snook & Son; cost $685. Brickwork; T. W. Butcher; $489. Concrete; M. Keatin cost $7575.

Herman and Webster. Excavation, etc; o, G. and K. Samsreither; a, H. Geilfuss; c, C. Schutt; signed, March 13; filed, March 15; cost $6960. Plumbing, etc; c, Hufschmidt; cost $1599.

Howard and 12th. To build; o, Henry Campe; a, Martens & Coffey; c, A. H. Wilhelm; cost $3598. Plumbing, etc; c. G. C. Sweeney; cost $1283.

BUILDING NEWS.

Jessie near 7th. To build; o, Ferdinand Sand; a, C. A. Meussdorffer; c, O. A. Kramer; filed, April 24; cost $4375.

Larkin and North Point. To build; o, John H. Brickwedel; a, H. Hess; c, Hughes & McDonald; cost $3500.

Lombard and Van Ness. To build; o, H. E. Law; a. A. Sutton; c, C. M. Depew; cost $4100.

Mission and Fremont. Setting steel work; o, Leon Sloss, Jr; a, A. Pissis; c, E. F. Jones; cost $4.00 per set up.

Market near 9th. Brick building; o, Malvina L. and Clara M. Wilson; signed, April 23; filed, April 24; cost $2637.

Market near 5th. Galvanized iron work; o, Hale Bros; c, W. Heidt Cornice Work; cost $1941.

Market and East. Plumbing; o, F. A. Hihn; a, C. A. Meussdorffer; c, G. C. Sweeney; signed and filed, March 28; cost $1554.

Mission near Fremont. Fireproofing; o, Louis Sloss, Jr.; a, Albert Pissis; c. Western Expanded Metal Co; signed, March 21; filed, March 23; cost $20,670.25.

Montgomery and Sutter. Additions and alterations o, W. S. Goodfellow; a, Tharp & Holmes; c, A. Wikle Jr., signed, Feb. 23; filed, Feb, 26; cost $1116.

Post near Jones. Plastering; o, A. Aronson; a, Hemenway & Miller; c, Floodberg & Miller; signed, April 11; filed, April 26; cost $2278.

Prosper near 16th. Alteration and additions; o, A. Aronson; a, Hemenway & Miller; signed, April 11; filed, April 12; cost $1325.

Page near Central Ave. To build; o, N. D. Newman; a, P. Schwerdt; c, N. D. Newman; signed, Feb. 28; filed, March 3; cost $4700.

Pine near Fillmore. Carpentry, etc; o, J. Pailasson a, J. Godart; c, L. B. Perramont; signed, Feb. 16; filed, March 3; cost $3835. Brick, etc; c. A. W. Lawson; cost $965.

Pt Lobos Ave. and 15th. Alterations; o, J. D. La Montnays; a, James Wolfe; cost $2500.

Pierce near Broadway. To build; o, R. H. Pease; a, Clinton Day; c, Robert Greig; cost $25,742.

Ridley near Waller. Four two-story frames; o, I. Anderson; cost $20,000.

BUILDING NEWS.

Second Ave. and Lake. To build; o, George A. Kelley; a, Frank Holland; c, Hannah Bros; signed, April 21; filed, April 24; cost $3400.

Spear near Folsom. Carpentry, etc; o, Charles L. Tilden; a. Tharp & Holmes; c, Thos. H. Day & Sons; signed, March 20; filed, March 27; cost $14,491.

Stanyan near Carl. To build; o, Mrs. Augusta M. Triebel; a, Salfield & Kohlberg; c, G. G. Gillespie; signed, March 2?; filed, March 23; cost $5205.

Washington and Laguna. Interior finish; o, W. G. Irwin; a, Reid Bros; signed, March 27; filed, April 27; cost $12,749.

Washington near Laguna. Stone work, etc; o, W. G. Irwin; a, Reid Bros; c, McPee Co; cost $18,713.

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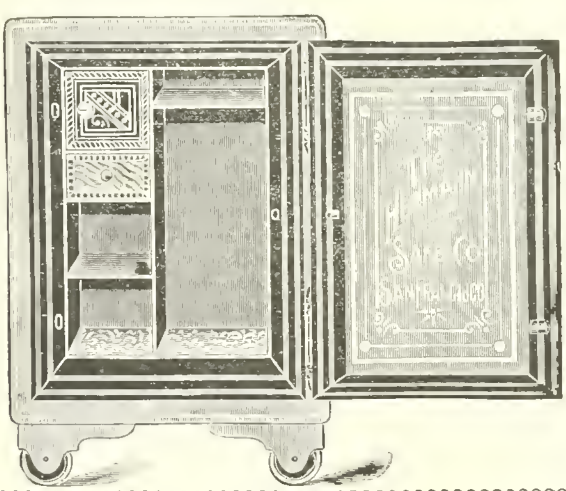

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THE CALIFORNIA ARCHITECT AND BUILDING NEWS

$3.00 PER YEAR

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BY
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ESTABLISHED IN 1879 — NOW IN THE NINETEENTH YEAR — INCORPORATED 1889

D. J. PATTERSON 98

VOLUME XXI. APRIL 20th, 1900. NUMBER 4.

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

THE *Chronicle* has all along been determined to discredit the procedure of the Oakland Library trustees, and it is not surprising that the competition for the new Carnegie building should be pronounced a failure. Of course any sane man knows that the editorial "opinion" of any and all of our dailies is beneath contempt and we only deign to notice this one by way of introduction to our subject and in a measure to give point to the professional facts by a brief allusion to the *journalese fichion* of the case.

And the facts are that Mr. Carnegie's money will be spent on an excellent building: that the library trustees have set an example which all other such bodies should and we hope will undoubtedly follow; that the jurors have unquestionably selected the most suitable plan for realization: that the plans submitted present quite an exceptional array of talent, and finally that the people of Oakland are in every way to be congratulated.

The scheme adopted is the work of Messrs. Bliss & Faville. It is simple and scholarly and conceived in the spirit of the day. Particularly noticeable is the organic character of the design so happily revealed in the sections. Exterior and interior, form and function are admirably adjusted to one another. Unquestionably it was the best of the fifty-two schemes considered, and the competition must therefore be pronounced an unqualified success.

A CURRENT NUMBER of *The Builder* in commenting upon an article by Mr. Russell Sturgis on English and American practice compared brings some peculiar facts well worth noting. On the whole the evidence goes to show that the American practitioner gives far more service for his five per cent than his English colleague, especially in the number and variety of details furnished to contractors and in the minuteness of the specifications and the extra amount of superintendence demanded. In this latter particular the English architect is relieved of much attention to petty matters by a regularly appointed and salaried clerk of the works whose sole duty is to attend to all the details of construction from start to finish in the interest of the architect and owner. The The architect in consequence has to devote very much less of his time to small constructive and "trade" details of his practice and has more time available for the professional side. In other words he gives less time to building and more time to design. Hence it is that in England the leading architects are generally men of scholarly attainment, men of thought and artistic convictions, generally draftsmen of great originality and skill and often students with a strong bias towards archælogy. This is true of Europe generally. In England, Norman Shaw, Waterbome Street, Peyin Pearson and Belcher and a host of others, dead and living, all belong to this type. They are artists, designers primarily and bnsiness men and builders in a secondary sense only. In America on the other hand as a rule the leading architect the most successful architect is primarily a business man and a builder, secondarily he may or may not be an artist or a draftsmen.

In bnilding the cities of modern America the distinctive and typical architectural achievement is the down-town business block that will pay its owner six per cent net, and what has design to do in a scheme of this kind? Certainly very little. The faculty necessary to arrange from seven to twenty-seven rows of windows above one another in a simple comprehensive scheme and include an entry below and a cornice above belongs to the rudiments of design. For one unit of thought bestowed on the facade and its design one hnndred must be given to details of construction, to steel work, heating plumbing, electrical, ventilation, lighting, elevator system, fireproofing and maintenance and a host of complicated technical detail that have no relation to "design" or drafting whatsoever. Some English writers deplore the fact that the builder and the architect are two individuals instead of one.

As a matter of fact the American architect at work on a modern office building is also actually the builder of the same. He with his staff of specialists around him actually determines everything and is responsible for everything from the brand of cement in the nethermost foundations to the last kind of sheet metal in the top skylight! We think five per cent too tittle for the service.

COLOR IN ARCHITECTURE.

BY JOHN GEMMELL—PAPER PRESENTED AT THE ANNUAL CONVENTION OF THE ONTARIO ASSOCIATION OF ARCHITECTS, TORONTO, JANUARY, 1900.

TO UPHOLD my contention that good architecture should never be clothed in dark materials perhaps it is better to go back to the ancients for the color as we had to for the forms. I do not think they used dark stone. When we conjure up the classic buildings of Greece and Rome, it is I think, of a gray hue we imagine them—perhaps because our best reproductions of them are of this hue—yet you know the Elgin marbles which formed the Typanum of the Parthenon's pediment are of that ivory yellow which white marble takes on by lapse of time, and the whole building was no doubt of the same material. Wander among the ruins of that centre of the world's civilization, the Forum of ancient Rome, and we can no longer speak of them as cold grey stones. If I remember rightly the pavements, steps, pedestals and bases were of white marble, and by the remains of broken shaft, capitals and cornice the superstructures had been of the many colored marbles of Italy. Recalling your knowledge of Roman customes—the togas of red purple and fine linen—you must imagine a much more glowing picture of ancient Rome than its distance from us is apt to call up. May we not then from the fragments left us conclude that the ancient classic art so true and beautiful in form, believed that this form was best displayed by materials of lightest shade of color. This, if true then, is true to-day. Perhaps Paris the beautiful is so more from the use of the light Caen stone than from its architecture, which is somewhat flat, and certainly monotonously alike.

There is one little town that lives in my memory—often called up, though I never knew its name—but which I think was an object lesson in color. My train stopped for about five minutes on the Italian side of the Alps; about half a mile from the tracks there lay a lovely placid blue lake; on the other side of this, with its reflection in the water, built up the mountain side, appeared a small town, the walls of yellowed white stucco, projecting eaves of the roofs, deeply revelled windows, open inviting galleries and many a natural addition of gable and lean-to; all the walls were one color—all the roofs of low Italian pitch and red tiled with that half round tile that makes so exceptionally fine finish at the eaves; the spaces were made up either by the grey tone of the roadways or the green of the vine or trees. Illumined by the morning sun of a spring day one could trace the soft green foliage up the mountain till it merged into the glittering white and blue peaks of eternal snow which crested the scene, against the deepest of blue sky.

I cannot help thinking how much of the brilliancy the whole would have lost if the houses of that mountain village had had walls of dark brick and its roofs had been dark slate. In passing, is it not aggravating that so complete light and durable a roof as our Canadian slate, gives so little satisfaction in point of color with its staring unchanged black.

Getting nearer home in this matter of color in architecture, some of us remember the advent of red brick inculcated by the lectures of Oscar Wilde and the example of our continental neighbors, who more than once have had a malign influence on our tasks when we were following the traditions of the old country—our legitimate inheritance—leading us astray into abominable practices of galvanized iron, clapboard and the like, and later the worship of the prison-like Romanesque, a style which can only now be admired in a few of the works of the leader of that movement, and these more as the energetic struggles of a vigorous mind shaking itself free from a very chaos of debased architecture.

But I am degressing. The red brick period came and to a large extent is with us yet. It was hailed as a Renaissance in our architecture, and we out-Heroded Herod, making our walls a mass of red with no evidence of construction, obliterating the mortar joint, which is not honest. Properly laid walls with mortar joint large enought to bed and point the brickwork properly, result in a very different tone of color in mass.

Has then color to be entirely eschewed on the exterior of buildings? No, but I hold that color is somewhat as Tallyrand said of speech, that it was a gift given to enable man to conceal his thoughts. In true architecture the massing and outline should attract, but also its details should hold and give study to the eye. Now is it not true that in a building of dark stone or brick one is conscious of its color above everything else? Has it not about the same relation compared to a light building that a silhouette holds to a portrait—striking outline at the expense of expression and detail?

This use of dark colors for building allows no field for that mellowing and blending effect of time to do its best work. Look at the stone work of St. Andrem's Church or that of the University, and you will see what is meant, and I think you will also be convinced that these effects are never produced with a groundwork of dark stone; and the same can be said of the inferior material, brick. I believe from the weathering qualities of some examples of our old Yorkville white brick, that had we been less of faddists and persistently improved our architecture in that material, we would now be further advanced in the direction of good architecture in individual buildings, and the general effect immensely better.

I have frequently noticed the east end of Holy Trinity Church—it is a delightful specimen of old white brickwork which time has only ripened and not much injured. The firm of Darling & Curry some time ago erected a school house to this church, and wrongly, I think, following the fashion of the times, it is of redbrick. I would like you to compare the two, and without saying anything in disparagement of its architecture, I believe we would all agree that there is no hope that the school house walls will ever acquire the interest of those of the older building.

With tho glamour of red pressed brick, brown stone, brilliant stained glass and the like, we will never gain the repose and dignity of great or even good architecture. Color does to a certain extent attract the senses, but in the artificial surroundings of the interior of buildings will be found its more congenial sphere. On the exterior it is more a substitute for than an essential in archistecture—whereby we can say "be ye warmed and filled," and yet refrain from giving thought, research and patient working up of details necessary to give permanent interest to any building.

Is it then my contention that the buildings of a city should be one uniform color? Perhaps this would flavor too much of dogma to suit the artistic miud, yet worse things could happen. I have instanced Paris and Washington, and might refer to the clean light granite cities of the north of Scotland—Aberdeen and its neighborhood—as being peculiarly satisfactory to all who have visited them, and certainly much more satisfactory in point of general effect to, say, that dreary monotony of red brick to be seen in a Philadelphia street.

I would remind you that Nature never indulges in chequerboard work. Broadly speaking, varying greeus for earth, grey for her cliffs and rocks, blue for water aud sky—her efforts are gained by infinite gradatio s of these, with the aid of sunshine and shade, but how seldom and in what small quantities are the bits of color the artist speaks introduced, like accents in music. What extenuation, then, have streets to be seen whose buildings alternate in color like Joseph's coat?

There is none of you now would revive that style of building which, from its regular dispositiou of red brick and white stone, gained the cognomen of streaky bacon, and you are right in this, for nothing more certainly destroys the unity of a design than separating the cornice from its frieze, the architrave from its pillars, and otherwise breaking into fragments, by strong contrasts of color, that which should be viewed as a whole. Now, if the separate building has gained by this grasp of the necessity of unity in a building before it is to be considered worthy of criticism, why not apply the principle to the whole street or the whole city? To me it seems if this could be accomplished, there would be enough of color element introduced by the discolorations of time, by minor bits of detail, and the drapings of windows, which would suggest to the outside the warmth and hospitality of the interior.

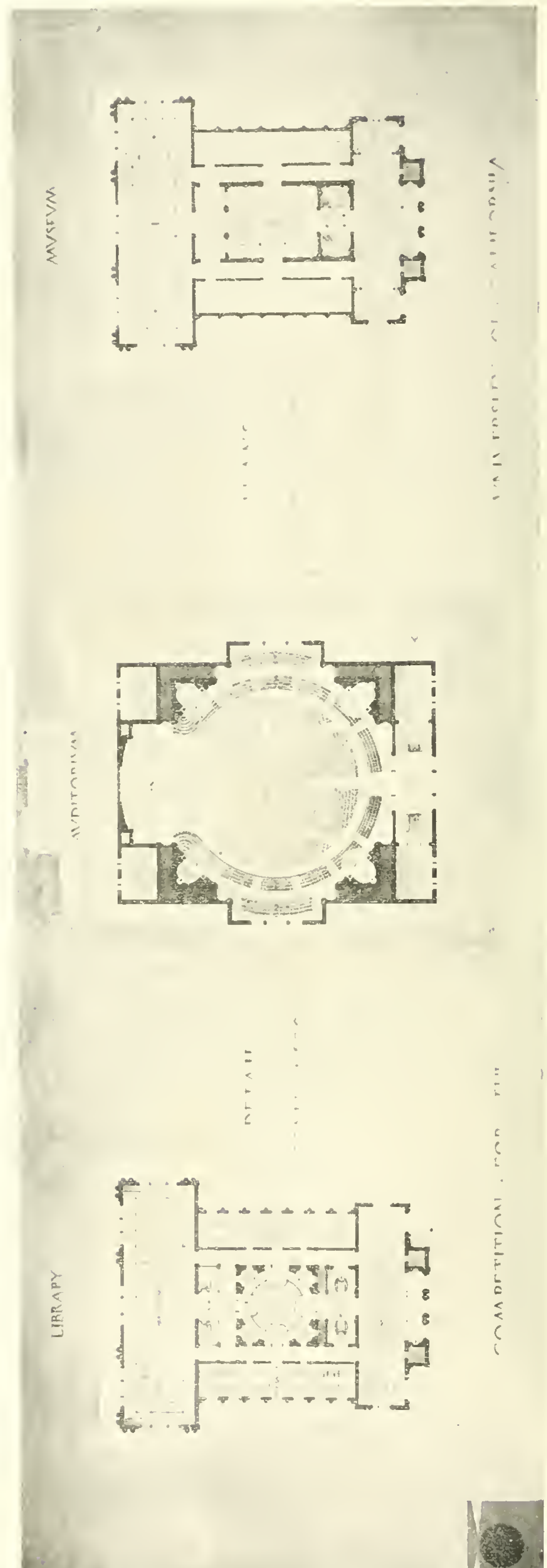
As a last illustration to enforce the argument that materials of light shades of neutral color are best adapted for the building of an ideal city, I would ask you to look at the picture of old Venice on the wall to your left. Let us imagine that the government of the sea-girt city, attracted by the fame of a certain architect—one Signor Waite, of Palermo—they had on his advice at great expense changed the material of that beautiful church across the Lagoon, "St. Maria del Salute," and it was constructed of a sombre brown stone. Do you not think as you look at the picture that this would have been a frightful mistake, and the artistic sense of the Venetians would have been bitterly regretting it these many centuries?—*Canadian Architect.*

CONCRETE FLOORS IN ENGLAND.

