

Good Hardware.

WE are pleased to notice an increased demand for good hardware for public buildings and residences on this coast. For the past few years there has been but little attention given to this feature of building—there being so little said in the specifications regarding it. The builder has had but little difficulty in finding locks, etc., good enough to meet the demands of his contract, his greatest difficulty has been to find them cheap enough, as for instance the architect specifies, "Mass face locks," the builder can buy them for \$3.00 to \$3.50 per dozen. Now any one with the average amount of common sense knows that 25 or 30 cents will not buy a lock fit to put into a door. Yet this has been one of the best markets in the United States for that class of house hardware. But property owners from past experience are becoming convinced of the importance of using a higher grade, not only of locks but of "Butts Knobs," and see that constitutes the interior hardware of a building and are treating it as they do any other feature of the structure by going personally and informing themselves in regard to the points of excellence and durability of the different styles and manufactures.

Dunham, Carrigan & Hayden Co. are taking the lead in the matter of urging the use of better goods. They have fitted up a "Bronze sample room," furnished in panels of polished woods representing the products of all parts of the world, particularly California. It would be difficult to find a more beautiful or extensive display of native woods than that which they have introduced into their room.

On these panels they have exhibited a complete line of Hopkins & Dickinson Manufacturing Co's newest designs of bronze hardware, the prominent styles "Colonial," "Grecian" rope molding, "Fluted," French" and "Italian Renaissance" are very handsome, and mark the best of an entirely new idea in the adaptation of interior hardware to the style of architecture and inside finish, harmony and contrast, as to color, size, shape, etc. All these are shown in "Bronze," "Oxidized Silver," "Antique Brass," "Steel," "Old Copper" and "Bower Barff."

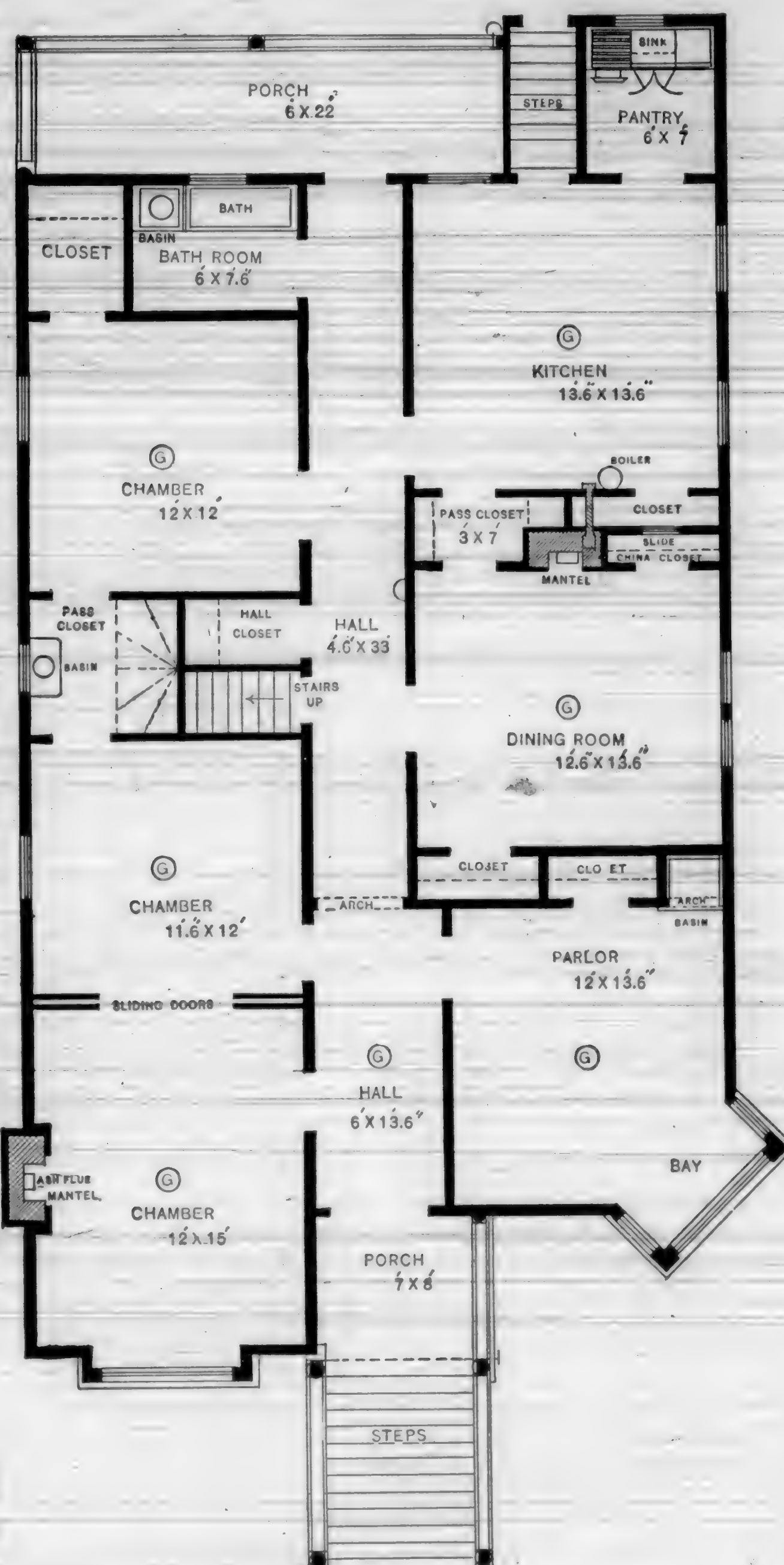
This room is fitted up extensively for the use of architects and builders who desire to take their patrons there and make selections or obtain ideas, and for those building or contemplating building. The room is always open to such, and so valuable an assistance as this to a proper choice of one of the most important features of building ought to be appreciated, and we are sure will.

Among the latest important inventions we notice Hopkins & Dickinson Manufacturing Co's new "office door cylinder locks," with the key above the knob, making key entrance easy. The key is very small and convenient to carry. These features, combined with the strength and durability of the lock, renders it most desirable for office buildings. Another fine thing is their new "hotel communicating door lock," hand made, and of the best quality.

Dunham, Carrigan & Hayden Co. cordially invite all who are interested in building to visit this department, assuring them that all specialties and novelties in their line will be exhibited in the most practical manner possible.

The Iron Age.

The paper read before the San Francisco Chapter, A. I. A., by G. H. Sanders, was ordered printed in full in the CALIFORNIA ARCHITECT. The utmost dispatch was used in preparing the engravings, but, although we delayed publication for a few days of this issue, we found it impossible to present the paper in the artistic manner desired. So, reluctantly, we are compelled to delay the printing the "Iron Age" until our next issue. It will be the best illustrated article that has ever appeared in this Journal.



Plan of "Rio Dell Cottage."

The MAY NUMBER of this Journal will be the best illustrated issue ever presented.

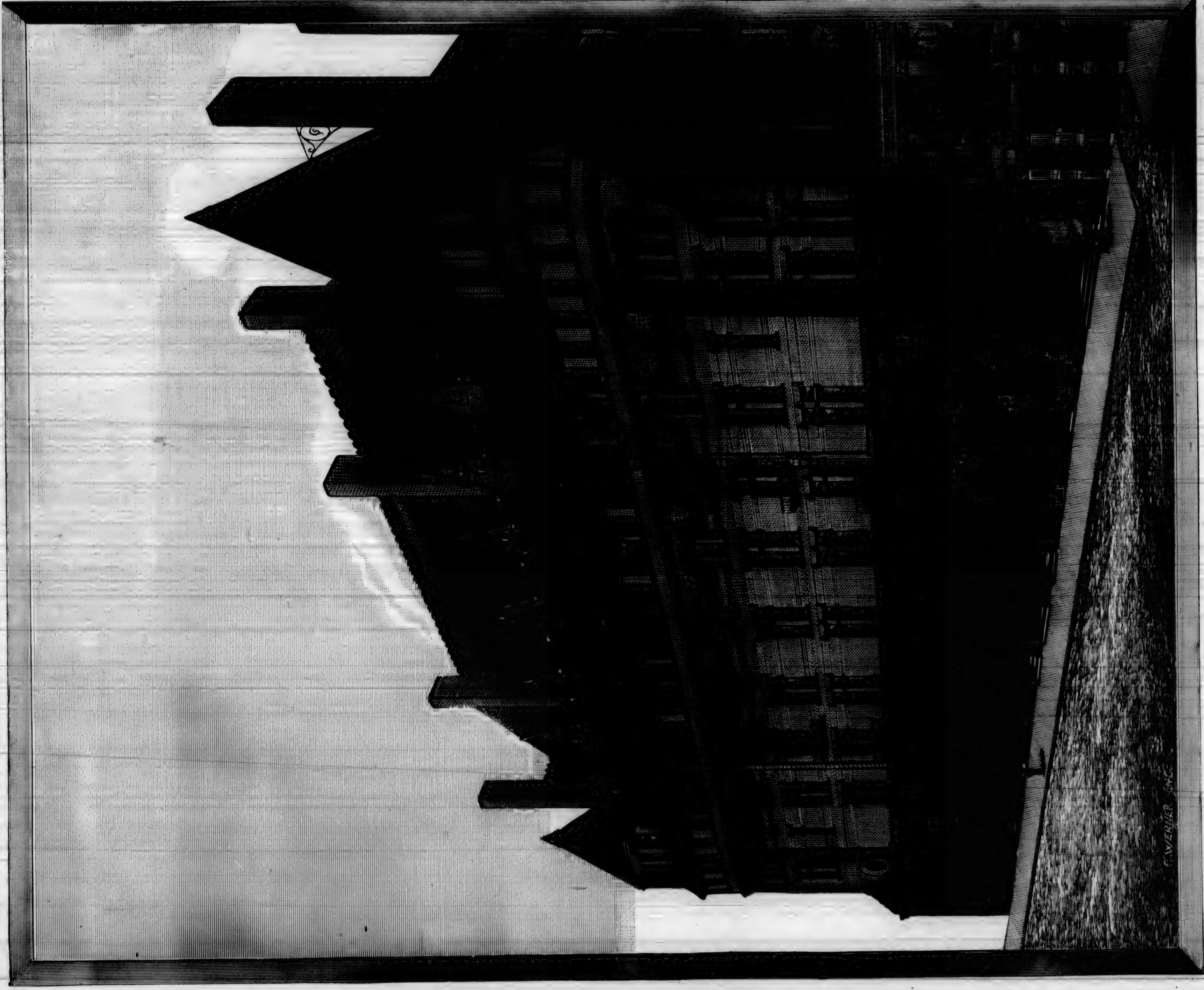
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Elevation and Details of "Rio Dell Cottage."

FOR PLAN, SEE INSIDE PAGE.



Engraved by G. Werner.

Size of Building—157x165.

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THE NEW CALIFORNIA THEATRE AND HOTEL.

Architect—J. M. WOOD, Chicago.

Owner, MRS. KATE M. McDONOUGH.

Terra Cotta Work furnished by GLADDING, McBEAN & CO.

Interior Wood Work furnished by KRELING & SONS.

Cut Stone furnished by O. E. BRADY

Electroliners furnished by California Gas Fixture Co.

Plaster Decorations furnished by KELLETT & McMURRAY.

"Roof" Boilers furnished by Geo. H. TAY & CO.

Plumbing Work by DAVID BUSH.

Decorations furnished by SPIERLING & LINDEN.

MATHER ELECTRIC CO. furnish the Electric Light Plant.

Wrought Iron Work by W. J. BRADY.

W. J. SLOANE & CO. supply the Carpets, Draperies and Furniture.

C. F. WEBER & CO. furnish Opera Chairs and Brass Work.

New Era in Redwood Lumbering.

AN experiment was tried at Balcom & Gibbard's Excelsior mill a short time ago, the result of which is certain to bring about a new era in the manufacture of redwood lumber. The subject of kiln-dried redwood for long shipments by rail has been a matter of discussion for a long time, and various projects, more or less expensive and extensive have been formulated, but not put to working test. The most practical idea heretofore was the maintenance of great lumberyards in the southern end of the state, where the lumber was to be season dried, but this incurred the keeping up of immense stocks, the cost of handling several times and consequent waste; but the project was never extensively entered into. The experiment we refer to will displace all former projects. For the requirements of their factory, Messrs. Balcom & Gibbard have set up a dryer, and a short time ago they placed in the dryer a thousand feet of redwood, fresh from the saw, some of it sawed from sunken logs, and turned on a blast of 220 degrees heat. The object was to test the resistance of redwood against checking by a high degree of heat. The blast was kept up 58 hours, and the lumber was taken out in 72 hours time, the brightest and cleanest redwood that was ever seen, without the slightest suspicion of a check. The lumber upon being placed in the dryer weighed 3,580 pounds, and upon coming out weighed 1,922 pounds, 1,658 pounds of moisture, or nearly one-half of the weight of lumber had been dried out in a little over two days, leaving the lumber in a perfect state as to brightness and grain. It is true that the practice of drying shingles for transportation has obtained for some time past, but now the movement toward kiln-dried lumber is likely to become general, and the operation will just about double the chances for railroad shipments, and the cost for drying is reckoned at from 50 cents to \$1.00 per 1,000 feet. The Excelsior Redwood Company has already received dryers, double and single, to the extent of nine rooms, which are to be set up at once, and which will be equal to nearly one-half the output of the mill. Other mills are following in the same line. Thus it being worked another revolution in the manufacture and shipment of redwood lumber which can never be applied to other timber in so successful a manner, for the same degree of heat applied to any other kind of lumber than redwood would check or warp it entirely out of recognition. This preparation of redwood will open to it many new avenues to profitable markets.—*Eureka Watchman.*

"PICTURESQUE CALIFORNIA HOMES."

A large work containing numerous designs of California Country Architecture.

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CITY BUILDING NEWS.

Alabama near Twenty-fifth alterations, for owner, Ed. F. Drew; architect, M. J. Welsh; cost, \$1,626; signed, March 6; filed, March 7; limit, 70 days; \$400 framed; \$400 brown coated; \$400 completed; \$426, 35 days.

Bluxome near Sixth, one-story brick warehouse. Owner, Thos. Magee; architect, Chas. I. Havens; contractor, Wm. M. Fletcher; cost, \$10,050; signed, March 4; filed, March 6; sureties, J. F. Kennedy; limit, 40 days; \$3,050 walls ready for rafters; \$4,000 completed; \$3,000, 35 days.

Buchanan and O'Farrell, three-story frame; Owner, Robt. Lorentz; architect, W. Winterhalter; contractors, Borstel and Conrad; cost, \$7,995; signed, March 1; filed, March 5; sureties, Chas. F. and Frank P. Doe; limit, 90 days; \$2,000 framed; \$1,995 roofed; \$2,000 completed; \$2,000, 35 days.

Broderick near Hayes, two-story frame. Owner, Nancy C. Lehman; architect, Geo. Houston; contractor, Geo. Houston; cost, \$3,000; signed, Feb. 27; filed, March 4; limit, 100 days; \$750 shingles on; \$750 brown coated; \$750 doors and windows in; \$750, 35 days.

Broadway near Leavenworth, tenement; owner, Bridget Fitzgerald; architect, Sam'l. Newsom; contractor, John Doherty; cost, \$2,500; signed, March 19; filed, March 20;

\$375 framed; \$375 roofed; \$375 white mortar; \$375 outside primed; \$375 completed; \$625, 35 days.

Broderick, near Washington, two-story and basement, frame. Owner, R. W. Hill, architects, Percy & Hamilton, contractor, R. O. Chandler, amount, \$5,079, signed, March 18, filed, March 25, limit, 90 days, first Saturday of each month 75 per cent. of value of work done, balance, 25 per cent., 35 days.

Broadway near Pierce, two-story frame. Owner, Fred. E. Sharkey; architects, J. J. and T. D. Newsom; contractor, A. E. Aldridge; cost, \$3,500; signed, March 6; filed, March 9; sureties, Harry Downey, John Felix and F. C. Eisen; \$1,000 limit, 110 days; \$500 framed; \$800 outside work done; \$600 plastered; \$655 completed; \$895, 36 days.

San Francisco Will Manufacture Saw Mill Machinery.

The "Vulcan" Foundry of this city is enlarging its base of operations and is reaching out to control its share of the manufacture of lumber machinery.

The Sanhedrin Mill & Lumber Company have recently contracted with the Vulcan Iron Works for the machinery for their new saw mill to cut about 50,000 feet of lumber per day; and have also selected a 60-inch heavy "Vulcan" Gang Edger, a set of heavy "Vulcan" Fractional Screw Head Blocks, also an 8x10, "Campbell" Steam Feed.

There is no reason why the "Vulcan" and the other foundries, should not absolutely control the manufacture of saw mill machinery on this coast. We propose to do what we can to this end

"From East to West."

We have received from Samuel Cabot of Boston, a copy of his book of sketches as above entitled. It contains beautiful designs of architecture as exemplified principally by New York and Boston talent. The names are given on each sketch shown, and certainly they embrace those who stand at the head of their profession. All the houses shown have been actually stained with creosote stains, manufactured by Mr. Cabot. The effect is very pleasing. Mr. Cabot proposes to thoroughly introduce these stains on this coast and has appointed T. J. Bass & Co. as his agents. Mr. Cabot proposes to print new editions of this work every few months and we can safely say that California will be represented in the next edition.

To stain brick red, melt one ounce of glue in a gallon of water; then add a piece of alum as large as an egg, one-half pound of Venetian red and one pound of Spanish brown; redness or darkness is increased by using more red or brown. For coloring black, heat the brick and dip in fluid asphaltum or in hot linseed oil and asphalt.

ACADEMY

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ST. LOUIS, MO.

An Institute for Theoretical and Practical Education for Building Tradesmen. Completed within three courses. Terms begin September, December and March. Students may enter in any one of these terms. The Academy will always assist its graduates in obtaining positions as Draughtsmen, Superintendents, Foremen, etc. Send for Prospectus.

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—THE—

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Broderick, near Fourteenth, frame. Owner, E. G. Cook; architect, John Marquis; contractor, Richard Mowry; amount, \$4,500; signed, March 26; filed March 29; \$843 chimneys up; \$843 ready to lath; \$843 outside finish on; \$843 completed; \$1,128, 35 days.

Block 595, Western Addition, fence, grand stand, band stand. Owner, John F. Bragg; contractor, Alex J. Wheeler; amount, \$2,700; sureties, Lewis B. Haines and Frank Gardiner; signed, March 28; filed, March 30; limit, April 15, '89; April 6, '89, \$75; April 13, '89, \$675; April 16, '89, \$675; May 16, '89, \$675.

California near Larkin, carpenter work for three-story frame. Owner, C. Franzoe; architect, Wm. Mosser; contractor, G. Damkroeger; cost, \$3,875; signed, March 15; filed, March 16; sureties, H. Mattern and W. J. Trott; \$2,000; limit, 90 days; 75 per cent. of work done, balance 25 per cent. 35 days after.

Castro, north of Fifteenth, two-story frame. Owner, Wm. Buescher; architect, Bernard Dreyer; contractor, Bernard Dreyer; cost, \$3,705; signed, April 1; filed, April 3; limit, June 20, '89; \$926 25 framed; \$926 25 brown mortared; \$926 25 white mortared; \$926 25, 35 days.

Clinton, near Bryant, alterations, etc. Owner, Mrs. F. P. Perry; architect, John J. Clark; contractor, J. McCarthy; amount, \$2,675; sureties, Blythe and Trott and John Coop; limit, 60 days; \$600 enclosed; \$600 brown mortared; \$600 inside finished; \$875, 35 days.

California and Front, artificial stone work. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractor, Geo. Goodman; cost, \$1,425; signed March 1; filed March 7; sureties, Jno. J. Mahoney and Calvin Nutting \$1,425; limit without delay; 75 per cent. as work progresses; balance 35 days.

Devisadero near Washington, plumbing. Owner, Mrs. M. A. Rainey; architect, T. J. Welsh; contractors, Fritz & Kean; cost, \$1,350; signed, March 4; filed, March 5; \$475 rough if finished; \$475 finished; 400, 35 days.

Devisadero near Washington, four frames. Owner, Mrs. M. A. Rainey; architect, T. J. Welsh; contractor, John Blake; cost, \$14,284; signed, Feb. 26; filed, March 5; limit, 90 days; \$2,500 first story joists up; \$2,500 framed; \$2,200 brown mortared; \$1,250 white mortared; \$1,250 completed; \$4,284, 35 days.

Dale Place, near Golden Gate Avenue, three-story frame. Owner, C. T. A. Langerman; architect, A. J. Barnett; contractors, C. N. Smith and Wm. J. Simon; cost, \$3,358; signed, March 12; filed, March 15; sureties, Wm. Simon, \$2,000; limit, 90 days; \$800 roof boards on; \$850 front finish on; \$868 completed; \$840, 35 days.

Devisadero, between Hayes and Fell, two-story double flat. Owner, A. L. Edwards; architects, J. C. Matthews & Son; contractors, Maloney & Shay; cost, \$3,953; signed, March 11; filed, March 14; limit, June 1, '89; 75 per cent. from time to time as work progresses; balance, 30 days after.

Devisadero near Hayes, two-story frame. Owner, Jas. Weber; architect, M. J. Welsh; contractor, J. H. McKay; cost, \$3,840; signed, March 18; filed, March 20; \$960 framed; \$960 brown mortared; \$960 finished; \$960, 35 days.

Devisadero near Ridley, two-story frame. Owner, Marion O. Hall; architects, Hueme & Everett; contractor, John Martin; cost, \$3,825; signed, March 20; filed, March 21; sureties, Frank P. Latson and Jas. A. Weson, \$3,825; \$956.25 sheathed roof; \$956.25 brown mortared; \$956.25 completed; \$956.25, 35 days.

Dolores, between Fifteenth and Sixteenth, two-story frame. Owner, J. M. Peoples; contractor, Geo. Houston; cost, \$3,123; signed, March 27; filed, April 2; \$775 shingled; \$775 brown mortared; \$775 windows in place; \$798, 35 days.

Dupont, north of San Francisco, two-story frame. Owner, L. Malatesta; architect, Wm. Mosser; contractor, E. Idalgiero; cost, \$3,170; signed, March 30; filed, April 5; sureties, J. Peralto and D. Perrago, \$1,600; limit, 75 days; 75 per cent. as work is done; balance, 25 per cent. 35 days.

Ellis and Jones, plumbing. Owner, Mrs. A. E. Luhrs; architects, Pissis & Moore; contractors, Sweeney & Kearns; cost, \$1,100; signed, March 7; filed, March 8; \$400 rough work done; \$425 completed; \$275, 35 days.

Ellis and Jones, additions, etc. Owner, Mrs. A. E. Luhrs; architects, Pissis & Moore; contractors, Moore Bros.; cost, \$10,900; signed, March 7; filed, March 8; \$1,500 foundations up; \$1,500 framed; \$1,500 first plaster; \$1,500 interior plastered; \$1,500 ready to paint; \$500 accepted; \$2,900, 35 days.

Eddy and Laguna, two-story frame. Owner, August Koerber; architect, H. Geilfuss; contractors, Von Borstel & Conrad; cost, \$4,695; signed, March 20; filed, March 23; limit, 80 days; \$820 framed; \$900 partitions set; \$900 white coated; \$900 completed; \$1,175, 35 days.

Erle, south of Mission, three two-story frames. Owner, Wm. Ede; architect, A. J. Barnett; contractor, O. E. White; cost, \$5,000; signed, March 28; filed, April 4; surety, Chas. F. Doe, \$3,000; limit, three months after foundation walls are completed; \$1,500 main roof on; \$1,500, outside finish on; \$1,500, completed; \$1,500, 35 days.

Fair Oaks, south of Twenty-second, building. Owner, L. J. Evans; architect, S. Hatfield; contractor, P. F. Lynch; cost, \$4,418; signed, April 1; filed, April 2; surety, W. J. Adams \$3,000; limit, 70 days; \$913 50, roof on; \$800 floors laid; \$800, plastering finished; \$800, completed; \$1,105 50, 35 days.

Front, corner California, painting. Owner, Moses Rosenbaum; architect, Salfeld & Kohlberg; contractor, J. F. Sullivan; cost, \$840; signed, March 1; filed, April 4; sureties, Thos. Winters and P. M. Wellon \$840. 75 per cent. as work progresses, in monthly payments; balance, 25 per cent., 35 days.

Front, corner California, terra cotta work. Owner, Moses Rosenbaum; architect, Salfeld & Kohlberg; contractors, Gladding, McBean & Co.; cost \$750; signed, March 9; filed, April 4; limit, without delay; 75 per cent. as work progresses; balance, 25 per cent., 35 days.

Front and California, glazing, etc. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractors, P. H. Rosenbaum & Co.; cost, \$2,125; signed, March 6; filed, March 7; limit without delay; 75 per cent. when glass is set and accepted; balance 25 per cent. 35 days.

Front and California, plastering. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractor, C. C. Moorehouse; cost, \$2,340; signed, March 1; filed, March 7; sureties, John Tuttle, \$2,340; limit without delay; \$1,150 brown coated, \$600 accepted; \$590, 35 days.

Front and California, sewerage and plumbing. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractors, Fritz & Kean; cost, \$2,000; signed, March 1; filed, March 7; limit without delay; \$1,000 rough plumbing in; \$500 accepted; \$500, 35 days.

Front and California, galvanized iron and tinning. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractor, Jos. Forde; cost, \$1,125; signed, March 1; filed, March 7; 75 per cent. of work progresses; balance, 35 days.

Front and California, cast and wrought iron work. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractors, Phoenix Iron Works; cost, \$2,110; signed, March 1; filed, March 7; limit without delay; 75 per cent. as work progresses; balance, 25 per cent. 35 days.

Front and California, cut stone work. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractors, McGowan & Butler, et al; cost, \$12,750; signed, March 6; filed, March 7; sureties, C. A. Warren and C. S. Holmes \$12,750; limit without delay; 75 per cent. as work progresses; balance 35 days; payments on 1st of each month.

Front and California, carpenter work. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractor, A. Jackson; cost, \$10,000; signed, Feb. 28; filed, March 7; sureties, Chas. & Frank P. Doe \$10,500; 75 per cent. as work progresses on 1st of each month; balance 25 per cent., 35 days.

Front and California, moving old building and brick work for new one. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractor, John McCarthy; cost, \$13,475; signed, Feb. 2; filed, March 7; sureties, Richard J. McCann and Thos. C. Riddell \$13,275; limit, 100 days; 75 per cent. on completion of each story; 25 per cent., 35 days.

Fillmore and Germania, two-story frames. Owner, Mrs. A. C. Stohlmann; architect, E. John; contractors, Von Borstel & Conrad; cost, \$4,794; signed, March 15; filed, March 18; \$1,000 framed; \$1,500 rough mortared; \$1,095.50 accepted; \$1,198.50, 35 days.

Fell and Broderick, two-story and basement frame. Owner, B. E. Henriksen; architect, B. E. Henriksen; contractor, Robt. Currie; cost, \$5,600; signed, March 21; filed, March 21; \$1,050 roofed; \$1,050 brown coated; \$1,050 white coated; \$1,050 trimmings on; \$1,400, 35 days.

Golden Gate Avenue, near Lyon, frame dwelling. Owner, Mac C. Madden; architect, T. J. Welsh; contractor, C. E. Dunshie; cost, \$3,800; signed, March 13; filed, March 14; limit, 90 days; \$315 framed; \$2,000 white coated; \$500 completed; \$985, 35 days after.

Golden Gate Avenue near Jones, alterations in four brick buildings now being erected. Owner, Lizzie W. Moffat; architect, Chas. I. Havens; contractor, Chas. C. Terril; cost, \$10,667.50; signed, March 16; filed, March 18; installments on 15th of each month in sums of 75 per cent., balance, 35 days.

Howard, near Twentieth, building. Owner, Sarah Miller; architect, T. J. Welsh; contractor, James McInerney; amount, \$5,195; surety, J. J. McKinnon \$3,000; signed, March 26; filed, March 29; limit, 90 days; \$974 framed; \$974 brown mortared; \$974 white mortared; \$974 finished; \$1,299, 35 days.

Howard, corner Mary, building. Owner, James L. Fallon; architect, John J. Clark; contractor, John G. Adams; amount, \$7,950; sureties, E. W. Hannon and Fabian Joost; \$7,000; signed, March 5; filed, March 28; limit, 100 days; \$1,986 framed; \$1,980 brown mortared; \$1,980 inside finished; \$2,010, 35 days.

Hayes, near Broderick, building. Owner, C. B. Hawley; architect, Charles I. Havens; contractor, Dan Chisholm; amount, \$7,799; signed, March 25; filed, March 28; \$1,299 enclosed; \$1,500 brown mortared; \$1,500 hard finished; \$1,500 completed; \$2,000, 35 days.

Hermann, near Jessie, three-story frame. Owner, Christina Miller; architect, A. J. Barnett; contractor, Brennan Bros.; amount, \$5,660; sureties, J. J. McKinnon and D. J. Preston, \$3,000; signed, March 25; filed, March 28; limit, 100 days; \$1,160 roof on; \$1,000 brown mortared; \$1,000 outside finished; \$1,000 completed; \$1,500, 35 days.

Howard and East, foundation for road bed. Owners, Omnibus Cable Co; architect, Engineer of Co; cost, \$2,050; signed, March 8; filed, March 11; limit, 30 days; 75 per cent. as work progresses; balance 25 per cent., 35 days after.

Henry near Noe, building. Owner, P. Conlin; architect, T. J. Welsh; contractor, James McInerney; cost, \$2,000; signed, March 11; filed, March 15; sureties, P. F. Ward and J. J. McKinnon, \$1,500; \$500 framed; \$500 brown mortared; \$500 completed; \$500, 35 days after.

Haight, between Steiner and Pierce, three-story frame. Owner, August Kenerleber, et al; architect, R. Zimmermann; contractor, Adam Miller; cost, \$5,100; signed, March 2; filed, March 19; \$1,000 framed; \$1,000 enclosed; \$1,000 rough mortared; \$1,000 completed; \$1,100, 35 days.

Haight near Gough, addition for a market. Owner, A. P. Hotaling; architect, Wm. Mosser; contractors, Norton & Perry; cost, \$3,250; signed, March 21; filed, March 23; limit, 70 days; 75 per cent. as work progresses; balance 25 per cent., 35 days.

Howard, Nos. 1713, 1715, 1719, brick foundations. Owner, James Phelan; architect, Jno. Marquis; contractor, Martin Fennel; cost, \$1,845; signed, March 23; filed, March 23; limit, 50 days; \$354 No. 1719, finished; \$343, 1717 finished; \$343, 1715 finished; \$343, 1713 finished; \$452, 35 days.

Henry near Sanchez, two-story frame. Owner, Henry Harms; architect, J. E. Kraft; contractor, J. W. Smith; cost, \$3,157; signed, March 6; filed, March 9; limit, 70 days; \$750 enclosed; \$750 brown mortared; \$857 completed; \$800, 35 days.

Hayes near Gough, building. Owner, Philip Pasener; architects, Salfeld & Kohlberg; contractors, Martin & Maguire; cost, \$6,000; signed, March 15, filed, March 18; sureties, Frank P. Latson and J. W. Welsh \$6,000; limit, 100 days; \$1,000 framed; \$1,000 brown mortared; \$1,000 inside finished; \$1,500 accepted; \$1,500, 35 days.

Hayes near Buchanan, two-flats. Owners, John Boyd and wife; architects, Donovan & Williams; contractors, Donovan & Williams; cost, \$4,625; signed, Feb. 26; filed, March 7; sureties, Preston & McKinnon, \$2,000; limit, July 1, '89; \$1,000 enclosed; \$800 brown coated; \$600 white coated; \$1,025 completed; \$1,200, 35 days.

Haight, west of Steiner, two-story frame. Owner, Jos. Boek; architect, A. J. Barnett; contractor, Rountree Bros.; cost, \$6,700; signed, April 2; filed, April 4; sureties, Behrend Joost and W. A. Meeker \$3,500; limit, 100 days; \$1,525, roofed; \$1,000 brown coated; \$1,500 white coated; \$1,000, completed; \$1,675, 35 days.

Haight corner of Laguna, two-story frame. Owner, Gustave F. Schmidt and wife; architect, Wm. T. Commary; contractor, Wm. T. Commary; cost, \$7,870; signed, April 1; filed, April 5; \$1,900, framed; \$1,400, sashes fitted; \$1,400, basement done; \$1,042, ready to paint; \$360, completed; \$1,968, 35 days.

Howard, north of Fifteenth, three story frame. Owner, F. G. Gerhardt; architect, Henry Geilfuss; contractor, H. J. Weiss; cost, \$3,857; signed, April 4; filed, April 6; \$600, roofed; \$600 partitions set; \$657, completed; \$2,000, 35 days.

Haight, between Scott and Devisadero, two-story frame. Owner, Jos. M. Kane; architects, Schmidt & Shea; contractor, Wm. Plums; cost, \$4,700; signed, April 4; filed, April 6; sureties, F. and B. Joost; \$800 rustic on; \$900 rough plumbing in; \$900 hard finished; 900 completed; \$1,200, 35 days.

Jackson, corner Broderick, carpenter work. Owner, J. Dupuy; architect, Wm. Mosser; contractor, M. C. Lynch; cost, \$3,500; signed, April 3; filed, April 4; sureties, John Lewis and P. Swift; \$2,000; \$2,000 third story joists laid; \$2,000 iron work on; \$2,000 yard work finished; \$2,098 ready to paint; \$2,700, 35 days.

Jackson, near Webster, brick and carpenter work. Owner, Carl Walliser; architect, Wm. Mosser; contractor, Geo. J. Doering; amount, \$3,083; signed, March 23, filed March 25; limit, 100 days; 75 per cent. as work progresses, balance, San Jose and vicinity. [From our Special Correspondent.] 25 per cent., 35 days.

Jackson, near Laguna, building. Owner, Mrs. W. F. DeForest; architect, Samuel Newson; contractor, George R. Lang; cost, \$5,650; signed, March 18; filed, March 20; \$350 framed; \$500 roofed; \$1,000 white mortared; \$1,000 outside primed; \$1,200 completed; \$1,600, 35 days.

Laguna and Washington, building. Owner, Matilda L. Castle; architect, W. J. Mathews; contractors, Knight & Littlefield; cost, \$10,194; signed, March 6; filed, March 19; limit, July 10, '89; 75 per cent. as work progresses, balance 25 per cent. 35 days.

Laussat, between Fillmore and Steiner, two-story building. Owner, M. McIntyre; architect, Wm. Mosser; contractor, D. Chisholm; cost, \$2,000; signed, March 11; filed, March 13; sureties, F. Joost; limit, 60 days; 75 per cent. in proportion to work done, balance, 25 per cent., 35 days after.

Leavenworth near Clay, three-story frame. Owner, Isaac L. Hofmann; architects, C. R. & J. M. Wilson; contractor, F. V. Steinman; cost, \$8,400; signed, March 7; filed, March 7; \$2,000 framed; \$1,000 enclosed; \$1,000 brown coated; \$1,000 white coated; \$1,300 completed; \$2,100, 35 days.

Lafayette, south of Miuna, three-story frame. Owner, Jos. A. Cruz; architect, H. Geilfuss; contractor, John Foster; cost, \$5,500; signed, March 19; filed April 5; sureties, John Smith and Wm. Swift, \$3,000; \$1,100 framed; \$1,000 brown coated; \$1,000 white coated; \$1,000 completed; \$1,400, 35 days.

McAllister near Lyon, building. Owner, F. P. Adams; architect, B. E. Henriksen; contractor, Louis Helbing; cost, \$4,100; signed, March 21; filed, March 21; \$768 roofed; \$769, brown coated; \$769 white coated; \$769 trimmings on; \$1,025, 35 days.

Market, northeast City Hall avenue, plumbing. Owner, Margaret Lynch; architect, Jas. E. Wolfe; contractor, E. Wolfe; cost, \$1,040; signed, March 22; filed, April 2; 75 per cent. as work progresses; balance, 25 per cent., 35 days.

Market, northeast City Hall avenue, plumbing. Owner, C. G. Burnett; architect, Jas. E. Wolfe; contractor, E. Wolfe; cost, \$1,875; signed, March 22; filed, April 2; 75 per cent. as work progresses; balance, 25 per cent., 35 days.

McAllister, east Scott, two-story frame. Owner, H. W. Frank; architect, Charles I. Havens; contractor, John G. Adams; cost, \$5,725; signed, April 2; filed, April 3; \$1,000 enclosed; \$1,000 brown coated; \$1,000 hard finished; \$1,225 completed; \$1,500, 35 days.

Market, between Sixth and Seventh, elevator work for foundation. Owner, Joseph Rosenthal; architects, Salfeld & Kohlberg; contractors, Wm. H. Birch & Co.; cost, \$5,300; signed, January 28; filed, April 4; 40 per cent. of work accomplished at end of each month; balance, 35 days.

Ninth and Harrison, three-story frame. Owner, Michael Bohanan; architect, T. J. Welsh; contractor, James F. Logan; cost, \$5,387; signed, March 8; filed, March 11; limit, 90 days; \$996 framed; \$996 brown mortared; \$996 white mortared; \$999 finished; \$1,400, 35 days.

No. 2615 California street, additions. Owner, E. A. Selfridge; architects, Schulze & Meeker; contractor, Wm. Winnie; cost, \$2,270; signed, March 28; filed, April 1; sureties, Nathan Rosenberg and V. Z. Horton, \$750; limit, June 15, '89; \$900 roofed; \$802 completed; \$568, 35 days.

No. 1516, Twenty-Fourth, alterations. Owner, Susie Solomon; architect, James H. Humphreys; contractors, Lehnhard & Jeffrey; cost, \$1,900; signed, March 2; filed, March 5; sureties, Isidore Asch and Niehaus Bros. & Co. \$1,900; limit, May 2, '89; \$475 floors laid; \$475 brown coated; \$475 completed; \$475, 35 days.

O'Farrell, corner Buchanan, painting. Owner, Robert Lorentz; architect, W. Winterhalter; contractor, Frederick Schaefer; amount, \$680; signed, March 23; filed, March 29; limit, 12 days; \$180 outside two coats and roof, one coat; \$320 completed; \$180, 35 days.

O'Farrell and Leavenworth, alterations, etc. Owner, Wm. Schehr; contractor, G. W. Hansbrough; cost, \$4,200; signed, March 8; filed, March 9; sureties, W. Edwards and Jno. F. Taylor; \$1,000 framed; \$1,000 brown mortar; \$1,000 white mortar; \$1,200 completed.

Post, corner Jones, plumbing, etc. Owner, Thomas Lundy; architect, T. J. Welsh; contractor, R. Vance; cost, \$1,389; signed, March 30; filed, March 30; \$600 pipes in; \$389 completed; \$400, 35 days.

Post, near Polk, building. Owner, L. Kutter; architect, W. H. Armitage; contractor, J. W. Wissinger; amount, \$4,975; sureties, Reese Llewellyn, \$4,000; signed, March 13; filed March 29; limit, 100 days; \$1,200 framed; \$1,200 brown mortared; \$1,200 completed; \$1,375, 35 days.

Page, near Fillmore, brick and carpenter work. Owner, J. G. Bloomer; architect, James E. Wolfe; contractor, John J. Dunn; amount, \$3,772, surety, C. S. Holmes, \$1,000; signed, March 21, filed, March 28, \$820 framed, \$720 brown mortared, \$720 standing finish; \$569 completed, \$943, 35 days.

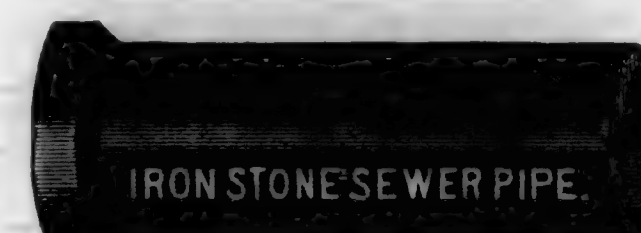
Pine near Baker, one-story frame. Owner, S. P. Taylor and wife; architect, G. G. Gillespie; contractor, G. G. Gillespie; cost, \$2,400; signed, March 4; filed, March 6; \$450 framed, \$450 brown coated; \$450 white coated; \$450 completed; \$600, 35 days.

Post, between Hyde and Larkin, plumbing, etc. Owner, Bernard Miller; architects, Salfeld & Kohlberg; contractors, Sam'l. Inkelheimer & Bro.; cost, \$657; signed, March 12; filed, March 18; \$300 when rough work is done; \$375, 35 days after.

Pine, east Lyon, building. Owner, Anna R. McPhee; architect, S. Hatfield; contractor, Allan McDonald; cost, \$3,785; signed, March 30; filed April 2; sureties, Frank P. Latson and J. J. McKinnon \$2,500; limit, 60 days; \$800 roof on; \$679 first coat of mortar on, etc.; \$679 windows in; \$680 completed; \$947, 35 days.

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FIRE BRICK AND FIRE CLAY.
106 MARKET STREET,
San Francisco.

Broderick, near Fourteenth, frame. Owner, E. G. Cook; architect, John Marquis; contractor, Richard Mowry; amount, \$4,500; signed, March 26; filed March 29; \$843 chimneys up; \$843 ready to lath; \$843 outside finish on; \$843 completed; \$1,128, 35 days.

Block 595, Western Addition, fence, grand stand, band stand. Owner, John F. Bragg; contractor, Alex J. Wheeler; amount, \$2,700; sureties, Lewis B. Haines and Frank Gardiner; signed, March 28; filed, March 30; limit, April 15, '89; April 6, '89, \$75; April 13, '89, \$675; April 16, '89, \$675; May 16, '89, \$675.

California near Larkin, carpenter work for three-story frame. Owner, C. Franzoe; architect, Wm. Mooser; contractor, G. Danckroeger; cost, \$3,875; signed, March 15; filed, March 16; sureties, H. Matern and W. J. Trott; \$2,000 limit, 90 days; 75 per cent. of work done, balance 25 per cent. 35 days after.

Castro, north of Fifteenth, two-story frame. Owner, Wm. Buescher; architect, Bernard Dreyer; contractor, Bernard Dreyer; cost, \$3,705; signed, April 1; filed, April 3; limit, June 20, '89; \$926 25 framed; \$926 25 brown mortared; \$926 25 white mortared; \$926 25, 35 days.

Clinton, near Bryant, alterations, etc. Owner, Mrs. F. P. Perry; architect, John J. Clark; contractor, J. McCarthy; amount, \$2,675; sureties, Blythe and Trott and John Coop; \$2,600; signed, March 29; filed March 30; limit, 60 days; \$600 enclosed; \$600 brown mortared; \$600 inside finished; \$875, 35 days.

California and front, artificial stone work. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractor, Geo. Goodman; cost, \$1,425; signed, March 1; filed March 7; sureties, Jno. J. Mahoney and Calvin Nutting \$1,425; limit without delay; 75 per cent. as work progresses; balance 35 days.

Devisadero near Washington, plumbing. Owner, Mrs. M. A. Rainey; architect, T. J. Welsh; contractors, Fritz & Kean; cost, \$1,350; signed, March 4; filed, March 5; \$475 rough if finished; \$475 finished; 400, 35 days.

Devisadero near Washington, four frames. Owner, Mrs. M. A. Rainey; architect, T. J. Welsh; contractor, John Blake; cost, \$14,284; signed, Feb. 26; filed, March 5; limit, 90 days; \$2,500 first story joists up; \$2,500 framed; \$2,200 brown mortar; \$1,250 white mortar; \$1,250 completed; \$4,284, 35 days.

Dale Place, near Golden Gate Avenue, three-story frame. Owner, C. T. A. Langerman; architect, A. J. Barnett; contractors, C. N. Smith and Wm. J. Simon; cost, \$3,358; signed, March 12; filed, March 15; sureties, Wm. Simon, \$2,000; limit, 90 days; \$800 roof boards on; \$850 front finish on; \$868 completed; \$840, 35 days.

Devisadero, between Hayes and Fell, two-story double flat. Owner, A. L. Edwards; architects, J. C. Matthews & Son; contractors, Maloney & Shay; cost, \$3,953; signed, March 11; filed, March 14; limit, June 1, '89; 75 per cent. from time to time as work progresses, balance, 30 days after.

Devisadero near Hayes, two-story frame. Owner, Jas. Weber; architect, M. J. Welsh; contractor, J. H. McKay; cost, \$3,840; signed, March 18; filed, March 20; \$960 framed; \$960 brown mortar; \$960 finished; \$960, 35 days.

Devisadero near Ridley, two-story frame. Owner, Marion O. Hall; architects, Huene & Everett; contractor, John Martin; cost, \$3,825; signed, March 20; filed, March 21; sureties, Frank P. Latson and J. A. W. Weston, \$3,825; \$956.25 sheathed roof; \$956.25 brown mortar; \$956.25 completed; \$956.25, 35 days.

Dolores, between Fifteenth and Sixteenth, two-story frame. Owner, J. M. Peoples; contractor, Geo. Houston; cost, \$3,123; signed, March 27; filed, April 2; \$775 shingled; \$775 brown mortared; \$775 windows in place; \$798, 35 days.

Dupont, north of San Francisco, two-story frame. Owner, L. Malatesta; architect, Wm. Mooser; contractor, E. Idalgero; cost, \$3,170; signed, March 30; filed, April 5; sureties, J. Peralto and D. Ferrago, \$1,600; limit, 75 days; 75 per cent. as work is done; balance, 25 per cent. 35 days.

Ellis and Jones, plumbing. Owner, Mrs. A. E. Luhrs; architects, Pissis & Moore; contractors, Sweeney & Kearns; cost, \$1,100; signed, March 7; filed, March 8; \$400 rough work done; \$425 completed; \$275, 35 days.

Ellis and Jones, additions, etc. Owner, Mrs. A. E. Luhrs; architects, Pissis & Moore; contractors, Moore Bros.; cost, \$10,900; signed, March 7; filed, March 8; \$1,500 foundations up; \$1,500 framed; \$1,500 first plaster; \$1,500 interior plastered; \$1,500 ready to paint; \$500 accepted; \$2,900, 35 days.

Eddy and Laguna, two-story frame. Owner, August Koerber; architect, H. Geilfuss; contractors, Von Borstel & Conrad; cost, \$4,695; signed, March 20; filed, March 23; limit, 80 days; \$820 framed; \$900 partitions set; \$900 white coated; \$900 completed; \$1,175, 35 days.

Erie, south of Mission, three two-story frames. Owner, Wm. Ede; architect, A. J. Barnett; contractor, O. E. White; cost, \$6,000; signed, March 28; filed, April 4; surety, Chas. F. Doe, \$3,000; limit, three months after foundation walls are completed; \$1,500 main roof on; \$1,500, outside finish on; \$1,500, completed; \$1,500, 35 days.

Fair Oaks, south of Twenty-second, building. Owner, L. J. Evans; architect, S. Hatfield; contractor, P. F. Lynch; cost, \$4,418; signed, April 1; filed, April 2; surety, W. J. Adams \$3,000; limit, 70 days; \$913 50, roof on; \$800 floors laid; \$800, plastering finished; \$800, completed; \$1,105 50, 35 days.

Front, corner California, painting. Owner, Moses Rosenbaum; architect, Salfeld and Kohlberg; contractor, J. F. Sullivan; cost, \$840; signed, March 1; filed, April 4; sureties, Thos. Winters and P. M. Wellon \$840. 75 per cent. as work progresses, in monthly payments; balance, 25 per cent., 35 days.

Front, corner California, terra cotta work. Owner, Moses Rosenbaum; architect, Salfeld and Kohlberg; contractors, Gladding, McBean & Co.; cost, \$750; signed, March 9; filed, April 4; limit, without delay; 75 per cent. as work progresses; balance, 25 per cent., 35 days.

Front and California, glazing, etc. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractors, F. H. Rosenbaum & Co.; cost, \$2,125; signed, March 6; filed, March 7; limit without delay; 75 per cent. when glass is set and accepted; balance 25 per cent. 35 days.

Front and California, plastering. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractor, C. C. Moorehouse; cost, \$2,340; signed, March 1; filed, March 7; sureties, John Tuttle, \$2,340; limit without delay; \$1,150 brown coated, \$600 accepted; \$590, 35 days.

Front and California, sewerage and plumbing. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractors, Fritz & Kean; cost, \$2,000; signed, March 1; filed, March 7; limit without delay; \$1,000 rough plumbing in; \$500 accepted; \$500, 35 days.

Front and California, galvanized iron and tinning. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractor, Jos. Forde; cost, \$1,125; signed, March 1; filed, March 7; 75 per cent. of work progresses; balance, 35 days.

Front and California, cast and wrought iron work. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractors, Phoenix Iron Works; cost, \$2,110; signed, March 1; filed, March 7; limit without delay; 75 per cent. as work progresses; balance, 25 per cent. 35 days.

Front and California, cut stone work. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractors, McGowan & Butler, et al; cost, \$12,750; signed, March 6; filed, March 7; sureties, C. A. Warren and C. S. Holmes \$12,750; limit without delay; 75 per cent. as work progresses; balance 35 days; payments on 1st of each month.

Front and California, carpenter work. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractor, A. Jackson; cost, \$10,000; signed, Feb. 28; filed, March 7; sureties, Chas. & Frank P. Doe \$10,500; 75 per cent. as work progresses on 1st of each month; balance 25 per cent., 35 days.

Front and California, moving old building and brick work for new one. Owner, Moses Rosenbaum; architects, Salfeld & Kohlberg; contractor, John McCarthy; cost, \$13,475; signed, Feb. 2; filed, March 7; sureties, Richard J. McCann and Thos. C. Riddell \$13,275; limit, 100 days; 75 per cent. on completion of each story; 25 per cent., 35 days.

Fillmore and Germania, two-story frames. Owner, Mrs. A. C. Stohlmann; architect, E. John; contractors, Von Borstel & Conrad; cost, \$4,794; signed, March 15; filed, March 18; \$1,000 framed; \$1,500 rough mortared; \$1,095.50 accepted; \$1,198.50, 35 days.

Fell and Broderick, two-story and basement frame. Owner, B. E. Henriksen; architect, B. E. Henriksen; contractor, Robt. Currie; cost, \$5,600; signed, March 21; filed, March 21; \$1,050 roofed; \$1,050 brown coated; \$1,050 white coated; \$1,050 trimmings on; \$1,400; 35 days.

Golden Gate Avenue, near Lyon, frame dwelling. Owner, Mac C. Madden; architect, T. J. Welsh; contractor, C. E. Dunshie; cost, \$3,800; signed, March 13; filed, March 14; limit, 90 days; \$315 framed; \$2,000 white coated; \$500 completed; \$985, 35 days after.

Golden Gate Avenue near Jones, alterations in four brick buildings now being erected. Owner, Lizzie W. Moffatt; architect, Chas. I. Havens; contractor, Chas. C. Terrell; cost, \$10,667.50; signed, March 16; filed, March 18; installments on 15th of each month in sums of 75 per cent., balance, 35 days.

Howard, near Twentieth, building. Owner, Sarah Miller; architect, T. J. Welsh; contractor, James McInerney; amount, \$5,195; surety, J. J. McKinnon \$3,000; signed, March 26; filed, March 29; limit, 90 days; \$974 framed; \$974 brown mortared; \$974 white mortared; \$974 finished; \$1,299, 35 days.

Howard, corner Mary, building. Owner, James L. Fallon; architect, John J. Clark; contractor, John G. Adams; amount, \$7,950; sureties, E. W. Hannon and Fabian Joost; \$7,000; signed, March 5; filed, March 28; limit, 100 days; \$1,980 framed; \$1,980 brown mortared; \$1,980 inside finished; \$2,010, 35 days.

Hayes, near Broderick, building. Owner, C. B. Hawley; architect, Charles I. Havens; contractor, Dan Chisholm; amount, \$7,799; signed, March 25; filed, March 28; \$1,299 enclosed; \$1,500 brown mortared; \$1,500 hard finished; \$1,500 completed; \$2,000, 35 days.

Hermann, near Jessie, three-story frame. Owner, Christina Miller; architect, A. J. Barnett; contractor, Brennan Bros.; amount, \$5,660; sureties, J. J. McKinnon and D. J. Preston, \$3,000; signed, March 25; filed, March 28; limit, 100 days; \$1,160 roof on; \$1,000 brown mortared; \$1,000 outside finished; \$1,000 completed; \$1,500, 35 days.

Howard and East, foundation for road bed. Owners, Omnibus Cable Co; architect, Engineer of Co; cost, \$2,050; signed, March 8; filed, March 11; limit, 30 days; 75 per cent. as work progresses, balance 25 per cent., 35 days after.

Henry near Noe, building. Owner, P. Conlin; architect, T. J. Welsh; contractor, James McInerney; cost, \$2,000; signed, March 11; filed, March 15; sureties, P. F. Ward and J. J. McKinnon, \$1,500; \$500 framed; \$500 brown mortar; \$500 completed; \$500, 35 days after.

Haight, between Steiner and Pierce, three-story frame. Owner, August Kenerleber, et al; architect, R. Zimmermann; contractor, Adam Miller; cost, \$5,100; signed, March 2 filed, March 19; \$1,000 framed; \$1,000 enclosed; \$1,000 rough mortared; \$1,000 completed; \$1,100, 35 days.

Haight near Gough, addition for a market. Owner, A. P. Hotaling; architect, Wm. Mooser; contractors, Norton & Perry; cost, \$3,250; signed, March 21; filed, March 23; limit, 70 days; 75 per cent. as work progresses, balance 25 per cent., 35 days.

Howard, Nos. 1713, 1715, 1719, brick foundations. Owner, James Phelan; architect, Jno. Marquis; contractor, Martin Fennel; cost, \$1,845; signed, March 23; filed, March 23; limit, 50 days; \$354 No. 1719, finished; \$343, 1717 finished; \$343, 1715 finished; \$343, 1713 finished; \$452, 35 days.

Henry near Sanchez, two-story frame. Owner, Henry Harms; architect, J. E. Kraft; contractor, J. W. Smith; cost, \$3,157; signed, March 6; filed, March 9; limit, 70 days; \$750 enclosed; \$750 brown mortared; \$857 completed; \$800, 35 days.

Hayes near Gough, building. Owner, Philip Pasener; architects, Salfeld & Kohlberg; contractors, Martin & Maguire; cost, \$6,000; signed, March 15, filed, March 18; sureties, Frank P. Latson and J. W. Welsh \$6,000; limit, 100 days; \$1,000 framed; \$1,000 brown mortared; \$1,000 inside finished; \$1,500 accepted; \$1,500, 35 days.

Hayes near Buchanan, two-flats. Owners, John Boyd and wife; architects, Donovan & Williams; contractors, Donovan & Williams; cost, \$4,625; signed, Feb. 26; filed, March 7; sureties, Preston & McKinnon, \$2,000; limit, July 1, '89; \$1,000 enclosed; \$800 brown coated; \$600 white coated; \$1,025 completed; \$1,200, 35 days.

Haight, west of Steiner, two-story frame. Owner, Jos. Bock; architect, A. J. Barnett; contractor, Rountree Bros.; cost, \$6,700; signed, April 2; filed, April 4; sureties, Behrend Joost and W. A. Meeker \$3,500; limit, 100 days; \$1,525, roofed; \$1,000 brown coated; \$1,500 white coated; \$1,000, completed; \$1,675, 35 days.

Haight corner of Laguna, two-story frame. Owner, Gustave F. Schmidt and wife; architect, Wm. T. Connary; contractor, Wm. T. Connary; cost, \$7,870; signed, April 1; filed, April 5; \$1,900, framed; \$1,400, sashes fitted; \$1,200, basement done; \$1,042, ready to paint; \$360, completed; \$1,968, 35 days.

Howard, north of Fifteenth, three story frame. Owner, F. G. Gerhard; architect, Henry Geilfuss; contractor, H. J. Weiss; cost, \$3,857; signed, April 4; filed, April 6; \$600, roofed; \$600 partitions set; \$657, completed; \$2,000, 35 days.

Haight, between Scott and Devisadero, two-story frame. Owner, Jos. M. Kane; architects, Schmidt & Shea; contractor, Wm. Pluns; cost, \$4,700; signed, April 4; filed, April 6; sureties, F. and B. Joost; \$800 rustic on; \$900 rough plumbing in; \$900 hard finished; 900 completed; \$1,200, 35 days.

Jackson, corner Broderick, carpenter work. Owner, J. Dupuy; architect, Wm. Mooser; contractor, M. C. Lynch; cost, \$3,500; signed, April 3; filed, April 4; sureties, John Lewis and P. Swift; \$2,000; \$2,000 third story joists laid; \$2,000 iron work on; \$2,000 yard work finished; \$2,098 ready to paint; \$2,700, 35 days.

Jackson, near Webster, brick and carpenter work. Owner, Carl Walliser; architect, Wm. Mooser; contractor, Geo. J. Doering; amount, \$3,083 signed, March 23, filed March 25, limit, 100 days, 75 per cent. as work progresses, balance, San Jose and vicinity. [From our Special Correspondent.] 25 per cent., 35 days.

Jackson near Laguna, building. Owner, Mrs. W. F. DeForest; architect, Samuel Newson; contractor, George R. Lang; cost, \$5,650; signed, March 18; filed, March 20; \$350 framed; \$500 roofed; \$1,000 white mortared; \$1,000 outside primed; \$1,200 completed; \$1,600, 35 days.

Laguna and Washington, building. Owner, Matilda L. Castle; architect, W. J. Mathews; contractors, Knight & Littlefield; cost, \$10,194; signed, March 6; filed, March 19; limit, July 10, '89; 75 per cent. as work progresses, balance 25 per cent. 35 days.

Laussat, between Fillmore and Steiner, two-story building. Owner, M. McIntyre; architect, Wm. Mooser; contractor, D. Chisholm; cost, \$2,000; signed, March 11; filed, March 13; sureties, F. Joost; limit, 60 days; 75 per cent. in proportion to work done, balance, 25 per cent., 35 days after.

Leavenworth near Clay, three-story frame. Owner, Isaac L. Hoffman; architects, C. R. & J. M. Wilson; contractor, F. V. Steinman; cost, \$8,400; signed, March 7; filed, March 7; \$2,000 framed; \$1,000 enclosed; \$1,000 brown coated; \$1,000 white coated; \$1,300 completed; \$2,100, 35 days.

Lafayette, south of Minna, three-story frame. Owner, Jos. A. Cruza; architect, H. Geilfuss; contractor, John Foster; cost, \$5,500; signed, March 19; filed, April 5; sureties, John Smith and Wm. Swift, \$3,000; \$1,100 framed; \$1,000 brown coated; \$1,000 white coated; \$1,000 completed; \$1,400, 35 days.

McAllister near Lyon, building. Owner, F. P. Adams; architect, B. E. Henriksen; contractor, Louis Helbing; cost, \$4,100; signed, March 21; filed, March 21; \$768 roofed; \$769, brown coated; \$769 white coated; \$769 trimmings on; \$1,025, 35 days.

Market, northeast City Hall avenue, plumbing. Owner, Margaret Lynch; architect, Jas. E. Wolfe; contractor, E. Wolfe; cost, \$1,040; signed, March 22; filed, April 2; 75 per cent. as work progresses; balance, 25 per cent., 35 days.

Market, northeast City Hall avenue, plumbing. Owner, G. G. Burnett; architect, Jas. E. Wolfe; contractor, E. Wolfe; cost, \$1,875; signed, March 22; filed, April 2; 75 per cent. as work progresses; balance, 25 per cent., 35 days.

McAllister, east Scott, two-story frame. Owner, H. W. Frank; architect, Charles I. Havens; contractor, John G. Adams; cost, \$5,725; signed, April 2; filed, April 3; \$1,000 enclosed; \$1,000 brown coated; \$1,000 hard finished; \$1,225 completed; \$1,500, 35 days.

Market, between Sixth and Seventh, elevator work for foundation. Owner, Joseph Rosenthal; architects, Salfeld & Kohlberg; contractors, Wm. H. Birch & Co.; cost, \$5,300; signed, January 28; filed, April 4; 40 per cent. of work accomplished at end of each month; balance, 35 days.

Ninth and Harrison, three-story frame. Owner, Michael Bohanan; architect, T. J. Welsh; contractor, James F. Logan; cost, \$5,387; signed, March 8; filed, March 11; limit, 90 days; \$996 framed; \$996 brown mortared; \$996 white mortared; \$999 finished; \$1,400, 35 days.

No. 2615 California street, additions. Owner, E. A. Selfridge; architects, Schulze & Meeker; contractor, Wm. Winnie; cost, \$2,270; signed, March 28; filed, April 1; sureties, Nathan Rosenberg and V. Z. Horton, \$750; limit, June 15, '89; \$900 roofed; \$802 complete; \$568, 35 days.

No. 1516, Twenty-Fourth, alterations. Owner, Susie Solomon; architect, James H. Humphreys; contractors, Lehnhard & Jeffrey; cost, \$1,900; signed, March 2; filed, March 5; sureties, Isidore Asch and Niehaus Bros. & Co. \$1,900; limit, May 2, '89; \$475 floors laid; \$475 brown coated; \$475 completed; \$475, 35 days.

O'Farrell, corner Buchanan, painting. Owner, Robert Lorentz; architect, W. Winterhalter; contractor, Frederick Schaefer; amount, \$680; signed, March 23; filed, March 29; limit, 12 days; \$180 outside two coats and roof, one coat; \$320 completed; \$180, 35 days.

O'Farrell and Leavenworth, alterations, etc. Owner, Wm. Schehr; contractor, G. W. Hansbrough; cost, \$4,200; signed, March 8; filed, March 9; sureties, W. Edwards and Jno. F. Taylor; \$1,000 framed; \$1,000 brown mortar; \$1,000 white mortar; \$1,200 completed.

Post, corner Jones, plumbing, etc. Owner, Thomas Lundy; architect, T. J. Welsh; contractor, R. Vance; amount, \$1,389; signed, March 30; filed, March 30; \$600 pipes in; \$389 completed; \$400, 35 days.

Post, near Polk, building. Owner, L. Kutter; architect, W. H. Armitage; contractor, J. W. Wissing; amount, \$1,975; sureties, Reese Llewellyn, \$4,000; signed, March 13; filed, March 29; limit, 100 days; \$1,200 framed; \$1,200 brown mortared; \$1,200 completed, \$1,375, 35 days.

Page, near Fillmore, brick and carpenter work. Owner, J. G. Bloomer; architect, James E. Wolfe; contractor, John J. Dunn; amount, \$3,772, surety, C. S. Holmes, \$1,000; signed, March 21, filed, March 28, \$820 framed, \$720 brown mortared, \$720 standing finish; \$569 completed; \$943, 35 days.

Pine near Baker, one-story frame. Owner, S. P. Taylor and wife; architect, G. G. Gillespie; contractor, G. G. Gillespie; cost, \$2,400; signed, March 4; filed, March 6; \$450 framed, \$450 brown coated; \$450 white coated; \$450 completed; \$600, 35 days.

Post, between Hyde and Larkin, brick and carpenter work. Owner, Bernard Miller; architects, Salfeld & Kohlberg; contractors, Fuchs & Bucher; cost, \$8,494; signed, March 12; filed, March 18; sureties, G. H. Woerz and M. Schwab, \$8,494; limit, 100 days; \$1,500 framed; \$1,000 roofed; \$1,500 brown mortar; \$1,000 doors hung; \$1,344 accepted; \$2,150, 35 days.

Post, between Hyde and Larkin, plumbing, etc. Owner, Bernard Miller; architects, Salfeld & Kohlberg; contractors, Sam'l. Inkelheimer & Bro.; cost, \$657; signed, March 12; filed, March 18; \$300 when rough work is done; \$375, 35 days after.

Pine, east Lyon, building. Owner, Anna R. McPhee; architect, S. Hatfield; contractor, Allan McDonald; cost, \$3,785; signed, March 30; filed, April 2; sureties, Frank P. Latson and J. J. McKinnon \$2,500; limit, 60 days; \$800 roof on; \$679 first coat of mortar on, etc.; \$679 windows in; \$680 completed; \$947, 35 days.

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METALCORED
RUBBER STOPPERS.
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IRON STONE SEWER PIPE.
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CAPS AND TOPS,
FIRE BRICK AND FIRE CLAY.
106 MARKET STREET,
San Francisco.

Post, corner Jones, brick, iron and carpenter work, etc. Owner, Thomas Lundy; architect, T. J. Welsh; contractor, George W. Hansbrough; amount, \$20,900; sureties, J. M. Manning and J. F. Taylor, \$10,000; signed, March 26; filed, March 28; \$3,000 first-story joists are on; \$3,000 framed; \$3,000 brown mortared; \$3,675 white mortared; \$3,000 completed; \$5,225, 35 days.

Sutter street, No. 1321, additions. Owner, Mary L. Zimmerman; architects, Schmidt & Shea; contractor, Wm. Plun; cost, \$7,740; signed, April 4; filed, April 6; sureties, F. Joost and D. Woerner, limit, 130 days; \$1,240 enclosed, \$1,500 brown coated, \$1,500 hard finished, \$1,500 completed, \$2,000, 35 days.

Sacramento, near Steiner, two-story frame. Owner, Mary F. Kennedy; architect, J. A. Shepard; contractor, J. P. Shepard; amount, \$4,785; signed, March 29; filed, March 30; limit, 90 days; \$1,185 enclosed, \$1,200; brown mortared; \$1,200; completed \$1,200, 35 days.

Second and Folsom, iron and tin work, etc. Owners, Boyd & Davis; architect, Jno. M. Curtis; contractors, Conlin & Roberts; cost, \$6,763; signed, March 14; filed, March 21; sureties, Jeremiah Mahony and Oscar Lewis, \$2,500; 25 per cent. half done; completed, 50 per cent., balance 35 days, \$350 for extras.

Shotwell and Twenty-Fifth, two cottages. Owner, Emma L. Dick; architect, C. E. Dunshee; contractor, C. E. Dunshee; cost, \$4,950; signed, March 7; filed, March 7; limit, 60 days; \$1,237.50 chimneys built; \$1,237.50 1st coat of plastering on; \$1,237.50 2d coat of plastering on; \$1,237.50, 35 days.