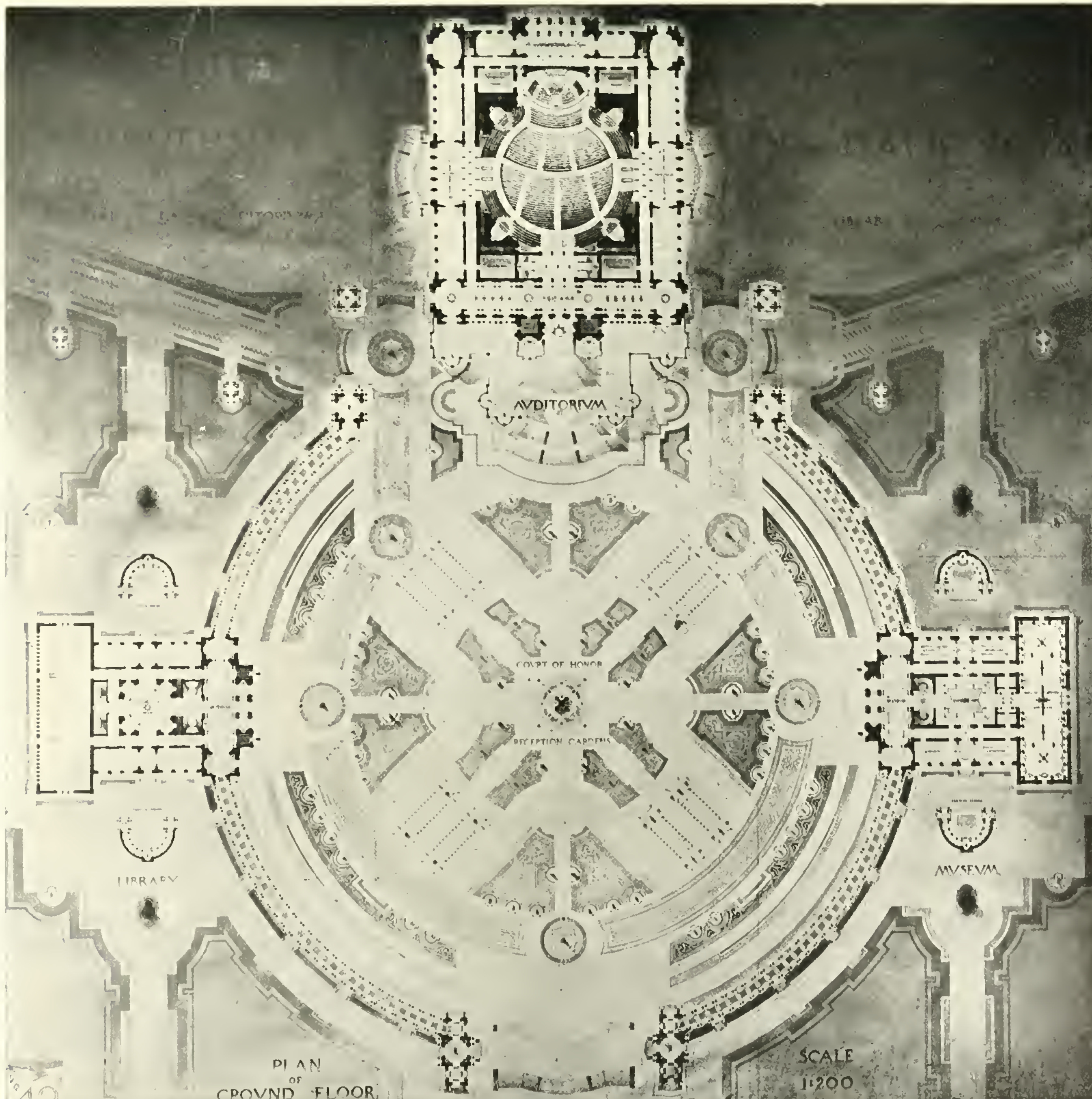
A PAPER on "Concrete Floors," by Mr. Frank Caws, F. R. I. B. A., printed in a recent issue of the Journal of the Royal Institute of British Architects, presents some phases of concrete floor construction which, while differing not a little from the practice in this country, will not be without interest to American practitioners. Mr. Caws' paper deals almost entirely with concrete floors of the slab principle and in which he uses as little iron as possible to avoid the weakening of the concrete by the unequal expansion of the iron in the event of great heat, and to decrease the expense. He describes his earliest work in concrete floors in connection with the rebuilding of Pearman & Corder's 4-story warehouse at Sunderland, in which were used 1800 tons of concrete flooring in large slabs about 13 inches thick, many of which were 20 feet long by $12\frac{1}{2}$ feet wide, without any iron in them. This building was a heavy goods warehouse, and was erected at a cost below what it would have beeu under the method of construction at that time most approved of. The following extracts are taken from Mr. Caws' paper:

"In the Pearman & Corder building the walls were carried up to their full height before any floors were cast. The top floor, which was the roof flat, was cast first, and when it was set the same centering was used for the lower floors, one after the other, which, while economizing the cost of centering, of course added to the slo'vness of the progress. This is a method which I would never adopt from choice, as I consider it subjects the work to serious disadvantages. I greatly prefer to cast the floors upon the walls as the building rises, and to use a separate centering

General Section — Mr. J. H. Freedlander, Architect.

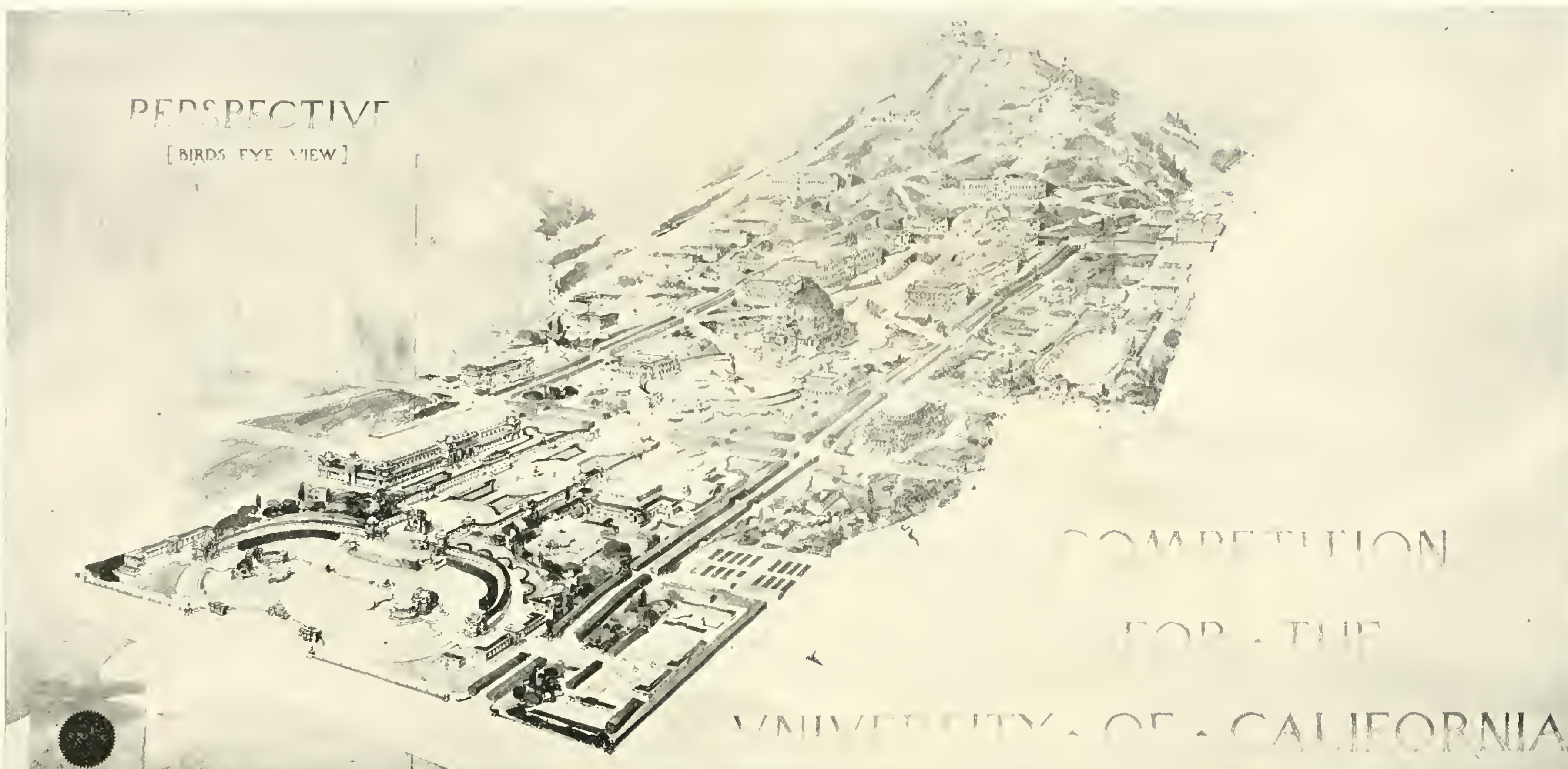


Detail Plan of Second Floor of Auditorium, Library and Museum — Mr. J. H. Freedlander, Architect.



Detail Plan of Ground Floor of Auditorium, Library and Museum — Mr. J. H. Freedlander, Architect.

CALIFORNIA ARCHITECT AND BUILDING NEWS.
SAN FRANCISCO.
VOL. XXI. No. 4. APRIL, 1900.



General Perspective — Mr. J. H. Freedlander, Architect.

General Elevation — Mr. J. H. Freedlander, Architect.

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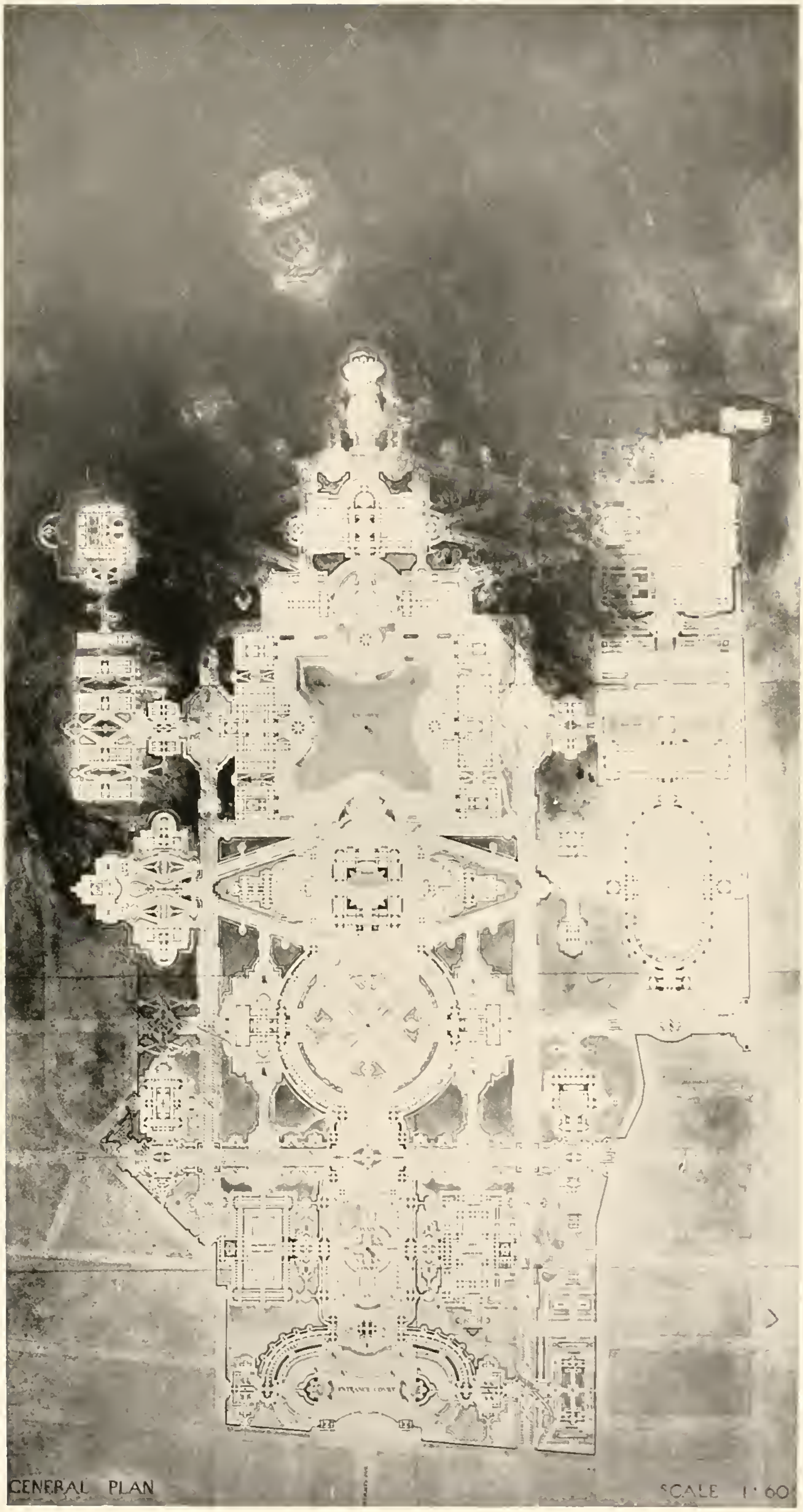

General Plan — Mr. J. H. Freedlander, Architect.

Front Elevation of Auditorium, Library and Museum—Mr. J. H. Freedlander, Architect.

Detail Section of Auditorium, Library and Museum—Mr. J. H. Freedlander, Architect.

for every floor, and in many of my subsequent works I have adopted this method, but one cannot always do as one likes in such matters. At Pearman & Corder's building we obtained the necessary rests for the slabs upon the walls by building courses of brick in sand at the floor edges, which courses could be easily removed in short sections as fast as the concrete was ready to take their place. This is a method which is perfectly safe, like underpinning, if carefully executed, and though I have never experienced any ill effects from it, there is always the 'if,' which should, if possible, be avoided.

"Perhaps, before proceeding further, I ought to describe the nature of the concrete used on this occasion. It consisted of one part of Portland cement, manufactured by Messrs. Grimshaw of Hylton, and four parts of good, hard, broken brick, turned over twice dry and twice wet, using the water as sparingly as possible. I am an advocate of broken brick as the best aggregate for concrete for such floors, because, having passed through fire, brick is already fireproof, differing in that respect from broken stone or gravel. I have also found out that broken brick is a substance of approximately equal strength to Portland cement, which is proved by the fact that when such concrete is broken up, the fracture extends alike through both the brick and cement, but when hard flint gravel is used instead of brick, the fractures leave the individual pieces of gravel intact, while the broken concrete has the appearance of cement gums, so to speak, from which the gravel teeth have been withdrawn. This is particularly true when the gravel used is of a smooth and rounded kind: moreover, the hard, smooth gravel surface has no suction for the cement like the porous surface of broken brick. I am aware that various kinds of breeze are often used as aggregate in concrete floors, it being argued that this material makes the concrete much lighter; but I should hesitate to construct large slabs with breeze aggregate, as I do not think it would be equal in strength to concrete with broken brick aggregate, and as to the weight of the latter I consider it no drawback to a properly constructed building with good and sufficient foundations. Breeze aggregate may, however, be usefully employed for any parts of the floor or ceiling into which it is desired to drive nails. But my practice has been to embed breeze bricks in the concrete for such a purpose in the proper position where required for nailing.

"The greatest difficulty in dealing with cement-concrete floors is due to the natural expansion which the material undergoes in process of setting. This expansion is much greater when the cement is new and hot than when it is old and cool. It is not, however, the expansion itself which causes the trouble, so much as the smaller degree of contraction which follows expansion in the process of setting. This contraction causes cracks, which frequently occur over the supporting girders where the concrete is generally thinnest. These cracks have really no appreciable effect upon the strength of the concrete, but all the same they are apt to cause uneasiness and want of confidence in the minds of those who do not understand what they are occasioned by. By using carefully selected cool cement, and by taking certain precautions in regard to the size of the slab and its mode of casting, the shrinkage can be so minimized as to almost entirely avoid such cracks.

"I would like to point out at this stage that I consider sand a most improper material to mix with cement in concrete floors; in fact, I regard it as poison to the cement, and

Detail Transverse Section of Auditorium, Library and Museum – Mr. J. H. Freedlander, Architect.

have never allowed its use since the discovery I made at the early stage of my experience as to its bad effects.

"The fact is, if a very fine sand be used, instead of helping the cohesion of the concrete, it tends to disintegrate it, so that, when sand is employed to give the necessary smoothness to the finishing of the upper surface of the cement-concrete floor, the surface, when subjected to the traffic, is likely to scrape off, and give off sandy dust, and eventually present a very shabby appearance; therefore, I have found it best to employ, in finishing the surface, fine crushed granite instead of sand.

"Of course, the surface of the slab should always be put upon it, while the body of the casting is still comparatively wet, but it is hardly practicable to put the surface on in one and the same heat with the casting of the slab. In fact, it generally has to be done as a separate operation, and though it is desirable to have it done on the very next day after the slab has been cast, it is not always possible even to secure that arrangement; and it ought not to be overlooked that, whether the surface be put on immediately after the casting or some time later, the surface—which should generally be about an inch thick—can never be made absolutely homogeneous with the under bed. For once the latter is allowed only a few hours to set, the film of air resting upon it is never entirely expelled by any layer afterward superimposed, and this air-film constitutes a real division between the under bed and the surface. Therefore, in reckoning the strength of concrete slabs, the architect should not rely upon the entire thickness, but only upon the thickness of the under bed; so that, for example, in a slab whose total thickness is seven inches, including a 1-inch top coat, the architect should consider the effective thickness, as regards strength, as six inches only.

"One of the most remarkable features about cement-concrete floors is the great density of the concrete at its under surface, due to the fact that the liquid cement naturally gravitates to the lowest level, leaving the grosser aggregate above it, so that the wood centering when removed leaves upon the ceiling an exact impression of every plank, such that the grain of the wood is distinctly traceable upon the under surface of the concrete slab, the extreme hardness of which makes it difficult for an ordinary plaster ceiling to be rendered beneath it without running the risk of the plaster falling down, as the hard cement surface has little or no suction to afford the plaster a key, or hold.