Sanchez, between Sixteenth and Seventeenth, two-story dwelling. Owner, J. Jensen; architect, Geo. Houston; contractor, Geo. Houston; cost, \$2,894; signed, March 5; filed, March 6; limit, 100 days; \$721 shingled; \$721 brown mortar; \$722 white mortar; \$730, 35 days.

Spear, between Market and Mission, piling and capping for building. Owner, Teresa Casserly; architects, Percy & Hamilton; contractors, Mahoney Bros.; cost, \$6,750; signed, March 18; filed, March 23; limit, 90 days; 75 per cent. 1st Saturday of each month as work progresses, balance 25 per cent. 35 days, also \$30 for each pile driven.

Scott and Page, one-story frame. Owner, Mrs. M. Grant; architect, Chas. I. Havens; contractors, R. Doyle & Son; cost, \$1,689; signed, March 11; filed, March 13; limit, 60 days; \$500 roof on; \$689 completed; \$500, 35 days after.

Seventeenth, east Noe, carpenter work. Owner, J. D. Jacobs; architect, Jas. E. Wolfe; contractor, J. J. Dunn; cost, \$4,490; signed, April 4; filed, April 6; \$600 rafters on; \$650 partitions set; \$750 brown mortared, \$700 white mortared, \$665 completed, \$1,125, 35 days.

Twentieth, between Dolores and Guerrero, two-story. Owner, H. H. Birkholm; architect, Chas. S. Shaner; contractor, A. A.

Willis; cost, \$5,445; signed, March 15; filed, March 18; sureties, F. Joost and C. S. Holmes; limit, July 15, '89; \$1,000 brick work done; \$1,020 chimneys built; \$1,020 brown mortar; \$1,043.75 ready to paint; \$1,361.25, 36 days.

Turk near Franklin, four two-story and basement frames. Owner, James H. Garrett; architect, R. H. White; contractor, Jas. R. Wilcox; cost, \$18,000; signed, March 11; filed, March 19; sureties, A. W. Starbord, \$5,000; \$2,700 first floor of joists on; \$2,700 enclosed; \$2,700 brown mortar; \$2,700 staining finish on; \$2,700 completed; \$4,500, 35 days.

Twenty-Fourth near Howard, building. Owner, Jno. McPherson; architect, T. J. Welsh; contractor, Ferd. Klatt; cost, \$2,540; signed, March 12; filed, March 16; \$1,000 framed; \$1,000 brown mortared; \$1,000 white mortared; \$1,200 completed; \$1,340, 35 days after.

Twenty-Fourth corner Bryant, one-story frame and stable. Owner, Geo. Wallenrod; architect, H. Geilfuss; contractor, J. F. Logan; cost, 4,275; signed, April 5; filed, April 6; \$800 roofed; \$800 outside done; \$800 inside done; \$800 completed; \$1,073, 35 days.

Third corner Harrison, iron work, tiles, etc. Owner, Jno. Van Bergen; architect, H. Geilfuss; contractors, P. H. Jackson & Co. cost, \$6,498; signed, April 4; filed, April 6; 75 per cent. as work is performed, balance, 25 per cent., 35 days.

Third corner Harrison, excavations, brick and stone work. Owner, Jno. Van Bergen; architect, H. Geilfuss; contractor, Jno. McCarthy; cost, 18,961; signed, April 4; filed, April 6; \$3,550 basement walls up; \$3,550 first story walls up; \$3,550 third story walls up; \$3,550 fire walls topped; \$4,750, 35 days.

Third cor Harrison, plumbing. Owner, Jno. Van Bergen; architect, H. Geilfuss; contractor, S. Ickelheimer & Bro.; cost, \$1,359; signed, April 4; filed, April 6; \$519 pipes in; \$500 completed; \$340, 35 days.

Third corner Harrison, plastering, etc. Owner, Jno. Van Bergen; architect, H. Geilfuss; contractor, M. Kiernan; cost, \$1,985; signed, April 4; filed, April 6; \$750 brown coated; \$735 white coated; \$500, 35 days.

Third corner Harrison, carpenter work. Owner, Jno. Van Bergen; architect, H. Geilfuss; contractor, M. C. Lynch; cost, \$10,798; signed, April 4; filed, April 6; \$2,000 third story joists laid; \$2,000 iron work on; \$2,000 yard work finished; \$2,098 ready to paint; \$2,700, 35 days.

Third corner Harrison, artificial stone. Owner, Jno. Van Bergen; architect, H. Geilfuss; contractor, H. M. Peterson & Co.; cost, \$1,200; signed, April 4; filed, April 6; \$400 cellar work yard done; \$500 side walks done.

Vallejo east of Buchanan, two-story frame. Owner, C. P. L. Leichter; architect, H. Geilfuss; contractor, Shutt & Kreckler; cost, \$4,485; signed, April 2; filed, April 4; \$840 framed; \$840 partitions set; \$840 outside finished; \$840 completed; \$1,125, 35 days.

Vallejo near Buchanan, frame. Owner, Laura L. Clapp; architect, Clinton Day; contractors, Ingerson & Gore; cost, \$6,350; signed, March 23; filed, March 23; \$1,500 chimneys built; \$1,700 brown coated; \$1,562 ready to paint; \$1,585, 35 days.

Waller near Devisadero, two-story frame. Owner, E. W. Hyde; architect, B. E. Henriksen; contractor, Daniel Reynolds; cost, \$3,200; signed, March 7; filed, March 8; \$600 roofed; \$600 outside finish; \$600 sashes, glazed and hung; \$600 trimmings on; \$800, 35 days.

10 Buildings. Owner, Jos. F. Twist; architect, Wm. F. Lewis; contractor, Wm. F. Lewis; cost, \$8,250; signed, March 21; filed, April 2; limit, June 15, '89; \$500 at beginning of contract, \$5,250 during work, \$2,500 when completed, to be secured by mortgage.

Retail Price List of Lumber.

PINE, FIR AND SPRUCE.		Per 1,000 ft.
Rough Pine, m'cantable to 40 ft inclusive.		\$19 00
" " " 41 to 50 "		20 00
" " " 51 to 60 "		22 00
" " " 61 to 70 "		26 00
" " " 1X3, fencing.		21 00
" " " 1X4, "		20 00
" " " 1X3, 1X4 and 1X6, odd lengths		18 00
" " " second quality.		16 00
" " " selected.		23 00
" " " clear except for flooring.		30 00
" " " for flooring less than flooring.		1 00
Clear V. G. No. 1 Flooring, when ordered, extra.		5 00
Fire Wood.		10 00
Dressed Pine, flooring, No. 1, 1X6.		31 00
" " " 1X4.		33 00
" " " 1 1/2 x 4, 1 1/2 x 6 and odd sizes.		36 00
" " " all sizes, No. 2.		26 00
" " " Stepping, No. 1.		43 00
" " " 2.		33 00
Ship Timber & Plank, rough selected		26 00
" " " select'd pl'nd, 1 sd		av 28 00
" " " " 2 "		40ft 30 00
" " " " 3 "		32 00
" " " " 4 "		34 00
Deck Plank, rough		34 00
" " " dressed		average 35 feet. 39 00
Pickets, rough, B. M.		19 00
" 1/2 x 1 1/2 " 4 ft. long.		per M. 5 50
" 1/2 x 1 1/2 " 4 1/2 ft. long.		6 00
" 1/2 x 1 1/2 " 5 ft. long.		7 00
" 1/2 x 1 1/2 " 6 ft. long.		8 50
" 1/2 x 1 1/2 " 7 ft. long.		10 00
" 1/2 x 1 1/2 " 8 ft. long.		11 50
Furring, 1X2.		per lineal ft. 01
Lath, 1 1/2 x 4 ft.		per M. 2 75
Spruce, rough.		19 00
" " dressed, shelving.		36 00
" " " 1/2 inch.		36 00
" " clear.		33 00
Rough dunnage, delivered.		20 00

The * California * Architect * and * Building * News

VOLUME 10.

ENTERED AT POST-OFFICE SAN FRANCISCO, AS SECOND-CLASS MAIL MATTER. ESTABLISHED JANUARY, 1879.

NUMBER 5.

Official Organ of the San Francisco Chapter, American Institute of Architects.

INTERESTING TO AMERICAN ARCHITECTS.

Public Companies and the N. S. W. Institute of Architects.

NOW IN ITS TENTH YEAR.

Established Jan. 1879.

Incorporated Jan. 1889.

California Architect & Building News

PUBLISHED BY THE
California Architectural Publishing Co.

Office, 408 California St. * * Next to the Bank of California.

PUBLISHED ON THE 15th DAY OF EACH MONTH.

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Vice-President, - - - W. J. CUTHBERTSON.
Secretary, - - - O. EVERETT.
Treasurer, - - - American Bank & Trust Co.
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TERMS, PER ANNUM, - - - \$2.00 IN ADVANCE

ADVERTISING RATES FURNISHED ON APPLICATION.

SAN FRANCISCO, MAY 15, 1889.

The Whereabouts of Clarence E. Lane.

Should this meet the eye of any one knowing the address of a party going by above name, they will confer a favor by sending information to this office. He is a draughtsman and claims to have worked for Burnham & Root of Chicago. We simply caution every one against said party. His fare was paid to Seattle to enter a good office. On the morning of the day the steamer sailed he feloniously obtained the return of the money on his ticket and has departed for some place unknown. Country Editors and others will confer a favor by noticing the above in their respective Journals.

Our Student's and Draughtsman's Edition.

Interested parties are not giving the attention they should to preparing sketches for our student's and draughtsman's edition. Many promised to "do what they could," but so far, have failed to make their efforts known at this office. We trust that each and every one who intends to furnish sketches or write an article, will notify us at once, so that we may know what to depend upon.

First-Class Draughtsmen Wanted.

If there are any first-class draughtsmen who are out of employment, they will confer a favor by notifying the manager of this Journal. Several good men can readily be placed in good situations.

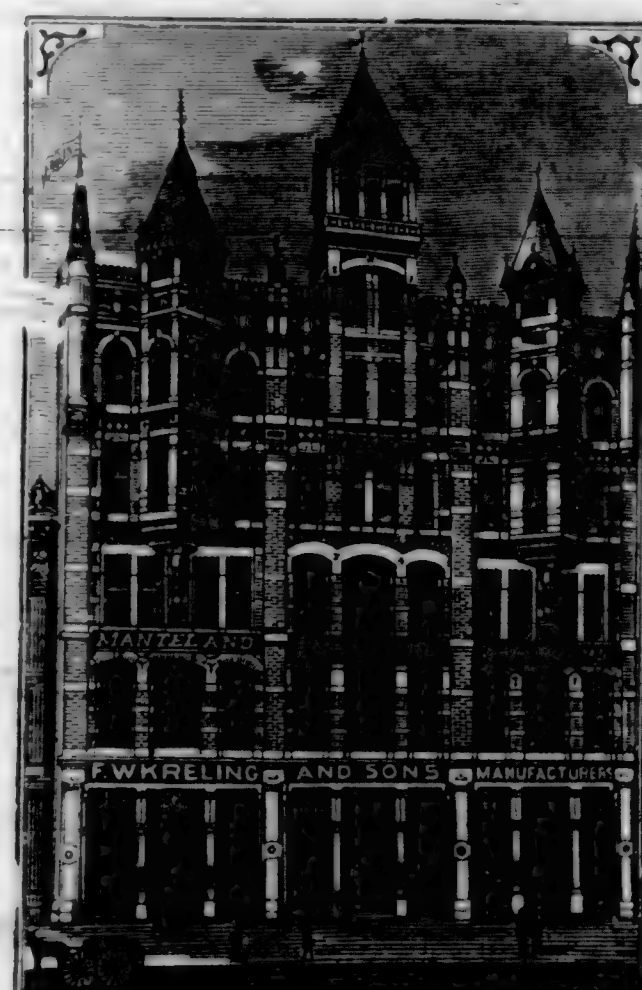
The above is taken from the *Building and Engineering Journal* of Sydney. The same question has often been discussed before the various Chapters of the American Institute. We trust the leading members of the profession will ventilate their views on the subject matter through the columns of this Journal.

Uniform Size of Brick.

The Legislative Committee on uniform size of brick, appointed by the National Association of Builders, presented a report in which they recommended the following as a standard size to be adopted for bricks:

For common building brick, 8 1/4 inches x 4 inches x 2 1/4 inches.
For pressed brick, 8 3/4 inches x 4 inches x 2 3/4 inches.
After considerable discussion, the report was referred back to the Committee. The high seemed to occur on the word "uniform," some of the members claiming that it should be "standard." Also that the size of pressed brick should be 8 1/2 instead of that given in report. The subject will be considered at the next annual Convention.

In the mean while, we will be pleased to receive communications from our own manufacturers on a "standard" size for brick.



F. W. KRELING & SONS,

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PARLOR and CHAMBER SETS,

DINING-ROOM, BANK AND OFFICE FURNITURE,

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SAN FRANCISCO, CAL.



DESIGN FOR A COUNTRY DWELLING—O. EVERETT, ARCHITECT.

Again Worthy of Notice.

We have called attention several times to the increasing demand for "ABRAHAMSON'S VENTILATORS." This demand has now become very general in its character, and to prove it, we present a list of the new buildings in which these ventilators will be placed.

The following contracts have been made with W. W. Montague & Co., for P. Abrahamson's New Patent Ventilator, for January and February, 1889.

St. Vincent Orphan Asylum, San Rafael, 63 ventilators; The Catholic Convent, San Rafael, 93 ventilators; Centennial Presbyterian Church, Fruitvale, 15 ventilators; Bank and Club Rooms, Sacramento, 24 ventilators; Peralto Park Hotel, Berkeley, 161 ventilators; Hotel Chico, 30 ventilators; San Jose School House, 24 ventilators; Old City Hall, San Jose; Hall of Records, Woodland, 31 ventilators; Union Insurance Company, San Francisco; Francis Smith, Beale street; The New Bank, corner Sansome and Sutter streets, 15 ventilators; Fresno Jail, 20 ventilators.

RESIDENCES.

Mr. A. N. Levy, Webster street; Mr. Kronenberg, Fulton between Gough and Franklin; Mr. Henry, San Jose; Mr. Nicoll, Manager of Bohemian Club; W. Crocker, corner California and Jones; Palace Hotel Dining rooms and other apartments; Youth's Directory, Howard, between Fifteenth and Sixteenth.

The following buildings are out for bids and Abrahamson's Ventilators are specified:

Public School House, Pleasanton California; Daniel Meyers, California street; The New Olympic Club Building; California Theatre and Hotel, Bush street; "Chronicle" building, Market and Kearny streets.

The above will clearly prove the remarks first made, that their use is very general.

Going to the Shop for Solder.

EDITORS CALIFORNIA ARCHITECT: Will you kindly allow a lady subscriber to give a few hints in regard to plumbers and their way of "passing time." A short time ago, I had occasion to have a set of wash trays placed in my laundry. I called upon the nearest plumber to obtain an estimate. Instead of being at my place at the appointed time, it was two hours after, before he came. With the usual "plumbers soft solder," he, by his suave talk convinced me that it would be far more economical for me to have it done by day's work, as contract profits would not in that case be figured in the total. Much against my inward convictions, I allowed him to do the work on the basis of doing it as cheaply as possible. Shortly after a wagon drove up with all the materials; the charcoal fire was lighted, the irons placed therein and all apparently ready for work, when in stentorian tones the boss yelled, "Jack, you got the solder?" "Didn't fetch any," Jack replied. And so Jack had to trot down blocks away for solder. When poor Jack returned, it was discovered that no rosin was to be found, and another trip to the shop was necessary. Four times was it found a necessity for some one to go to the shop for solder. I say solder, because I do know the name of that article, mainly from that kind so often used by smoothly spoken plumbers. When the plumber was through his work, it required the strong arm of my gardener with a spade to scrape off the solder drops all over my floor. And the bill—well it was just \$30, almost double what I had calculated. If I hire a carpenter, he can bring to my house the requisite tools and materials for completing any work he undertakes. Why, then, cannot a plumber do the same, without it being found necessary to send to the shop several times for solder?

Mrs. —

THE IRON AGE.

Paper Read Before the San Francisco Chapter,
American Institute of Architects.

BY G. H. SANDERS, F. A. I. A.

Gentlemen, Fellows and Associates of the San Francisco Chapter of the A. I. A.:

Poem and Legend, Fable and Myth glow with the lustre of the Golden Age; every nation with a history, written or unwritten, has a background of romance which owes its brightness to the same luminous source.

The writings of the poets and moralists of Greece and Rome, through which the threads of authentic history have come down to us, draw their inspiration from a far away time, which, like the lingering afterglow of a glorious summer's day, tells of an era when the world was young, and mankind lived in simplicity and innocence, and enjoyed a happy immunity from the incumbrances and inconveniences of the, perhaps, overwrought civilization of their and our day.

Both Hesiod and Ovid, describe not only a golden, but a silver, a bronze, and an iron age, the former interposing the heroic age between the bronze and the iron. The first four are also mentioned as forming constituent parts of the great image of Nebuchadnezzar's vision as recorded in Daniel—one of the Prophetic books of the Hebrew Scriptures. The mythology of the ancients as well as the clay records of Assyria, are replete with allusions more or less definite, to the same wondrous epoch, as well as to the degeneracy of the succeeding ages.

But authentic or fabulous as these witnesses may be, in the Genetic record alone do we find a coherent, if only figurative account of a condition of things, which could rationally afford an adequate foundation for the all pervading idea of the golden age. We shall return to the subject in our concluding remarks, and will for the present merely state, that of the four ages above recognized, the last has commonly been conceded to be the peculiar heritage of men of the present day.

THE AGE OF IRON.

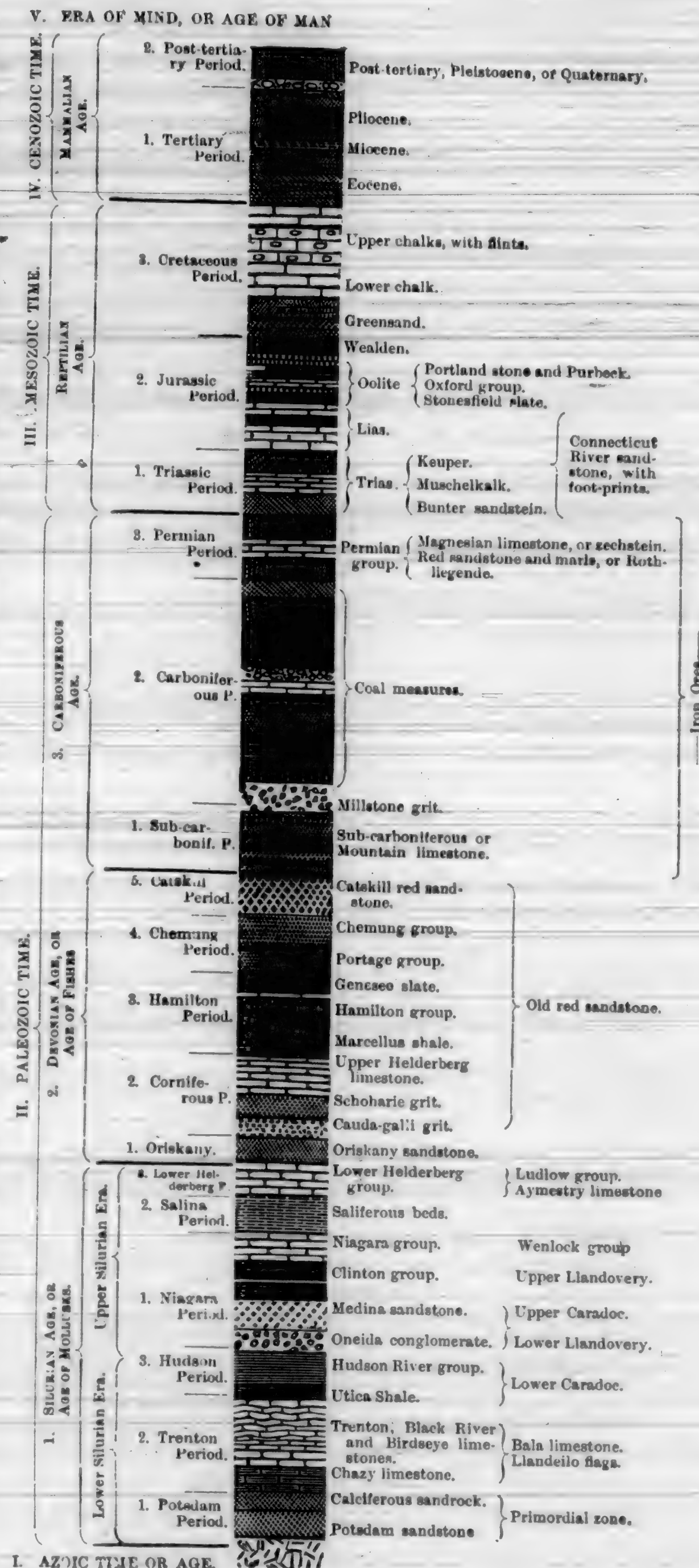
But it is not the "Iron Age," of which we wish now to speak so much as the "Age of Iron," a much more definite and easily apprehended, if less comprehensive idea, than that indicated by the former term, which indeed may be taken to include the whole range of the philosophy, sciences, arts and morals—nay, even the religion of the times, with all their respective concomitants and accessories which together make up the life of the man of the nineteenth century.

But putting aside for the present the uncertain traditions, and the myths and allegories of the days of old, the scientific explorer of our times has collected, classified, and arranged in orderly sequence, the evidences of at least three ages, neither fabulous nor figurative, which have prevailed in former times. These are known as the stone, the bronze, and our own iron age, from the material which was most generally employed during the respective periods in the ordinary implements of utility and defense, all the stages of which may be found practically existing amongst various barbarous nations of our own day and generation.

This brings us face to face with our subject proper, and the chief element of its title, viz.: Iron.

This is a substance of such world wide utility that it is apt to appear impossible to dispense with it. This, however, is disproved by the history of past times as well as by the known conditions of many peoples and tribes of the present day, though their position and status, indeed, may be said to be measured by the degree of their knowledge and appreciation of this significant material.

To fully comprehend the true position of iron in the scale of life, we must glance at its position in the scale of creation. Accepting as such the accompanying Geological section of the shell or crust of the earth, we will ask your attention to a brief examination of its component parts and the manner of their formation—the accompanying section (1) (from Geological Section in Webster's Dictionary), which is generally taken to represent a total thickness of about thirty miles, is just about the 330th



part of the diameter of the earth, or about the comparative thickness of an ordinary egg shell.

The entire internal body of the earth has been supposed to be a molten mass, and to properly understand this we must begin at the beginning, and the beginning in this case is

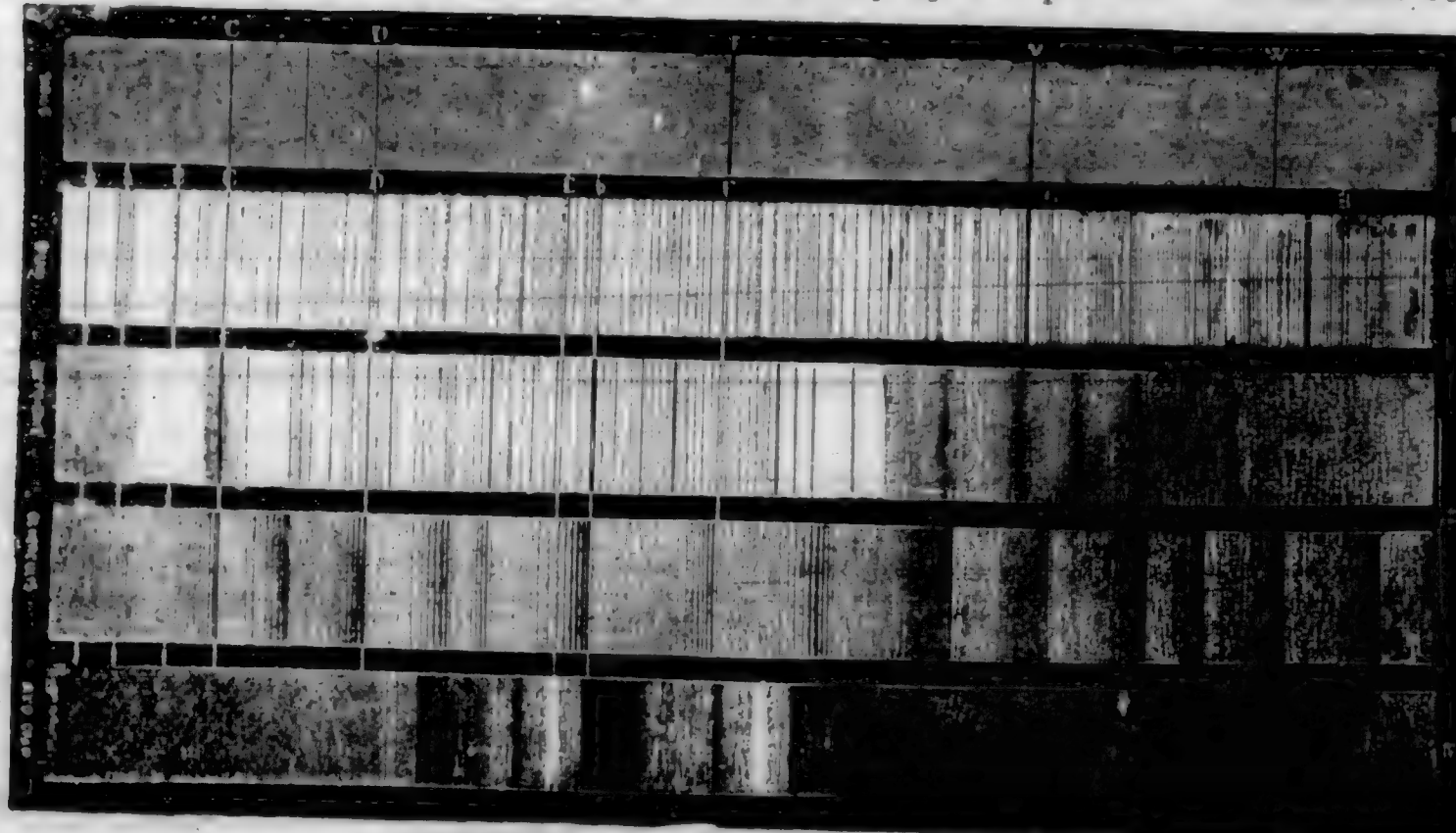
"NEBULAE."

In (No. 2, we have a representation of the great nebula in Orion, one of the most astonishing of all the star clusters in the heavens, combined as it is with clouds of incandescent hydrogen, which, by aid of the solar spectrum, indicate by the various absorption bands the presence of a number of terrestrial substances, among which those of hydrogen and the metals predominate.

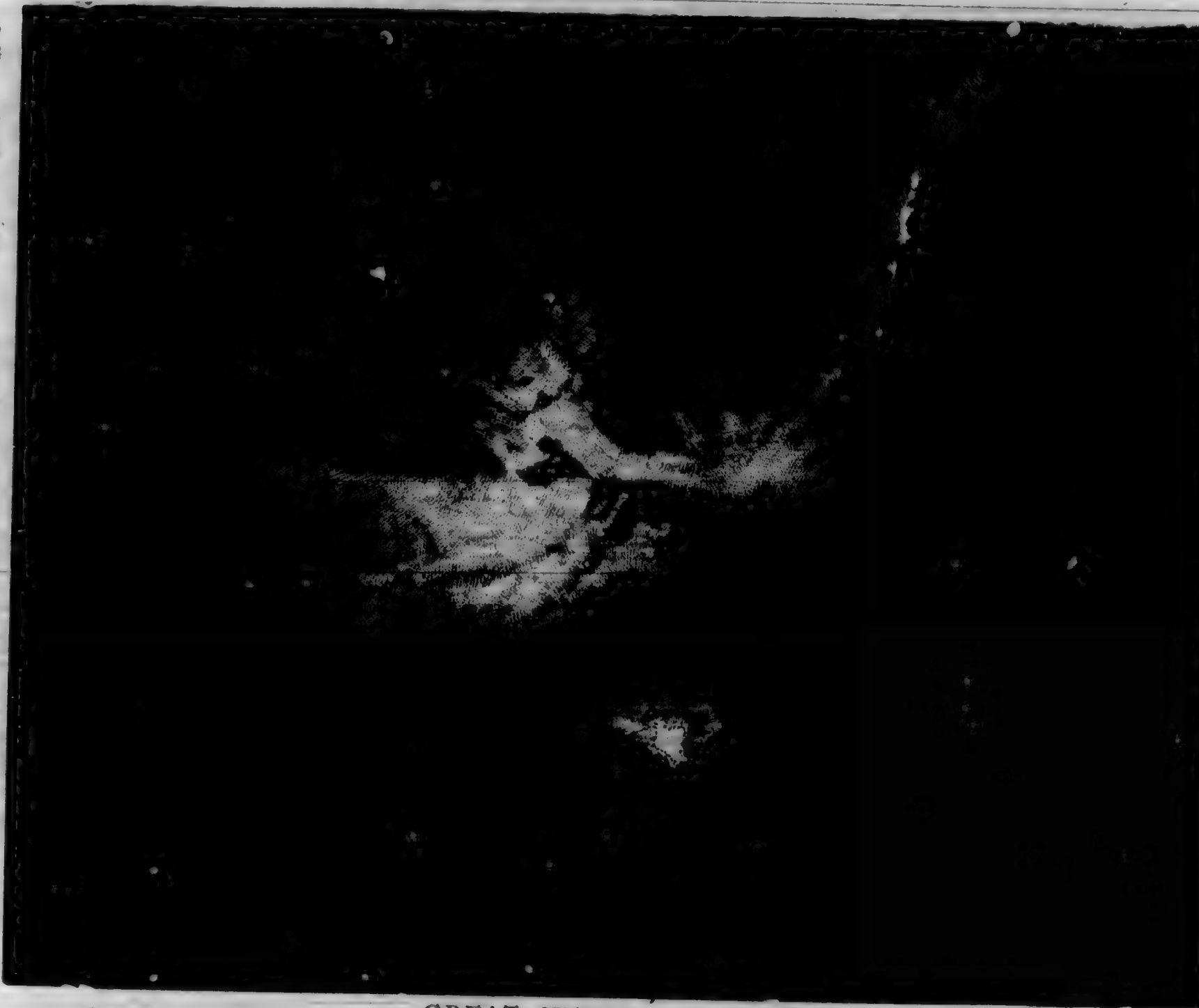
The latest accepted theory in regard to these mysterious accumulations of aerial substances, appears to be as follows: As the vast masses of hydrogenous drift called nebulae, revealed by powerful telescopes in the fathomless depths of the heavenly spaces, are caught here and there in the eddies arising from the inevitable friction resulting from ethereal motion, aggregations of condensation naturally occur, and in the vast sweep of inconceivable ages, under the influence of all pervading Law, universes of harmoniously balanced solar, planetary and lunar systems, with all their necessary and appropriate accompaniments, come into being. The diagonal of centrifugal and centripetal forces which have arisen in the case of each initial eddy, establishes a center of gravitational energy, which becomes in time a sun, and the sun in the progressive evolution of being, becomes in turn an earth, and by successive condensations and depositions of the fiery gases in the form of more and more solid materials, an orb, capable of receiving and sustaining life, slowly emerges from the womb of creation, and a world of life is born. The first rain drop which reaches the cooled surface of a new born world marks an epoch. The last that ever falls on the same earth marks another. Between them lies the history of the life of that world!

The condensation and deposition of material at first ethereal, then gaseous, then aqueous, necessarily include phenomena impossible to describe because incapable of being seen by any other faculty than that of imagination. It can only be said that what does occur must have taken place in the case of our earth in the order here represented. (No. 1.)

First: The igneous or primary rocks of the Azoic age with only the outer rim of which we can ever become acquainted; then depositions of materials caused by erosion in the earliest seas form vast strata which underlie all others and have solidified into the rocks of the second or Paleozoic series, succeeded by the Mesozoic and Cenozoic times or ages, and finally by the present



TYPES OF STELLAR SPECTRA. (See note page 71.)



GREAT NEBULA IN ORION.

time or age, known as the age of mind, or of man.