"There are various methods of overcoming this difficulty, all of them more or less costly. In one of my most expensive buildings I determined to do without the plaster ceiling, and to obtain a perfectly smooth surface to the under-side of the concrete floors by which the plaster would be rendered unnecessary. Accordingly, I set the plasterer to work to cover all the wood centerings with a skin of plaster, floating it very true and smooth, and so, instead of casting the concrete upon bare boards in this instance, I had it cast upon a prepared plaster matrix. When the center was taken down the plaster came away with it and left the cement surface as perfectly level and smooth as could be desired; but, alas! the color of the material being dull, mottled, and unpleasant and having none of the light-giving quality of the white plaster ceiling, we had no alternative but to paint or paper these cement ceilings.

"Another method which I have tried more recently and very successfully in plastering under concrete slabs is to render them, after the centering is taken down, with a coat of Portland cement and sand, which I find adheres well, and upon this coat I finish with a skimming coat of fine plaster.

To be Continued.

MELTS STEEL AS THOUGH IT WERE BUT WAX.

THINK of 5400 degrees Fahrenheit, in which a great bar of steel melts like wax around a candlewick. This temperature, it was announced by those who made the experiment on Saturday in Thomas A. Edison's laboratory at Orange, N. J., was generated by a new process.

Let no layman measure the heat of the sun at close range. The men who made this experiment measure the intensity of heat by the time it takes to melt a bar of steel of given resistance.

The experiment was made in Mr. Edison's presence by Louis Dreyfus of Frankfort-on-the Main, who wished to demonstrate to "the Wizard" the practicability of a process invented in Essen, Germany. Mr. Edison, Mr. Dreyfus, Harold F. Brown and the *Call* representatives were present. The process consists, in brief, in the combustion of a certain chemical compound, in connection with powdered aluminum. Mr. Dreyfus placed in a crucible a bar of steel six inches in length and half an inch in diameter, placing around it a teacupful of his chemical. Pouring on this a small quantity of powdered aluminum he touched a match to it and in an instant it blazed up, throwing out an intense heat. In less than ten seconds by the watch the steel bar was completely melted.

Mr. Edison was delighted at the results and said that the process was what he had been in search of for a long time. He ordered a quantity of the chemical for further experiments.

Mr. Dreyfus said that the process was now being used in welding together steel rails. By a simple device the chemical and aluminum can be fed continuously at any desired point and local application of the heat continued as long as desired. It was agreed by the experts that the heat generated was 5400 degrees Fahrenheit.—*S. F. Call.*

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.

ILLUSTRATIONS in this number were submitted by Mr. J. H. Freedlander in the Phebe Hearst University Competition and received a prize of $1000.

BOOKS AND PERIODICALS.

HAND RAILING SIMPLIFIED.—Being an exposition of the Sectorian System of developing Hand Railing. Edited and revised by Fred. T. Hodgson, Architect, member of O. A. A. Wm. T. Comstock, Publisher, 23 Warren street, New York, N. Y. Cloth $1.00.

This is the only book published which treats the art of Hand Railing throughout on the sectorian system, and the work seems to be done thoroughly. The sectorian method seems to be a sort of quick method of getting the cuts, bevels and curves for the formation and finishing of the rail by means of two boards hinged together, called a section, which may be folded so as to adjust themselves to whatever curve may be under consideration. The section in part is so arranged that its sides may be made tangents to the curve of rail and the risers and cylinder ends of the winders, may be laid out on the inside of the section which, when folded to the right angle shows the elevation of the stairs around the cylinder—so called. When in this position, the cuts, curves and levels for building the rail, may be obtained. This system is akin to that known as the "Quadrant Cut Box System," which is a sort of "cut and fit" method of building a hand rail, and is intended to pave the way for a more elaborate method of hand railing.

By this method any good workman who gives an hour or two to the study of the subject as exemplified in this little work, will be enabled to build a fair rail; and it will give him such an insight into the science of "Hand Railing" that he will have but little trouble in understanding any of the more scientific systems, such as are formulated by Riddell, Monckton, Secor, De Graff or Nicholson.

The terms used are in plain English, and the explanations are couched in the simplest language possible. Taking it all in all, the little work will prove very useful, as a sort of primer, or first book in "Hand Railing," and is sure to become popular with young workmen.

VALUABLE INFORMATION CULLED FROM OUR EXCHANGES.

THE methods of house construction pursued in France and the United States present some marked differences. In the former the heavy work—that is to say, the main walls—are all of dressed stone or rough blocks faced with mortar, the girders and cross beams are of iron, the ceilings are arched and of brick, the stairs of stone or marble, the floors of terra cotta tiling of diamond or hexagonal shape, the interior walls of hollow bricks placed edgewise, the roof of blocks of terra cotta covered with tiles or slate, the chimneys of marble, and finally, the doors and windows, the friezes, cornices, castings, base boards and other wood work are all of oak or walnut. It is due to this selection and arrangement of materials, the proportion of anything of an inflammable character being relatively so small, that a fire can very generally be confined to the place where it started; to this indeed, being attributed the fact that a fire often breaks out in the cellar of a building full of various combustibles, such as petroleum, oils or varnish, without doing damage to the rest of the building. Another safeguard against fire may be added to the foregoing—viz., the almost universal use of Swedish safety matches, which can only be lighted by scratching on the side of the box.—*Improvement Bulletin.*

THREATS of Contractor to Abandon Work.—Timothy Sullivan had a contract with the Sewer Commissioners of the City of Amsterdam, which provided that the city might complete the contract in case the contractor "shall fail in due performance in any part of his undertaking, or shall become bankrupt or insolvent." Sullivan, being dissatisfied with the engineer's estimate made of his work done, told the Commissioners that he would not go on with the work unless the estimate was allowed at his figure, and that he was unable to pay his men unless he received the amount claimed by him. After Sullivan had gone, the Commissioners passed a resolution directing the engineer to take possession of the work which he did the next morning, although Sullivan who was not informed of the action of the Commissioners, was there present, prepared to proceed with the work. The work was completed at a loss to the city, as the Commissioners claimed of $1300 over and above the contract price. This loss they sought to recover from Sullivan and his sureties. A decision of the Third Appellate Decision in favor of the defendant has been affirmed by the Court of Appeals upon the opinion of Justic Merwin. The Court holds that a mere threat to abandon the work, not followed by an actual abandonment, did not justify the expulsion of the contractor therefrom, nor a forfeiture of his rights therein, as no injury or change of situation was shown to have occurred by reason of such threat.—*N. Y. Times.*

NOTICE OF MEETINGS.

San Francisco Chapter, American Institute of Architects, meets second Friday of each month in the Phelan Bldg. at 4 p. m.
Seth Babson, Pres. H. A. Schultz, Vice-Pres.
M. W. Reid, Sec. John M. Curtis, Treas.

Southern California Chapter American Institute of Architects, meets first Wednesday of each month at 114 Spring street, Los Angeles, Cal.
A. B. Benton, Pres. Arthur B. Benton, Vice-Pres.
John P. Krempel, Sec't. August Wackerbarth, Treas.

Washington Chapter American Institute of Architects, regular meetings at 8 o'clock p. m., the first Friday of each month, except July and August.
Wm. E. Boone, Pres. Jas. G. Hill, Vice-Pres.
Charles W. Saunders, Sec. W. J. Marsh, Treas.

Association of Architects of Arizona, meetings held at Phoenix, Arizona.
D. W. Millard, Pres. T. H. Maddox, Vice-Pres.
W. R. Norton, Sec. and Treas.

Technical Society of the Pacific Coast, meets first Friday of each month at Academy of Sciences Building.
Geo. W. Percy, Pres. W. F. C. Hasson, Vice-Pres.
Otto Von Geldern, Sec. Edward T. Schild, Treas.

Master Plumbers' Association, meets every first and third Friday of each month at the Flood Building.
Jas. E. Britt, Pres. J. L. E. Firman, Sec.

Builders' Exchange, Directors meet first Friday in each month at Mission and New Montgomery.
S. H. Kent, Pres. Jas. A. Wilson, Sec.

Masons' and Builders' Association, meet first Friday evening of each month.
Adam Beck, Pres M. V. Brydy, Sec

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TREASURY DEPARTMENT, Office Supervising Architect, Washington D. C., April 21st, 1900. Sealed proposals will be received at this office until 2 o'clock P. M., on the 28th day of May, 1900, and then opened, for the wharf and disinfecting and bath houses at the U. S. quarantine station, Astoria, Oregon, in accordance with drawings and specification, copies of which may be had at this office or the office of the Custodian of the Station. JAMES KNOX TAYLOR, Supervising Architect.

MAY 1900. VOLUME XXI. No. 5.

VC

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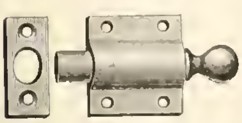

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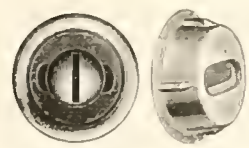

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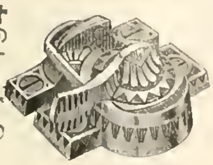

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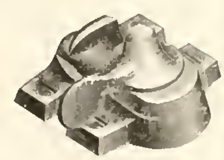

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BUILDING NEWS.

Beale near Mission. Brick building; o, Jane E. and Chas. M. Belshaw; a, Herbert B. Maggs; c, Cotton Bros; signed, May 17; filed, May 26; cost $5974. Carpenter work, etc; c, J. W. Wissinger; cost $14720. Brick work; c, Thos. Buttles; Concrete walls; c, H. L. Petersen; cost $4497.

Berry near Channel. To build; o, F. W. McFarlane a, Edward R. Swain; c, F. W. Kerr; cost $9475.

Bush near Kearny. Brick work, etc; o, Shield Estate Co; a, T. Patterson Ross; c, Wm. Little; cost $24,600.

Chestnut near Jones. Concrete, etc; o, G. Marsili; a, L. S. Stone; signed, May 17; filed, May 22; cost $4668.

Clay near Laurel. To build; o, Warren D. Clark; a, Frank S. Van Trees; c, A. Howkins; signed, May 24; filed, May 24; cost $1050.

Dupont near Jackson. Brick; o, Ow Tin Ke and Hoo Foy; a, Chas. Z. Soule; c, M. V. Brady; signed, April 30; filed, May 3; cost $2475.

Eddy near Franklin. To build; o, A. Petzold; a, Martens & Coffey; signed, May 23; filed, May 26; cost $17,424. Gas fitting; c, Schanz & Grundy; cost $2390. Painting, etc; c, Martin Peterson; cost $1196.

Eddy near Franklin. To build; o, Chas. Bush; a, Philipp Schwerdt; c, Wm. Helbing; signed, April 25; filed, May 3; cost $10,250. Sewering; c, Jas. F. Ford; cost $1550.

Eddy and Franklin. To build; o, Chas. Bush; a, Phillipp Schwerdt; c, Wm. Helbinfl; signed, April 25; filed, May 3; cost $13,150. Sewering; c, Jas. F. Ford. signed, May 3; filed, May 3; cost $1500.

Geary near Jones. To build; o, Mary E. Baldwin; c, John Wiren; signed, May 19; filed, May 22; cost $9100.

Geary near Jones. Brick and steel building; o, A. Aronson; a, Hemmenway & Miller; c, Vulcan Iron Works; signed, May 8; filed, May 19; cost $4800.

Market near Sixth. Plastering; o, Hale Bros. Inc; a, Reid Bros; c, D. R. Clork; signed, May 15; filed, May 23; cost $6800. Steam Heating; c, Jas. G. Grams; cost $3395. Plumbing, etc; c, Duffy Bros; cost $3575. Electric wiring; c, Wybro Hendy Co; cost 23500.

Market near 6th. Excavation, etc; o, Mrs. E. J; Wilson; a, G. W. Percy; c, Chas. A. Warren; signed and filed, May 14; cost $1100.

Market and Second. Grading, etc; o, Justinian Caire Co. a, E. A. Hermann; c, J. A. Wilson; signed, May 23; filed, May 26; cost $9276.

Market near First. Alterations and additions; o; Alice D. Gauld; a, E. A. Petterson & Person; cost $5125.

Market near 6th. Interior finishing, etc; o, Hale Bros; a, Reid Bros; c, Campbell & Pettus; cost $11,240.

McAllister near Franklin. Alterations and additions; o, F. Kronenberg; a, Salfield & Kohlberg; c, C. Schutt; signed, May 24; filed, May 26; cost $3050.

McAllister near Polk. Alterations and additions; o, Richard Flaherty; a, Stephen R. Doyle; cost $3894.

Montgomery and California. Excavation, etc o, Alvinza Hayward; a, G. W. Percy; c, Cushing-Wetmore Co; signed, May 23; filed, May 23; cost $5700.

O'Farrell near Larkin. To build; o, Chas. S. Mann a, Havens & Toepke; c, A. Dahlberg; signed, May 17; filed, May 19; cost $6760. Plumbing; c, Jas. F. Ford cost $1028.

O'Farrell near Octavia. To build; o, Jas. C. Pennie; a, Edgar A. Matthews; c, J. C. Caldwell; signed, May 21; filed, May 22; cost $3827.

Pacific Ave. and Laguna. Partitions; o, John D. Spreckeles; a, Reid Bros; c, W. T. Veitch & Bros; cost $4731. Material; o, W. T. Veitch & Bros; c, Henry Gervaise; cost $4130.

Pacific and Laguna. Steam heating, etc; o, John D. Spreckeles; a, Reid Bros; c, G. H. Taylor & Co signed, April 28; filed, May 23; cost $8120.

Scott near Washington. To build; o, Josephine Cockrille; c, Daniel Einstein; signed, May 22; filed, May 23; cost $7100.

Stanford near Brannan. Grading, etc; o, T. J. Parsons; a, T. Patterson Ross; cost $13,237.

Twenty-second and Capp. To build; o, German Evangelical Lutheran; a, Martens & Coffey; c, A. H Wilhelm; signed, May 8; filed, May 16; cost $11,975. Drainage, etc; c, A. N. Westphal; cost $537. Painting c. G. Posiler & Co; cost $590.

Second and Bryant. Excavation; o, R. R. Thompson; a, G. W. Percy; c, Gray Bros signed, May 7; filed May 10; cost $8220. Carpenter work, etc; c, Wm. Knowles and Geo. Reichley; cost $19,217. Gas pipes, etc; c, W. S. Shook & Son; cost $2985. Brick and iron work; c, Thos. W. Butcher; cost $18,480.

Twenty-third near Fair Oaks. To build; o, F. H. Wulzen; c, Wm. Tegeler; cost $9225.

Washington and Laguna. Cabinet work; o. Wm. G. Irwin; a, Reid Bros; c, A. L. Wormes, signed, April 3; filed, May 22; cost $75,120.

GENERAL INDEX OF ADVERTISEMENTS.

CLASSIFIED INDEX.

VOLUME XXI. MAY 20th, 1900. NUMBER 5.

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

CAUTION—Pay no money to persons representing themselves to be connected with the CALIFORNIA ARCHITECT AND BUILDING NEWS unless a written authority to receipt for the same is shown and accept no receipt unless it be on our printed blanks. All Checks and Drafts are to be made payable to the order of E. H. Burrell.

THE ADMINSTRATION of the municipal affairs of San Francisco under the new charter makes necessary the enaction of many new ordinances or the remodeling of old ordinances in accordance with the new powers given to the different administrative bodies. The part of the city government most concerning the building business, in the creation of the Board of Public Works, in the appointment of which Mayor Phelan has shown his usual discretion; the Civil Service provision is a great advantage, as it gives a chance to retain good men in office in subordinate positions.

The question of regulating the obstruction of the streets during building operations having arisen, the Board of Works very courteously and wisely referred it to the Local Chapter of the American Institute of Architects; requesting that body to assist in framing a suitable ordinance. A committee of the chapter is now in consultation on the matter.

There are certain rights which private property owners enjoy, which in such cases as the construction of new buildings, temporarily inconvenience the public, and compromise legislation must be enacted, which while protecting the public rights, will not unjustly hamper the actions of an owner who desires to improve his property.

As to the question of permanent obstructions of the sidewalks, the City and County Attorney, Hon. Franklin D. Lane has rendered his opinion that under the charter no permanent obstructions are permitted, his opinion is about as much as to say that the Board of Supervisors can not grant permits without the consent of the Board of Public Works and the Board of Works are expressly forbidden to give such consent.

The tendency of metropolitan government is toward a street guardianship over public rights; the realization that the streets belong to the public, and must not be infringed upon.

Sometime ago, before the Board of Supervisors, members of the Merchants Association made a loud complaint against the abuse of privilege by builders, and were immediately silenced by a thoughtful contractor, who declared that the merchants themselves were the most flagrant obstructors of sidewalks, and proved his point very neatly and forcibly. All through the manufacturing and wholesale districts the sidewalks are covered with merchandise which seems to have been there for years; still, on unfrequented streets, where the sidewalks are wide, the public are not inconvenienced as they are in the retail districts and residence portions of the city, where sometimes a careless contractor in building a three thousand dollar house occupies both sides of the street for the entire block.

No doubt many contractors do abuse their privilege in building operations, especially in the way of leaving rubbish on the street, and any legislation which would tend to the suppression of this nuisance would be welcomed.

However, the probability is that the new ordinance will abolish all encroachment on the sidewalk, in the way of basement entrances, areas, approaches to buildings when the first story is above the level of the street, and of columns and other architectural projections. Many of the streets of San Francisco are spoiled by the use of the sidewalks for basement entrances and areas, notably Montgomery street between Pine and California streets; under the old law owners were permitted to use four and one-half of the sidewalk; the New Charter, however, does away with this, and justly; as one basement entrance in a block of business buildings injures the rest of the block, and is an injury to the rest of the block, and is an injury to adjoining property; as a matter of fact there is no excuse for it. The passenger elevator does away with the use of half basements, and it is very easy for architects to gain access to basements without encroaching on the sidewalk.

In the matter of entrances with projecting columns, if an architect fancies an effect of this kind the building can be kept back from the line of the street as in the Bank of California building; the Mills building is an illustration of how a modern building can be built without encroaching on the sidewalk.

It is a little hard to get out of the old ruts but we must remember that what was right a few years ago, will not do now when we have a growing population which may soon increase to one million.

THE HOUSE OF THE FUTURE.

BY J. H. KELLOGG, M. D.

THE HOUSE, at present, is ordinarily constructed very much with reference to external appearances. There was never a time in the world's history when one could see in any town such a variety in the construction and the style of buildings as now. This is true of most civilized countries, but in savage lands you will find the houses built after the manner of different tribes. A savage tribe is known by the style of its habitation as well as by its mode of dressing the hair. Travelers cah recognize different tribes by their dwellings just as they recognize birds by the peculiar construction of their nests. But among human beings of civilized countries, especially our own, there exists a state of chaos with regard to the style of domicile.

The next century, I think, will change all this. The change will not be immediate and radical, but if we sight along the lines of present progress, we can see some very definite and decided improvements.

In building the house of the future, the all-absorbing thought will not be to make it more striking and showy than the house across the street. I imagine that the buildings of the future will be constructed more with reference to general symmetry, and to uniformity and harmony with other houses. When a man builds, he will look at his neighbors' houses, at all the houses along the street, and consider what sort of building will make the whole neighborhood look better, rather than what sort will outshine the others.

City houses are now built with a most incongruous combination of forms and colors; but if men would build their houses with a view to making them compliment and set off one another, the artistic effect of the whole would be much heightened, and even the selfish desire of personal gratification would be better satisfied, because most men look upon the outside of other people's houses more often than upon their own.

The interior of the house of the future will be studied more than it is now, not only with reference to convenience, but also with reference to health. Health is destined to be the all-absorbing thought thirty or forty years hence. Civilized races are deteriorating at so rapid a pace that there must be a change to save them from extinction. The reading and thinking classes are coming to consider this matter. It is receiving more and more attention in our own country and in other countries. In France the degeneracy is so great that the birth-rate is less than the death-rate. In the United States, according to a recent census, the birth-rate is falling off greatly. As General Walker put it, there are two or three million babies lacking, and medical journals are discussing the question, Where are those two or three million babies? At the same time there is a very great increase of insanity. Within the last thirty years, among the native population of this country there has been an increase of more than one hundred and fifty per cent.

So this question of health is coming to the front, and in the future it will take its place as a determining consideration in the construction of houses.

What will the future house be made of?—Probably not of wood. Our forests will have been devastated, and it will cost more to build a house of wood than of glass or aluminum. In my opinion, no better material for a house can be found than glass.

One of the greatest objections to our houses to-day is that the walls are opaque and keep out the light. The house of the future, I think will be transparent. Light is necessary to health. Nature never intended that we should spend any time, except at night, in darkness. Light is necessary for the support of activity. It is surprising to see how most animal life becomes inactive in the dark. Notice, for example, the starfish lying in the water, putting out its arms and slowly moving and contracoing. But if a cloud passes over the sun, the little creature at once folds its arms and becomes quiet. As soon as the cloud passes off the sun, the starfish becomes active again.

The same principle applies to plants. When the sunlight disappears, the plants fold their leaves, and their branches droop. Many sensitive plants drop their leaves. Flowers shut up. Some plants are so sensitive to light that they begin to open their leaves at the first indication of down, a long time before sunrise.

Our bodies are much more sensitive to this occult force of nature than plants or other lower orders of being, for in man are found the very hightest types of organization, the most fully developed cells issues. Wealthy people who live in costly houses and surround themselves with luxuries live chiefly in the dark. It seems as if the light were purposely excluded from the most expensive residences. The sun must be kept out because it might fade the carpets, or cause streaks on the hangings. Therefore in these luxurious dungeons, as we might call them, we find pale faces and lusterless eyes. But in the dwellings of the future, provision will be made for the abundant entrance of sunlight. Its importance will be recognized.

Do you say that we can not live in glass houses? that there would be too much light? I would answer that by the use of screens, draperies and awnings, both the necessary protection from the summer sun and the desired privacy can be secured, while at the same time we can have all the light we wish.

Another advantage in this ki d of house is that the walls will be non-conductors. A glass wall a foot thick would be so poor a conductor of heat or cold that any change which might take place in the outside atmosphere would not be recognized inside. Cold walls are a constant source of discomfort and disease. One sits down by the outer wall of a brick house in this century, and feels as if a current of air were blowing on his neck. He looks around, but finds no opening; still, he feels the draft. In the majority of cases, it is not a wind from the outside that he feels; but as the air in the room is heated, it rises and spreads out, and when it strikes the wall, it is chilled and falls; it is this constant falling of the air upon the neck that gives rise to the sensation of a wind blowing.

This motion of the air can be determined by floating a feather in the room; when it approaches the outer wall, it falls. So also with a thistledown; near the outer wall it decends, while in the central part of the room it rises again.

People often take cold because they sit near cold walls; but the house of the future will be so constructed as to avoid this danger. If not made of glass, it will at least dispense with solid brick or stone walls. The conservative house of the future will have a frame to begin with; this frame will be covered outside by two layers of paper and then sheeted up; next will be a layer of blotting-paper and another sheeting; it will then be lathed and plastered inside and bricked up outside, the brick being laid about an inch from the frame, and the space between being filled in tight with mortar. By this means we shall have a much more healthful structure than one with an ordinary brick wall.

But a glass house—the radical house—will involve no such fussy arrangement. We shall have the solid wall, and at the same time a transparent house, one that the light can shine all through, even into the closets.

The house of the future, being constructed with reference to health, will provide, the very first thing, for a proper supply of fresh air. Most houses at the present time are so built as to be as nearly air tight as possible. A New York physician has figured it out that enough oxygen can be contained in a room of common size to supply a number of persons twenty-four hours. He says that one breathes twenty cubic inches of oxygen at each inspiration, or one fifth of a cubic foot of air, and he calculates that a 10x10 bed-room would contain air enough to last ten persons twenty-four hours. But the trouble is not with the air we breathe, but with the impurities produced and thrown off by our bodies. We need an abundance of air to wash away, so to speak, these impurities, which form a very subtle poison. Each person should breathe at least three cubic feet of air at an inspiration. Thus if one breathes twenty times a minute, he spoils sixty cubic feet of air in one minute. In sixteen minutes he has spoiled nearly a thousand cubic feet. Thus we see that the air in that 10x10 bedroom would really last one person only sixteen minutes.

This shows the importance of an abundant and constant supply of pure air in the house. The house should be so constructed that the air will come in automatically. If a North American Indian or a South American monkey were shut up in one of our present houses, he would die of consumption in six months. It is hard to find a house to-day that has a proper supply of pure air.

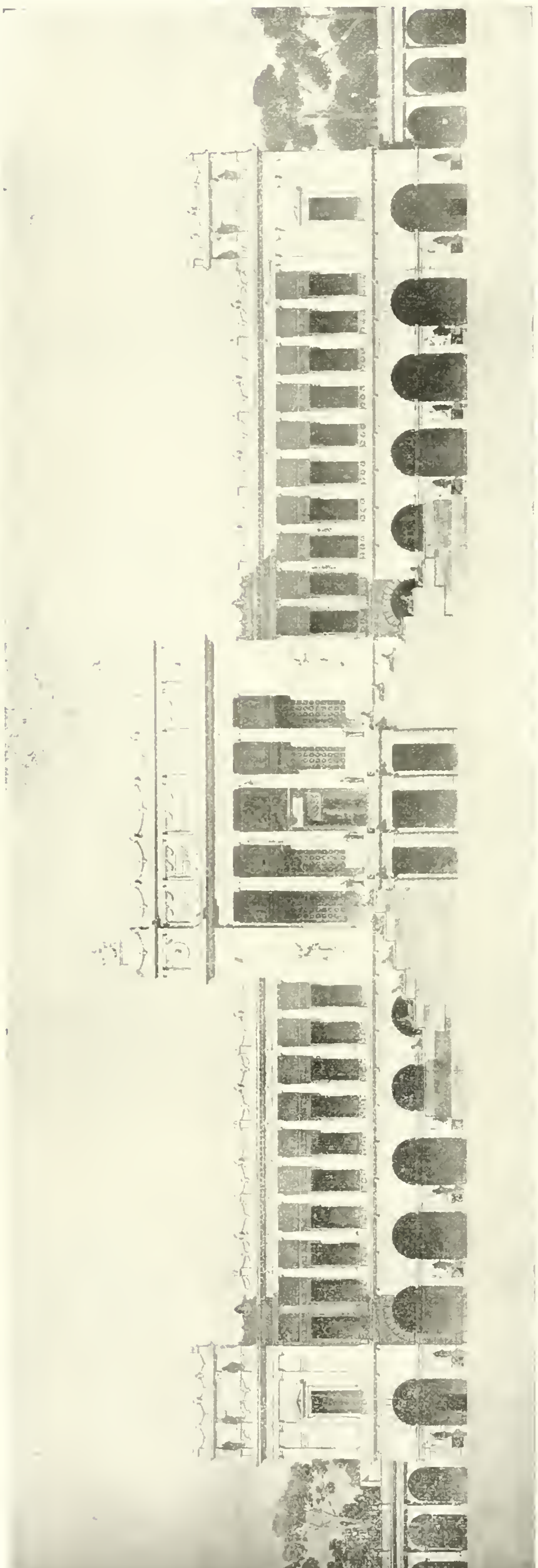
Another question of interest is: How will the future house be heated? Some of our present dwellings are very curiously heated. A common stove, it seems to me, is a monstrous affair. A room heated by a stove is not ventilated for the stove simply heats the same air over and over until it becomes stifling.

If you have one of the modern fuel-saving furnaces, you will notice that the air comes in from the front hall, passes through the parlor and into the back part of the house, then again into the cooler rooms, down into the furnace, back into the parlor, and so on, in a circle. The furnace men say that this arrangement saves fuel, and that is true, but it also compels you to breathe the same air over and over, instead of bringing in fresh, pure air. Such an arrangement will not be tolerated fifty years hence. The old-fashioned fire-place with its roaring logs was better than this, so far as fresh air is concerned, although the breezy log cabin that contained it could hardly be recommended from the standpoint of health, for the reason that the currents of air coming in between the logs were certain to induce colds.

I have seen churches supplied with "all the latest conveniences" for ventilating, the apparatus consisting of a hot-air register over a coil, and a ventilating register three or four feet away. The foul air went up through this coil, and kept rotating and rotating, around and around. The whole heating apparatus was arranged in that way for a church accommodating fifteen hundred people. In one church the only place I found where fresh air could come in was a small opening under the front steps. The air entered here, and went up through the basement into the audience room; there was enough air from this opening to supply six persons.

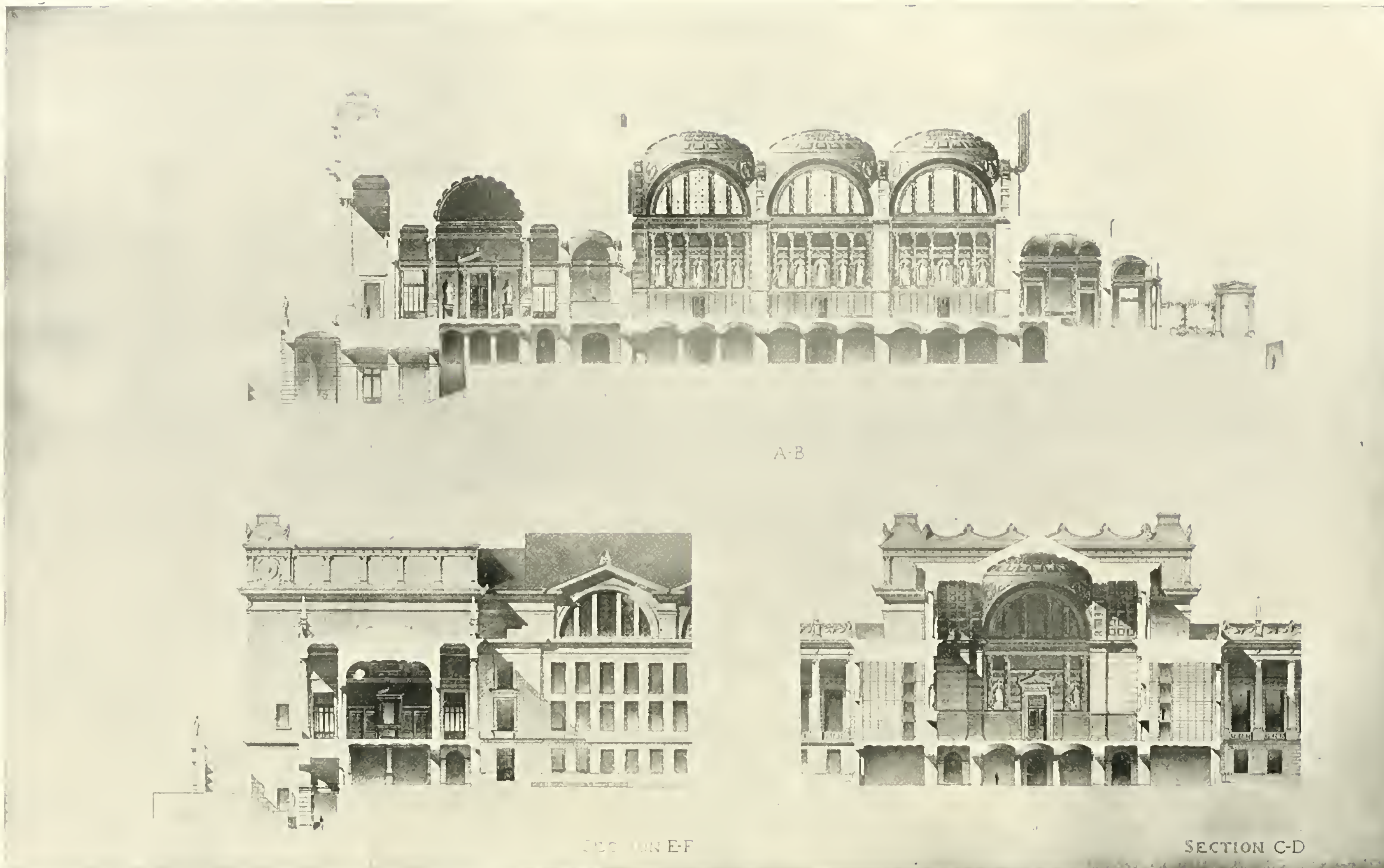
In the century to come people will not tolerate this. They will demand fresh air. An audience will not listen to a preacher unless he speaks in a well-ventilated building. People will no more think of going into a room and breathing over and over air which has been already breathed over and over than they would now think of washing their hands in water that had been previously soiled by the ablutions of others. And yet there would certainly be more propriety and far less harm in washing the body in water soiled by previous washings than in breathing air that has been soiled in other people's lungs. If one could only see the condition of air after it has been in the lungs, he would understand the danger; but as it is, he swallows such air without the least compunction.

It is probable that in the future electricity will be used as a means of heating. By converting water-power into electrical power, and then converting electricity into heat, it will be possible to get an economical and convenient means of heating out of water. With electrical heating apparatus we

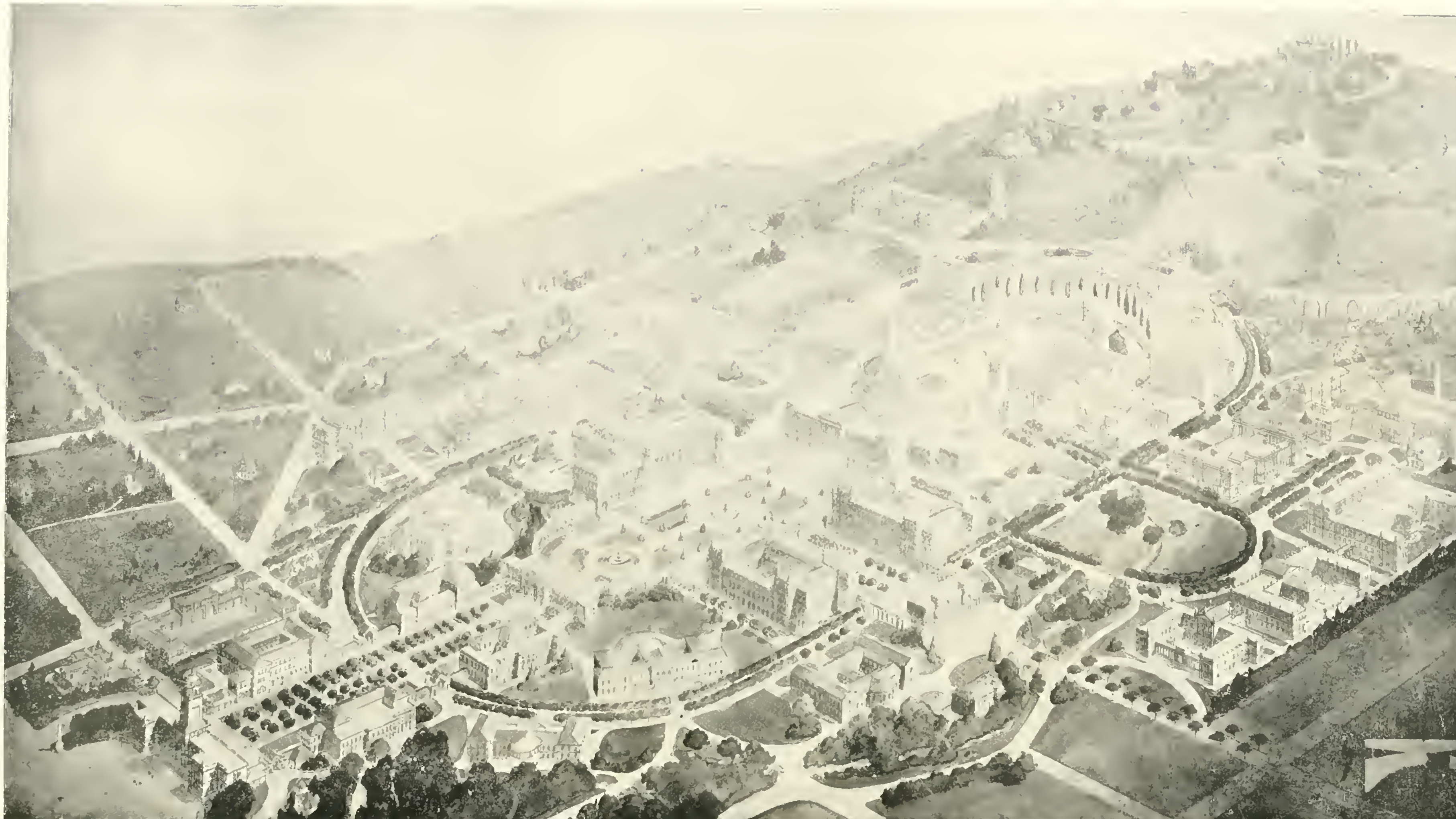


Detail Elevation of Library — Herr Professor F. Bluntschli, Architect.