The second or Paleozoic series of times or ages are divided into three great epochs, viz.: The Silurian age or age of Mollusks; the Devonian age or age of fishes, and the Carboniferous age, or age of plants; while the Mesozoic corresponds to the single age of reptiles, and the Cenozoic to the Mammalian age. All these enormous periods are divided and subdivided again and again, so that every strata has its place in the vast whole in such a way as to be readily recognizable, if not by its intrinsic characteristics, it may still be identified by those of its neighbors above and below. But of the whole, it is with the upper third of the second or Paleozoic time, called the Carboniferous age, that we have to do. The included strata are known as the coal measures, and contains a well most of the workable beds of iron ore. Associated with the coal measures also are vast strata of limestones, including the sub-carboniferous or mountain limestones, and superimposed beds of magnesian limestones—the former indispensable as fluxes, and the latter, recently found to be equally valuable as a means of purifying the ore from the phosphorous and sulphur often contained in the coal used in the process of converting the iron into steel. The iron ores also, which are principally worked, have themselves been largely the result of plant growth, as by the process of absorption of metallic vapors from the atmosphere by the vegetation, and the setting free of the mineral thus held in combination by the decay of root fibres, etc., the oxidized metal has been carried down and caught in the subjacent sandstones and clay stone rocks, and so has formed the ferruginous earths and beds known as Iron stone, Haemetite, etc. We thus see in the very center of the scale, associated with the great belt of the coal measures, evidences of a time or age of extraordinary plant growth and of conditions of solar, aqueous and atmospheric phenomena unprecedented in the life of our planet; a time or age of light and heat storage, and of strength and energy storage, and of such other peculiar and suggestive combinations as to justify to some extent the claims of these same coal measures as the real bona fide iron age after all; or at least it would appear that by the, shall we not say, Providential provisions of the law of natural selection, all the necessary elements have been brought together for the development of this present existing wonderful age or time, which all are ready to recognize as the "Age of Iron."

The qualities of cast and wrought iron and steel are so well known as scarcely to need mention, except for the sake of reference hereafter.

Fusibility, density and inflexibility in the case of cast iron, and malleability, ductility and elasticity in the case of wrought iron or steel generally cover their respective characteristics and constitute their valuable properties. Transverse strength and resistance to crushing in the case of cast iron, and of shearing in the case of wrought iron as well as the still more valuable capacity to resist tensile strains in the case of the latter substance, are in every way enhanced in cast and wrought steel, and still other valuable properties in what is known as malleable cast iron. The Bessemer and other processes of converting pig iron into steel, or, still better, directly from the ore, by forcing a blast of atmospheric air through the molten mass of metal in a crucible, has added so enormously to the availability of steel as a lighter, stronger, and more reliable substitute for ordinary iron, for almost all purposes for which the latter has hitherto been used, as almost to constitute as great a possible development in manufactures and means of ultimating great enterprises as the invention of the steam engine itself.

THE APPLICATION OF IRON.

But passing from this phase of the subject to the application of iron in the arts of construction, we will note its progress as an agent in the accomplishment of some of the great enterprises of the century.

BRIDGES.



LONDON OLD BRIDGE.

The first illustrations to which we will ask your attention are a number of bridges. These useful structures have, in all ages, taxed the ingenuity of engineers to construct, and may be said to have been a most important means of education, in enabling him to surmount difficulties and achieve success in almost every direction in which his energies have been exerted. The first structure represented on this slide is Old London Bridge. This is a striking example of the cumbersome obstructiveness not unusual in the methods of the past. It was begun in 1178,

by Peter of Cole Church, and was thirty-three years in building. Often covered with large and picturesque masses of wooden buildings which were as often destroyed by fire—the main structure appears to have remained until the beginning of this century, essentially as it was built. The next illustration, which is New London Bridge, was designed by Mr. George Rennie, and built by his brother, Sir John. This a beautiful structure; having spans of 152 feet, and twenty-nine foot rise of arch, replaced the old bridge which was removed to make way for it.



LONDON NEW BRIDGE.

Waterloo Bridge was erected in 1817, and is of a similar character to the preceding, being constructed of stone in many arches, of less span, but in a wider part of the river. See next illustration.

But the next example is altogether different in material, if not in form. Until recent years, stone, brick or timber was the

material almost always employed in the construction of bridges; but late in the last century cast iron began to be employed, and the specimen here shown—Southwark Bridge over the Thames, 240 foot in span of arch, is not regarded as a success, in view of the material used, as it is unnecessarily heavy and expensive.



WATERLOO BRIDGE.

The next specimen here shown, the Menai Suspension Bridge, indicates a great advance in the right direction. The use of chains or links and wire cables on the suspension principle began to be quite usual before this structure was commenced by Telford in 1819. It is 570 feet span, and has a versed sine of forty-three feet for the curve of the Catenary.

This form of bridge, however, was not at this time found suitable for railways. The objection raised on account of vibration has been obviated by the principle introduced in the next example, known as the Britannia Tubular Bridge, designed and built by Robert Stephenson in 1845. It shows a



SOUTHWARK BRIDGE.

complete revolution in the construction of bridges, which, has led to vast results. This bridge consists of two independent wrought iron tubular beams 1511 feet long, each 15 feet wide and 23 feet high at ends, and 30 feet in center. The central pier is 230 feet high, and the two center spans are 460 feet each. The land spans on each side are 230 feet each in length. The top and bottom flanges of these immense girder tubes are cellular

in construction, and the floor and ceiling are strengthened by keelsons and gussets, and the side plates are strengthened by T irons inside and out. This bridge, however, in this peculiar form has only once been repeated in the Victoria Bridge over the River St. Lawrence, in Canada which is 7,000 feet in length, and whose spans are almost equal to those of the Britannia Bridge. The mode of construction, the methods of floating the tubes into

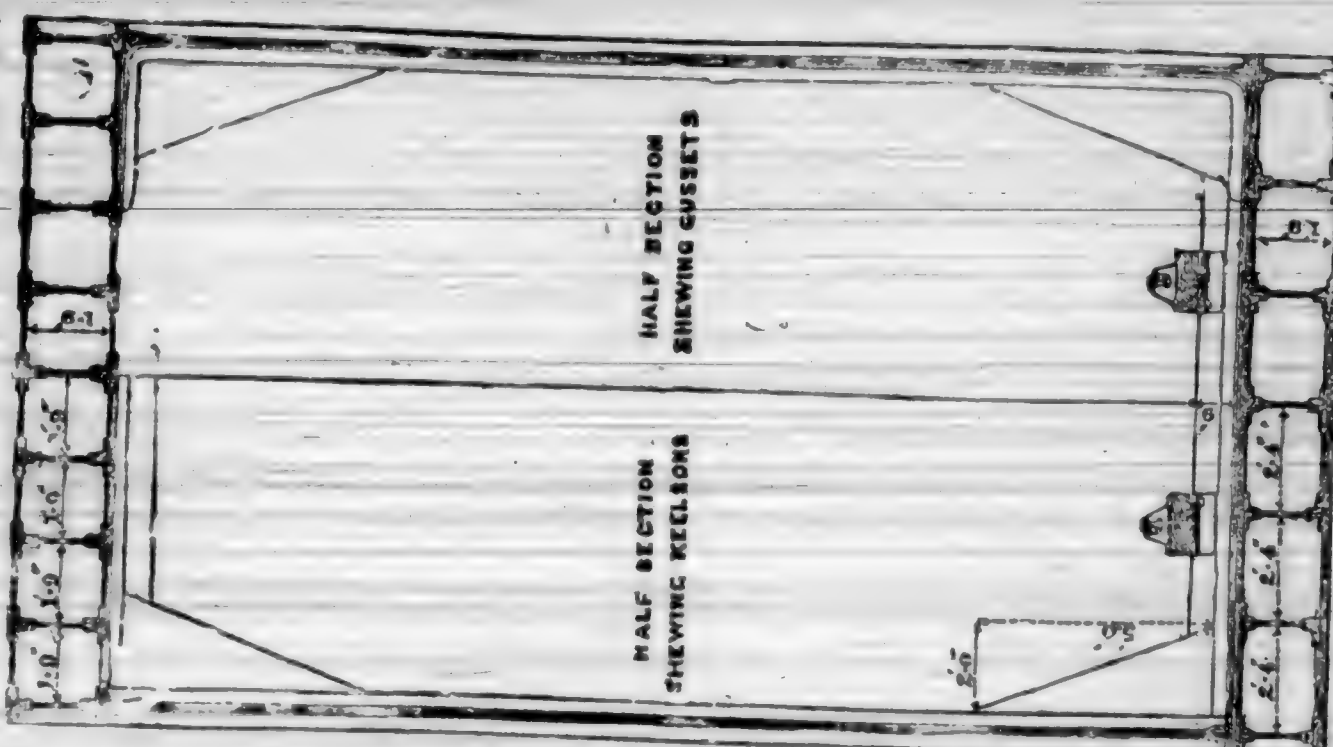
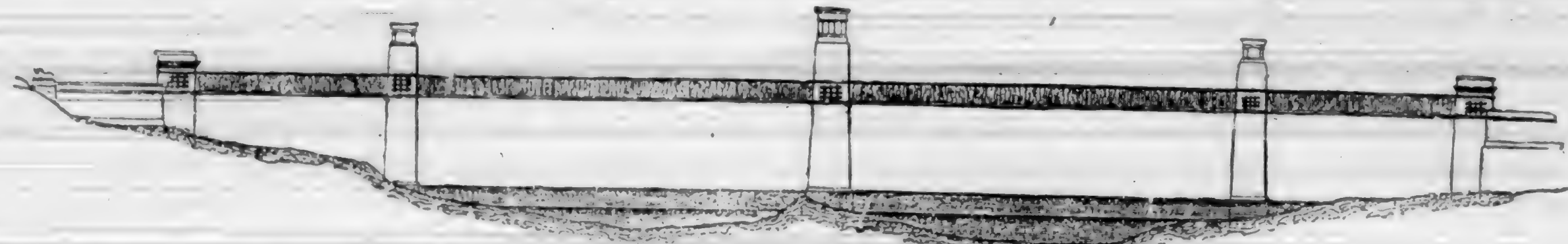
position and raising them into their places by hydraulic pressure, and the final triumphant success of both these undertakings, together with the interesting incidents, and imminent risks to which both were subject, owing to the dangerous condi-

tions attending their construction, has almost the interest of a romance, and has raised both these enterprises, together with the name of their designer, into a prominence which can never be lost. Nevertheless, it is certain that they are never likely to be



MENAI SUSPENSION BRIDGE.

repeated, since more economical and advantageous forms of construction have arisen from the principle which they inaugurated, one type of which is the high level bridge at Newcastle. This is a combination known as the bow string girder, an open tube carried on a cast iron arch and wrought iron tie (see plan and elevation) presenting an appearance of great lightness and beauty, and being more economical, and avoiding the disadvantages of the close tunnel form so objectionable in such long structures as the Britannia and Victoria Bridges, which shut out light and air, and the fine scenery which such situations usually present; but even this form of the tubular bridge is unnecessarily expensive, and the experiment is not likely to be again made. It was simply a combination of the truss with the arch and tube, both of which latter are wholly dispensed with in the next

BRITANIA BRIDGE.
(Cross Section of Tubular Girder.)

BRITANIA TUBULAR BRIDGE.

example, shown in elevation and section, which is the Newark Dyke Bridge, erected in 1853. It is the first, and a fine specimen of the Warren girder; and on account of

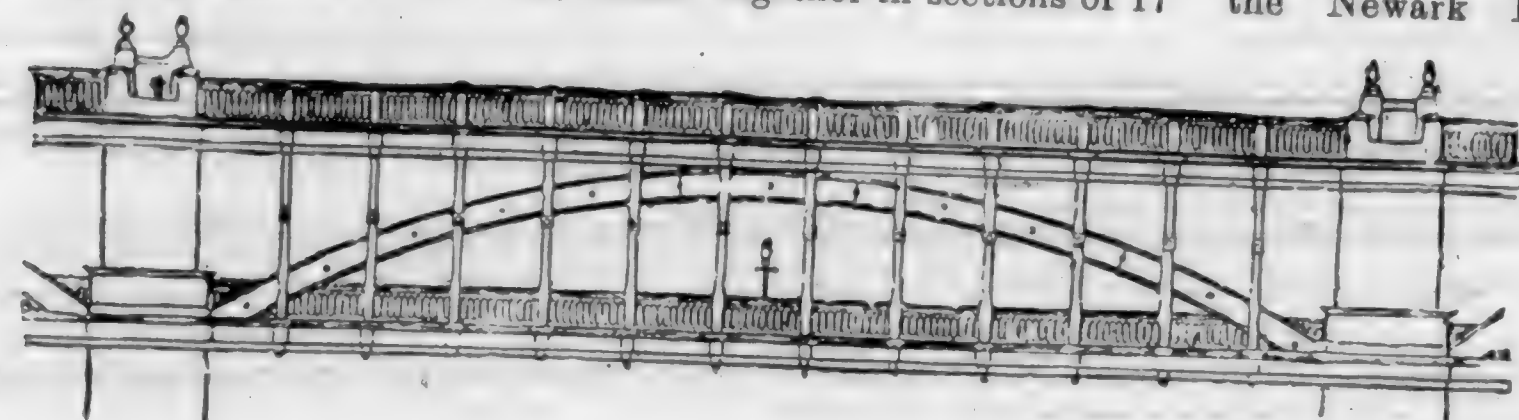
its economy of construction and freedom from any unnecessary accessories, is a very frequent mode of truss construction, especially in America, in wood and iron, or both.



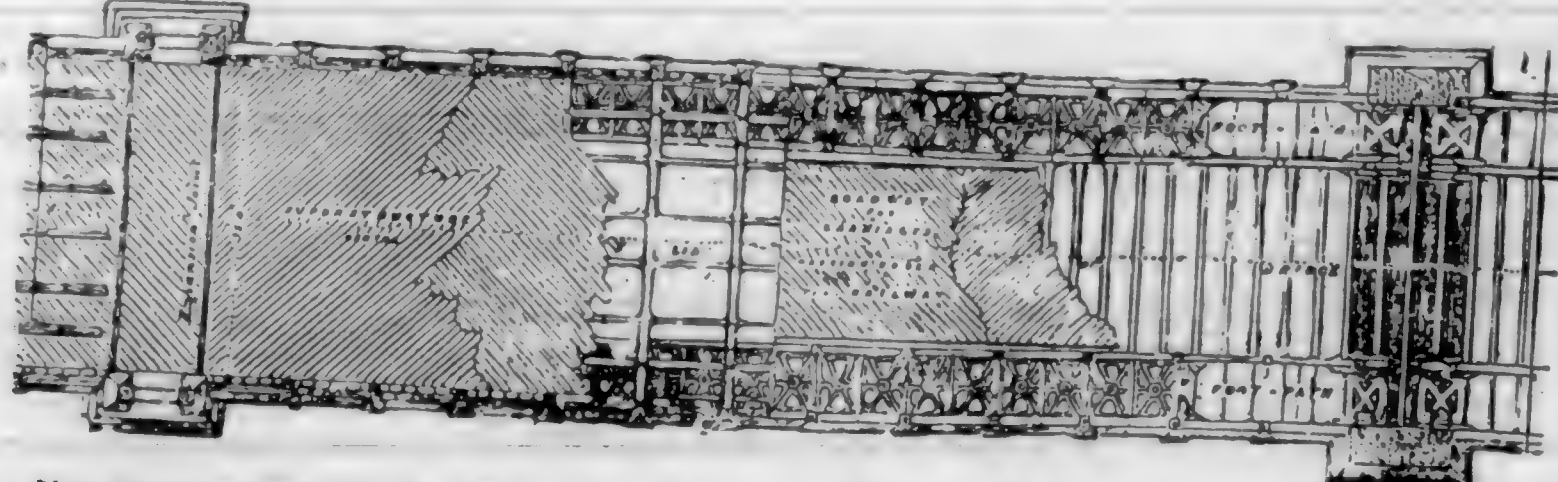
HIGH LEVEL BRIDGE AT NEWCASTLE.

The next example is the Crumlin Viaduct, which shows another fine truss on the same principle. It consists of 10 spans of 100 to 150 feet, and is carried on piers formed of hollow cast iron columns, 12 inches in diameter, braced together in sections of 17

feet each in length. The trusses are of wrought iron, and are 14 feet 6 inches in depth. The roadway is carried on the upper string of this example, but placed on the lower string of the Newark Dyke Bridge. The next example, is the

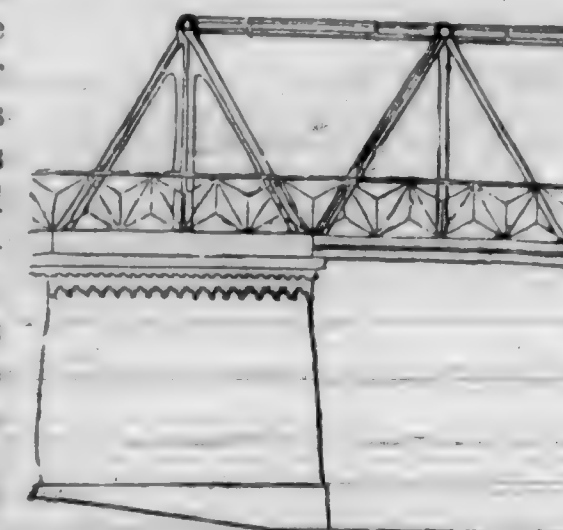


Saltash Bridge, which was erected by Brunell. It is known by the name of "Fish" girder, on account of the construction of the truss which is formed by reversed segments of circles of cast and wrought iron plating connected by vertical and diagonal bracing to which the roadway is suspended. It is, however, less economical than the forms of girders founded on the Warren type, and so has had no children. The next example, shows an example of a wrought iron arch bridge over the Rhine at Coblenz. But it is of no greater span, nor so economical in construction as the preceding forms of girders, and hence cannot compete with them in universal adoption. The next example, shows the Fink type of truss. In this girder each division comprises a separate and distinct truss, all combined in one by the boom or horizontal tie which supports the roadway of the structure. It is composed wholly of vertical cast iron struts, inclined wrought iron braces, and one horizontal tie. It is a worthy competitor of the Warren girder as regards economy, but is less pleasing in form.



Top Plate represents the Elevation of Bowstring Arch High Level Bridge New Castle.
Lower Plate is the plan of High Level Bridge, New Castle.

The Niagara Suspension Bridge, is the next example. It crosses the Niagara River some distance below the falls at a height of 245 feet above the water by a single span of 821 feet, 6 inches. The main structure is a hollow rectangular box. The steam cars traverse the upper surface, while the carriages pass through the tube. The walls are formed of double vertical timbers with wrought iron diagonal bars crossing between them. The railway or upper floor is carried by two wire cables, while the carriage way or lower floor is carried by two others, four in all. The total sectional area of iron is 241½ square inches. This bridge was commenced in 1852, and open for traffic in 1855. It was designed and built by Roebling, and cost £80,000. The use of the two cables of differ-



FINK TRUSS.

NEWARK DYKE BRIDGE.



NIAGARA SUSPENSION BRIDGE.

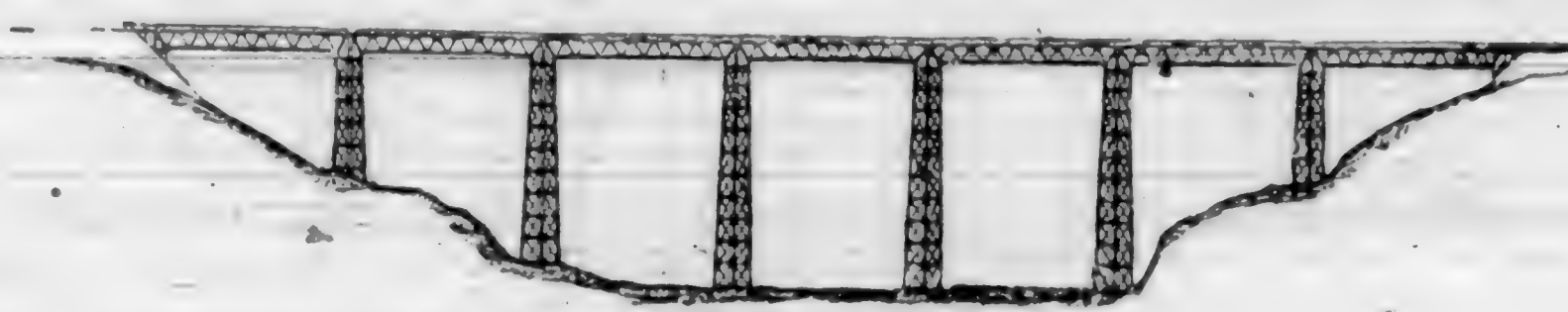
bolted together and braced laterally and connected by wrought iron couplings, which were found better for the purpose than steel. The tubular ribs are in sections 12 to 13 feet long, and from 1½ to 2½ inches in thickness. It is designed to carry a double railway below, and foot passengers above.

The next example, shows the great Garabit Viaduct, lately erected by Mr. Eiffel. It is a combination of a wrought iron lattice arch carrying a lattice trussed girder. It is of great height, 640 feet span, and a very masterly work. It was built by means of suspension cables, very much on the same principle, but by different methods to that adopted in the fourth bridge shortly to be noticed, viz., without scaffolding.

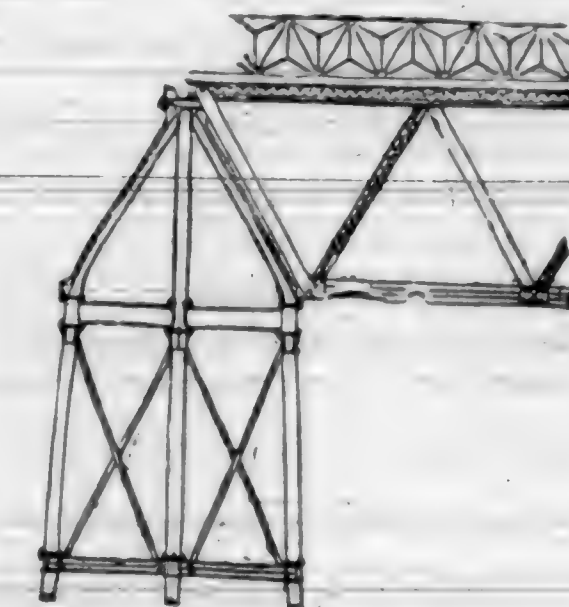


ARCH BRIDGE AT COBLENTZ.

The Brooklyn Bridge, of which I here produce an illustration, is the next great work to notice. It is 1,900 feet between supports, with piers 320 feet high, and is 250 feet above the



CRUMLIN VIADUCT.

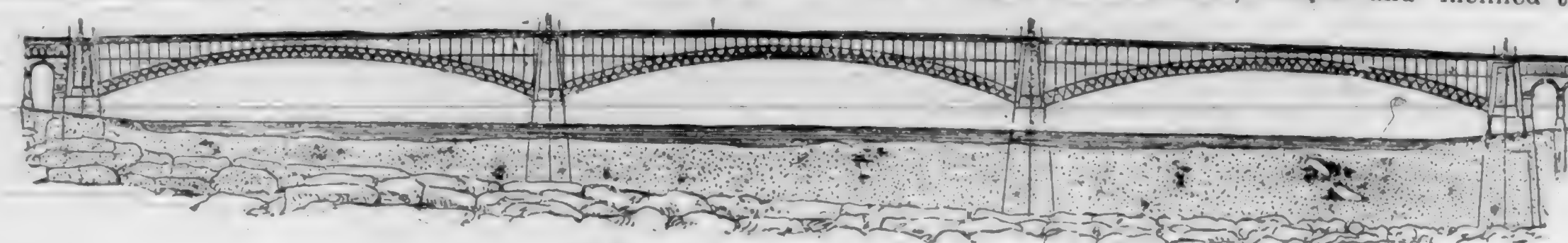


PART OF CRUMLIN VIADUCT.

East River. It is a mighty structure, and a during and wonderful achievement. It also is a combination of tubular truss to secure lateral stiffness, with suspension cables as supporting agents. Cable cars, carriage roads and foot passenger ways are provided, and the whole constitutes one of the great-

est of the many magnificent undertakings brought to a successful accomplishment in recent years.

The Firth of Forth Cantilever Bridge is another structure of immense proportions, and of great complexity, being a combination of wrought iron arch-tubes, vertical and inclined tubular



ST. LOUIS AND ILLINOIS Bridge.

columns or posts, inclined inward, double suspension bearings latticed together, and great latticed catenaries supporting a continuous box girder-tube which passes through the whole, carrying the railway track. The span is 1,710 feet, besides the side approaches. It is constructed on the stable equilibrium principle, and is wholly built of steel without scaffolding. It is without question the most stupendous structure of the kind in the world, and will

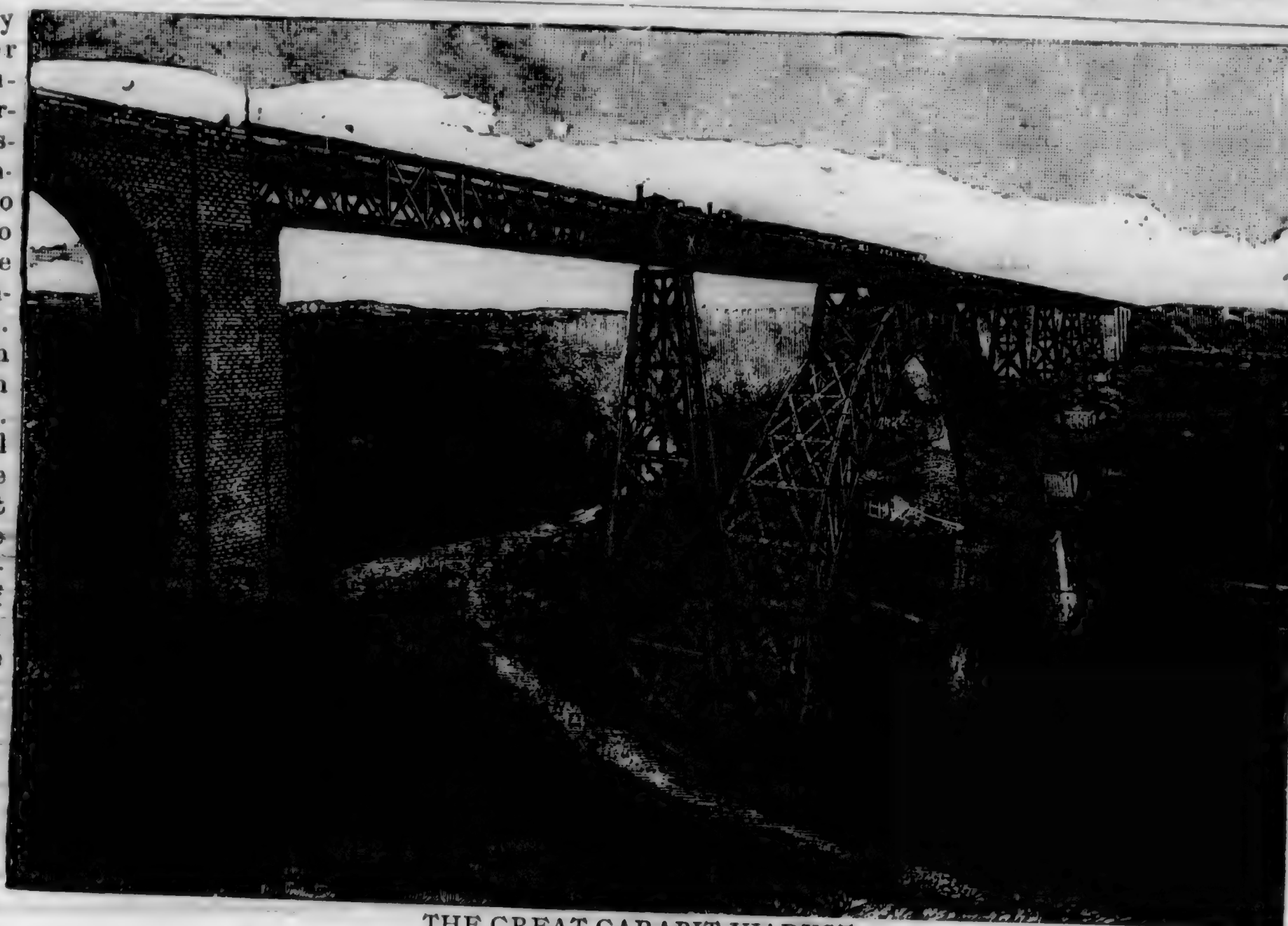
scarcely be blown down like the Tay Bridge, in 1886. The above structure is a combination of arch and catenary, with the lattice principle. It is constructed by building out piece by piece from each side of the central supporting piers. It in fact provides its own scaffolding, and grows by gradual accretion of balanced parts as a tree does, and on the same principle, thus indicating a closer and closer return to nature by man as he

siduously studies her divinely economic processes, or rather those of the divinely infinite Author of him and her. Nevertheless, the apparent striking disproportion between means employed and ends subserved is so manifest in this structure as to suggest grave doubts as to the soundness of some of the principles of design employed therein.

The next example here shown you is the proposed great North River Bridge at New York. This enormous but beautiful structure as designed, will be fully twice as large as the great Brooklyn Bridge. It is to be 2,820 feet span between supports. The towers will be of steel, and 620 feet in height. It will cost \$40,000,000, while the former cost only \$5,000,000. The bridge itself is formed of latticed girders carried on latticed cables. The whole promises to be the grandest single span structure that has yet been conceived.

It will be seen that in each of the above structures, while the technical, the utilitarian, the objective qualifications have in every case almost wholly governed the design, the result has also partaken of the higher aesthetic ornamental and artistic qualities in a remarkable degree. From the straight simple barlike effect of the Britannia Bridge, imposing from its magnitudes and simplicity, to the great, sweeping curve of the catenaries of the proposed North River bridge, each design has presented features and combinations of features clearly expressed and resulting in a peculiar beauty which no mere architectural accessory could in any way produce. Not one of these designs depends for its effectiveness on any purely architectural detail as usually understood, but it is due entirely to the proper distribution of parts in the most efficient way that could, at the time, be reasoned out for the proper attainment of the object in hand. This we have to insist on again and again. It is the iron rule which can never be broken without departing from true principle, and with unhappy results to the beauty of the structure concerned, from the designing of the simplest moulding to the construction of a cathedral, the erection of a bridge, or the building of a ship. It is the one paramount law in Art and Science, as imperative in such an apparently variable and volatile thing as a lady's bonnet, as in the construction of that useful, beautiful and significant thing, the steam engine.

To evince the truth of this proposition we will present one more well known, nay, perhaps, in past times, somewhat hackneyed example, to close this series of illustrations of the very imperfect remarks to which you have so kindly and forbearingly listened. I allude to the one great, significant, and really original building of the century. The conception of no professional archi-

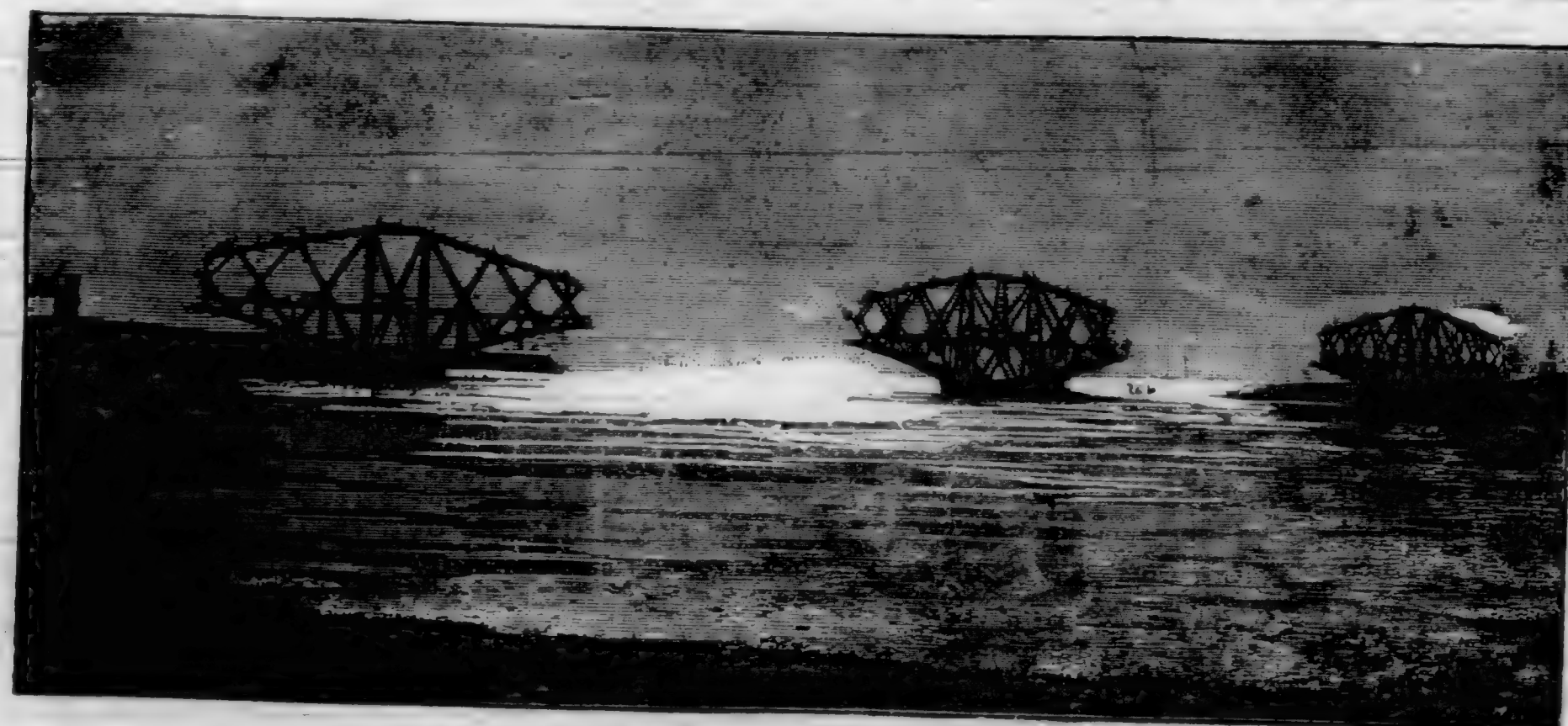


THE GREAT GARABIT VIADUCT.

tect, for no architect out of 245 who competed for it, proved equal to the task; of no builder, for none were found in the length and breadth of England who could suggest such a structure; but of a mere gardener, a constructor of green houses;—I allude of course, to the Great Exhibition Building of 1851. Truly great it was, and greatest, even, it will remain, until once again the exigencies of the occasion shall override mere precedent, and some future gardener shall produce as glorious a flower from as small a seed, simply by yielding unquestioning obedience to the needs of the occasion, unfettered by rule or any existing order of things which could in any way interfere with or encumber pure utility. The design sprang into being, and the world of that day was both astonished and delighted. It is said that when all the designs for the Great Exhibition of '51 had been received, classified and inspected, and the commissioners, rejecting them all, had concocted one of their own, apparently as unsuitable for the purpose, as any one of them all, Joseph Paxton, chief gardener to the Duke of Devonshire, sat down in his office and in half an hour sketched out his design for the proposed building on a sheet of foolscap. Submitting his idea to one of the Commissioners, he was encouraged to perfect it. The design was published and received the unanimous approval of the nation. The contractors, Fox & Henderson, in one week prepared drawings and estimates, and in four months from that date, 18 acres were covered with glass and iron in a structure, the quiet beauty, majestic simplicity, and the unapproached convenience of which has been from that day to this, absolutely unrivalled in buildings of the kind. Every building of the sort since designed, has had accessories of various kinds breaking up its mass by useless excrescences and architectural developments, until the fantastic structures have finally lost every characteristic which made the original design great. The accompanying views, show plan, elevations, and interior view and a few details.