General Elevation and Section — Herr Professor F. Bluntschli, Architect.



Detail Section of Library — Herr Professor F. Bluntschli, Architect.



General Perspective — Herr Professor F. Bluntschli, Architect.

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Front Elevation of Auditorium Herr Professor F. Bluntschli, Architect.

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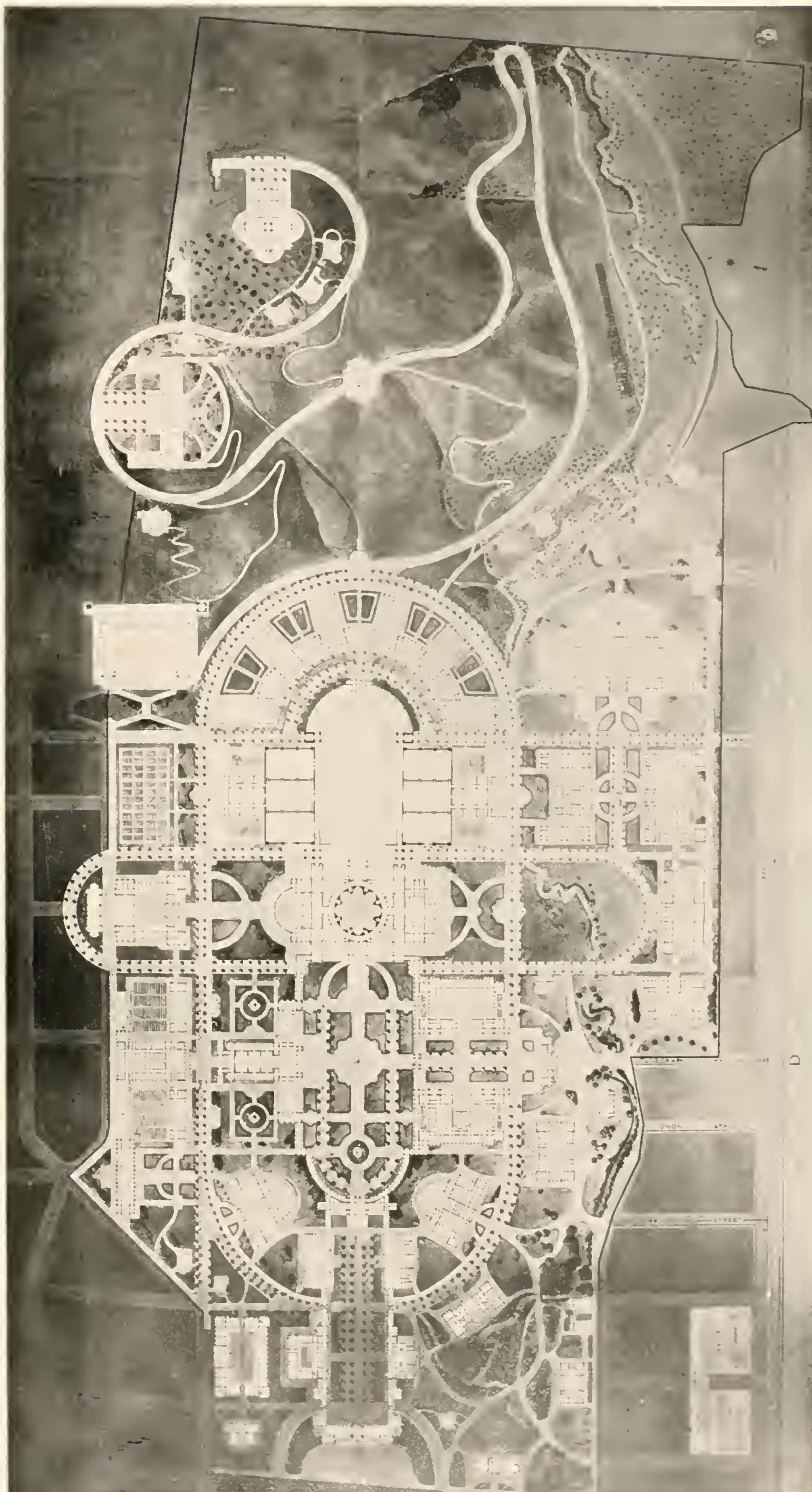


General Plan — Herr Professor Bluntschli, Architect.

shall have the advantage of radiation. There have been some experiments made in the use of electricity, and this force has been found to be an exceedingly valuable source of radiant heat. Radiant heat has a penetrating power; it will penetrate many substances which are non-conductors. Radiant heat will pass through glass without heating the glass glass, although glass will not carry heat by conduction. I am not certain but we shall eventually find this the most effective way of applying heat.

There will be no cellars in the house of the future. There will be light and well-ventilated basements, but no cellars by which the ground air or the gases of the soil or athetmosphere can find an entrance into the house. The kitchen of this house will be at the top instead of the bottom of the building. Even now it is the custom in some of the most recently constructed hotels to haue the kitchen on the top floor. By this mean all the kitchen odors are taken up to a safe place. The kitchens of to-day are nothing more or less than natural distilleries. The steam of boiling food, the steam from the wash boiler filled with soiled clothes, the steam from the tea kettle, is constantly saturating the air with moisture. This air goes up stairs, and deposits dampness upon the window panes, the furniture, the bedclothes, the walls. The odors of the kitchen are carried along with it. The basis of these odors is organic matter. If some of the moisture which has been deposited upon one of the windows is collected and put in a vial, it will throw off offensive odors. It is really a poisonous substance, and carries an unwholesome atmosphere. Therefore, in the ideal house of the future, the kitchen and laundry will be on the top floor.

There will be no carpets in the twentieth-century house. Fewer than twenty-five years from now they will be turned over to the ragman. Carpets will then be found in none but out-of-the-way places. Even now they are altogether discarded from the finest houses. Instead of carpets, there will be mats and rugs that can be easily taken out and cleaned, and the floors will be so smoothly polished that the least bit of dust will appear at once.—*Good Health.*

CONCRETE FLOORS IN ENGLAND

CONTINUED FROM APRIL NUMBER.

IN MAKING FIREPROOF FLOORS for cottages I consider, if proper care were taken in the centering, and the joints therein covered with narrow strips of lining paper (to prevent the cement grout from descending into the chinks), it would be better to do without plaster ceilings altogether, and be content with the natural impression of the wood upon the cement, whitewashed. By such means, and also by avoiding needlessly thick slabs the expense of cement-concrete floors can be brought within such limits as to render the fireproof dwelling of a workingman cheap enough to be a good commercial investment.

"During all the years in which I have been interested in fireproof construction I have grown increasingly impressed with the fact that the greatest field open for the ingenuity and skill of the architect and builder is to be found in the direction of providing fireproof dwellings for the people at small cost, in lieu of those match boxes which are now multiplied by the thousand in our large cities in apparent defiance of all desire of improvement, and in utter disregard of danger to human life.

"Although a fireproof dwelling must cost more than a non-fireproof one, it will pay best in the end, because it does not decay or fall into disrepair, but, where ordinary care is used, is practically everlasting. Moreover, it is vermin proof, and cleaner and more sanitary than buildings containing many hidden chambers and cells of decaying timber, and ever-gathering dust.

"The limitations as to the size of cement-concrete floor-slabs are largely determined by the quantity which a gang of men can cast in one day. If the slabs are made unduly large, it is highly probable that some of them may be left by the workmen half finished overnight, the other half being added next day, consequently leading a joint right across the slab, which, though by no means fatal to its strength, is extremely undesirable.

"In designing a large expanse of flooring it is necessary, therefore, to subdivide the area into squares of reasonable extent, and I may say that, in my own practice, I consider a square of about 150 superficial feet a reasonable size to arrange for, although in some cases I have found it necessary to make them much larger.

"The steel girders which form the divisions between the slabs should be made strong enough to carry the weight of the slabs themselves and of their greatest proposed loads; but it must not be supposed that, when the slabs are set hard, these steel girders will necessarily be called upon to wholly sustain these weights.

"I say necessarily, for much depends upon the manner in which the girders are placed. If the girders are placed entirely or mainly beneath the concrete, so that the full thickness of the slab, or a considerable thickness of it, passes above the top of the girder, and if in such a case the casting of the slab be performed in one heat, or as nearly in one heat as possible—which can be done by organizing a sufficient number of working gangs—in this case the whole floor, consisting of numerous squares, may be regarded as one homogeneous slab, which is therefore so largely self-sustaining that, when once it is set, it brings but very little of its weight to bear upon these girders, which apparently support it.

"But if, the girders be placed so that their tops are bare or else covered by a thin surface of concrete, the girders in this case practically cut the various squares asunder, so that each square naturally must bear wholly upon the girder.

"It will be obvious that the former method, upon the score of strength, is distinctly preferable, though sometimes circumstances compel the use of the latter method; and whichever method is employed, it is always wise to make the girders strong enough to bear the entire weight, though they may never be called upon to do so. You have all heard the story of the gentleman who advertised for a coachman, and when three applicants presented themselves he examined them, one after the other, in this way. He asked the first man, 'How near can you drive to the edge of a precipice?' 'Within a yard, sir.' The second said, 'Within an inch.' The third replied, 'I should keep as far off as possible, sir.' You are the man for me,' said the gentleman. It would be rather alarming if, in our designs, we were even to approach the possibilities of strength in very thin concrete slabs; and if we were to establish our practice upon the minimum, I am afraid we should get very few clients.

"We, therefore, as architects, should be extremely careful in our work to allow a large excess of strength; but we should be likewise able to distinguish between a mere excess of strength and an excess of cost, at the expense rather than the gain of strength.

"For example, if we introduce into concrete floors a large number of steel joints or girders so arranged as to cut the various sections asunder, the chances are that the cost of all this steel work will result in weakening the flooring as a whole, and certainly in rendering it less fireproof. If, upon the other hand, we were to construct an extensive floor area of a large warehouse of one vast slab of concrete, with absolutely no subdivisions and no supporting girders, we might be charged with the same want of caution as the coachman who boasted of his being able to drive within an inch of the danger. Between these two extremes, I have endeavored in my own practice to find a happy medium, consistent with economy pnd also with caution.

"Notwithstanding all the care we may take, we were liable to accidents occuring from unforseen causes, such as subsidence of foundations, vibration due to machinery either in the building itself or in the adjoining works, or to carelessness of workmen, both in casting the slabs and in erecting or removing the centering; also from inferior cement, which may be supplied in spite of every precaution. Therefore, I consider, if we can obtain at small cost our auxiliary strength without reducing the fireproof quality of our floors, we shall be well advised to do so. * * *

"Some people think that cement floors are too cold, and accordingly cover them with wood, which, of course, involves a very great addition to the cost, having nothing but the sense of comfort to recommend it. For my own part, I think that a cement floor covered by a good cork carpet is far prefeaable and quite comfortable.

"However well-seasoned wood flooring may be, the boards will shrink and when the floor is washed the moisture between the chinks cannot get away or be evaporated without, in time, tending to produce an undesirable state of mildew or decay. I am not arguing against parquetry floors laid upon a special glue, but I am dealing with floors of a more economical character suitable for ordinary dwellings.

"Everyone recognizes the danger attached to the premature removal of centering from concrete floors, of which we have had in the building world not a few lamentable examples; but there is another danger, not so geeerally recognized, which, with your permission, I should like to point out, namely, that of a too sudden removal of centering, Although the concrete may have plenty of time to set, we must remember that its weight is resting upon the center, and that when the centering is removed the slab must bend, however inappreciably, before it can become self-sustaining. The same thing is true of a wide-span masonry arch of any bridge, so that no contractor or engineer would ever dream of permitting the centering of such a bridge to be suddenly removed without first easing the wedges which sustain it.

"Although the vertical movement of the mass of a slab in settling is generally too small to be measured, yet this slight movement involves the momentum of that great mass, which momentum may be sufficiently serious to damage, if not to wreck, the slab. It is, therefore, absolutely imperative that the wedges sustaining the centering of concrete floors should be carefully eased, and the centering allowed to stand a day or two afterward, and the wedges should be then examined, and not till then they are proved to be quite loose should the centering be taken down.

"Seeing that the stress of slabs under uniformly distributed loads is proportional to the cube of their span, it will be obvious that great reduction of stress is obtainable by forming the slabs with coved edges. Suppose for example we are dealing with slabs about 12 feet square, similar to those I have recently had cast at Messrs. Swan & Hunter's new offices at Wsllsend, and we reduce the flat part to 10 feet square by means of our cove, the greatest stress is reduced accordingly as from the cube of 12 to the cube of 10, that is about 24 per cent, and at the same time these coves serve to inclose the steel supporting girders, thus protecting them from fire.

"Below are some of the general rules, which twenty years of special experience has led me to make in regard to the construction of concrete slab floors:

"1. To take pains to obtain old cement. 2. To use good broken brick aggregate, and not sand, in the proportion of four of brick to one of cement for the body of the slab, and fine crushed granite without sand for the surface coating, having about three of granite to one of cement. (I may say I have found that when the surface coat is gauged two of granite to one of cement, it sets too soon, while the continued expansion of the body beneath is still going on, and thus causes minute cracks, tending to deface and spoil the surface.) 3. To adopt, as precautionary provision, sheep wire netting as the base, and steel angel or tee bars weighing not more than 1½ pounds per lineal foot, spaced about three feet apart on the netting. 4. To consider a slab 10 feet square by 1 inches thick as capable of sustaining a load of nine hundredweight per foot, including its own weight, and to reckon that every slab will bear per square foot more or less than nine hundredweight directly in proportion to the square of its thickness, and inversely in proportion to the cube of its span. When the slab is rectangular the minimum span has to be considered the span. 5. To avoid casting slabs in frosty weather. 6. To insist upon organizing the gangs of workmen so as to cast as large an area of slabs as possible in one heat, and never to allow a slab to be left over night with its area only partially cast. 7. To insist upon strong centering, and to keep it all standing not less than five weeks after the last slab of the series of one flat is cast, and absolutely to forbid and prevent the sudden and careless removal of the centering."
—*Construction News.*

COST OF HIGH BUILDINGS.

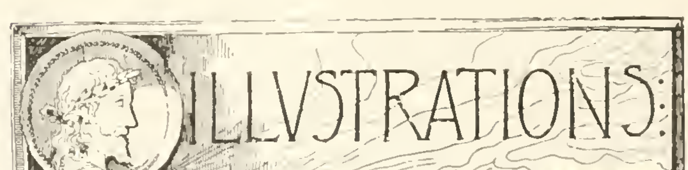
Mr. Richard Pelham Bolton read, recently, before the American Society of Mechanical Engineers, some interesting statistics in relation to the cost of high office buildings and their equipment. Including a moderate amount of exterior ornament, the cost of a building sixteen stories high, with steel frame, and of course, fireproof construction throughout, and inclusive of plumbing appliances, elevators, boiler-plant, pumps, heating apparatus, electric light wiring for isolated service with switch boards, engines and generators, is, in New York City, from thirty-six to forty cents per cubic foot, measuring to the outside of the walls, says *Canadian Architect.* Higher buildings cost proportionately more, and, of course, any sum may be spent on exterior enrichment. About one-seventh of the entire expense is in the boilers and engines, heating and lighting apparatus and plumbing. These must be of the very best type if the building is to be profitable, for the saving of the repairs required for inferior apparatus, and the economy of fuel which can be secured by using triple expansion pumps and compound engines, represent a large proportion of the balance of income left over after deducting taxes and mortage interest and necessary expenses. Even in the matter of fuel, a little forethought is a valuable investment. Nearly all the high New York buildings have coal-bin capacity only for two or three days at most, and many of them must have coal delivered every day. Under such circumstances, the cost of their coal is greater, while they are at the mercy of sudden strikes, or heavy snowstorms, which may expose them to the dilemma of tenents. In the Bowling Green building the capacity of the coal bins is four hundred and twenty tons, and this fact enables the managers to save about ten cents a ton, on an average, in the cost of their coal and probably much more, indirectly in the assurance of an ample supply.

ELECTROLYSIS IN THE STREETS.

IT MIGHT be stated that the degree of electrolysis resulting from leaking current derived from a street railway and the damage inflicted by it to be partly gauged by the spirit of economy prevailing among the directors of the traction company. This economy is sometimes manifested in a more distressing manner as greed. The payment of dividends on stock or the announcements of large earnings by a street railway company mean one of two things as a rule: first, that the traffic has been very great and the profits naturally large, or, second, that the earnings, have not been extraordinary, but the expenses have been kept down to a minimum. One of the ways of keeping expenses down to a minimum in the cast of a street railway is to pay little or no attention to sections of the track requiring immediate repair. The required repairs may not mean the renewals of rails exactly; in fact, the exact nature of the change when made may be beyond the scope of the layman's mind. It might, for instance, be the renewal of bond wires, which in themselves deteriorate but slowly. During the year, however, the gradual degeneration of these parts will have the effect of causing the return circuit to be partly composed of water pipes and gas pipes, as well as the tracks. If the corrosion of the bond wires continues to any great extent the greater part of the current will take the path offering the least resistance, namely, return through an earth circuit. It is but natural in such a case for electrolytic action to occur whenever a sufficiently great difference of potential exists between continuous pipes. Were all the pipes connected to the rails directly, thereby forming one vast return circuit, the difference of potential between part and part would be considerably reduced; but as contact is made at infrequent intervals an injurious electrolysis results, costing in some cases many thousands of dollars to repair the loss. Pierce D. Schenck, in the "Yale Scientific Monthly," states that in one instance a pipe, which had been subjected to electrolysis for four years, was found to have lost about thirty per cent of its transverse length and forty-five per cent of its tensile strength. He also adds: "Reports from different parts of the country show that danger from electrolysis may be expected wherever there are single trolley electric railways. In 1891 the lead sheathing of many miles of telephone cable in Boston was found to be damaged by electrolytic action. A few years later three hundred miles of telephone cable were rendered useless in Brooklyn from the same cause, and since that time twenty or thirty cities have experienced more or less trouble from electrolysis. Many thousands of dollars have been spent by the railways in perfecting their ground return systems. Of course, the most absolute remedy would be to place the trolley wires under ground and use double metallic circuits, as has been done on the lines of the Metropolitan Railway Company in New York." The great expense of this form of construction makes this impossible for most companies, but a solution, on the other hand, is found in the use of perfect bonding and bond wires.—*Electrical Age.*

NEW BUILDING MATERIAL.