The account of the designing, and construction of this building, reads like a fairy tale, in harmony with the fairy like structure which was the charming result.

Mr. Henderson, who made every important drawing with his own hand, working 18 hours a day for seven



FIRTH OF FORTH CANTILEVER BRIDGE.



FIRTH OF FORTH CANTILEVER BRIDGE.

weeks, says in a speech made about that time, that hundreds of tons of glass were provided, of an unprecedented size; thousands of columns, hundreds of girders 34 miles of guttering pipes connecting the columns, which conveyed the rain water to the ground, 205 miles of sash bars, and more than 1,000,000 feet of flooring, were produced by the various firms engaged in the work, in the short space of time which was allowed to execute it. The setting out of the structure, the placing of the base blocks on concrete filled into holes dug in the ground, the raising of the columns, the lifting of the girders and keying them into their proper places in the structure, etc., proceeded with unexampled accuracy and rapidity, and, the first of its kind, and unique in the history of

great expositions, the building was ready on the day when the contract expired. This was due to the entire simplicity and reduplication of every part of the structure, which again was due to the harmony of scale, which in this structure, as in the Parthenon and a few others, is perhaps after all, the most noticeable feature in the building.

Contemplating the excellent qualities exhibited by this great structure, which at the time of its erection, challenged the admiration of men of taste and judgment throughout the world, and in fact, elevated it to a level with the greatest edifices ever conceived by man, it is evident that it in no way differs in kind from any one of the great engineering works to which your attention has been directed above.



NORTH RIVER BRIDGE.

Adaptation of means to ends and that alone, in it, as in them, constitutes and includes all of its qualifications, and in this as in them, it is especially to be remarked that there is nothing imitated. No attempt is made to transfer to one material the appearance or proportions appropriate to another. On the contrary, each material is in its turn treated on its own merits, and hence its value is thereby enhanced in proportion. It is just as though the whole structure to its minutest part, was represented by two sets of figures, indicating in the first place the intrinsic value, in the other the value in application, and that both sets of

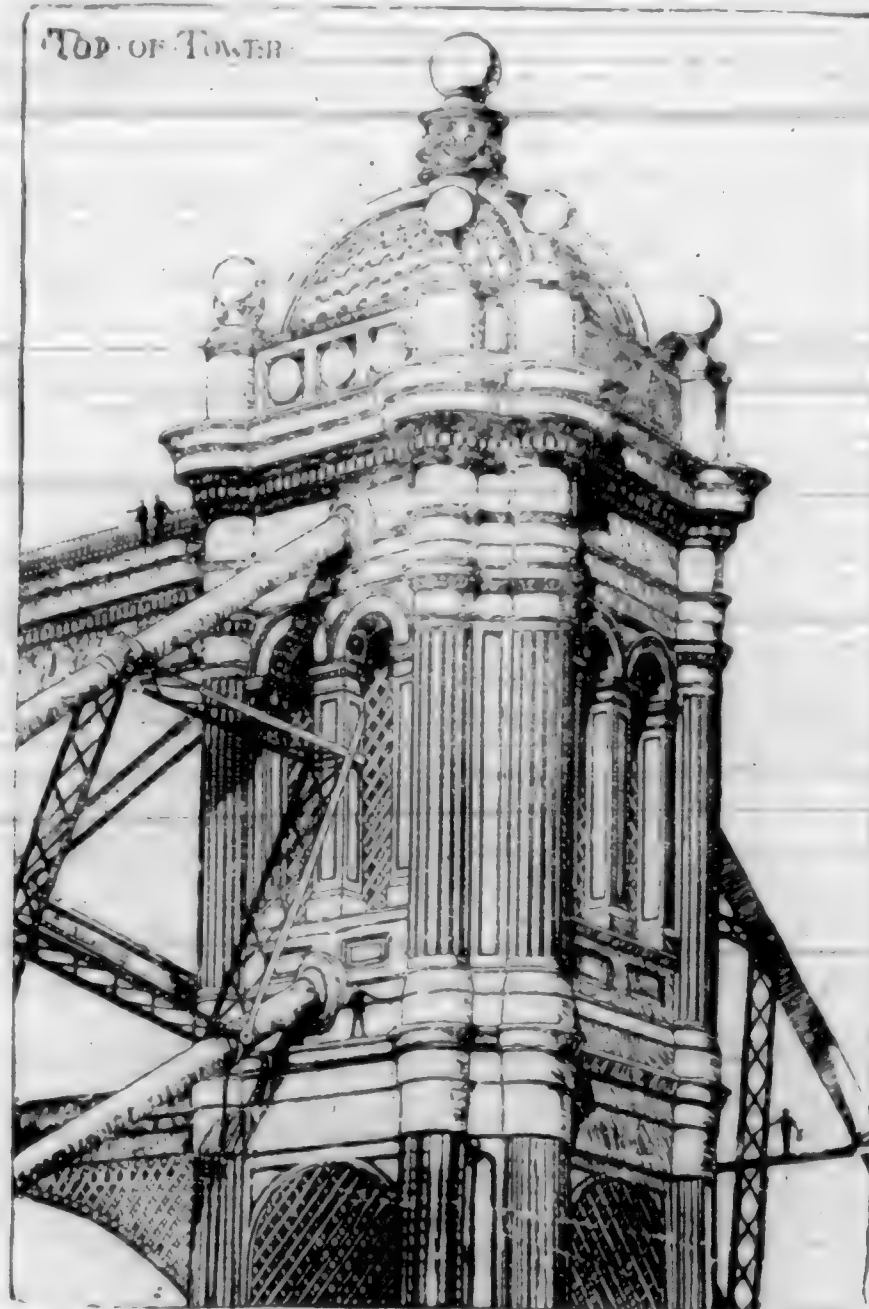
figures in every case, were identical. In how many structures of the kind, erected before or since, can this be said to have been attained. In other words, that every material throughout the structure should be so applied as to attain the greatest measure of utility it is capable of, with the least expenditure of material compatible with safety, and with the best artistic effect. Would it be by adopting the forms and construction appropriate to some other and very different materials? to make iron resemble stone, for instance, or wood iron or vice versa? It is evident that there must be in such a case a great and useless waste of labor as

well as material, in other words, that the intrinsic and economical values would fail to agree. Note the admirable way in which every part of the above great building is adapted to every other part! The way in which the columns rise from ground to roof line, representing every one of the direct lines of support throughout. The way in which the connecting girders and filling in pieces, are keyed rather than bolted into their places, and how directly and easily every part does its duty, and how by the proportioning of material to strength and position, such a degree of aerial elegance is attained that it may, perhaps, best be compared to the delicate twigs and branches of a tree divested of its leaves, whose dainty pencilings tax the skill of the artist fitly to represent. When in the full glory of its utility, it overflowed with a profusion of fabrics and materials, and objects of beauty and use from every quarter of the globe, it was like the same tree in full bloom, glowing with verdure, with color and with fruit.

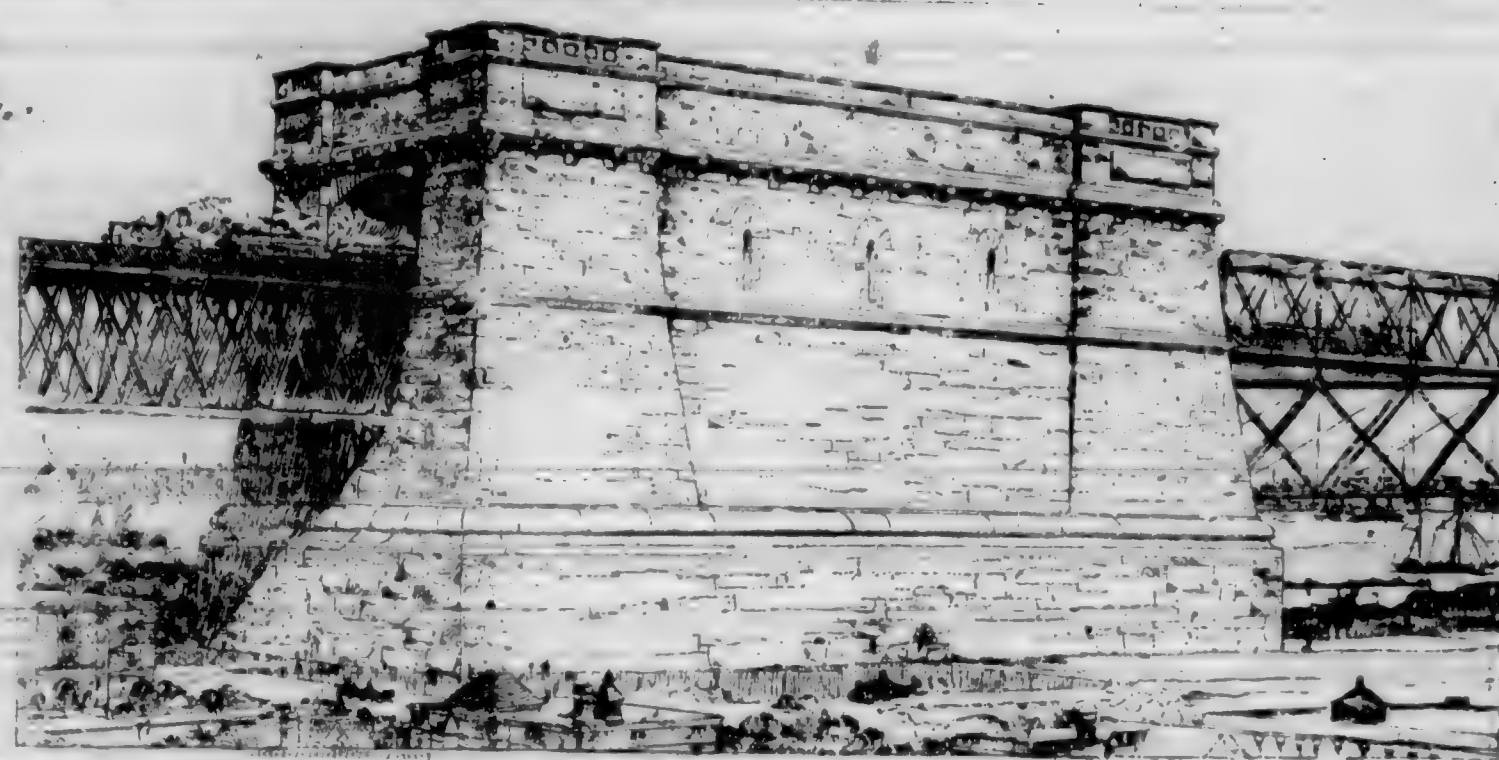
It seems at this point permissible to consider, as a comparative test of the proper treatment of other materials, some of the recognized qualities and properties of Iron. Whether as wrought or cast iron, or in the form of that now abundant material, wrought and cast steel, innumerable tests and experiments have settled to so large an extent the available qualities of all these substances that there is no particular need of dilating upon that subject further than may suffice to note some of the ways in which they may be better used and less abused. In the first place it must not be forgotten that all materials, without exception, are subject to change, that no material, whatever its form or qualities, is free from the liability to alter its shape; and that therefore when a perfectly spherical cast iron ball rests upon its side, it is no longer spherical, it is really oblate. That a piece of cast iron ten inches square in section and a standard foot in length, if placed resting on its extremities, is no longer a standard foot in length, and that when a great weight is placed unsymmetrically on any form of support, that support will be acted on unsymmetrically and will change its form, and the arrangement of all its molecules in the effort to adjust itself to the conditions thereby imposed upon it, which in construction means a great deal, involving as it does under given conditions the theory of re-crystallization, etc.

We are accustomed to suppose that our friends, the engineers, are the men above all others who are used to taking account of the minute changes in the form and direction of the substances and forces with which they have to deal.

But architects are expected to abolish all such changes, and to produce a structure of variable materials abso-



TOP OF TOWER, NORTH RIVER BRIDGE.



APPROACHES TO THE NORTH RIVER BRIDGE.

lutely fixed in form for ever; at least so one would suppose from the sort of criticism to which they are at times subjected. But it is to be feared that they themselves are chiefly responsible for the inappropriate use too often made of materials, and the untoward results which frequently occur. Uniformity of material means uniformity of action in the changes which those materials inevitably undergo under the influence of temperature and strain. Some of the ways in which iron should not be used, we beg now to note.

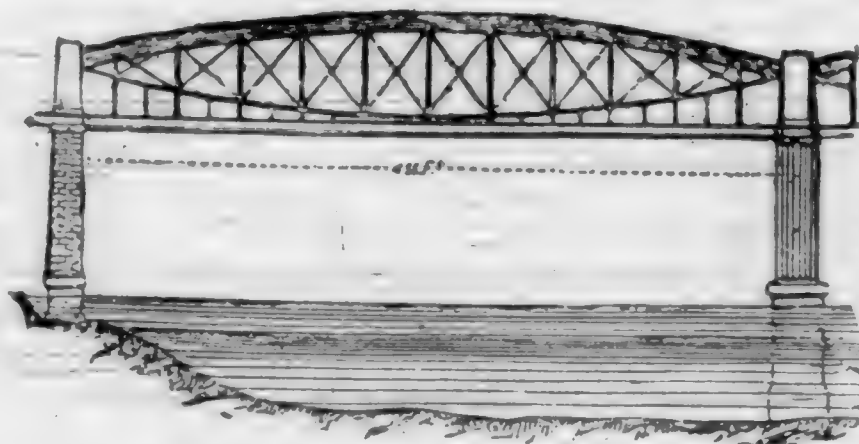
First: No great strain ought at any time to be thrown in an unsymmetrical manner on any unsymmetrical section of cross iron. This means an unequivocal condemnation of brackets. The extent to which that mode of employing cast iron is used, is remarkable



CAST IRON BRIDGE AT CRAIGELLACHIE.

when the treacherous nature of the material so used is so well known.

To founders and machinists who are well and practically acquainted with the behavior of cast iron under strain and temperature, there is nothing more objectionable than a large extent of cross iron, as it is called. They refuse to trust to it under any circumstances and yet we find in all the published examples an almost unlimited use of this objectionable and dangerous feature. Smooth, round columns of cast iron of small diameter, are set upon end and a number of brackets are projected from them at a sharp angle at cap and base plate, bearing heavy loads of beams and arches and this for many stories in height. Such an accident as occurred in the Owens Building, at Chicago, or an unsuspected flaw in one of the brackets or any other adequate reason, causing the snapping of one small section, may possibly occasion in a moment the destruction of a large building, hundreds of lives and much valuable property. Is this either wise or necessary? Can bad construction ever be necessary? Is it scientific? Is it artistic? That few authen-



SPAN OF SALTASH BRIDGE.

tic cases of failure of this kind can be referred to is no argument in favor of the practice. Is it not something which may occur under any sudden shock? The fall of comparatively few degrees of temperature, in view of the great inequality between bracket and shaft, must cause unequal strains in both. A settlement causing undue strain on any one part, or a local rise of temperature, or some stress occasioned by any one of a hundred different causes, may ultimate the conditions which may bring about a failure such as I have



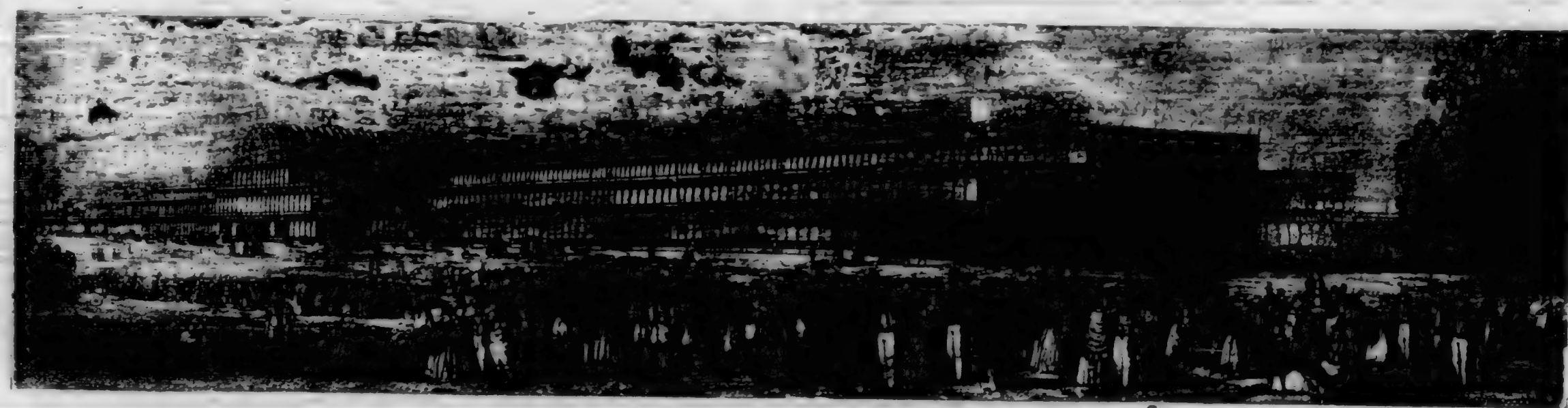
BROOKLYN BRIDGE, NEW YORK.

indicated. Another wrong use of the material is indicated in the ordinary form of cast iron girder in which the upper flange is arched. This is an altogether mistaken idea, and an utterly fallacious, improper, and unscientific use of material. In the girder here shown the lower flange is straight; the shortest distance between the two ends, in the upper flange, the distance is the greatest that can be found between the two ends. In shrinking flange (A) occupying more length, shrinks more and flange (B) being shorter, shrinks less, in proportion; consequently there is an internal strain set up between the top and bottom flanges and brought to bear upon the web, which added to the weight that the girder is supposed to bear, greatly lessens its effective strength, if as in large girders of this form, (a frequent result,) it does not occasion their destruction. This is one of the principal reasons why such cast iron girders frequently snap, even before be-

ing placed in the building. The ordinary form of the rolled girder, indicates also the best general form for a cast iron girder under ordinary circumstances. Parallel flanges, the upper one-half the width and thickness of the lower, with square or inclined skewbacks at the end, indicate generally the best practical form for cast iron girders of short span.

The latticed girders used in the great exhibition building (20), were in every respect admirably adapted to the purpose for which they were intended; and either as stiffeners for the nave columns, in which position, of course, they were much lighter, or as the bearers of the gallery floors, they were found in every respect equal to their work.

Before closing these perhaps too lengthy remarks, I will venture to indicate a few ways in which it may be found advantageous to use cast iron. Describe a circle in a square, and fill

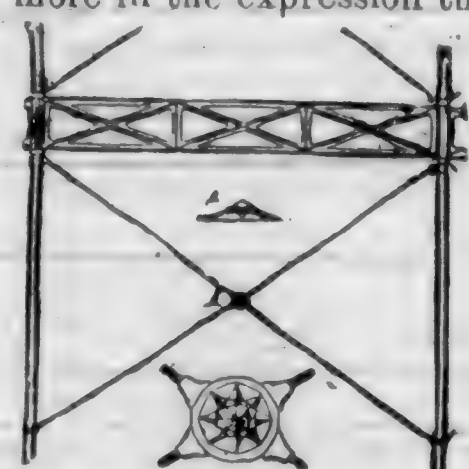


LONDON EXHIBITION BUILDING OF 1851.

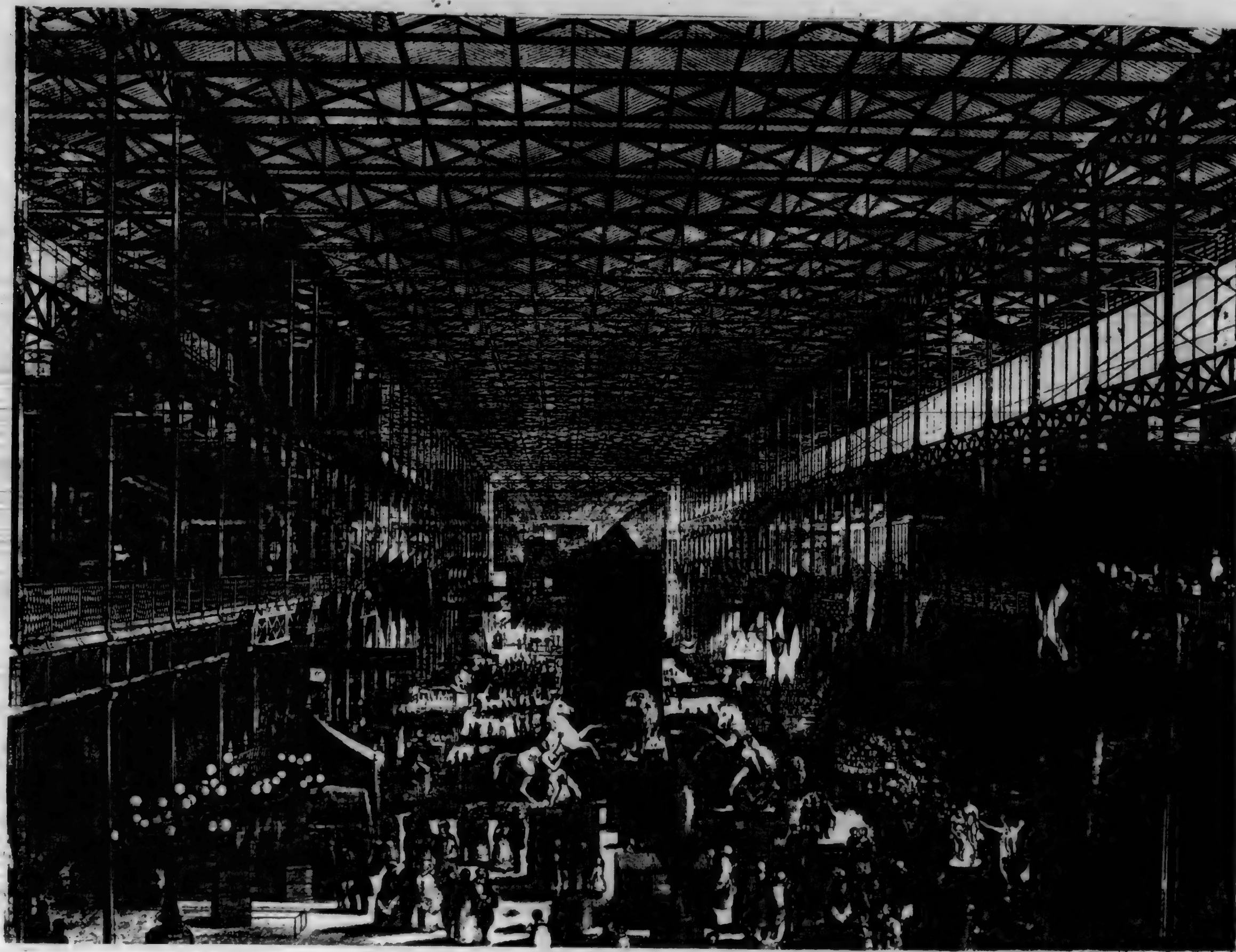
still further to increase the availability of iron as a building material.

And now a few words on the real subject of this paper, the "Iron Age." Does it not occur to thinking people that there is more in the expression than is represented by the use of a single material, however useful it may be, and however varied its employment? That is why the expression was transposed in the former part of this paper as better expressing the uses and capabilities of the material itself. But in deriving a lesson from the foregoing, if lesson there be, it is necessary to revert to the broader term and the idea of the ages, and in this case, not only the scientific idea, the age of iron, or the esthetic idea, the age of brass,

in the angles of the square with other squares; apply the thickness of one of the small squares round the circle internally, and you have the section of a cast iron column of any diameter, and any length within the prescribed limits of 30 diameters. In elevation, place the flanges diagonally (as they are drawn) to the length of the super imposed girders. Grow the flanges out into brackets of moderate projections and cast a plate of equal thickness on top, and the cap is formed. A greater projection and a proportionately larger plate forms the base. If supporting a great weight, such as a basement column, separate the base, and form circular flanges between the angle ribs, on shaft and base section, and bolt the two together. To adjust wrought I beams to this form of columns continued one or more stories in height; cut away the flanges of beams next the columns on each side (using coupled beams) and fit the same to flanges of columns, and bolt diaphragm plates between those on each side of column. In this way a perfectly immovable system of columns and girders is found,



(Diagonal Bracing used in above building)



INTERIOR VIEW GREAT LONDON EXHIBITION BUILDING.

symmetrical in bearing, and adjusted to the required conditions throughout. The brackets are simply extensions of the ribs, and there is no initial point of fracture, and the girders, on account of being firmly held at each end, will bear double the weight of unfixed girders. If it is desired to fire-proof these columns and girders, the shafts and brackets are admirably adapted thereto. One other suggestion and I will conclude this section. The subject of *Tempering* is one which does not seem to have attracted the attention of constructionists to any large extent up to the present time. A gentleman of my acquaintance in Ontario, Canada, some years ago, patented a carriage spring of peculiar merit. Instead of being made of several laminæ of thin steel, secured with rivets or loops, it was made solid, oval in form, and tem-

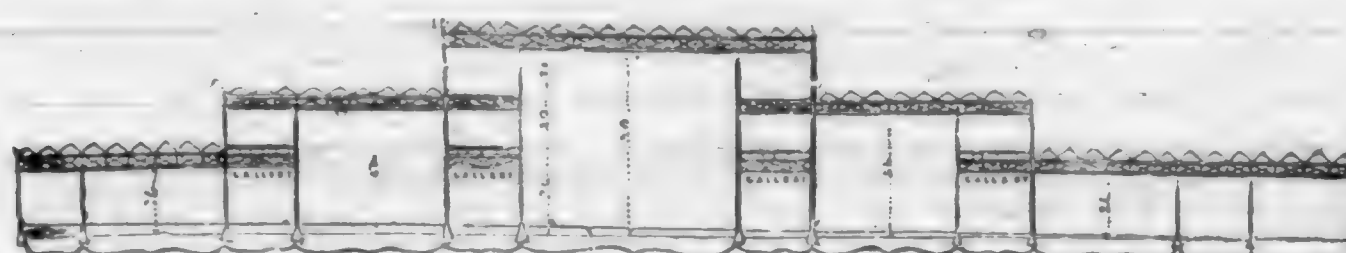
but the far, higher and nobler idea by which for wood we bring iron, and for iron brass, and for brass we bring silver, and for silver gold, so that all the ages are found to be for all times and for all occasions, provided only we choose so to have it. For all materials, all things, all occasions, nay, the world itself, is naught and practically vanishes like the baseless fabric of a dream, but for the *mind of man*, his understanding of *truth*, and his desire for *good*. Without this *silver* and this *gold*, he sinks to a level with the dust from whence he rose. With this he rises into an image of his Maker, the one only and absolute impersonation of that law which is the same for the dew drop as for the world. For the created as for the creator; for the rational, thinking, willing, acting human embodiment as for the divine, and omnipotent, omnipresent and omniscient Love, Wisdom and Life from whence and by which all things live and move and have their being.

The following paragraph was unintentionally omitted in connection with the cut "Types of Stellar Spectra," on page 63:

In the accompanying bands of "Fraunhofer's" lines are seen the distinctive spectra of Sirius (the nearest fixed star) the Sun and other stars in which not only the lines of hydrogen, iron and magnesium are distinguishable, but those of a great variety of mineral salts and other substances. Thus presaging not only the compositions of the planets and our own earth, but our own bodies as well; and by analogy of natural conditions to spiritual causes, therein may also be seen reflected the based elements of our *minds*—which, in turn, are but the organized forms of the *organizing principles* which primarily exist in the great First Cause of all.

Which finds expression in devotion to the ineffably spiritual principle of essential goodness as to *quality*, and resulting truth of corresponding *form* in men and things.

In the matter of the illustrations we are indebted to the courtesy of the *Century Company*, the *Scientific American* and others who have kindly allowed us the privileges of their publications.]



VERTICAL SECTION, EXHIBITION BUILDING.

pered in an oven. The reason why springs had never been made solid before was because it was not easy to give equal temper throughout the thick and thin parts. This was secured by means of an oven of a peculiar kind. The oval form of the spring causes the bearing to be *shortened with the increase of load*. Why is not this a principle which might be taken advantage of in designing cast or wrought steel lattice girders, and why should they not be tempered? The tempering alone, the gentleman informed me, added 300 per cent. to the strength of the springs.

The lately invented method of rendering iron unoxidizable, known as the "Bower-Barf" process, by which a film of carbonate of iron is formed on the surface of the metal, seems calculated or even the intellectual and rational idea, *the age of silver*,

San Francisco Architectural League.

The regular monthly meeting of the San Francisco Architectural League, was held at its rooms, 408 California street, on Wednesday evening, May 1st, with twenty-five members and fifteen visitors present.

An interesting lecture and stereopticon exhibition was given, by Frank T. Shea, Esq., on "Scenes through Italy," which occupied the entire evening.

Special business meeting of the League, was held May 8th, with twelve members present, President Stone in the chair. The minutes of the last meeting were read and approved. Committee on Investigations reported favorably in the cases of Messrs. Larsen, Bugbee and Parr, as senior members and the gentlemen were duly elected.

Communication from G. H. Wolfe was placed on file. Mr. Deane moved to suspend the rules; motion carried. Amendments were made to Article 1, Section 1.—to read as follows: The Board of Directors shall organize immediately after their election by the selection of a President, Vice-President, Recording and Financial Secretary, and Treasurer. Amendment was carried. Article 7, Section 3.—to read as follows: The secretary shall keep the minutes of the League, attend to all correspondence, preserve a register of all members and report semi-annually.

Article 7, Section 4.—The financial secretary shall preserve a register of all members, collect and pay to treasurer all money due to and received by the League.

Article 2, Section 4.—Application for membership, for either senior or junior shall be accompanied by drawing in either pen or pencil, and on the favorable report of the Investigating Committee, the Board of Directors shall decide whether the applicant shall be admitted as a senior or junior member.

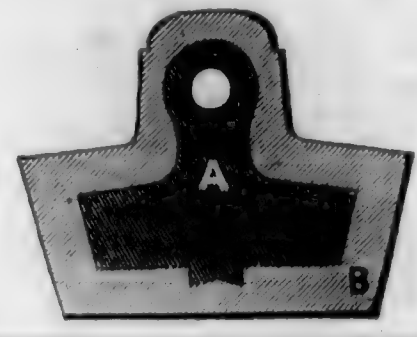
Article 8, Section 1.—That monthly dues for all members of the League be 50 cents.

The reports of the Treasurer and Secretary were read and referred to the Board of Directors.

It was moved and seconded that all the seniors be nominated as Board of Directors; carried.

The exhibition of the drawings for library completion, will be held Wednesday eve, May 29th, 1889.

A class in "Water Colors" will be organized under the auspices of the League, with Lionel D. Deane as instructor, for Saturday afternoon from 3:30 to 5 p. m., at the rooms 408 California street. Application to be sent to the secretary.



In examining late improvements in bath room appliances, our attention has particularly been called to the Star Metal Cored Rubber Stopper, a cut of which appears above.

These stoppers were introduced about twenty years ago, by the Wm. Powell Co. of Cincinnati, Ohio. The first ones manufactured hardly gave satisfaction. Now, however, they present a stopper perfect in all its appearances. The metal core is completely enveloped in a rubber casing, the core extending up into the neck, thereby preventing any strain on the rubber and its weight is sufficient to prevent it floating from its socket.

The sole manufacturers of these stoppers is the Wm. Powell Co., 50 Plum St., Cincinnati, Ohio. A letter addressed to them will receive prompt attention.

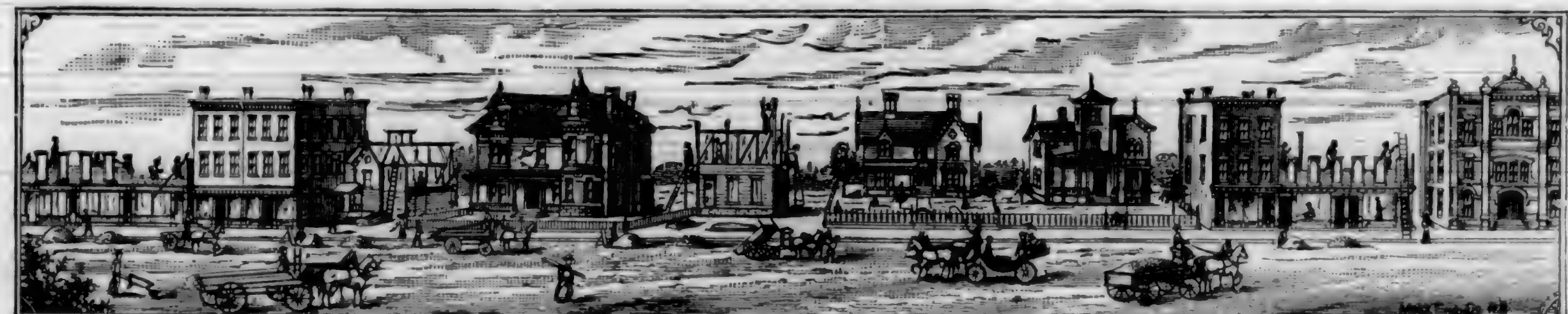
\$500 for a \$3,000,000 Plan.

The "Best Plan" is wanted for a \$3,000,000 Capitol building for Salt Lake City. For the same, the Board of Commissioners through their Secretary, Geo. E. Blair, offer the munificent sum of \$500.

Where "Old Style" May be Found.

The N. & G. Taylor Co., have established agencies in this city, in Portland, Oregon, Los Angeles and in Seattle, W. T. By a reference to their ad on page 2 of cover, the address of each will be found. The "Old Style" of tin plate is being extensively used all over the coast.

It is better to oil floors than to paint them—a monthly rubbing will make them as good as new.



CITY BUILDING NEWS.

Avery, between Geary and Post. Owner, Jane Broudero; architect, G. M. Saulsbury; contractor, G. M. Saulsbury; cost, \$1,950; signed, April 22; filed, April 23; sureties, D. Dodge and A. J. Gendavi; limit, August 1, '89; \$650, windows in; \$650, completed; \$650, 35 days.

Army, corner San Jose Ave., cottage. Owner, F. Kaufmann; architects, Townsend & Wyneken; contractors, Gray & Stover; cost, \$8,360; signed, April 8; filed, April 17; limit, July 15, '89; \$3,135, ready to lath; \$3,135, inside work done; \$2,090, 35 days.

Albion Ave., near Sixteenth, three-story frame. Owner, Marie Schath et al.; architect, A. J. Barnett; contractor, Wm. Linden; cost, \$4,375; signed, April 27; filed, May 1; sureties, W. A. Meeker, \$2,500; limit, 100 days; \$900, roofed; \$800, brown coated; \$800, white coated; \$775, completed; \$1,100, thirty-five days.

Buchanan, near Union, two story frame. Owner, P. Johnson; contractor, McGinnes; cost, \$4,000.

Buchanan, near Turk, three story frame. Owner, Samuel Wilson; architect, Alex. R. Pfarrer; contractor, B. Pfarrer; cost, \$5,850; signed, April 26; filed, April 27; \$1,450, framed; \$1,400, brown coated; \$1,500, completed; \$1,500, 35 days.

Broadway and Buchanan. Owner, Mary G. O'Kane; architect, Sam'l Newsom; contractors, Anderson Bros.; cost, \$8,075; signed, April 27; filed, April 27; surety, J. Kennedy, \$3,000; \$1,211.25, framed; \$1,211.25, roof on; \$1,211.25, white mortared; \$1,211.25, outside primed; \$1,211.25, completed; \$2,018.75, 35 days.

Broderick and Eddy, two two-story and basement frame. Owner, Isabel Durney; architect, R. H. White; contractor, D. H. Matherson; cost, \$4,750; signed, April 29; filed, May 2; sureties, Preston and McKinnon, \$4,000; limit, 90 days; \$890, chimneys built; \$390, brown coated; \$890, outside primed; \$890, completed; \$1,190, 35 days.

Buchanan, corner O'Farrell, plumbing, etc. Owner, Robt. Lorentz; architect, W. Winterhalter; contractors, Thos. Clark & Sons; cost, \$768; signed, April 5; filed, April 8; \$300 Inspector's certificate shown; \$468 completed.

Bush, corner Sansome, Hydraulic elevator. Owner, First National Bank, S. F.; architects, Wright & Saunders; contractors, W. H. Birch & Co.; cost, \$4,525; signed, March 28; filed, April 9; limit, June 28, 1889; 75 per cent. in installments on the first of each month as work progresses; balance, 25 per cent. 35 days.

Broadway and Taylor, move old and build new house. Owner, F. A. Lasell; contractor, Geo. M. Saulsbury; cost, \$2,946; filed, May 3; limit, August 1, '89; \$200, old house removed; \$746, framed; \$700, brown coated; \$1,300, August 3, '89.

Buchanan, between Union and Filbert, one story cottage. Owner, Leopold Bauer; architect, Wm. Schrof; contractor, S. G. Rienacker; cost, \$1,780; signed, May 3; filed, May 3; surety, Jacob Hoeges; limit, July 4, '89; \$440, roof boards on; \$440, brown coated; \$440, first coat paint on; \$160, completed; balance when receipts for labor are shown.

Block bounded by Vienna and Naples streets, and Russia and France avenues, cottage. Owner, Wm. G. Loewe; architect, Emil John; contractor, Adam Miller; cost, \$2,500; signed, May 1; filed, May 1; limit, July 1, 1889; \$875, rough mortared; \$1,000, accepted; \$625, thirty-five days.

MAY 15, 1889.]

Clay corner Buchanan, six two story frames. Owner and builder, Wm. Hinkle; cost, \$30,000.

California Avenue near Powell Avenue, two story frame. Owner and builder, Frichette; cost, \$3,500.

Clementina and Fourth, alterations. Owner, Wm. Gaffney; architect, M. J. Welsh; contractor, J. O'Connell; cost, \$2,150; signed, April 8; filed, April 18; \$500, framed; \$600, first coat mortar on; \$500 completed; \$550, 35 days.

Clementina, between First and Second, brick building. Owner, Dickman, Jones Co.; architects, Pissis & Moore; contractors, Riley & Loane; cost, \$8,300; signed, April 18; filed, April 20; \$2,000, ready for second story joists; \$2,000, ready for roof timbers; \$2,000 completed; \$2,300, 35 days.

Castro and Sixteenth, two story building; Owner, Mrs. F. J. Andrews; contractor and architect, Albert Cooke; cost, \$3,800; signed, April 4; filed, April 9; 75 per cent of work done as work progresses; balance, 25 per cent, 35 days.

1418 California, additions, etc. Owner, Wm. M. Dye; architects, J. J. & T. D. Newsum; contractors, Moore Bros.; cost, \$3,150; signed, April 3; filed, April 10; limit, 90 days; \$1,000, roof work up; \$681, mortar on; \$681, completed; \$788, 35 days.

Diamond and Nineteenth, to build. Owner, J. C. Kent; architect, S. Hatfield; contractor, A. A. Willis; cost, \$2,150; signed, April 13; filed, April 25; limit, 60 days; \$412.50, roof boards on; \$400, window frames in; \$400, plastering done; \$400, completed; \$537.50, 35 days.

Devisadero corner Sutter, to build. Owner, J. Murray; architects, Copeland & Banks; contractor, G. Healing; cost, \$4,216; signed, April 13; filed, April 16; sureties, J. Healing and G. Shankland; limit, 100 days; \$400, old building completed; \$900, framed; \$1,000, brown coated; \$867, completed; \$1,054, 35 days.

Dolores, between Twenty-third and Twenty-fourth, three two story flats. Owner, Mrs. M. A. Smith; architects, Percy & Hamilton; contractor, F. W. Kern; cost, \$11,702; signed, April 9; filed, April 18; sureties, O. W. Nordwell and F. Joost, \$5,000; 75 per cent of work done on first Saturday of each month; balance, 35 days.

Dolores and Liberty, two story dwelling. Owner, Edgar W. Briggs; architect, S. Hatfield; contractor, Jos. W. Reid; cost, \$2,230; signed, March 4; filed, April 10; sureties, J. Macowsky and Adolph Schwerin, \$1,500; \$500, roof boards on; \$390, floors laid; \$390, yard done; \$392.50, completed; \$557.50, 35 days.

Eighteenth corner Sanchez, two story frame. Owner, Henry Tietjen; architect, H. Geilfuss; contractor, Schutt & Kreckler; cost, \$3,410; signed, April 27; filed, April 27; \$1,260, framed; \$1,260, partitions set; \$1,260, outside work done; \$1,260 outside finish on; \$1,260, completed; \$2,110, 35 days.

Ellis, between Fillmore and Steiner, carpenter work. Owners, Main & Winchester; architect, Chas. Geddes; contractor, J. T. Grant; cost, \$17,365; signed, April 17; filed, April 20; surety, C. Hanson; limit, 4 months and 10 days; \$3,500, frame up; \$3,024, ready for plastering; \$3,500, all finish on; \$3,500 completed; \$4,341, 35 days.

Ellis, between Fillmore and Steiner, painting. Owners, Main & Winchester; architect, C. Geddes; contractor, Thos. Downing; cost, \$1,380; signed, April 17; filed, April 20; surety, L. Hartter; August 20, '89; \$450 ready for graining; \$485, completed; \$345, 35 days.

Ellis, between Fillmore and Steiner, plumbing. Owners, Main & Winchester; architect, C. Geddes; contractor, R. A. Vance; cost, \$1,500; signed, April 17; filed, April 20; surety, C. R. Lang; limit, August 1, '89; \$500, sewerage; \$400, sewers connected; \$225, completed; \$375, 35 days.

Erle near Mission, three two story frames. Owner, Wm. Ede; architect, A. J. Barnett; contractor, O. E. White; cost, \$6,500.

Fifteenth and Castro, to build. Owner, C. Lynch; architect, M. J. Welsh; contractors, Grant & Hopkins; cost, \$3,375; signed, April 23; filed, April 25; \$843.75, framed; \$843.75, brown coated; \$843.75, completed; \$843.75, 35 days.

Folsom corner Juniper Avenue, plumbing, etc. Owner, Charles Bogan; architect, Jas. P. Chadwick; contractor, H. Williamson; cost, \$1,145; signed, April 3; filed, April 29; limit, July 15, '89; at end of each month 75 per cent of work done, paid; balance when completed.

Folsom corner Juniper Avenue, carpenter work, etc. Owner, Charles Bogan; architect, J. A. Chadwick; contractor, G. H. Walker; cost, \$9,200; signed, April 3; filed, April 29; sureties, Irvine Graham and Casper Dix, \$2,500; limit, July 15, '89; \$1,840, framed; \$1,840, roofed; \$1,840, brown coated; \$1,840, first coat paint on; \$1,840, completed.

Folsom corner Juniper Avenue, brick work. Owner, C. Bogan; architect, J. P. Chadwick; contractor, R. Ringrose; cost, \$1,245; signed, April 3; filed, April 29; limit, July 15, '89; 75 per cent paid at end of each week of work done; balance when completed.

Front corner California, excavations, pile driving, etc. Owner, M. Rosenbaum; architects, Salfeld & Kohlberg; contractors, B. McMahon & Son; cost, \$27.50 per pile; signed, April 25; filed, May 3; sureties, C. S. Holmes and W. J. Adams, \$5,000; limit, 45 days; payment made when completed and accepted.

Fulton, corner Fillmore, two story frame. Owner, Henry Humie; architect, R. Zimmerman; contractor, F. Weinohel; cost, \$3,945; signed, April 8; filed, April 15; \$1,000, framed; \$960, rough plastered; \$1,000, accepted; \$985, 35 days.

Fremont and Folsom, frame. Owner, F. A. Robins; architects, Pissis & Moore; contractor, S. C. Buzzell; cost, \$5,418; signed, April 13; filed, April 17; \$1,000, brick work done; \$1,000, framed; \$1,000, enclosed; \$1,063, completed; \$1,355, 35 days.

Fillmore and Pacific, dwelling. Owner, Isabella Mayers; architect, Samuel Newsom; contractor, W. H. Wickersham; cost, \$5,285; signed, April 16; filed, April 19; surety, C. S. Holmes, \$2,000; 75 per cent of work done on first of each month; balance, 35 days.

Green, near Buchanan, one story frame. Owner, Augusta G. Crosby; architect, W. H. Wharff; contractors, Farrell & Bell; cost, \$4,500.

Geary corner Kearny, ornamental iron work. Owner, M. H. DeYoung; architects, Burnham & Root; contractors, Winslow Bros. Co.; cost, \$13,150; signed, April 2; filed, April 16; 75 per cent of work performed to be paid on 10th of each month.

Guerrero and Twenty-second, to build. Owner, Mary Fogarty; architect, M. J. Welsh; contractor, R. Parker; cost, \$4,400; signed, April 16; filed, April 17; \$700, framed; \$1,200, brown mortared; \$1,250, completed; \$1,250, 35 days.

Guerrero and Twenty-fourth, two story frame. Owner, B. H. Schenckhoff; architect, A. J. Barnett; contractor, Timothy Sullivan; cost, \$5,834; signed, April 16; filed, April 18; surety, B. Joost, \$3,000; limit, 100 days; \$1,213, roofed; \$1,100, brown coated; \$1,100, outside finish on; \$1,471, 35 days.

Guerrero, between Seventeenth and Eighteenth, to build. Owner, Louis Schloh; architect, F. Koldenstrodt; contractors, Tegeler & Muller; cost, \$5,800; signed, April 9, filed, April 9; limit, 3 months; \$1,750, framed; \$1,750, first coat plastering on; \$1,800, completed; \$500, 35 days.

Golden Gate Avenue, near Jones, freight elevator. Owner, Lizzie H. Moffatt; contractors, A. J. McNicolls & Co.; cost, \$1,150; signed, April 9; filed, April 11.

Guerrero and Twenty-third, two story. Owner, H. Minderman; architect, H. Geilfuss; contractors, Tegeler & Muller; cost, \$3,785; signed, April 8; filed, April 13; \$475, framed; \$475, roofed; \$475, partitions set; \$475, outside work done; \$475, inside work done; \$460, completed; \$950, 35 days.

Howard corner Fourteenth, two story building. Owner, Mrs. E. L. Miller; architect and contractor, M. Wm. Kain; cost, \$5,000; signed, April 22; filed, April 25; limit, August 1, '89; \$1,250, framed; \$1,250, brown mortared; \$1,250, white mortared; \$1,250, finished.

Howard corner Fourteenth, two story frame. Owner, D. Sullivan; architects, Schmidt & Shea; contractor, J. F. Logan; cost, \$8,493; signed, April 26; filed, April 27; sureties, B. Joost and W. Thyarks; limit, 90 days; \$1,500, framed; \$1,600, plumbing in; \$1,600, outside primed; \$1,600, completed; \$2,193, 35 days.

Haight, between Steiner and Pierce. Owner, Aug. Kernerleber et al.; architect, R. Zimmerman; contractor, Adam Miller; cost, \$1,050; signed, April 26; filed, April 27; \$300, rough mortared; \$400, accepted; \$260, together with last payment of contract.

Howard, corner Tenth, Hydraulic Ram Elevator. Owner, Omnibus Cable Co.; contractors, Cahill & Hall; cost, \$1,275; signed, April 6; filed, April 8; limit, 60 days; one-half when work is completed; balance, 35 days.

Jackson near Fillmore, additions. Cost, \$600.

Jackson corner Baker, additions. Owner, and builder, W. F. Lewis; cost, \$2,000.

Jackson and Franklin, two story frame. Owner, J. C. Franks; architect, J. E. Kraft; contractor, J. H. McKay; cost, \$8,275; signed, April 19; filed, April 23; sureties, Jno. F. Kennedy and Geo. T. Shaw, \$4,000; limit, four months; \$2,000, rafters on; \$2,000, brown mortar on; \$2,275, completed; \$2,000, 35 days.

Jasper Place and Union street, three story frame. Owners, C. Rondinotto, et al.; architects, Townsend & Wnekne; contractor, O. E. White; cost, \$5,253; signed, April 26; filed, April 27; \$1,200, roof boarded; \$1,300, first mortar on; \$1,438, sashing done; \$1,315, 35 days.

Jackson, between Scott and Devisadero, frame. Owner, Jos. K. Parker; architects, Pissis & Moore; contractor, Jas. Geary; cost, \$5,320; signed, May 1; filed, May 1; sureties, W. A. Meeker, \$2,500; \$1,000, framed; \$1,000, brown coated; \$1,000, interior plastered; \$990, completed; \$1,330, thirty-five days.

Lyon and Geary, dwelling. Owner, Margaret S. Clapp; architect, J. Hatfield; contractors, Plumber & Martin; cost, \$2,350; signed, April 23; filed, April 24; surety, Frederick Kalbfleisch, \$1,500; \$550, roof boards on; \$404, first coat plaster on; \$404, windows in; \$404, completed; \$587.50, 35 days.

Lapidge and Nineteenth, two-story frame. Owner, Thomas Gardner; architect, M. J. Welsh; contractor, J. O'Connell; cost, \$2,000; signed, April 17; filed, April 25; \$400, framed; \$533.33, brown mortared; \$533.33, completed; \$533.33, 35 days.

Leavenworth, near Pacific, building. Owner, John Devery et al.; architect, G. H. Miller; contractor, John Dyer; cost, \$3,720; signed, May 2; filed, May 2; sureties, Joseph Peers and John Willis, \$2,500; limit, ninety days; \$600, rough frame up; \$700, roof on; \$700, white coated; \$790, completed; \$930, thirty-five days.

Mason and Sutter, three-story frame. Owner, Ellen L. Hayward; architects, C. R. & J. M. Wilson; contractor, Jas. Geary; cost, \$6,865; signed, April 22; filed, April 22; \$1,025, second story joists on; \$1,030, roof on; \$1,030, brown coated; \$1,030, white coated; \$1,030, completed; \$1,720, 35 days.

Mariposa corner Florida, building. Owner, G. S. Ashmead; architect, T. J. Welsh; contractor, B. Horn; cost, \$6,800; signed, April 24; filed, April 27; sureties, T. Downing and E. M. Harmon, \$4,000; limit, 90 days; \$600, first story joists on; \$675, framed; \$1,275, brown coated; \$1,275, white coated; \$1,275, accepted; \$1,700, 35 days.

Market, between Fourth and Fifth, concrete work. Owner, California Academy of Sciences; architects, Percy & Hamilton; contractors, Ransome & Cushing; cost, \$14,300; signed, April 15; filed, April 20; sureties, E. G. Stetson and A. A. Wigmore, \$7,000; 75 per cent of work done to be paid on first Monday of each month; balance, 35 days.

Masonic Avenue and Geary, one story cottage. Owners Mr. and Mrs. Shoop; architect, G. G. Gillespie; contractor, G. G. Gillespie; cost, \$1,200; signed, April 2; filed, April 20; \$225, framed; \$225, brown mortared; \$225, white mortared; \$225, completed; \$300, 35 days.

Market between Fourth and Fifth, carpenter work. Owner, California Academy of Sciences; architects, Percy & Hamilton; contractor, W. M. Fletcher; cost, \$49,772; signed, April 9; filed, April 20; sureties, F. Joost and J. F. Kennedy, \$20,000; limit, 90 days; 75 per cent of work done to be paid on first Monday of each month; balance, 35 days.

Minna, corner Seventh, alterations, etc. Owner, M. Foley; architect, J. J. Clark; contractor, C. Quinn; cost, \$3,000; signed, April 9; filed, April 11; surety, John McGuire, \$3,000; limit, 30 days; \$1,000, one-half brick work done; \$1,000, brick work completed; \$1,000, 35 days.

Market, between Fourth and Fifth, brick work. Owner, California Academy of Sciences; architects, Percy & Hamilton; contractor, John McCarthy; cost, \$36,884; signed, April 2; filed, April 11; sureties, Willis E. Davis and Theo. W. Peterson, \$12,000; limit, 200 days; 75 per cent on first Monday in each month as work progresses; balance, 25 per cent after completion.

Market, between Fourth and Fifth, granite work. Owner, California Academy of Sciences; architects, Percy & Hamilton; contractors, M. J. Healy & Co.; cost, \$17,200; signed, April 9; filed, April 20; sureties, Wm. Mathews and Wm. R. Morton, \$10,000; limit, 90 days; 75 per cent of work done to be paid on first Monday of each month; balance, 35 days.

Market, between Fourth and Fifth, wrought iron work. Owner, California Academy of Sciences; architects, Percy & Hamilton; contractors, Rix & Pirth; cost, \$12,375; signed, April 9; filed, April 20; sureties, Howard Havens and Abner Doble, \$5,000; limit, 90 days; 75 per cent of work done to be paid on first Monday of each month; balance, 35 days.

Market, between Fourth and Fifth, plumbing. Owner, California Academy of Sciences; architects, Percy & Hamilton; contractors, Duffy Bros.; cost, \$15,326; signed, April 15; filed, April 20; sureties, J. Mahony and Robt. Mitchell, \$7,000; 75 per cent of work done to be paid on first Monday of each month; balance, 35 days.

Market, between Fourth and Fifth, cast iron work. Owner, California Academy of Sciences; architects, Percy & Hamilton; contractors, O'Connell & Lewis; cost, \$18,900; signed, April 9; filed, April 20; sureties, J. J. Mahony and Abner Doble, \$10,000; limit, 60 days; 75 per cent of work done to be paid on first Monday of each month; balance, 35 days.

Nineteenth and Dolores, three story frame. Owners, Jules Wolf and wife; architects, Huerne & Everett; contractor, F. Buckley; cost, \$4,800; signed, April 11; filed, April 13; \$1,200, roof sheathed; \$1,200, brown coated; \$1,200, completed; \$1,200, 35 days.

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POWELL'S NEW IMPROVED METAL CORED RUBBER STOPPERS.
SUPERIOR TO ANYTHING IN THE MARKET.
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NO BRASS STUD TUBE PULLED OUT OF THE RUBBER. WON'T INJURE THE MOST FRAGILE EARTHEN BASIN. CAN'T BE FLOATED OUT OF ITS SOCKET.
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Noe and Fourteenth, two story. Owner, Kate W. Cook; architects, C. H. & J. M. Wilson; contractor, F. V. Aiken; cost, \$3,360; signed, April 15; filed, April 20; \$915, inclosed; \$915, brown mortared; \$915, completed; \$915, 35 days.

Natoma, near Lafayette, to build. Owner, Margaret McCormack; architect, C. V. Pierce; contractor, C. Peterson; cost, \$3,425; signed, April 29; filed, May 1; sureties, F. P. Latson and A. W. Starbird; limit, ninety days; \$856.25, roof on; \$856.25, outside finish on; \$856.25, completed; \$856.25, thirty-five days.

Ninth corner Stevenson, additions. Owner, R. Flaherty; architects, B. McDougall & Son; contractor, J. H. McKay; cost, \$5,470; signed, April 6; filed, April 8; sureties, J. F. Kennedy and L. B. Doe, \$3,600; limit, June 30, '89; \$750, chimneys to top of walls; \$900, chimneys topped out; \$1,100, brown coated; \$1,320, completed; \$1,400, 36 days.

Oak and Laguna, to build. Owner, Mrs. H. K. Barr; architect, T. J. Welsh; contractor, M. J. Gorman; cost, \$5,098; signed, April 15; filed, April 16; sureties, Duffy Bros. and J. Mahony, \$2,500; \$1,232, studding up; \$1,232, brown coated; \$1,232, completed; \$1,400, 35 days.

Octavia corner Sutter, four story frame. Owner, James G. Fair; architects, Schultze & Meeker; contractor, J. T. Grant; cost, \$39,339; signed, April 16; filed, April 17; sureties, C. Hanson and W. J. Adams, \$13,000; limit, November 1, '89; 75 per cent on first of each month as work progresses; balance, 35 days.

Octavia near Vallejo, three frame dwellings. Owner and builder, W. F. Lewis; cost of each, respectively, is \$4,500, \$6,500, \$4,000; total, \$15,000.

Prospect Avenue, corner Powell Avenue, three one story frames. Owner and builder, F. Nelson; cost, \$5,000.

Pacific, between Jones and Leavenworth, three story frame. Owner, Herman Wrede; architect, Emil John; contractor, S. Wray; cost, \$4,592; signed, April 22; filed, April 23; limit, August 1, '89; \$800, framed; \$800, partition set; \$800, outside finished; \$1,044, accepted; \$1,148, 35 days.

Pennsylvania Ave., between Solano and Butte, two story flat. Owner, Thos. Murphy; architects, Schmidt & Shea; contractor, G. I. Doering; cost, \$2,700; signed, April 9; filed, April 22; surety, J. Ahlback; limit, 65 days from May 13; \$500, enclosed; \$500, brown coated; \$500, hard finished; \$500, completed; \$700, 35 days.

Polk near Sacramento, additions; cost, \$800.

Pine corner Touchard, two story dwelling. Owner, M. P. Jones; architect, Wm. J. Mathews; contractors, Maloney & Shay; cost, \$10,297; signed, April 15; filed, April 19; limit, October 1, '89; 75 per cent to be paid as work progresses; balance, 35 days.

Stewart and Market, artificial stone sidewalks. Owner, Gualala Mill Co.; architect, C. I. Havens; contractors, Gray Bros.; cost, \$1,502; signed, April 22; filed, April 23; \$700, work in basement finished; \$802, completed.

Rhode Island corner Yolo, one story. Owner, J. Barduhn; architect, J. T. Hogan; contractor, J. W. Mader; cost, \$1,360; signed, April 17; filed, April 19; limit, June 5, '89; \$250, framed; \$260, rough plumbing done; \$255, hard finished; \$255, completed; \$340, 35 days.

Seventeenth and Dolores, two story frame. Owner, P. J. Dwyer; architect, M. J. Welsh; contractor, R. Parker; cost, \$3,550; signed, April 8; filed, April 10; \$887.50, framed; \$887.50, brown coated; \$887.50, completed; \$887.50, 35 days.

Sutter, Lots 1526 and 1528, retaining walls. Owner, M. S. Lowenthal; architect, Fred E. Wilcox; contractor, John Kelo; cost, \$4,094; signed, April 11; filed, April 11; limit, 30 days; \$3,070.50, completed; \$1,023.50, 35 days.

Sacramento, corner Scott, two story frame. Owner, Jas. M. Wright; architect, W. F. Lewis; contractor, Wm. F. Lewis; cost, \$6,400; signed, March 9, filed, April 15; limit, July 19, '89; \$5,000 to be paid during progress of building, and \$1,400 when completed.

Sutter, near Scott, build complete. Owner, Joseph Hauxmann; architect, G. H. Miller; contractor, Jas. Geary; cost, \$2,755; signed, May 1; filed, May 4; sureties, C. S. Holmes and Thos. Richardson, \$2,000; limit, ninety days; \$600, framed; \$500, plumbing done; \$500, framed; \$466, completed, \$689, thirty-five days.

Seventeenth Avenue corner N. ten one story frames. Owner, J. Twist; architect and builder, W. F. Lewis; cost, \$8,500.

Sansome and Halleck, alterations. Contractor, Haneke; cost, \$2,500.

Tenth corner Stevenson, two story and basement frame. Owner, P. Brady; day work; cost, \$7,000.

Twenty-Sixth, between Mission and Howard, two frames. Owner, G. F. Dallinger; architect, J. Trowson; contractor, S. C. Kronnick; cost, \$3,700; signed, April 16; filed, April 16; limit, 90 days; \$3,700, to be paid when building is completed.

Twelfth and Howard, to build. Owner, Daniel O'Connor; architect, M. J. Welsh; contractor, M. J. Scott; cost, \$3,350; signed, April 17; filed, April 18; \$837.50, framed; \$837.50, brown coated; \$837.50, completed; \$837.50, 35 days.

Twenty-First, near Guerrero, two-story frame. Owner, Amandus F. Schumacher; architect, C. I. Havens; contractor, C. E. Dunshee; cost, \$5,290; signed, May 2; limit, May 4; \$900 inclosed; \$1,000, pipes in; \$1,000, hard finish on; \$1,000, completed; \$1,390, thirty-five days.

Thirtieth corner Church, alterations, etc. Owner, Geo. H. H. Patterson; architect, E. C. Warden; cost, \$2,500; signed, April 27; filed, May 1; \$600, hall partitioned off; \$600, brown mortar on; \$700, completed; \$600, 35 days.

Third, corner Stevenson, brick work. Owner, C. H. Ackerson; architects, Schmidt & Shea; contractors, Peacock & Butcher; cost, \$7,250; signed, April 8; filed, April 8; \$3,500 ready for roofing; \$1,800, completed; \$1,950, 35 days.

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Twenty-fourth, corner Shotwell, two story frame. Cost, \$1,200.

Tilden and Castro, two story flat. Owner, J. V. Delaveaga; architects, Schmidt & Shea; contractors, R. Doyle & Son; cost, \$3,874; signed, April 22; filed, April 24; sureties, R. McCann and J. McCarthy; limit, 90 days; \$725, enclosed; \$725, plumbing in; \$725, outside primed; \$725, completed; \$974, 35 days.

Thirtieth and Folsom, three story frame. Owner, Mrs. D. E. Keeks; architect, M. J. Welsh; contractor, Jas. Finn; cost, \$3,780; signed, April 3; filed, April 10; \$945, framed; \$945, brown coated; \$945 completed; \$945, 35 days.

Van Ness Avenue, corner Geary, additions. Owner, Sam Hart; architects, Schmidt & Shea; contractor, Wm. Plums; cost, \$16,250; signed, April 10; filed, April 12; sureties, F. Joost and D. Woerner; limit, 90 days; \$3,000, enclosed; \$3,000, brown coated; \$3,000, hard finished; \$3,000, completed; \$4,250, 35 days.

Valencia, and Twenty-fifth, to build complete. Owner, John Creamer; architect, M. J. Welsh; contractor, M. C. Lynch; cost, \$4,250; signed, April 26; filed, May 3; \$1,000, framed; \$1,000, brown mortared; \$1,000, completed; \$1,250, thirty-five days.

COUNTRY BUILDING NEWS.

OAKLAND.

The average cost of the new dwelling houses now building in Oakland is much greater than in former years. In 1876 the average cost of some 900 houses erected was \$870. In 1877, 655 houses were built, averaging about \$950 each. This was the period of small, illy constructed, cheap dwellings, without modern conveniences, and built without reference to sanitary regulations, which did not exist officially at that time. Each succeeding year has shown a higher average in cost and more artistic architecture, until at the present time a gratifying showing can be made. The fifty-four new dwellings noticed in this semi-monthly TRIBUNE report are building at a cost of \$146,400, an average of \$2,710 each. In all cases the figures given have been obtained from the owner, contractor, or agent, and represent the contract price, not including extras.

The number of buildings detailed in the report embracing the latter half of March is fifty-four; cost, \$146,400. Previously reported since January 1st, 165, cost, \$524,600. Aggregate to March 31st, 219; cost, \$671,000.

Under the heading of "Oakland Enterprise Abroad" THE TRIBUNE has often had occasion to mention the achievements of our local builders, but until now the pleasure of announcing the fact that an Oakland firm is building an entire town has not been accorded. El Verano is the first town to be built on its pristine development entirely by Oakland enterprise. A handsome business block of brick

costing \$10,000, a store, a restaurant and twenty-five dwellings, all supplied with modern conveniences, are in course of construction for the Sonoma Valley Improvement Co. at El Verano by A. W. Pattiani & Co., who are pushing the work as fast as possible. When it becomes known that Oakland builders are doing the lion's share of work for the interior, our planning mills, hardware stores, and all branches of trade concomitant with building enterprises, will flourish in a manner that cannot fail to gratify our local pride as well as add to the wealth of the city.

L. Dresco is building a six-room cottage on the south side of Eighteenth street, between Castro and Brush, at a cost of \$2,000. H. Adams is the contractor.

E. Hook has commenced a first-class modern residence of eight rooms on the southeast corner of Eleventh and Jackson streets, to cost \$4,000. W. N. Concannon is the contractor.

We particularly note that people seem to be inclined to build better houses and leave behind the cheap style of improvement, recognizing the fact that Oakland must become a great city, and that it must be built up with a view to a grand future and its requirements in regard to stability of structure, combined with beauty and good taste.

Sanitary Inspector Snook says that requirements for inspection of new premises is much greater than ever before, and that the class of work going on is superior to that of former years, beyond comparison.