AN asphalted pasteboard from Norway and a wood and paper board from Sweden are new building materials of great probable usefulness. The first is made by compressing together several layers of heavy paper and asphaltum, the product being a smooth, solid plate, which is as strong as wood, and cheaper, which will not crack or rot and which is adapted for walls and ceiling, for panels, and for many other purposes. The second material is a board having a central layer of closely fitted bits of wood, with a layer of cement and an outer layer of paper on each side. The paper has been compressed and made waterproof. The boards are made 4 feet wide and 8 to 18 long, and are adapted not only for the interior lining of houses, but for making trunks, boxes, tables, and other light articles. The boards can be polished or painted.—*Improvement Bulletin.*



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.

ILLUSTRATIONS in this number were submitted by Herr Professor F. Bluntschli in the Phebe Hearst Competition.

LIGHT WANTED ON SCHOOL BUILDINGS.

IN CONNECTION with the prosecution of a scientific inquiry for the determination of the factors involved in the proper seating, lighting, heating and ventilating of school buildings the committee appointed by the national council of education and the National Educational Association has offered the following prizes, subject to the conditions hereinafter named:

For the best essay submitted on each of the following topics: The seating, the lighting, the heating and the ventilating of school buildings, $200.

For the second best essay submitted on each topic, $100.

Each essay shall be limited to 10,000 words and shall be submitted in printed or typewitten copy without signature, but with name of author inclosed with it in sealed envelope and addressed to the chairman of the committee, A. R. Taylor, Emporia, Kan. Three copies of each essay shall be submitted. They must be mailed not later than Feb. 1, 1901. The essays and envelopes will be properly numbered for identification and the former forwarded to three experts to be hereafter appointed. Each expert will be ignorant of the appointment of the other, and their combined judgment shall determine the award. Should no essay on any topic be found worthy of an award and publication, the committee reserve the exclusive right for the National Educational Association to copyright the prize essays and to publish the same for general distribution.

The committee desire that each essay shall treat each topic independently and be complete in itself, no reference being made to statements contained in another essay. Generalities and speculations are not desired, neither are detailed technical formulæ and demonstrations. Each essay should present concisely and comprehensively the problem to be solved and the scientific principles involved: should discuss briefly the construction of the school building as related to the problem of sanitation in general and to the specific subject of the essay in particular; should describe in detail sufficient for the apprehension of the average teacher the conditions and mechanisms by which the best results may be obtained; should include figures and diagrams illustrating general plan and principles involved; should set forth methods and devices for detecting defects and suggest remedies for the same in buildings already constructed, should give references to a few buildings where the system has been adopted, and should be supplemented by a brief bibliography of standard authorities on the subject discussed and a short list of manufacturers of approved devices and supplies for carrying out the plans advocated by the author.

The essay on ventilation should include full suggestions concerning the use of disinfectants.

Should the awards on two or more essays be made to the same person, he will be permitted to revise and unify the manuscript before publication by the committee.—*Improvement Bulletin.*

VALUABLE INFORMATION CULLED FROM OUR EXCHANGES.

MR. Griggs, attorney-general, under whose authority the contract for the building of the new structure for the Department of Justice has recently been awarded, seems to have suddenly dropped into hot water by his conduct in the matter. It appears that ten contractors were invited to send in bids for the work, but among the ten not one contractor in Washington was invited, and trouble follows. The Washington contractors are anxious to know by what law or rule, human or divine, they have been ignored. They claim they are as reliable, and as able financially or otherwise, to erect tne proposed building, as are any of their contemporaries in Chicago, New York and Philadelphia, and, that being right on the ground, they should have received some consideration from the attorney-general. They promise to make things warm for Mr. Griggs when the matter comes up for discussion in Congress. In the meantime Chas. McCaul, of Philadelphia, walks off with the contract, his tender being the lowest of eight, and amounting to $1,419,543.—*National Builder.*

IN deference to the wishes of the President, the Attorney-General was given absolute authority in the plan of procedure in erecting a new building for the Department of Justice. It is not likely the same unrestricted power will again be given an official, especially one whose ignorance of the ordinary business methods that obtain in the construction of costly buildings leaves him liable to unintentional errors. Mr. Griggs' experience has been purchased at public expense. In the meantime his request for an additional appropriation is still before the House Committee on Public Buildings and Grounds, with little or no chance of its being acted on at this session. Even should it be called up before the adjournment it will provoke more or less discussion and will meet with considerable opposition. —*National Architect and Builder.*

NOTICE OF MEETINGS.

SAN FRANCISCO CHAPTER, AMERICAN INSTITUTE OF ARCHITECTS, meets second Friday of each month in the Phelan Bldg. at 4 p. m.
SETH BABSON, Pres. — H. A. SCHULTZ, Vice-Pres.
M. W. REID, Sec. — JOHN M. CURTIS, Treas.

SOUTHERN CALIFORNIA CHAPTER AMERICAN INSTITUTE OF ARCHITECTS, meets first Wednesday of each month at 114 Spring street, Los Angeles, Cal.
A. B. BENTON, PRES. — ARTHUR B. BENTON, Vice-Pres.
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WASHINGTON CHAPTER AMERICAN INSTITUTE OF ARCHITECTS, regular meetings at 8 o'clock P. M., the first Friday of each month, except July and August.
WM. E. BOONE, Pres. — JAS. G. HILL, Vice-Pres.
CHARLES W. SAUNDERS, Sec. — W. J. MARSH, Treas

ASSOCIATION OF ARCHITECTS OF ARIZONA, meetings held at Phoenix, Arizona.
D. W. MILLARD, Pres. — T. H. MADDOX, Vice-Pres.
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TECHNICAL SOCIETY OF THE PACIFIC COAST, meets first Friday of each month at Academy of Sciences Building.
GEO. W. PERCY, Pres. — W. F. C. HASSON, Vice-Pres.
OTTO VON GELDERN, Sec. — EDWARD T. SCHILD, Treas.

MASTER PLUMBERS' ASSOCIATION, meets every first and third Friday of each month at the Flood Building.
JAS. E. BRITT, Pres. — J. L. E. Firman, Sec.

BUILDERS' EXCHANGE, Directors meet first Friday in each month at Mission and New Montgomery.
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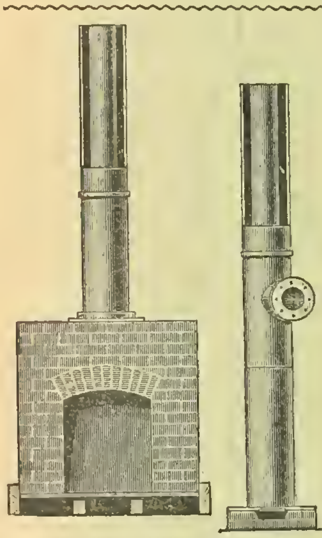

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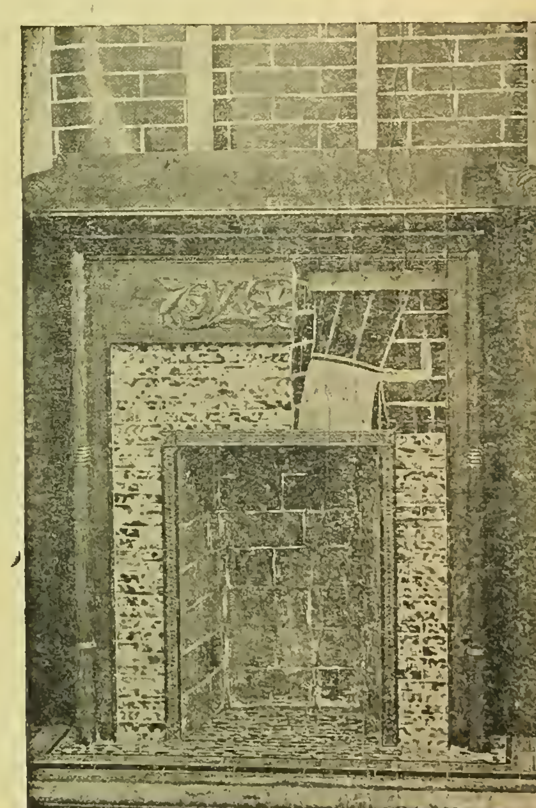

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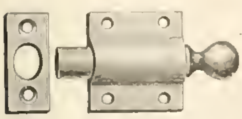

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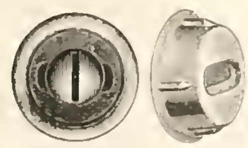

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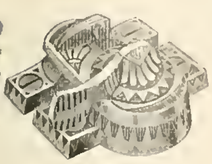

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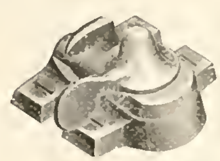

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BUILDING NEWS.

Ashbury near Page. To build· o, D. Einstein; cost $11,000;

Broadway near Buchanan· To build; o, J. L. Flood a, J. E. Kraft; superintendents, Mahoney Bros; cort $100,000.

Bush near Leavenworth. Brick work, etc; o, Frank Maskey; a, Hauens & Toepke; c, Jas. D. Fennell; cost $1673. Plumbing, etc; c, W. F. Wilson; cost $1635. Carpentry, etc; c, Walker Bros; cost $8724.

California and Front. Alteations and additions; o, Mrs. Annie J. Boardman and Mrs. H. F. Tompkins a, A. Sutton; signed, June 18; filed, June 19; cost $33,000. Plumbing, etc; c, Ickelheiuer Bros; cost $6300. Heating etc· c, G. H. Tay; cost $2320. Elevators etc; c, Cahill & Hall; cost $4590.

California and Montgomery. Fireproofing, etc; o, Alvinza Hayward· a, G. W. Percy; c, Western Expanded Metal and Fireproofing Co; signed, May 29; filed, June 1; cost $11,370. Brick work, etc; c, Thos. W. Butcher; cost $18,880.

Clay and Spruce. Grading; o, G. F. Terschuren; a, E. J. Vogel; c, Julian E. Carey; signed, June 5; filed, June 7; cost $1420.

Clay and Laurel. Carpentry, etc; o, Edward Vogel a, E. J. Vogel; cost $5270. Plumbing, etc; c, G. G. Sweeney; signed, cost $1000.

Devisadero near Grove. Excavation, etc; o, E. B. Jennings; a, McDougall Bros; c, Wilson & Long; signed and filed, May 31; cost $1815.

Devisadero near Oak. To build; o, Thos. Hancock· c, J. T. Lorenzen· cost $5550.

Eddy near Franklin. Plastering, etc; o, August Petzold; a, Martin & Coffey· c, Frank Coghlan· signed May 23; filed, May 31; cost $1474.

Ellis near Franklin. To build; o, Lando Bros; a, P. Schwerdt; cost $10,000.

Ellis near Jones. Raising, etc; o, Dr. Hartland Law a, Fred H. Meyer; c, Chas. M. Depew; signed, June 28, filed, June 29; cost $5676.

Fulton near Devisadero. To build; o, Geo. P. Allen a, August Nordin; signed, June 6; filed, June 8; cost $11,650. Painting; c, R Zeliosky; cost $1035. Lathing and plastering; c, J. F. Cheesewright; cost $1300.

Golden Gate Ave. To build; o, Marcus Franklin; a P. Schwerdt; c, Jones, Peterson & Roundtree; cost $5050.

Golden Gate near Jones. Plumbing; o, Maximilian Neumann; a, Martens & Coffey; c, W. F. Wilson; signed, June 4; filed, June 9; cost $1574. Galvanized iron, etc; c, S. F· Cornice Co· cost $2690.

BUILDING NEWS.

Harrison near 14th. Concrete work, etc; o, Estate of D. Woerner; a, C. A. Meussdorffer; signed, June 11; filed, June 14; cost $5872. Carpentry, etc; c, Howe & Hippely; signed, June 6; filed, June 14; cost $3180.

Lyon near McAllister. To build; o, H. Dederky; c, Wilson & Long; signed, June 11; filed, June 28; cost $5200.

Mason near Eddy. To build; o, J. N. Kowalsky· a, Mooser & Son; c, Petterson & Persson; signed, June 19; filed, June 21; cost $11,865.

McAllister near L rkin. Five-story brick; o, L. H. Sly; cost $50,000.

Market near 2d. Excavations· o, C. H. Voight· a, Salfield & Kohlberg; c, J. A. Wilson; signed and filed, June 28; cost $2680.

Market near 6th. Alterations and additions; o, J. D. Phelan; a, Wm. Curlett; signed, June 29; filed, June 29; cost $5696.

Market St. No. 718. Alterations; o, S. N. Wood & Co· a, Copeland & Pierce; c, Moller & Lass; cost $5385.

Market near 4th. Steel and iron work; o, Claus Spreckels; a, Reid Bros; c, Pacific Rolling Mill Co; signed, June 28; filed, June 28; cost $3875.

Market near 6th. Elevators; o, Hale Bros; a, Reid Bros; signed, June 7; filed, June 7; cost $11,850.

Noe near Hill. To build; o, F. P. Landon; c, Bletch & Lansing; signed, June 19; filed, June 21; cost $2200.

O'Farrell near Laguna. Additions and alterations; o, Jas. Hunphrey; a, Shea & Shea; signed and filed, June 14; cost $2100.

Post near Grant Ave. Plumbing, etc; o, Crocker Estate Co; a, Tharp & Holmes; c, Richard Rice; cost $2787.

Post near Mason. Carpentry work; o, Olympic Club; a, Shea & Shea; c, B. Dreyer; signed, May 31; filed, June 9; cost $7348. Plambing, etc; c, W. F. Wilson; cost $10,448. Tiling work; c, Lowry & Daly; cost $2193.

Sacramento near Drumm. Two-stsry brick; o, A. M. Ebbetts; a, C. A. Meussdorffer; c, Jones, Peterson & Rountree; signed, June 19; filed, June 21; cost $11,945.

Seventeenth near Castro. To build; o, Harmon & Emily Veeder; signed and filed, June 13; cost $3400.

Shotwell near 26th. To build; o, John Schroeder; a, Martens & Coffey; c, Robert Trost; signed, June 5; filed, June 7; cost $2650.

Sutter near Powell. Concrete work; o, A. B. McCreery; a, Albert Pissis; c, H. L. Peterson; signed, May 31; filed, June 8, cost $1293.

BUILDING NEWS.

Twenty-first and Sanchez. Cottage; o, John F. Rau; a, Rousseau & Son; c, S. B. Kress; signed, June 27; filed, June 28; cost $1855.

Utah near Sacramento. To build; o, M. Dettling; a, Nathaniel Blaisdell; c, C. P. Moore; signed, June 5; filed, June 7; cost $2400.

Vallejo near Fillmore. To build; o, Jos. Seeley; c, C. C. Murphy; filed, June 28; cost $7700.

Van Ness Ave. near California. Plastering; o, Wm. B. Bradbury; c, McKendrick & Mellon; signed, June 21; filed, June 22; cost 19 cts. per square yd.

Washington near Buchanan. Carpentry, etc; o, M. S. Lowenthal; a, Salfield & Kohlberg; signed, June 25; filed, June 28; cost $6494.

GENERAL INDEX OF ADVERTISEMENTS.

CLASSIFIED INDEX.

VOLUME XXI. JUNE 20th, 1900. NUMBER 6.

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

CAUTION—Pay no money to persons representing themselves to be connected with the CALIFORNIA ARCHITECT AND BUILDING NEWS unless a written authority to receipt for the same is shown and accept no receipt unless it be on our printed blanks. All Checks and Drafts are to be made payable to the order of E. H. Burrell.

THERE is little foreseen at the present time that will stand in the way of the extensive erection of buildings in the commercial portion of this city, for at least two years to come. Beyond that time, we would hesitate to predict; not because we are dubious of the fate of our city, but because we cannot foretell what fluctuating influence might divert the trend of things from building to some other line of investment and progress. However, that latter possibility is scarcely a possibility at all; the demand here for new, commodious and modern business buildings is too obvious. To imagine that the good start of last year and of this will fritter itself away on either less worthy structures, or upon none at all, is to misjudge indications that are already manifest. We are noticing new structures on every hand; to trace the individual causes of these buildings would be to trace them to an identical motive, increase of room due to surety beyond speculation of industrial expansion.

Whatever steps the Board of Public Works may take for guiding our improvements, the welfare of our city, structural and commercial, should be in no wise hampered or retarded by acts that are of injustifiable precaution or of self assertive discrimination; faults which may be thus courteously termed, but in plainer language might be put down as injustice and favoritism. Local maladministration of the building laws can do much to injure the progress of a city. The necessity of having these interests in the hands of conscientious experts is vitally important.

Not only this, but the sponsors of the city's rights building should be accessible to all demands whether granted or not, and at all times. Too long has the authority of the building laws been vested in a vanishing quantity; sometimes in one department, sometimes in another; and when seriously pressed under one head it was known to drop suddenly out only to reappear in some other. The machinery of approach was difficult and severe; the regulation working of your "pull" was deemed an unquestionable advantage if not a necessity. And when driven to an issue, the regulation, either favorable or unfavorable, would emanate from some unexpected source; if it was the former, satisfaction closed the eyes of inquiry, if the latter, no one was to blame since all disclaimed responsibility and the fountain of authority was obscured by a thicket of red tape and political machinations that were too dense to reward any grouping. It was enough to know and to appreciate, but not enough to give the index of comdemnation.

Let us hope that we have seen the last of this system; let us hope it passed away with the old regime. Let us demand its utter extinction, and make the new what it should be, honest, fair and good.

AMERICAN ARCHITECTURE AS OPPOSED TO ARCHITECTURE IN AMERICA.

PAPER READ BY MR. ERNEST FLAGG BEFORE THE SECOND ANNUAL CONVENTION OF THE ARCHITECTURAL LEAGUE OF AMERICA, AT CHICAGO, JUNE 9, 1900.

AT NO TIME since the Europeans first began to build in America has there been anything which might properly be called an American style of architecture. There have been American ways of building, as, for instance, our high buildings with the skeleton construction, and the cast-iron fronts of thirty or forty years ago, but the decorative features have been used in accordance with passing fashions, supposedly modeled on European usage, with no such modification as would stamp them with what might be called an air of nationality, or else they have been extraordinary attempts by individuals at originality. None of these attempts have met with popular favor.