Among the more prominent buildings shortly to be commenced are the Unitarian Church edifice, which will rank among the best of the many fine church buildings of Oakland. The Young Men's Christian Association building, to cost \$30,000 to \$40,000, and a large and costly business block by J. W. Mackay, the only survivor of the bonanza kings.

BENICIA IMPROVEMENTS.

Our old friend, the *New Era* sends us the following as a summary of improvements in and around Benicia.

Bank of Vacaville, cost	\$ 3,700
Hotel at Elmira	7,000
" " Suisun	17,500
Residence of J. Cohn, Suisun	2,500
" of A. W. Howe, Benicia	1,800
" of J. L. Innes	1,650
" of J. A. Smith	1,800
" of G. R. Duval	2,000
" of T. B. Montgomery	4,000

The Benicia Planing mill is doing most of the above. J. B. McKenzie is the owner. S. Brooks is foreman. O. H. Butler attends to the brickwork. L. K. Risley the plastering. Beardslee & Johnson the painting.

SAN JOSE.

FROM OUR SPECIAL CORRESPONDENT.

Two two story frame dwellings, Fifth near San Salvador street. Mrs. Steiger, owner; J. Lenzen & Son, architects; F. Davis, contractor; cost, \$5,200.

Two story frame dwelling, San Carlos near Fourth street. Mrs. Auzeais, owner; Theo. Lenzen, architect; R. Summers, contractor; cost, \$6,000.

Two story frame dwelling, corner Fourth and Empire streets. L. Auzeais, owner; Theo. Lenzen, architect; J. D. Stewart, contractor; cost, \$5,500.

One story cottage, Delmas avenue, B. Campen, owner; Shottenhamer, contractor; cost, \$1,600.

Cottage on San Carlos street. E. L. Ford, owner; Keast, contractor; cost, \$2,000.

Two story dwelling, San Carlos near Delmas avenue. Mr. Oger, owner; Shottenhamer, contractor; cost, \$2,100.

One story cottage, San Fernando near the Guadalupe. Mrs. Penchard, owner; J. Lenzen & Son, architects; A. C. Bates, contractor; cost, \$2,800.

Two story dwelling, Willow street. Mr. Theurkauf, owner; Theo. Lentz, architect; cost, \$7,000.

Two story dwelling near junction of First and Second. Mr. Becker, owner; J. Lenzen & Son, architects; cost, \$4,000.

Two story dwelling, Vine and Park avenues. Otto Ziegler, owner; Theo. Lenzen, architect; cost, \$3,800.

ALAMEDA.

Mr. Capp is having a six-room cottage built by Contractor Hamilton on the property lately purchased by him at the corner of Pacific avenue and Chestnut street. As soon as the plastering is finished he will commence the erection of a similar building next to it. Each of the houses will cost about \$3,500.

SANTA ROSA.

Yandle & Glynn are about to erect a large machine shop.

A. C. Means is building an addition to his school house.

COLFAX.

It is understood that a large hotel will be erected at this place. The owner is Mrs. M. J. Lawrence of Downieville.

SACRAMENTO.

The Capitol Hotel will be reconstructed on first floor. Stores will be fitted up at a cost of \$8,000. E. A. Boyer superintends the alterations.

SAN RAFAEL.

A club house will be erected in connection with Hotel Rafael at a cost of \$7,500. Curlett & Cuthbertson are the architects, and J. Blake the contractor.

LOS ANGELES.

N. W. Stowell has accepted plans for a \$25,000 building to be erected on Spring street.

The * California * Architect * and * Building * News

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NOW IN ITS TENTH YEAR.

Established Jan. 1879.

Incorporated Jan. 1889.

+WHH+

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ADVERTISING RATES FURNISHED ON APPLICATION.

SAN FRANCISCO, JUNE 15, 1889.

AN architect's suit was recently decided in the Supreme Court of Massachusetts—according to the *American Architect*—which has a certain interest. The architect of a hotel in Boston sued the owner for something over \$25,000 for services in preparing plans and superintendence of the building. The defendants claimed that the architect agreed to render the necessary services for three and one-half per cent. on the cost of the building. This was \$14,000, so that his commission amounted to \$14,000, of which they had paid him \$8,000, and were ready to pay the balance. The architect admitted the agreement to accept three and one-half per cent. commission, but claimed additional compensation for extra services, etc. Evidence was brought as to the skill and reputation of the architect, and the auditor who first heard the case awarded him about \$8,500. The case was again tried before a jury, which brought in a verdict for \$13,000 for the architect. This, added to the \$8,000 previously received on account, is about five per cent. on the total cost of the building, so that the jury seems to have taken the view that five per cent. on the cost is about what the architect ought to have for such work, and that if he was foolish enough not to come to a clear understanding with his clients, in the first place, about what he was to do and what he was to be paid for doing it, he deserved to lose the small compensation which he might have earned by extra work.

IS it not about time for our architects to seriously consider the necessity of appointing a "Clerk of Works," the salary of the same to be paid by the owner. This city is rapidly growing and to properly superintend a house in course of construction way out on Pacific or Sunset Heights, really requires more time than is warranted by the usual fee of 5 per cent.

Subscription price of this Journal is \$2.00 per year. Examine the Contents of this Issue and see if it is not worthy of your support.

RECENT law cases make it very evident, that architects are made the butt of some people who would put them to any amount of trouble and expense, without offering to remunerate them; why the impression should have got about as it has done, that these gentlemen will design buildings for the pleasure of doing the work and that payment of fees is only conditional upon its suiting the convenience of the client to go on with the building, it is hard to say, but some of our most influential public companies and associations have set such an example and the terms of competition are assuming less favorable form.

WE commence with this issue a series of Artotypes of lately completed buildings. For richness of design, the one in the present issue will compare favorably with those printed in any other journal in the country.

THE Legislature of the State of Texas has passed a law requiring all architects to obtain a certificate before being allowed to practice their profession. Architects from other States who have been in the habit of preparing plans for clients in Texas, will do well to heed one of the rules laid down, viz., that persons practicing without a certificate should be denied the assistance of the courts in collecting payment for their services. We know architects in this State who have prepared plans for acceptance in the State named, and in future they must bear the above regulations in mind.

IT is about time that the Chapter of Architects, and all kindred associations, protest vigorously against another abuse that has gradually been growing on this coast. We refer to the fact that the supervision of the building work must not be placed in the hands of any other than the successful competitor.

WHY are the "good old times" of our forefathers being revived in the "new-fangled notions" that are now being used in the furnishing of houses of the present day? Look at pictures of the hallways as designed centuries ago and compare them with those of to-day. We find the same roomy landings where one can rest before finishing the flight; the large open fire-place, with its garniture of brass andirons, etc.; the old corner clock—all these revived in the hallways of to-day. Is the architecture of our forefathers to be revived in the present generation, and are we to come to the conclusion that, after all, the styles of those of the long ago were not only superior in general arrangement, but were also more conducive to health?

THE recent offer of a neighboring territory to pay \$500 for the best plan for a \$3,000,000 Capitol building, is one that should not be regarded by any member of the architectural profession on the Pacific slope.

APROMINENT architect in Los Angeles addressed a communication to the Chapter of Architects in this city in regard to the establishing of a branch of the Western Association of Architects on this Coast. This journal would like to see all the various architectural associations united in one grand organization, with branches of the same in every prominent city.

WE notice that the California style of framing dwellings is being generally adopted through the eastern states. At first, such framing was done as a matter of expediency, but a test of over forty years proves it fully equal in lasting qualities to the old-fashioned mortise and tenon.



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SAN FRANCISCO, CAL.

Plastering and Stucco Work.

Paper read by James John, Esq., before the National Association of Builders.

MR. PRESIDENT AND GENTLEMEN OF THE CONVENTION—It has been my privilege to be selected to read you a brief paper on the subject of Plastering and Stucco Work. I have seen fit to diverge to a slight extent from the text as laid down by endeavoring to embrace the whole matter in the word "plaster." I will therefore read you what I have, with the idea that plaster will comprehend the whole of it.

It has been the fate of this simple, durable, and inexpensive material to escape the assaults which every good thing in this world must encounter at one time or at another. It has been called unclean, but it is not so of itself. Like many another wholesome and useful medium, it can be so ill-made and be so indifferently applied as to offer to dirt and insects abiding places, due to the perverted ingenuity of man, not to any inherent defects of itself. In spite of all that has been said against it, it remains the universal lining for dwellings throughout the civilized world. Wealth may incase walls and ceilings in decorative woods and metals, but for the mass of mankind plaster must continue to be the simplest, cleanest, least costly, and most enduring finish for homes. The health of the vast majority of mankind is therefore largely dependent upon the materials used in its mixture and the manner of application.

It is undeniable that the custom that obtained some years ago of applying plaster into highly ornate designs was, for domestic purposes, unsanitary. The foliated, convoluted, and otherwise multifarious designs which used to be spread out upon ceilings, in cornices, or special pieces are gradually passing out of use. Their innumerable crevices served only as receptacles of dirt in which the deposits were continuous.

The ornamental uses of plaster having been reduced by good sense and good taste, it remains still the most vigorous, as it is the oldest, vehicle for carrying down to generation after generation the masterpieces of art with which the golden age of sculpture enriched the human race. Humble as its components are, common and cheap as it seems besides marble, and paltry when compared with the metals that have to a considerable degree taken its place for reproductive uses, it still preserves the plastic art, and enables youth to contemplate antiquity in its noblest achievements. To-day plaster is revolutionizing industrial art; for us, and, in all probability, for those who are to come after us, plaster, lowly and cheap, but docile and durable, is the connecting agent with this greatest of men's indorsements in the past.

Plaster thus employed in duplicating great works of marble, iron, and bronze is to-day extending the finest industries, modern and ancient. The erection of the new museums in England, near the great manufacturing centres, would be next to useless were not plaster available for distributing fac-similes of the works, whose grandeur has made the name of Greece imperishable, and whose usefulness in development and the study of form, for all arts, is acknowledged to be unequalled. So potent is this simple medium, therefore, that it serves to-day as effectually as marble itself for the perpetuation of fine art; and by its endless variations of models, copied from every other material known in history, it is the supreme teacher of design. The reproduction of classic works at Kensington, and their dissemination throughout the provinces of the United Kingdom, have had the effect of making France fear for her supremacy in fine industrial productions. The important part that plaster thus plays in the Old World it will continue to play in the New. Wherever art places its altar, plaster will be there as its handmaid; and, though it may be abused by carelessness and calumniated by more pretentious rivals, it must remain the most faithful friend of progress in taste, science, decoration, usefulness, and economy.

Noble and varied as may be the uses to which plaster has and may be applied, I regret to say that the art of applying the same as an avocation for the lining of dwellings is to-day so remunerative to the artisan that it almost ceases to enlist the skill and intelligence that the art should command. This is due mainly to the want of appreciation by the architect and owner, whose only thoughts are for a semblance, for the time being, and are tempted by the questionable economy of saving a few dollars into letting contracts to men of no mechanical standing. It is hoped and expected that through the influence of the National Association of Builders and the intercourse its executive officers may have with the reputable architects of the country, the day is not far distant when it will be required of the artisan in the various

branches pertaining to buildings to arm himself with a proper and authoritative testimonial giving proof that he is skilled in his art, and thus separate the wheat from the chaff, the former be recognized and the latter find its level.

It is a well-known fact that plaster on a ceiling surface in the event of fire will detain it for a long time, providing any means have been taken when applied to secure it under such circumstances, and, were these means more generally employed, millions of dollars would be saved to this country annually.

As the fire-proof construction is the exception, and as wood construction must predominate for years to come, therefore attention should be given to make the latter structure more fire-resisting.

During the last twenty years I have devoted much thought to this subject, and some of the devices I have had in that direction I have sought to secure by letters patent, and strange to say, came in conflict with an English patent in the archives at Washington bearing date 1797. The device then discovered has been slumbering there nearly one hundred years, and to-day I know of nothing more economical or effectual to secure plaster in position in the event of fire than the same device. It is simply a wire netting, as used to-day for a foundation, but, as there described, placed over the bottom surface of the plaster and then securely stapled to the furring or joists, and afterwards the finishing coat of plaster applied over the surface. And as most every mechanic has at some time or other taken out a patent or applied for one, it may be interesting to you to hear the language that Edmund Cartright (as that was the name of the applicant) used in paying due deference to his Sovereign Lord.

After describing his invention in substantially the same language that obtains in patents of the present day, he closes thus:—"In witness whereof, I, the said Edmund Cartright have hereunto set my hand and seal this eight day of November in the thirty-eighth year of the reign of our Sovereign Lord George the Third by the grace of God, of Great Britain, France and Ireland, King, Defender of the Faith, and so forth, and in the year of our Lord One Thousand Seven Hundred and Ninety Seven."

"EDMUND CARTRIGHT."

Expansion of Timber due to the Absorption of Water.

BY PROF. DE VOLSON WOOD.

IT is stated by some writers upon the properties of building materials that timber shrinks but little in the direction of its fibers from being thoroughly dried, or expands but little in the same direction from the adsorption of moisture; but the amount of these changes was not given in any work that I examined. Desiring to get some definite knowledge upon this subject, I caused to be prepared some pieces of pine, oak, and chestnut. The pieces selected were from lumber fairly seasoned, and were afterwards kept in a dry room for three weeks before any measurements were made. The pieces were straight-grained, free from knots or other defects.

In order to secure accurate measurements, brass pins were driven near the edges and ends, opposite to each other, and a fine mark made in each. The measurements were made to the nearest half-hundredth of an inch. The pieces were about five-eighths of an inch thick, thirty-six inches long, and five and one-eighth inches wide.

After the first measurements were made, the pieces were put into a vessel of water and allowed to remain there thirty-seven days, at the end of which time they were measured again. The measurements were made on one side only. The following are the mean of the results:

Specimen.	Pine.	Oak.	Chestnut.
Initial length, inches.....	35.505	35.572	35.582
Final length, ".....	35.622	35.602	35.640
Elongation, ".....	0.017	0.030	0.058
Per cent of elongation.....	0.05	0.085	0.16
TRANSVERSE MEASUREMENTS.			
Initial width, inches.....	4.470	4.464	4.481
Final ".....	4.586	4.620	4.645
Expansion, ".....	0.116	0.156	0.164
Per cent of expansion.....	2.6	3.5	3.6
Rate of lateral expansion			
..... = 53	41	22½	

It will be seen that the chestnut expanded laterally and longitudinally more than the oak or pine, that the rate of longitudinal expansion was about three times that of the pine, and the lateral expansion was about one and four-tenths that of the pine. The expansion in the direction of the fibers was larger than I anticipated, especially in the oak and chestnut.—*Scientific American.*

Semi-Annual Summary of Building Operations.

The present season has been a most prosperous one among architects and builders. In order that a full comparison may be made with former years, we present in full the building operations for the first six months of the year:

MONTH.	Back	Value	Frame	Value	Alterations	Value	Total	Value
January.....	4	\$131,000	64	\$420,200	16	\$93,500	84	\$420,200
February.....	9	832,000	49	218,600	13	26,900	71	1,077,500
March.....	4	63,000	69	287,000	10	26,900	83	376,900
April.....	4	128,000	82	357,400	11	51,200	97	536,600
May.....	3	190,000	85	405,300	11	45,450	99	640,750
June.....	2	47,500	87	527,200	23	59,500	112	634,200
Totals.....	26	\$1,391,500	436	\$2,215,700	84	\$303,400	546	\$3,910,600

In comparison with the record of former years for the first six months of the year, the summary is as follows:

1885-754 building engagements.....	value	\$4,267,375
1886-670 ".....	"	2,486,633
1887-516 ".....	"	3,269,914
1888-437 ".....	"	2,719,820
1889-546 ".....	"	3,910,600

Academy of Architecture.

CALIFORNIA is, as yet, too young a state to have an academy where architecture and building can be taught in all the various branches. In order that our young men may possess themselves of information in regard to the above named studies, they must need look to the older and more populous states. The nearest academy which, at present, we can call to mind, is situated in St. Louis, Mo., H. Maack being the Principal.

If anyone is engaged in a building-trade, wants to prepare himself technically to fill a position above his fellow-workmen in the shortest possible time and for the least amount of money, then he should immediately enter this institute.

A skillful master-builder is expected to be master of not only his own trade, but should have sufficient knowledge of all the other building trades to enable him to judge justly of their requirements and to arrange their work to the best advantage.

As this is essential in working out plans and estimates of new buildings, as well as of repairs, and for appraising buildings already erected, it follows that it is necessary for the scholar to participate in the instruction in all the branches taken up in the respective classes, but the trade to which the scholar belongs may receive particular consideration.

A full course in this institute will consist of three terms of twelve weeks each, the regular winter course commences on the first Monday in December and closes at the end of February. But for those that want to complete their study without interruption, a special course will be opened both in September and March.

Address the Principal for further information at his academy, 3066 Ninth street, St. Louis.

Painting Wood.

One coat of paint takes twenty pounds of lead and four gallons of oil per one hundred square yards; the second coat forty pounds of lead and four gallons of oil; the third, the same as the second—say one hundred pounds lead and sixteen gallons of oil per one hundred square yards for three coats.

One gallon of priming color covers 50 square yards.

" white zinc	"	50
" white lead paint	"	44
" lead color	"	50
" black paint	"	50
" stone color	"	44
" yellow paint	"	44
" blue color	"	45
" green paint	"	45
" bright emerald	"	25
" bronze green	"	75

Our "Artotype."

THE building which we illustrate in this number is the new mansion of Mr. and Mrs. W. H. Crocker, on the corner of Jones and California streets, next to Mrs. Chas. Crocker's residence.

It is one of the most important residences that has of late been erected. The design embraces more originality than is usually observed in such dwellings, inasmuch that it combines six different materials in its exterior, without detracting from the unity of the whole design.

The portion of the first story, window sills of the first story, quoins, and large front arched porch guarded by griffins, is composed of blue sandstone from a San Francisco quarry, laid up in Cyclopean style, a style not often seen on this coast.

The remainder of first story and in some places to the second story window sills is built of pressed brick laid in red mortar, with terra cotta bands of string courses.

The superstructure is covered with shingles coated with Rosenberg's "Elastica" Varnish No. 1, and as near as possible left in the natural redwood color, except the gables which are finished in pebbled plaster on iron laths.

The tall stone chimneys and large circular tower form striking features of the outside. Finally the roof is of green slate with terra cotta hip moulds and iron rails.

The architects, Messrs. Curlett & Cuthbertson, have been ably seconded in their efforts to produce a beautiful creation by the several artists and artificers who have materialized it, and who are therefore, worthy of mention here. O. E. Brady performed all the stone and brick work—Mahoney Bros., the carpenter and joiner work—W. Cronin, the slate roofing—Duffey Bros., the plumbing and sewerage—Fraser & Keefe, the polishing—John Mallon, the glazing—J. C. Jung, the ironwork—Henry Fisher, the plastering—Gladding, McBean & Co., the terra cotta—Geo. Goodman, the artificial stone work—Mitchell & Halbach, the interior decorating—The Electric Development Co., the electrical plant—Most of the interior cabinet work and finish was done by Plum & Co., and the Oakland Planing Mills.

The interior is finished in several varieties of hardwood, the main feature being the two-story hall and staircase in the centre of the building finished with Byzantine Dome and Arcade.

Owners' Acceptance of a Building.

THE law is well settled that the owner does not accept a building by taking the keys and living in it, nor does he thereby waive in the slightest degree his right to have the contract fulfilled to the letter before he pays the contractor. His visits to the building while in progress do not alter the contract or put him under any obligations to accept work not in accordance with it; and if he orders changes at those visits, he only makes himself liable to pay a reasonable price for them, if they increase the actual cost of doing the work. Whether, after moving into the house, he can have changes made by other parties, without notifying the original contractor, and charge them to the contractor's account, is a different matter. If the changes are altogether outside the contract, he is, of course, not entitled to make the contractor pay for them. If they were necessary in order to bring the building into conformity with the contract, he ought to have notified the contractor that they were required, and have given him reasonable opportunity for making them himself, before employing other persons to make them; and it has been held abroad that where this notice was not given, the contractor was not liable for any part of the expense. Aside from legal technicalities, however, it would probably be fair to both parties to have the contractor pay what it would have cost him to make the work conform to the contracts as nearly as this can be estimated, and let the owner pay whatever it actually cost beyond this.

An Extra Issue.

In July we will issue an extra edition of 3,000 copies. It will be the best illustrated of any issue yet presented. Sample copies are 20 cents each. Stamps of the smaller denominations will be received.

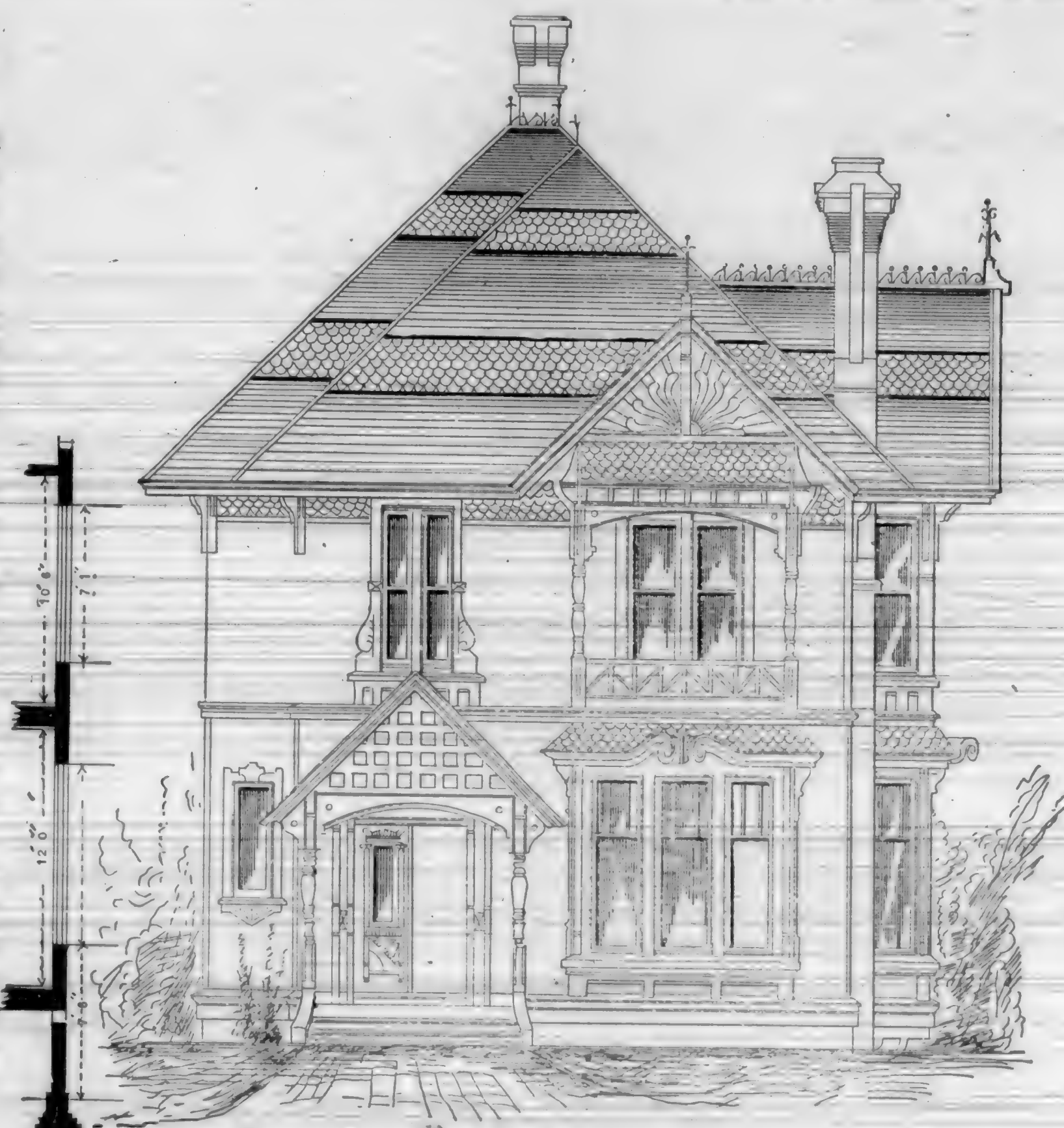
Design for a Country Dwelling.

The plan given was specially designed for a side hill residence. For this purpose all four sides are so finished that, no matter from what point the house may be viewed, it will present a finished appearance, the rear elevation being very picturesque. There is no attempt to elaborate finishes, the intent being to show a well constructed and carefully arranged country home.

In the basement will be found a commodious kitchen, servant's room and store room. The front part is left unfinished, but should the nature of the ground allow it, the space could be nicely utilized for a billiard room, or, if necessary, a children's play room.

On main floor are the parlor, dining-room and library. The bay window in dining-room is nicely arranged for an observation room. A dumb waiter connects with the kitchen, thus doing away with all smell and smoke from that place.

There are four chambers and bath-room on second floor, with ample closet room in each apartment. As shown, the house can be built for \$5,000. The design was prepared by Mr. S. Newsom of this city.



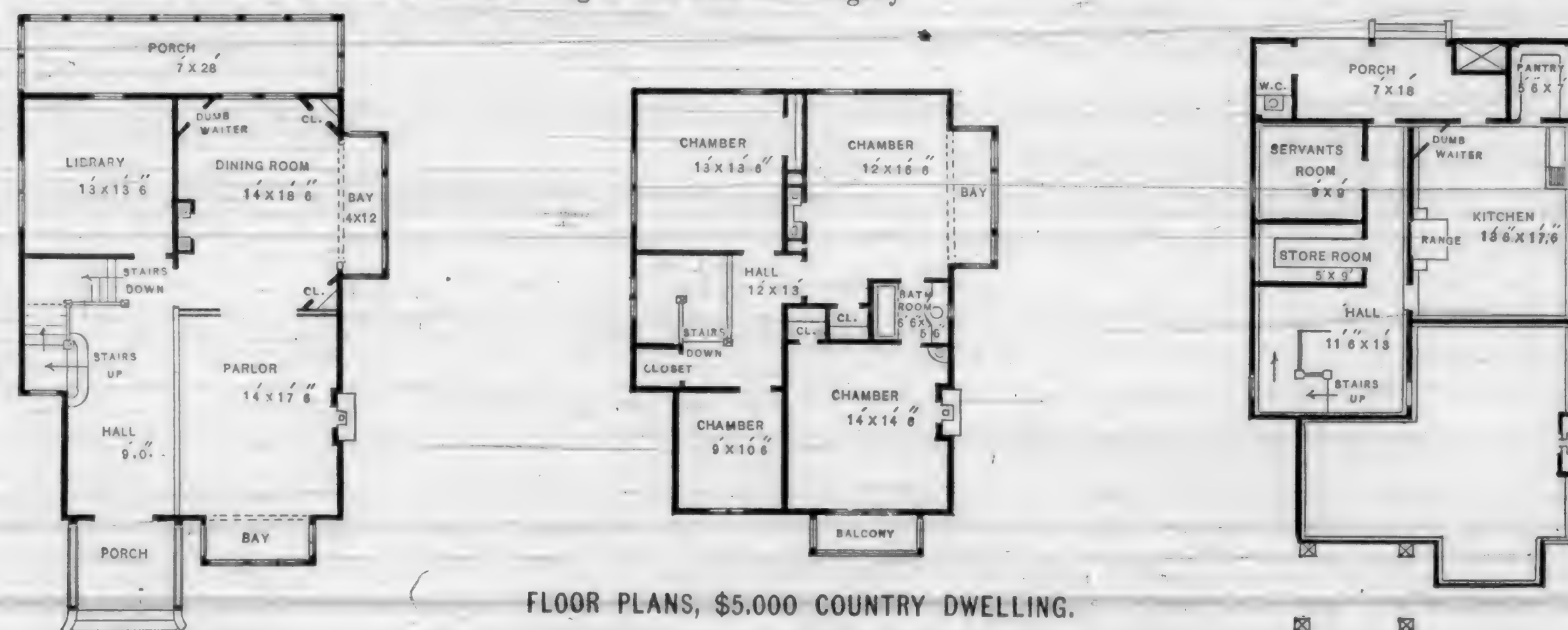
FRONT ELEVATION, \$5,000 COUNTRY DWELLING.

Honest House Finish.

The prevailing fashion or style for the past few years has been to stain interior woodwork almost exclusively, until those engaged in building have become thoroughly surfeited with the cheap imitation of mahogany that one sees on every hand. The uninitiated call it a "cherry" stain. Cherry, in its natural color, it should be understood, is a very light colored wood, of a warm yellowish shade. It is often treated with a red stain, to produce an imitation of antique mahogany, until people have come to believe that this is the natural color of the wood. To attempt to stain a soft wood to imitate cherry is utter nonsense. If there is any imitation about it, it is imitation of mahogany, and an attempt at imitation of that grandest of woods by staining whitewood or pine will deceive nobody. Stain is a sham, every time. There seems to be some excuse for using a dark filler on

oak finish, or a red one on mahogany to give them an antique appearance, but even this is a "sham."

Why not be honest in regard to the finish of your house, as well as in your business affairs? Common white pine, when finished in shellac, in its own inimitable color, is far richer than any imitation that can be produced by stains. Whitewood, poplar, cypress and even hemlock, are handsome woods, when properly treated, in their natural color, and improve with age, yet when stained look decidedly cheap and distasteful. Graining is another common subterfuge, and nothing but a cheat, for it certainly is not in the power of man to imitate nature's great handiwork so finely as to deceive, and if it should so result it would be a barefaced lie. If one doesn't like natural finish on the cheaper woods, and cannot afford hard woods, then why not paint? That certainly is honest. Let pine be pine, and cherry what it is, but don't try to make honest pine masquerade as mahogany.



FLOOR PLANS, \$5,000 COUNTRY DWELLING.



SIDE ELEVATION, \$5,000 COUNTRY DWELLING.

A Model Kitchen.

IT DID NOT COST VERY MUCH, BUT IS A MARVEL OF CONVENIENCE.

HERE is a unique kitchen, worthy of description:—It is not large, having been built to fit a very little woman. The pantry is to the rear of it, the dining room to the right, the hall in the front, and all out doors to the left, though it stands on a narrow city lot. The kitchen projects beyond the hall, giving room for a door in front, and there is a second door in the front, leading to back porch and garden. The range chimney stands against the outer wall, and from door to door in summer the breeze blows perpetually past it. There are windows according to circumstances, some high, some low, some big, some little, some in the upper panels of the doors.

The temple of the household gods is finished entirely in wood, for aesthetic reasons quite as much as utilitarian. Wood finish means that not an inch of plaster appears. Ceiling, walls and floor are all of delightfully polished yellow pine. The casings of doors and windows are flat for ease of washing, and all the joints are as tight as tight can be. The work was done slowly and carefully under the supervision of the presiding genius. While the wood work, perfectly plain, as befits a kitchen, makes a really beautiful apartment, the veinings of the wood, the rich coloring, and the lingering forest odor suggest pleasant thoughts, and typify the home refinement of the lady who joyfully gives bread to her house, rather than the drudgery of menial toil so often put forward in its place.

The laundry tubs and sink are of solid white porcelain. But the wonderful economies of space, and numerous step-saving devices are the features of the place. There are slides from the pantry to the dining room sideboard. There are shelves in the triangular space over the cellar stairs. There is a table which pulls out of nowhere, just opposite the range and vanishes into thin air when the cooking is done. There are flour bins which swing 'out into the room when wanted, and push in flush with the wall again. When the mistress of the establishment wishes to put anything "down cellar," she doesn't go down herself, though the stairs are of gentle slope and easy of access. She touches a mysterious lever with her hand or foot, and up comes a section of the kitchen floor, bringing with it a series of shelves. Disposing the various articles thereon, she reverses the lever, and down goes the whole thing. The floor is as solid as ever, and the shelves are hanging in the dry, cool air of the cellar.

Costly? Not at all. Economy and convenience were the prime considerations. The house was built by an artist, who planned first the kitchen—his wife's workshop—then the studio—his own—and let the rest of the house group itself round these two. The kitchen cost no more in money than the most dingy type of city basement, and its owners call it worth all that it cost of ingenuity.