All the so-called "styles" of the past have been created by a slow system of evolution from what has gone before, accomplished by the combined effort of all the minds engaged, working along the same lines, each one contributing his infinitesimal share to the never-ending process—a process which is precisely similar to that which produces our fashions in dress. No one knows exactly who is responsible for the change, but we can see that change is always in progress; to the uninitiated it may not seem very apparent from year to year, but if we compare the fashions in dress at intervals of ten or fifteen years, the change is striking enough for anyone to distinguish. So it is in architecture, though, owing to the nature of the materials used, change occurs more slowly. If we study the history of architecture in Europe, we shall find that, from the tenth century, all the great changes in style were simultaneously common to all the countries. Thus we find in practically all European countries at about the same epoch the styles which are classified in a general way as Romanesque, Gothic, Renaissance, Rococo, etc., but in each country or province, soon after their introduction, they assume a distinctive local character. We also find that some one country is in advance of the others, and that every great change spreads rapidly from the place where it was first developed, to all the other countries, but that the minor changes do not spread rapidly, and are confined generally to the different localities where they originate, and go to make the local or national distinctions of the general style. It is natural that, as communication becomes more rapid between different sections, these local differences should disappear, and this is exactly what we find has happened. In France, for instance, during the Gothic epoch, we find distinct local characteristics in the different provinces—thus the Burgundian, Aquitanian, Touranian, those of the Isle de France, etc.—while to-day the style is national, or we may say, Parisian

Now it seems not at all unlikely that the causes which have led to the breaking down of the barriers between the different provinces of one country will in future operate to break down the barriers between the different countries—that local characteristics will become less and less pronounced and that even the minor changes in the fashion of building will tend to become more world-wide. This is exactly what has occurred in the fashions for dress. Local distinctions are rapidly passing away, and a dress that is fashionable to-day in Paris is also fashionable in New York, Berlin, Rome, Saint Petersburg, London, and in every other civilized capital. If France leads in this respect, and the others follow, it must be because there is in the French mind a quality which fits it to lead in such matters, for the bondage of the other nations is entirely voluntary.

Owing to the peculiar situation of America and to the natural independence and lack of reverence of the American mind, the course of architecture here has presented an anomaly in the development of style, and rules which apply elsewhere do not seem to apply here. Nevertheless, it is very certain that the process of development which works everywhere else will in time be found working here; indeed, it becomes more evident daily that this process is already well under way. The foundation for any such development must necessarily begin with the schools. In every European country we find that, before the young men begin to build, they undergo a long process of training, either in schools or as apprentices, to fit them for the work. In the past we have thought such preparation unnecessary. Almost every young American, as soon as he is able to draw a straight line, has felt himself competent to undertake any work of architecture, and not only that, but he has found that most people have been ready to agree with him in this way of thinking. People having large sums to invest, if not willing to intrust them to him at the start, have been willing to do so after a few years, when he is supposed to have had the necessary experience. These methods still hold true in many places to-day. Physicians, engineers, lawyers and other professional men must have been properly trained before they are employed; not so with architects. Most employers, indeed, feel that they are very good architects themselves, and few have any distinct notion of what constitutes an architectural training.

This is an entirely unnatural state of affairs, and no one who understands the American mind can believe that it will last. Indeed, there is, at the present time, every indication that it will not last. Schools of architecture multiply on every side—young men flock abroad to seek architectural training, and the results of this movement are already beginning to be apparent in our architecture. Fortunately this force is a unifying one. I say fortunately, though I doubt if it could be otherwise. The great majority of our students are thinking and working in the same style, though this can by no means be said of our practicing architects. They are for the most part still borrowing from any epoch of antiquity, or designing in a style of their own invention, as the fancy seizes them. They deprecate what they call the "Frenchifying" of American architecture, as if there were any such thing as American architecture in the hodge-podge which we see about us.

In the meantime, the French influence is slowly but surely but surely predominating. Our young men go to Paris and become convinced of the wisdom of the Frence methods. From the great masters of the French school, under whose influence they are brought, they imbibe such logical, reasonable and convincing instruction, that I do not believe it possible for a young man anxions to learn, to come away unconvinced. The converts which these men make after they return, among the young men who themselves are not able to go abroad, are as ten to one.

A revolution is in full progress among us, and it is beginning just where it ought to begin, that is, with the students. Let no one mistake the introduction of what appears to be modern Frence architecture as only a passing fancy to go the way of the "Richardsonian Romanesque," "Queen Anne" and "Italian Renaissance." It is an entirely different affair. It means much more than appears on the surface. The French resemblance is only an incident; it may indeed, soon pall and pass away, but the movement means that the principles which the French use are being introduced here, and these will last because they are founded on good taste, guided by common sense. Henceforth American architects are to be properly instructed before they enter upon their duties. American architecture is not to be "Frenchified," unless France can dominate the fashions of the world in building by her taste and skill, as she has dominated them in dress. The movement means that our architects of the future will apply to the art in this country the same logical reasoning, and that they will have the same careful preparation for the work, that helps the Frenchman to lead the world in the fine arts. It also means that, in the future, the whole body of American architects are to work together along the same lines—to think in the same style. Thus we are about to enter upon a course which will make possible the evelution of a national style of our own, or perhaps enable us to set the fashion for the world.—*Construction News.*

THE MANUFACTURER OF TERRA-COTTA AND ITS USE AS A BUILDING MATERIAL.

TERRA-COTTA HAS BEEN manufactured for twenty-five centuries or more, but in its early history it was used for tablets and statuettes instead of for structural purposes. The Greeks and Romans employed it very successfully for ornamental forms, and early as the fourteenth century, in Italy, entire facades of great beauty were constructed of this material, and from that time it grew rapidly in favor.

Terra-cotta is almost always made into hollow blocks, formed with webs inside to give additional strength and to keep the pieces true while drying and burning. Solid blocks of clay will neither dry nor burn uniformly and do not hold their shape, besides the length of time required for burning would depend on the size of the block, making it impracticable to burn different sizes in the same kiln. The hollow form obviates this difficulty by securing a nearly uniform thickness throughout, and the handling, setting and supporting of overhanging members, is greatly facilitated because of the lightness of the material. By this method of manufacture the blocks can readily be made to conform to steel supporting members, for which they usually serve the double purpose of an ornamental covering and fire-proofing.

In describing the manufacture of terra-cotta the natural order will be to follow the work through the factory, step by step, from the time the contract for the work is received until the finished product is fitted and marked, ready for shipment to the building. It is necessary to have a complete system of classifying and indexing the work, thoroughly identifying each piece of every job, as well as the molds and drawings for the same, so that its stage of progress in the factory or at the building may be known at any time. A complete set of the architect's drawings for the proposed building is sent to the factory with the order for the terra-cotta. This includes the general drawings for the building, all steel diagrams, and the scale and full size details of the terra-cotta work, though some architects prefer not to detail all the work in advance, but have the terra-cotta company submit full size drawings, during the progress of the work, of sections and profiles and even of ornamental work which they propose to use. This gives the architect an opportunity to re-study and modify his scale details. All the drawings furnished are sent to the drafting room at the factory, where accurate and complete shop drawings are made of all the terra-cotta work. They show its relation to the steel and to all other work with which it may come in contact, and locate all necessary anchor holes. The dividing into courses and blocks is carefully studied, and then laid out and figured on the working drawings. As the jointings of the work may be of great importance, making or marring the appearance of the design, they should be submitted to the architect for approval. If the ordinary vertical joint can not be placed in a suitable position on ornamented work, it may sometimes either follow a curved line of the design or cross the lines of the ornament in a normal direction, the latter being the better way. Pieces jointed in any other way are not likely to join properly on account of unequal shrinkage. In work having an ornamental pattern repeated, the joint can generally be placed either between the patterns or in the centre of each.

The number of different molds required will depend largely upon the way in which the work is divided, and it may happen that the system of jointing best suited to the design will not be the cheapest to execute. For economy in manufacture, the molds should be relatively large, since it costs more to press a great number of small pieces thana smaller number of larger pieces. In general, the most economical size for molds varies between two and eight cubic feet, depending on the shape and character of the block; but, if necessary, the work can be made in much larger pieces. In architectural sculpture, where jointing is objectionable, pieces may be made as large as thirty or more cublic feet and weighing a half to three-quarters of a ton; and complete column shafts, ten to twelve feet long, have been made in one piece. However, there is great risk in attempting such large work in which a slight variation of line is so detrimental, as the plain or fluted column. If the column is ornamented, then a variation would not be so conspicuous. Naturally, it is cheaper to so divide the work that the larg-

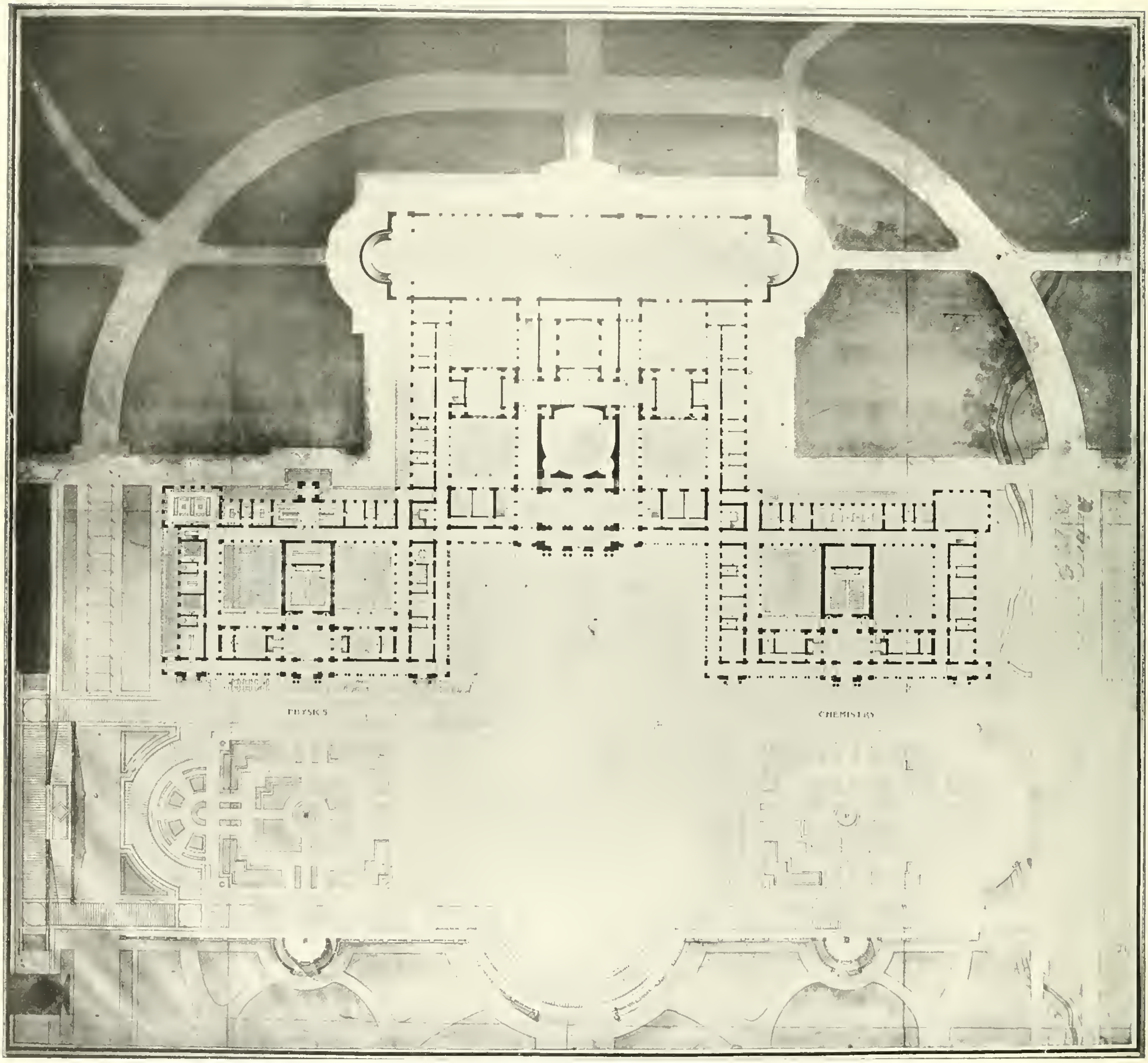
General Section — Messieurs Barbaud & Bauhain, Architects.

Detail Elevation of Museum — Messieurs Barbaud & Bauhain, Architect.

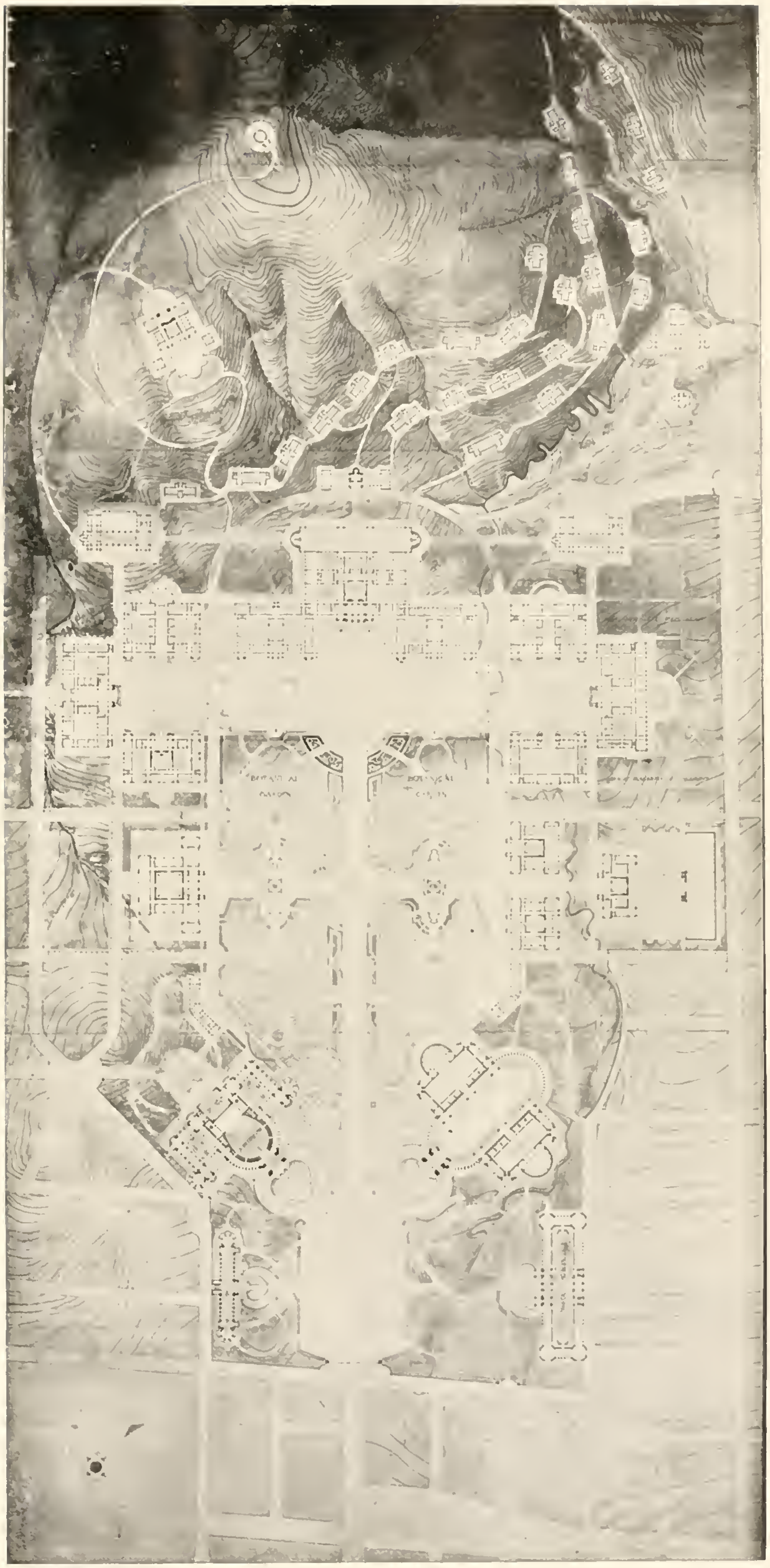
General Perspective — Messieurs Barbaud & Bauhain, Architects.

CALIFORNIA ARCHITECT AND BUILDING NEWS.
SAN FRANCISCO.

VOL. XXI. No. 6, JUNE, 1900.

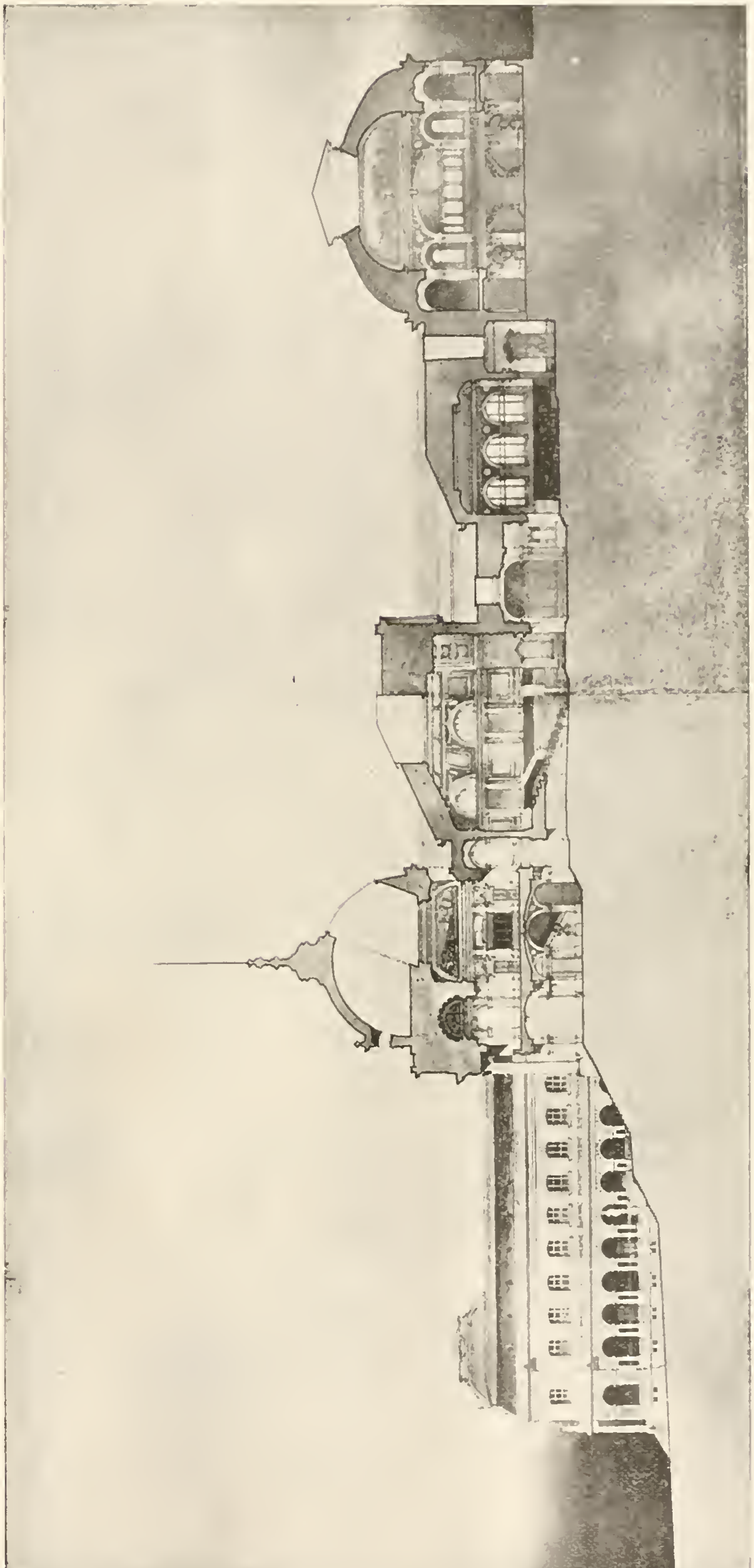


Detail Plan of Museum — Messieurs Barbaud & Bauhain, Architects.