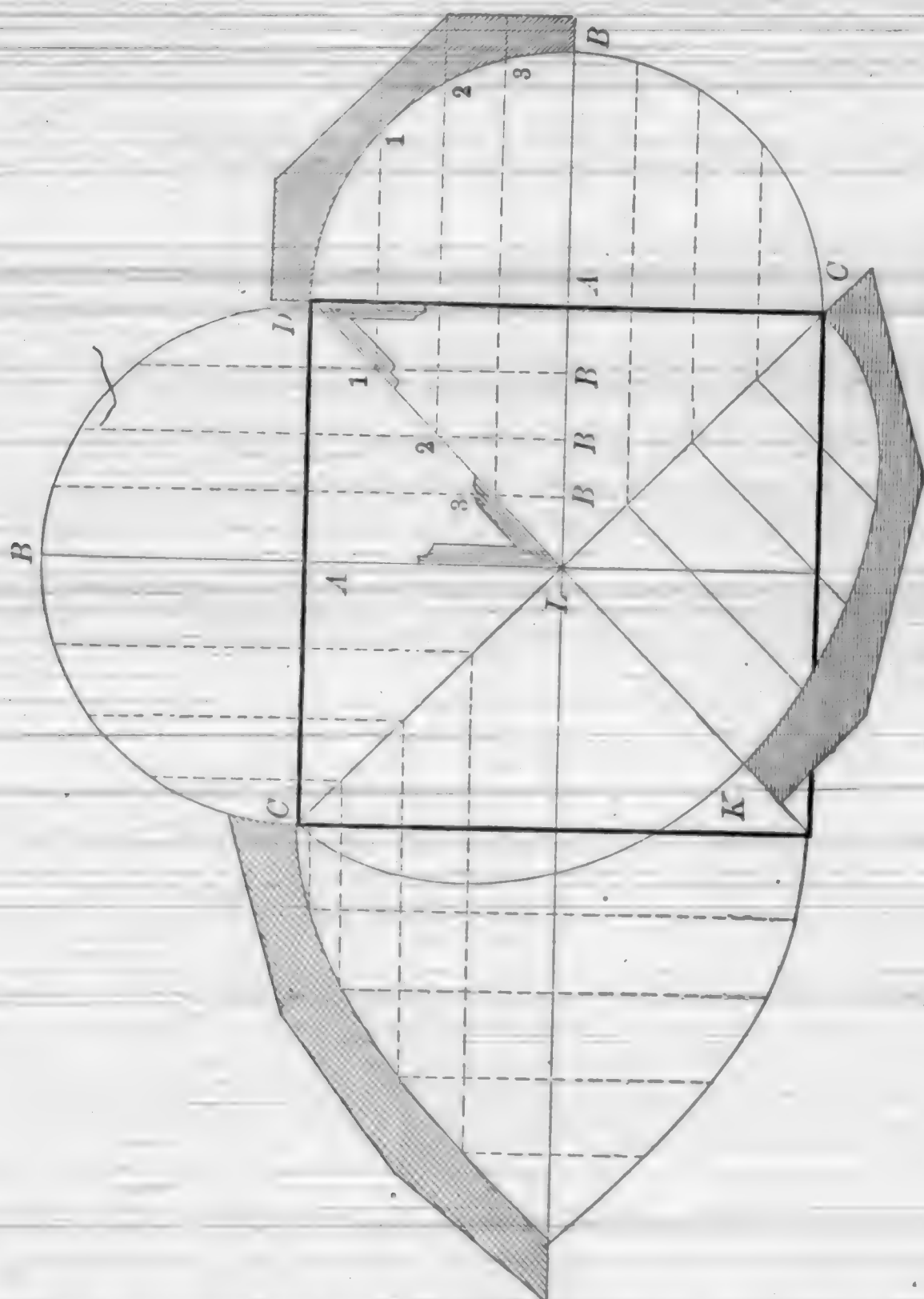
Sawdust is being used by some builders for mortar instead of sand. It is said to answer well, as it is one-half lighter than sand; it has some advantages when used on ceilings. Mortar made of quicklime and sawdust, mixed with cement, does well for brick or stone work.

Groins.

BY OWEN B. MAGINNIS.

The prevailing inclination of the present age of industrial science tending towards the simplifying of all mechanical rules, with a view to their direct application in practice, is gradually bringing them within the scope of ordinary intelligence. Actuated by this object, the writer has endeavored to modify the existing methods put forward by our more eminent mechanical writers, for the construction of wooden groins or the centering of stone or brick groins.

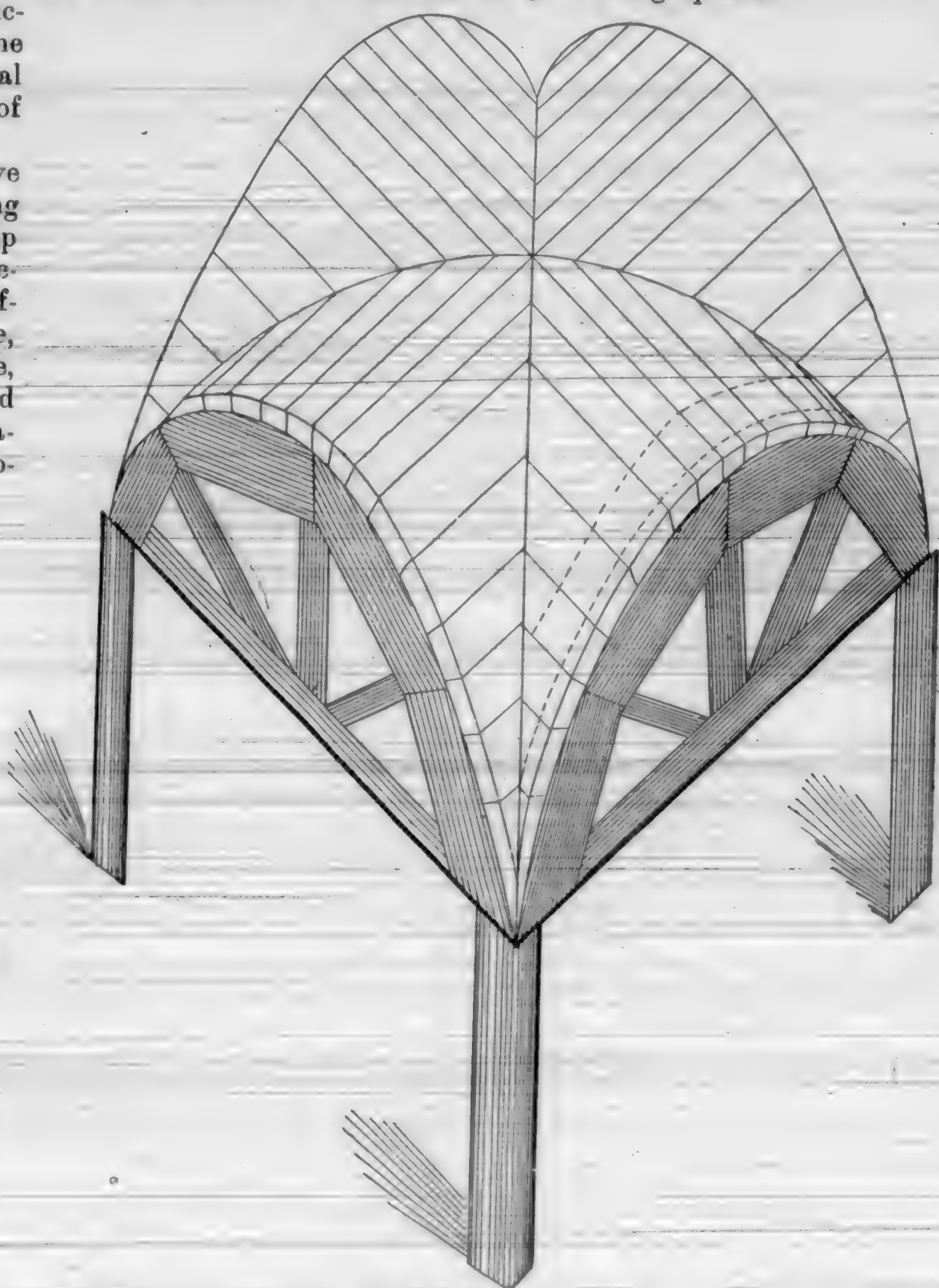
Groin, as defined by architectural authorities, is the curve formed by the intersection of two arches, hence a groined ceiling or vault consists of a number interpenetrating vaults or deep arches, forming a proportionate number of groins as they penetrate each other. There are many different kinds of these effective details, employed in the higher branches of architecture, especially in ecclesiastical, where they are almost indispensable, except in those which admit of timbered roofs or are intended plastered for frescoing. In the hope that the following explanations will benefit those whose line of work may take in this subject, they are submitted for application.



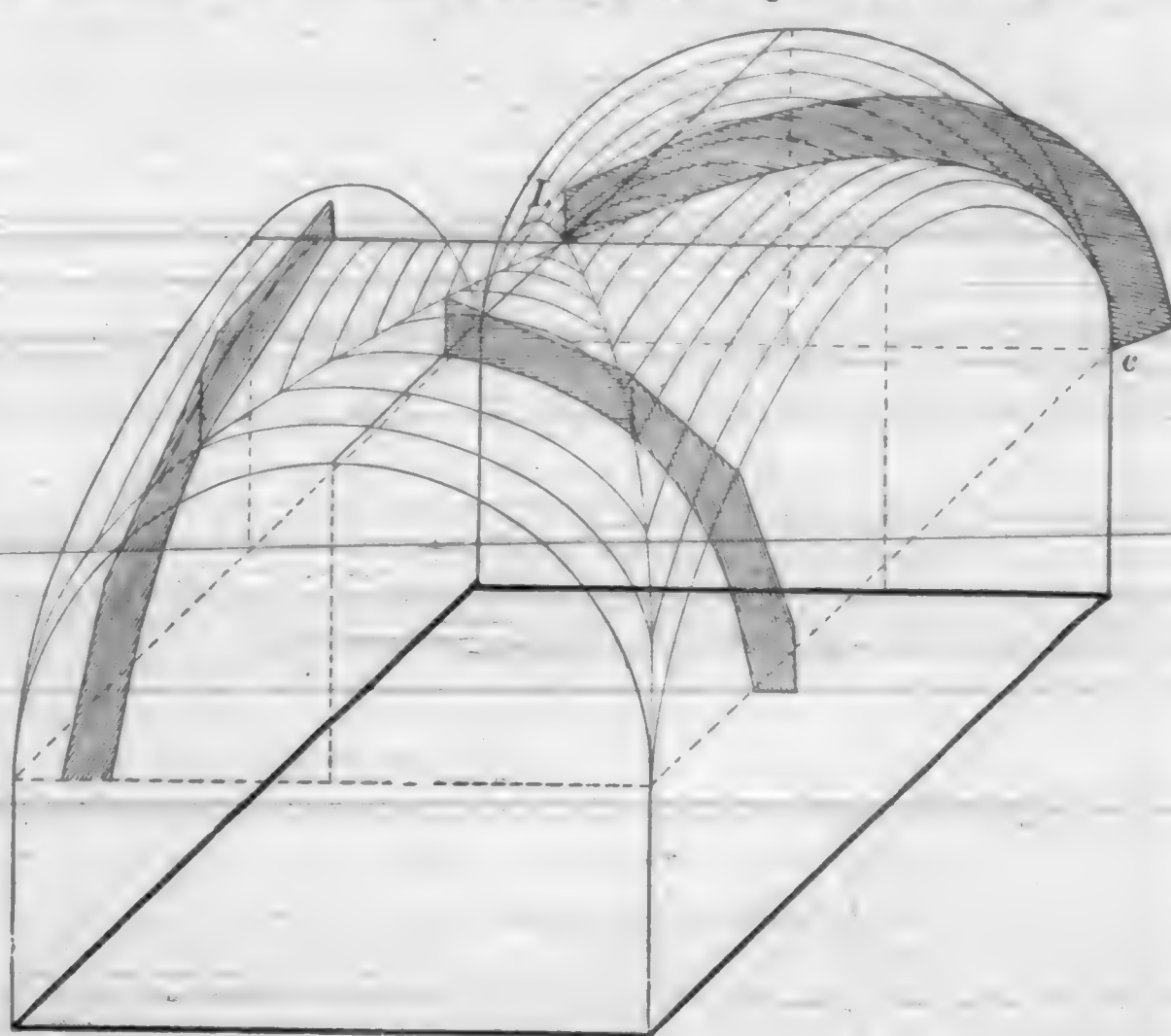
The simplest form of groin in general use in domestic architecture, is known as the barrel cylinder or cylindrical vault and formed by two semi-circular vaults passing through each other at right angles as shown at figure 1 and figure 2.

In figure 1, on the centre lines AB, continued outside the plan which is a square give the radii of the arch. The seat of the groin is the diagonal, over which the intersection of the vaults or groin will stand when found, and in position, or in other words the groin is formed by the revolution of two halves of the square which turn on the axis or centre lines and in their revolution while passing through each other intersect each other in a curve which is termed a groin, this can be easily seen by referring to figure 2, which represents a complete centre for a brick or stone groined ceiling. To construct this groin for lath and plaster, proceed as follows: Describe the semi-circles, CBD. CBD, divide the diameters, or side of the plan into any number of equal parts, in this case eight, and draw lines from these division parallel to centre lines AB, and perpendicular to diameters or sides of the plan, till they cut the semi-circle, continue them down till they meet the diagonals, at the points.

Where they intersect the diagonals, raise up square lines and set off on them the heights which measure from the diameter to the circumference on the semi-circle. The curve traced through these points will be the outline of the curve of the groin, and a semi ellipse, as it is the section found by cutting the cylinder on a mitre or angle of 45 degrees, the plan being square.



This elliptic curve is the form of the groin and the sweeps for the ceiling can be cut to it as shown in figure 1. CK which will sit over CL, its seat. Its exact position is seen at figure 3. CL and those for the vault can be cut as DB, figure 1, two of each kind being necessary to complete the curves.



These are the principle curves to be gained, and the jacks or subordinate sweeps follow. As they are of the same outline curvature, their lengths can be obtained in this way.

If a ridge or centre piece be inserted, necessary when the

The True Test of the Value of Employes' Services.

THE very fact that a man enters a shop and there toils for the allotted number of hours makes it possible to settle his wages by the standard of another man performing a like service; but when the service rendered is the product of earnest thought and study, when the results of mental activity are thrown into the balance, combined with muscular exertion and mere routine work, then the reward can only be measured by the profit therefrom that insures to the employer, and the actual value of the service rendered is increased or diminished by the amount of knowledge, skill or energy with which the work is done. These qualities of mind, skill and diligence united are always necessary to enable any man to succeed in his vocation, and a man's advance above his competitors depends upon the magnitude and force of these qualities.

There must be in the highest order of service this trinity, executive ability, self reliance and originality, the power of planning. These three must co-exist to produce the highest order of merit, and to secure the greatest reward. For men may have skill, execution and ability within the limits of their assigned duties who have neither self-reliance or inventive powers, that enables them to succeed when thrown upon their own resources and outside of their regular work. A man may be a first-class man to carry out details, and work a plan with precision and correctness, and yet he may be an inglorious failure when in the position of chief director of the work of others.

Not only must a man be able to do work himself, but he must be able to plan for others and keep them profitably at work. He must have a quick eye for details, and a broad mind for generalities. He must be practical, and bring all general facts and truths in reference to the business under consideration for the accomplishment of his purpose.

He who realizes these truths, and acts upon them, will, if he has ability, climb to the top of the ladder, and will never have any questions raised as to the amount of his wages, because by his work he fixes the only standard by which his services are measured, and their value is ascertained by their product to his employer.—Wood and Iron.

Awkward Mechanics.

MECHANICS are often addicted to what can only be called awkwardness. In getting at a new or strange piece of work, some men make so much fuss, and appear to such poor advantage, that surprise is expressed that such an incompetent man should be employed. Most of this awkwardness, or "fumbling," could well be avoided by the man if he would only see himself as others see him. His attention is too much taken up by some detail of the matter, and he does not comprehend the whole amount of his work. A thorough mechanic gives a thing a thorough thinking over before he proceeds to execute any work. If the awkward mechanic would learn to think more, he would appear to much greater advantage, and would be worth more money to his employer.—Man and Builder.

New Cottage Homes and Details.

In this new work, the first copies of which have just been received, the authors—Palliser, Palliser & Co.—claim that all designs are new and original, and have never been produced before in any other architectural work. In a careful study of the book, we find that the California method of framing has been selected, it being much preferable to the old principles, which were to use large timbers and cut them all to pieces by mortising and notching down to levels.

We commend the authors for one statement made in the "Prefatory." The cost of the buildings are all given, but the amount stated only holds good when plans are used, prepared by them. Fluctuations in prices of material and labor in various sections are freely acknowledged, and no one can guard against the same. The prices given are those for which the house can be honestly built, with prices of materials as they are generally quoted at time of issue.

Printed by Palliser, Palliser & Co., of New York and for sale at this office. Large work containing 250 designs, with numerous details, price \$4.00.

groined vault is of large area, they will each measure from the groined ribs, to the ridge or center piece and can be easily found on the figure 1, as IB on the semi-circle will stand over BI on the plan, B2 on semi-circle will stand over B2 on plan, and so on to the center, against the diagonal piece cut like CK.

The top cut will be cut square and plumb as at B and the bottom end will be cut plumb vertically and on the angle shown by the level at D. The jack ribs shown here are for the left side of the angle and but similar pieces cut on the reverse angle, must be cut for the opposite side. Bevel at L, figure 1, shows cut of top end of center rib and they are shown in position at figure, where they continued down to the spring line to represent how these sweeps can be cut the full length, afterwards resawn for their different places. If the centerpiece be not inserted, the sweeps reach from diagonal to diagonal and are nailed against them. These plans should be laid on a drawing board or floor and all the cuts made from them.

Time Servers.

HOW many men there are, holding good paying positions as journeymen, who are really of no value unless kept constantly under the eye of the foreman or their employer!

They are simply time servers, who take no interest in the business they represent beyond the actual time necessary to count them a day's work. They work when closely watched because they are obliged to, not from any motive of honor or interest in the business.

What can be expected of such workmen but that they will shirk their work and idle their time at every opportunity?

If you cannot give your employer your full time for which he pays, and take some interest in his business, you had better leave him at once. To this he is entitled, and has a right to expect it of you.

If your mind is not upon your work, you cannot expect to accomplish it with any degree of satisfaction to your employer or credit to yourself.

In going about from one shop to another it is a very easy matter to pick out the time servers. Upon the slightest pretext they drop their work to talk or look about, and are always ready to get out of the door the moment the clock strikes six, and their example is very rapidly followed by the apprentice or younger workmen. They have to be constantly watched, and this fact, being known to the firm, is not long in having its results.

Employers are more generally knowing to the habits and qualities of the men they employ than the men often realize, and they invariably know who are the time servers among them, so that when there comes a convenient opportunity or a lull in business, these are the first to be discharged.

It pays to be faithful and do your best at all times, and more especially when your employer is not watching. If you must idle away time, do it when he is about, but don't dishonor yourself or betray his confidence by taking advantage of his absence.

This is one of the worst features of our American system. It is an example which is set by the older men, and which is readily adopted by apprentices, and it is the exception rather than the rule that we find a young man who is sufficiently interested in his own welfare and his employer's as well to give his full time and attention to his work. Those who do this are sure of success, and it is from among such that have risen those men whose names are written upon the pages of history as having made their mark in the world, and left behind not only pleasant recollections, but a shining example that is worthy of a careful imitation. Sel.

THE E. D. Albro Co., Cincinnati, Ohio, manufacturers of veneers and thin lumber, report: We have a steady demand this season for our products. Builders and contractors appreciate well season lumber for inside finish, and the quartered sawed oak and light colored woods are being more called for. We have a full line of all kinds, including white walnut, (called butternut,) cherry, quartered oak, white maple, white ash, and mahogany.

Prima vera, or white mahogany, is rapidly coming into favor. This is a beautiful light gold color, and finished like satin wood, which gives a warmth and tone unexcelled by any other woods. They have a full stock of hard woods of all thicknesses and kinds.

The Pacific Land, Loan and Building Company. SAN FRANCISCO, CAL.

The Pacific Land and Loan Company is organized and operated upon the same general principle that lies at the foundation of all building, loan, protective and credit societies, unions and associations. It has all the desirable features of these organizations and possesses some which are not common to them.

GENERAL PLAN.

These Companies are corporations organized and operated under the laws of their locality. They issue stock of a stated par value which any one may purchase, and the holder pays upon the stock a certain monthly sum. The money thus accumulated in a Loan Fund is at once loaned out on real estate security and the profits arising from the investment, and from all other sources, together with the monthly payments (except a small amount which goes into the expense fund), are placed to the credit of the stock. These profits are periodically apportioned and credited by the Board of Directors. With the Pacific Land and Loan Company it is done every three months. Whenever the amounts thus placed to the credit of the stock equal its par value, it is said to "mature," and upon its surrender the holder is paid such amount by the Company. In addition to this the holder of stock may borrow money from the Company if he chooses to do so, re-paying the same in monthly installments.

SPECIAL FEATURES.

Organizations of this character have been universally successful in bringing handsome profits to their stockholders, and at the same time afforded them a safe place of deposit of surplus earnings or of making loans for business requirements. The Pacific Land and Loan Company has sources of security, and profit and special advantages to stockholders, not enjoyed by others. Its large resources, the fact of its doing a national, instead of merely a local business; its system of fines from delinquent stockholders; its lapses of forfeiture to the common benefit; its economy of investing its loan fund, and the small amount allowed to go into the expense fund and consequent economy of management, will cause its stock to mature in about five years, while from seven to ten years are required in the ordinary local Building and Loan Associations to reach the same result.

Moreover, under the loan system of the Pacific Land and Loan Company, the borrower gets his money in advance of his savings, by paying a small monthly interest and premium, has the use of the same before he accumulates it. The immediate and continued use of the money enables the borrower to gain more than he would have to pay for the use of the same. The non-borrower simply contributes his regular installments, and waits until his shares mature and he receives at least one hundred dollars for each.

BONDS.

The Secretary and the Treasurer are each under bonds in the sum of Twenty Thousand Dollars, for the honest and faithful performance of their duties.

COST.

For each One Hundred Dollar share of stock a first payment of two dollars must be paid to the Company, or to its representative or agent when making the application for stock. After that, monthly installments of seventy cents on each one hundred dollar share must be sent to the home office, or paid to a legally authorized collecting agent. The first monthly installment will be due and payable one month after the date of the certificate of stock, and subsequent installments monthly, thereafter, until the stock matures.

PAYMENTS IN ADVANCE.

Any stockholder may deposit with the Company a sum of money for the payment of monthly installments as they fall due. The Company will receipt for the money, apply it in payment of the installments, and notify the stockholder when the sum is exhausted. Interest will be allowed on all such deposits at the rate of five per cent. per annum on the unused portions.

PAID UP STOCK.

Any stockholder may, after making the first payment, pay to the Company the sum of fifty dollars per share in lieu of all monthly

payments. The Company will receipt for the money and will credit the stock thus paid up with the payments of monthly installments up to the time of its maturity.

FINES AND FORFEITURES.

If monthly installments are not paid up when due, fines will be assessed as follows: Ten cents per share for the first month of delinquency; twenty cents for the second, and thirty cents for the third.

If, after the assessment of the last fine, or fine of thirty cents for the third month's delinquency in payment of monthly installments, any stockholder remains delinquent in the payment of such installments or of any fines, for one month, then the stock upon which the monthly installments or fines remain so unpaid, if less than twenty-four monthly installments have been paid thereon, shall lapse and be forfeited to, and become the property of the Company. No notice of such lapse or forfeiture will be given to the stockholder and no sale of the stock will be made, but the stock will re-vest in the Company by virtue of the contract between the Company and the stockholder.

Lapses and forfeitures form an important factor in all institutions that depend upon periodical payments for their support. In most companies a stockholder's failure to make payments when due, works injury to the Company and thus to the other stockholders. With the Pacific Land and Loan Company, the result is directly the reverse. Failure to make payments when due results in fines, and continued failure works forfeiture. The fines, if paid, operate as a profit, and if not paid, the prior payments thereby forfeited become a profit. Either one or the other goes to the credit of the Company, thus hastening the date of maturity of other shares, and diminishing the number of payments required of those who continue to the end. At the same time the Company is relieved of its obligation to pay the forfeited shares.

NON-FORFEITABLE STOCK.

After twenty-four monthly payments have been made on stock it shall no longer be forfeitable for non-payment of monthly installments; but the failure of a stockholder who is not a borrower to make payments on his stock for four months will be construed as an application for withdrawal, and thereupon the Company shall retire said stock, and the stockholder shall be entitled to all the rights of and subject to all the conditions imposed upon a withdrawing stockholder.

WITHDRAWAL.

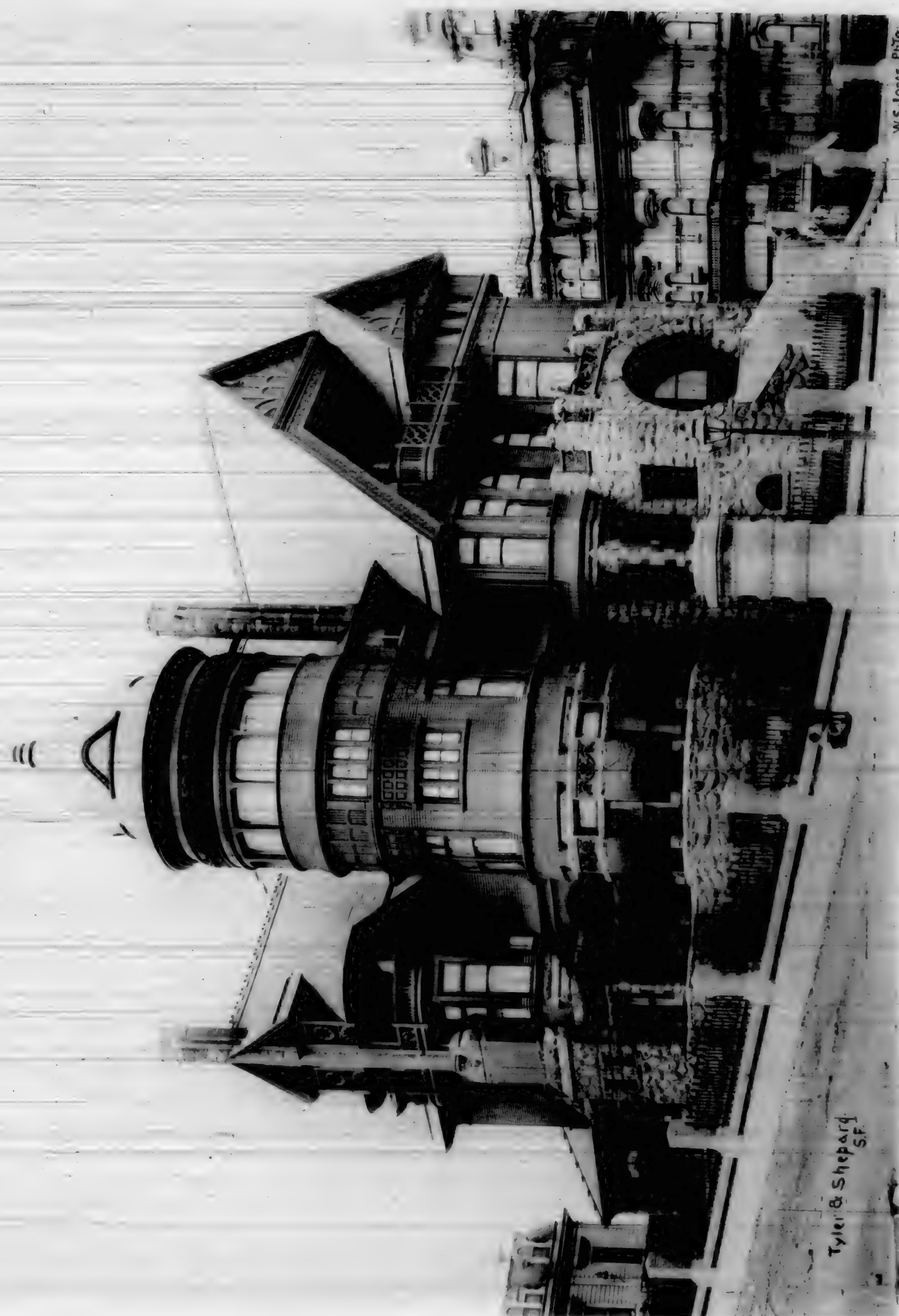
Any stockholder who has made twenty-four monthly payments on his stock and is not a borrower from the Company may withdraw from the Company, and upon such withdrawal shall receive a sum equal to the total sum paid from his monthly installments into the Loan Fund, with six per cent. interest per annum thereon, from the time of payment of such sums into the Loan Fund to the date of application for withdrawal.

TRANSFERS.

Any stockholder may assign his shares, providing said shares are in good standing and no loan has been obtained by the holder, by filling out the assignment on the back of the shares, and having the same witnessed and forwarded to the home office with fifty cents for approval and transfer. No assignment of shares will be valid unless the approval of the Secretary is endorsed thereon. If a loan has been obtained by a stockholder who desires to assign his shares, said shares cannot be assigned unless the mortgage property is also sold to the same party, or the mortgage paid off.

LOANS.

The monthly installment, together with all fines, interest, premiums, and profits from every source whatever, except the first payment, constitute the Loan Fund. The money of this fund is loaned at six per cent. interest per annum, and a premium of seven per cent. Loans can only be made to stockholders, unless there is a surplus on hand unapplied for by stockholders. All loans must be secured by first mortgage on real estate, and no loan shall exceed fifty per cent. of the actual cash value of the security given, except where the money loaned is used for the erection of a building upon the premises mortgaged. No loan of a less sum than two hundred dollars will be made. To entitle a stockholder to a loan he must hold stock the face value of which, at least, equals the loan applied for, and at least four monthly



Residence of W. M. Crocker, Esq.
CURLETT & CUTHBERTSON, Architects.

installments must have been paid thereon, either regularly as they fall due or in advance at his option. Applications for loans must be made directly to the Company and not through any agent thereof, and upon blanks furnished by the Company.

If the loan is desired to enable the borrower to erect a building on the real estate given as security, he may receive more than fifty per cent. of the value of the security, upon giving bond to the Company that the loan will be used for that purpose, and also a bond against mechanics' or other liens.

Interest and premiums are payable monthly at the time of paying monthly installments. Applicants for loans are required to furnish an abstract of title of the property offered as security and to advance ten dollars on attorney's fees for examination of title. No commissions are charged but the borrower pays all expenses. Improved property must be insured and the policy assigned to the Company when the mortgage is made or insurance is effected. Loans may be paid at any time upon giving thirty days' notice and the mortgage will thereupon be cancelled.

Showing the costs and profits to be derived by the non-borrower of ten shares, or \$1,000 worth of stock in five years, the estimated time of maturity of shares.

RECEIPTS.

Cash paid at maturity of stock \$1,000 00

EXPENDITURES.

Admission fee on ten shares, at \$2.00 per share \$ 20 00
Monthly installments on ten shares, at 70 cts.
per share, amounting to \$7.00 per month
for 5 years 420 00
At the time of maturity of shares there will
be deducted for cancellation 3 00
Total amount invested by a non-borrower,
holding ten shares, amounting to \$1,000. \$443 00
Thus at the expiration of five years, the non-
borrower has made a handsome profit,
amounting to 557 00

ILLUSTRATION.

Showing the result to a borrower of one thousand dollars, the borrower having been a stockholder for four months and owning ten shares of stocks.

EXPENDITURES.

First payment at \$2.00 per share \$ 20 00
Four monthly installments at 70 cts. per share
each 28 00

MONTHLY PAYMENTS.

Installment \$ 7 00
Interest on \$1,000 @ 6 per cent. 5 00
Premium on \$1,000 @ 6 per cent 5 83
Total \$17 83

FIFTY-SIX MONTHLY PAYMENTS.

At \$17.83 each \$998 48
Cancellation fee 3 00

Total \$1,049 48

RECEIPTS.

Cash, face value of stock upon maturity 1,000 00
Balance \$ 49 48

In other words, the borrower has paid less than fifty dollars for the use of one thousand dollars for five years, or less than one per cent per annum.

As showing how the system operates with each class, the following illustrations are instructive and suggestive.

ILLUSTRATION.

Showing the result to a borrower who builds him a home, borrower receiving \$1500 and owning fifteen shares of stock.

BENEFITS.

*House is worth money it cost \$1,500 00
Fifty-six months' rent at \$16 896 00
Total \$2,396 00

EXPENDITURES.

First payment, 15 shares, at \$2 00 per
share \$ 30 00
Four monthly installments, before loan is
effected, at \$10 50 42 00
Monthly payment after loan is effected:
Installment \$10 50
Interest 7 50
Premium 8 75

Total for one month, \$26 75

For fifty-six monthly payments 1,498 00
Cancellation fee 3 00 \$1,673 00

Benefits to the builder exceeds the costs \$823 00

The mortgage of \$1500 is now due, but the stock has matured, is worth \$1500 and will cancel the debt.

HOW TO REMIT.

Remittances may be sent to the Secretary at the home office by post office orders, express orders, drafts or registered letters.

SPECIAL NOTICE.

No representative or agent of the Pacific Land and Loan Company has power to waive or alter any of the conditions or terms expressed in the certificate of shares or to make any different or further contracts than set forth in the printed literature issued by the Company, or to give any receipt for money that shall bind the Company, except as herein provided; and further, the Pacific Land and Loan Company will not be responsible for any bills contracted by any person claiming to be a representative of this Company, unless express authority in writing is given him by the Secretary. All negotiations regarding loans must be made with the home office. Agents have no authority respecting them.

Should you desire to become a stockholder, and there is no representative of the Company in your place, send for a blank application, fill it out yourself, sign your name and have it witnessed, then forward it, with first payment, to the Secretary, and you will receive your certificate of shares by return mail.

For further information address:

THE PACIFIC LAND AND LOAN COMPANY,
San Francisco, Cal.

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*In almost any locality property will increase in value so as to offset necessary repairs.