General Plan — Messieurs Barbaud & Bauhain, Architect.

General Elevation — Messieurs Barbaud & Bauhain, Architects.



Detail Section of Museum — Messieurs Barbaud & Bauhain Architects.

est number of pieces possible may be made in the same mold and be of the same length; but this may give undesirable jointing in one or more places. Adaptability to the design must be secured first and economy in manufacture afterwards. The working drawings dispose of all these matters and present the work as it will be in the completed building. These drawings follow, or rather direct, all the work through the factory; being continually in use by the draughtsmen, pressers, finishers, burners, fitters, makers, shippers and setters. Copies are kept on file all the time, and if any piece gets lost or destroyed before being set in the building, a duplicate may be produced by their aid.

After the working drawings have been approved a full-sized detail is made of each different kind of piece shown, corresponding with the figured dimensions on the working drawings and in accordance with the architect's details. They are to be used in making the plaster models, and are made larger than full size to allow for the shrinkage of the clay in drying and burning. For this purpose a shrinkage scale is used to lay out the details instead of the standard scale. It is sometimes called an expansion scale, and has its true length greater than the standard and its divisions increased in like proportion. A scale measuring $12\frac{5}{8}$ inches per foot is called a $\frac{5}{8}$-inch shrinkage scale, and others are similarly named, $\frac{3}{4}$-inch, $\frac{7}{8}$-inch, 1-inch, etc., shrinkage scales. The shrinkage of different clays varies from about $\frac{1}{4}$ inch to 2 inches per foot in each direction, but clays having a shrinkage of either of these extremes are not suitable for manufacturing into terra-cotta for reasons that will be explained below. The usual shrinkage of terra-cotta clays varies from $\frac{5}{8}$ inch to 1 inch per foot, about two thirds of this amount occuring in the drying and the remainder in the burning.

The plaster details are next sent to the plaster shop, where the molds are made. A full size, shrinkage scale, plaster of Paris model is made for each piece shown in the plaster details. Various methods are used in making these models, but generally a metal templet, having the exact reversed profile of the required model, is run on a straight edge to produce straight running pieces and on the circumference of a circle or an ellipse to produce those curves. Curved work of more irregular form, such as consoles, brackets, and scroles, may be modeled in the soft plaster with a templet by the hand and eye, or the curved part of such models may be carved after the plaster has hardened. If the work is yet more complex, it should be left for the modelers to make in clay. If the design calls for ornamented mouldings, the background of the plaster model is left low so that the ornament may be added in clay by the modelers. To obtain models with mitres, angles, or returns, two pieces, straight or curved, are sawn to the required mitre angle and cemented together with fresh plaster.

Models requiring ornament are now sent to the modeling department, where this is added in clay by expert modelers. The great variety and the high class of ornamental work now in demand makes it necessary for a first-class terra-cotta company to keep a large force of artists to do the modeling. In rare cases an architect reserves the right to select the modeler who is to mould his work. In such instances the company doing the work is required to provide him with a suitable room and all necessary appliances to work with, such as clay, framing, scaffolding, etc. Occasionally the architect will have the molding done under his personal supervision, and furnish the models complete ready for use, a certain specified amount being deducted from the contract price to pay for the modeling. This is done not only to insure good work, but from a desire to stamp the work with an individual touch and taste. In such cases it is usual to specify that all models and molds are to be destroyed on completion of the work, and that no copies of them are to be preserved. When the modeling is done at the factory and by the company, as nearly all of it is, the architect either examines the models or has photographs of them submitted for his approval.

If there is much ornamental work and only a few pieces are required from certain molds, it will naturally be quite expensive. In case there is but a single piece required of some model, which often happens in the key for an arch or a decorated panel, it is cheaper and quicker to model the piece in terra-cotta clay direct, not making any plaster model or mold, and this is often done, both for plain and ornamental work. If there are but a very few pieces of an extremely complex nature it may be better to model them in terra-cotta direct. Where there is heavily projecting ornamental work on a plain molded background, such as lions' heads, gargoyles, etc,, on a cornice, which would make an inconvenient form to mold, the background pieces may be pressed separately by the pressers and the ornament added by the modelers while the block is yet in a plastic condition. Work that is to be deeply undercut can be modeled to great advantage in this way, and effects may be obtained that are impossible in cut stone. Delicate gothic ornament can be entirely undercut and raised free from the background, except at a few necessary points of contact, giving light and shade effects and suggestions of plasticity and of modeling which are unknown in stone or marble. In this process each piece, instead of being a duplicate of one model, is modeled separately and shows the little accidental and intentional variations which reveal the true artist. For architectural sculpture, the entire work is modeled in clay without the use of a plaster background, and the modeler either works from the architect's full size details, the plaster details, the architect's scale drawings, photographs of ornament, models already approved, or composes under instructions from the architect.

When the clay ornament has hardened sufficiently, the models are sent back to the plaster shop to have the molds cast upon them. These are also made of plaster of paris, in slabs about two inches thick or more, depending on the size and shape of the model. The number and shape of the slabs also depends on the form of the model, for the mold must be so made that the model will slip from it, or rather so the mold may be taken from the model a piece at a time, and afterward from the block of terra-cotta which has been pressed into it. A very complicated and irregular piece may require a mold made in many pieces. For work that is irregularly undercut, small pieces of the mold must be fitted under and between projections in such a way that they may be removed without injuring the block of clay, but for most models it is sufficient to have one slab on each of five sides, leaving the back open. These slabs are fitted to each other accurately and in such a way that the blocks pressed into the molds are exactly alike and uniform in size. In fact, the mold serves this purpose as well as if it was made in one piece like a box; but unlike a box mold, it may be taken off the block, after it is pressed, a piece at a time. Of course, it would be impossible to use a mould in one piece for terra-cotta as is done in the manufacture of bricks. By this method a mold may be made for any piece that may ever be designed, no matter how irregular it may be. Having determined the number and shape of the pieces making up the mold, they are cast in plaster upon the model, one at a time, and allowed to harden. The soft plaster receives a perfect impression of all lines and surfaces of the model with an accuracy that it would be impossible to secure in any other way, and as long as the mold is uninjured it will produce exact duplicates of the original model. If it is a small mold, the plaster of paris is strong enough in itself, but for large molds it must be re-enforced by embedding small bars of iron in it, so it will withstand the force used in pressing the terra-cotta. The pieces are fitted to each other and secured by clamps and are then ready for use. These molds are very durable, considering the material of which they are made, but they wear out by crumbling at the edges if used too long or too often. The plaster naturally takes up some moisture from the wet clay and becomes softened at the thin edges, but if allowed to dry after using each time they will last longer. A mold for ordinarily plain work will last to press from sixty to ninety blocks. If it has much ornamental work, with many fine lines and thin edges, it will not last for more than thirty or forty. Any number of molds can be cast on one model. It may happen on a large building that there will be as many as a thousand pieces of terra-cotta alike, and this would require ten to fifteen molds, depending on the nature of the piece.

One of the great difficulties with the manufacture of terra-cotta is the unequal and irregular shrinkage of different pieces. So long as this exists it is impossible for mouldings to always member perfectly or run in a true straight line in the finished work. The best developed factories produce work that overcomes these defects in a great measure, but there are always uncertainties on account of this feature in the clay. If the clay was perfectly homogeneous it might yet be impossible to secure exactly uniform shrinkage because of the inequalities of volume at the angles and intersections of the shell, though an effort is made to secure uniform thickness of all walls and webs of each block. These difficulties are greatest in the production of plain ashlar work, for it is a hard problem indeed to keep the face of every block in a true plane, and without this the wall will have a wavy appearance. Where the requirements are very exacting it is often necessary to put ashlar blocks on the rubbing bed. The extra precaution taken in making the shell thicker and using more webs, together with the probability of having to rub some of it into a plane surface after burning, makes ashlar more expensive than would be supposed.

To be Continued.

ILLUSTRATIONS in this number were submitted by Messieurs Barbaud & Bauhain, Architects, in the Phebe Hearst Competition.

A WORK OF ART.

IN THE COLUMBARIUM of the I. O. O. F. Cemetery can be seen a beautiful work of art of home production, and being nearly side by side with works of a similar nature

that were imported from art centers i · the east and Europe; comparisons can readily be made.

We refer to the exquisite window recently placed there by Mr. H. Braunschweiger in memory of his wife the late Eliese Braunschweiger.

"Faith, Hope and Charity" are represented by three figures of nearly life size, the design and composition are not copied but originals and are perfect, the coloring rich and delicate.

The figure of "Hope" is a portrait of Mrs. Braunschweiger when a girl, and is prounced, by those who knew her at that time, a perfect likeness.

The allegorical figures form the central feature, they are burned on antique cathedral glass set together with lead strips, the latter being done so artistically that it enhances the design, instead of marring the beauty of the same as is often the case with stained glass windows.

Surrounding the figure panel the design is architectural in treatment, mosaic art glass without any painting being employed to produce the desired effect.

A pediment at the base, with inscription and an urn over the central part, supports two pilasters, which in turn support a richly ornamented arch, the keystone of which is a cartouche, surmounted by a cherubs head, the spandrils on either side of the arch are similarly embellished.

The *tout ensemble* as well as every detail of this window is beautiful in the extreme and reflects great credit on the "California Art Glass Works" of this City the firm that produced the same.

VALUABLE INFORMATION CULLED FROM OUR EXCHANGES.

THE BUILDING regulations of many English towns are founded upon those of London, without going quite so far in the direction of restraint. Those of the chief continental cities generally go somewhat further, especially in respect of the hights of buildings. Thus in Paris the front wall cannot, in the widest streets, be carried higher than about 65 feet; in Vienna the hight of dwelling houses may not, as a rule, be more than about 77 feet, while the floor level of the topmost story must not be higher than 62 feet, nor may there be more than five stories in the hight of the house, says *Carpentry and Building*. In London no limit of hight is actually fixed. The normal hight is 80 feet, but a wall may be carried as high as the public authority shall permit. In Sweden the regulations seem to touch the question of taste in a rather important way. The front of a house must not be painted white, but some color inoffensive to the eye. In other respects the continental regulations are generally more restrictive than ours—except as to balconies, the width of which, to the extent of about 4 feet, is legalized; while with us this (one of the most romantic features of the elevation) has, in every case, to pass through the chastening fire of the public authority, particularly if it overhangs the public way.

BOOKS AND PERIODICALS.

LIPPINCOTT'S Magazine for July contains six summer stories—"An Anti-climax" a complete novel Ellen Olney Kirk and five short stories by Marion Harland, Beulah Marie Dix, Samuel Minturn Peck, Martha Wolfenstein, and Henry Wallace Phillips.

NOTHING TEMPTS a man like something good to eat; in the July LADIES HOME JOURNAL will be found many appetizing dishes.

FURNITURE DESIGNING AND DRAUGHTING.—Notes on the elementary forms, methods of construction, and dimensions of common articles of furniture. By Alvan Crocker Nye, Ph. B., Instruction in Furniture Designing, Pratt Institute, Brooklyn. New York City: Wm. T. Comstock, Publisher, 23 Warren street, Yew York, N. Y. One octavo Vol., Cloth—$2.

Anyone who has made an attempt at furniture designing realizes how difficult it is to obtain the data necessary for beginning work, unless there is a furniture shop close at hand. Many questions of dimensions, the relation of the various parts to each other, as well as the limitations due to construction, present themselves at once. To answer these requires considerable time and study. If the book that now appears under the title given above is at hand how much of this time may be saved.

Here is a book that occupies a new position among those of reference for the draughtsman and student. It is not filled with illustrations to be copied; the plates show the simple forms of furniture, the skeletons as they may be called, that can be taken as the starting point for new designs, and developed as desired. The construction of each class of furniture is given as far as it is necessary for draughtsmen to indicate on their drawings, and the student can thus learn how the articles are put together.

For classes in design the book will serve as a text book, for with it a knowledge of the elementary forms and principles of construction necessary to good designs can be obtained. The experienced draughtsman will perhaps find the book a handy reference, as to gives in convenient form much data that is not always easily remembered.

To the architect who occasionally must give some consideration to furniture, the tables of dimensions, if not the entire work, will be a great aid.

In fact this is a serviceable book for everyone who has to do with drawings for furniture.

NOTICE OF MEETINGS.

SAN FRANCISCO CHAPTER, AMERICAN INSTITUTE OF ARCHITECTS, meets second Friday of each month in the Phelan Bldg. at 4 p. m.
SETH BABSON, Pres. H A. SCHULTZ, Vice-Pres.
M. W. REID, Sec. JOHN M. CURTIS, Treas.

SOUTHERN CALIFORNIA CHAPTER AMERICAN INSTITUTE OF ARCHITECTS, meets first Wednesday of each month at 114 Spring street, Los Angeles, Cal.
A. B. BENTON, PRES. ARTHUR B. BENTON, Vice-Pres.
JOHN P. KREMPEL, Sec't. AUGUST WACKERBARTH, Treas.

WASHINGTON CHAPTER AMERICAN INSTITUTE OF ARCHITECTS, regular meetings at 8 o'clock P. M., the first Friday of each month, except July and August.
WM. E. BOONE, Pres. JAS. G. HILL, Vice-Pres.
CHARLES W. SAUNDERS, Sec. W. J. MARSH, Treas

ASSOCIATION OF ARCHITECTS OF ARIZONA, meetings held at Phoenix, Arizona.
D. W. MILLARD, Pres. T. H. MADDOX, Vice-Pres.
W. R. NORTON, Sec. and Treas.

TECHNICAL SOCIETY OF THE PACIFIC COAST, meets first Friday of each month at Academy of Sciences Building.
GEO. W. PERCY, Pres. W. F. C. HASSON, Vice-Pres.
OTTO VON GELDERN, Sec. EDWARD T. SCHILD, Treas.

MASTER PLUMBERS' ASSOCIATION, meets every first and third Friday of each month at the Flood Building.
JAS. E. BRITT, Pres. J. L. E. Firman, Sec.

BUILDERS' EXCHANGE, Directors meet first Friday in each month at Mission and New Montgomery.
S. H. KENT, Pres. JAS. A. WILSON, Sec.

MASONS' AND BUILDERS' ASSOCIATION, meet first Friday evening of each month.
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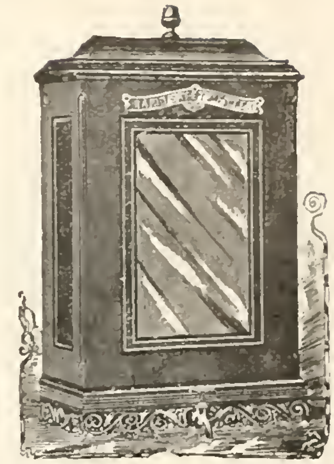

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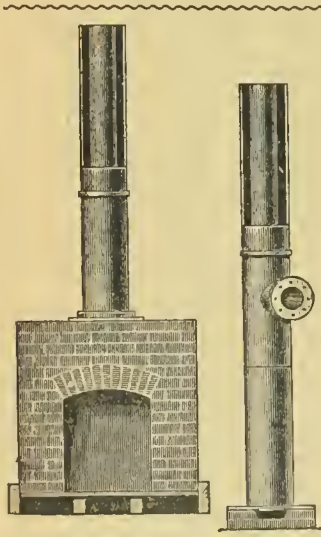

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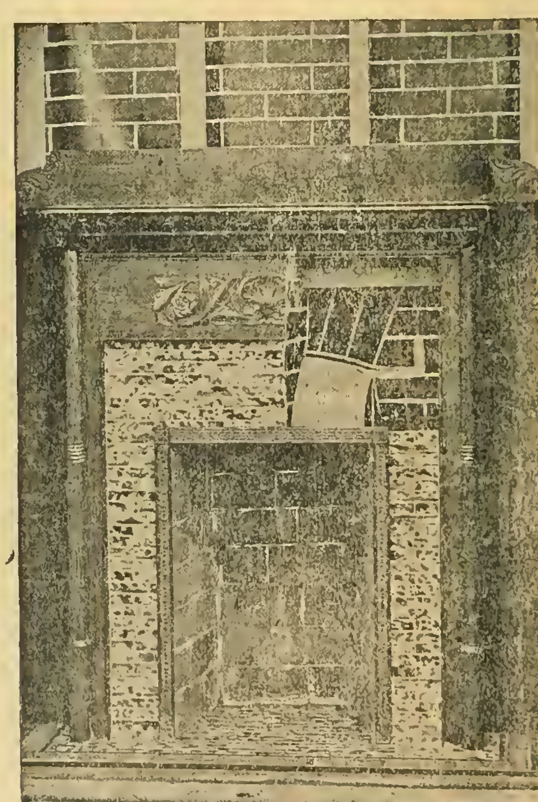

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