

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.

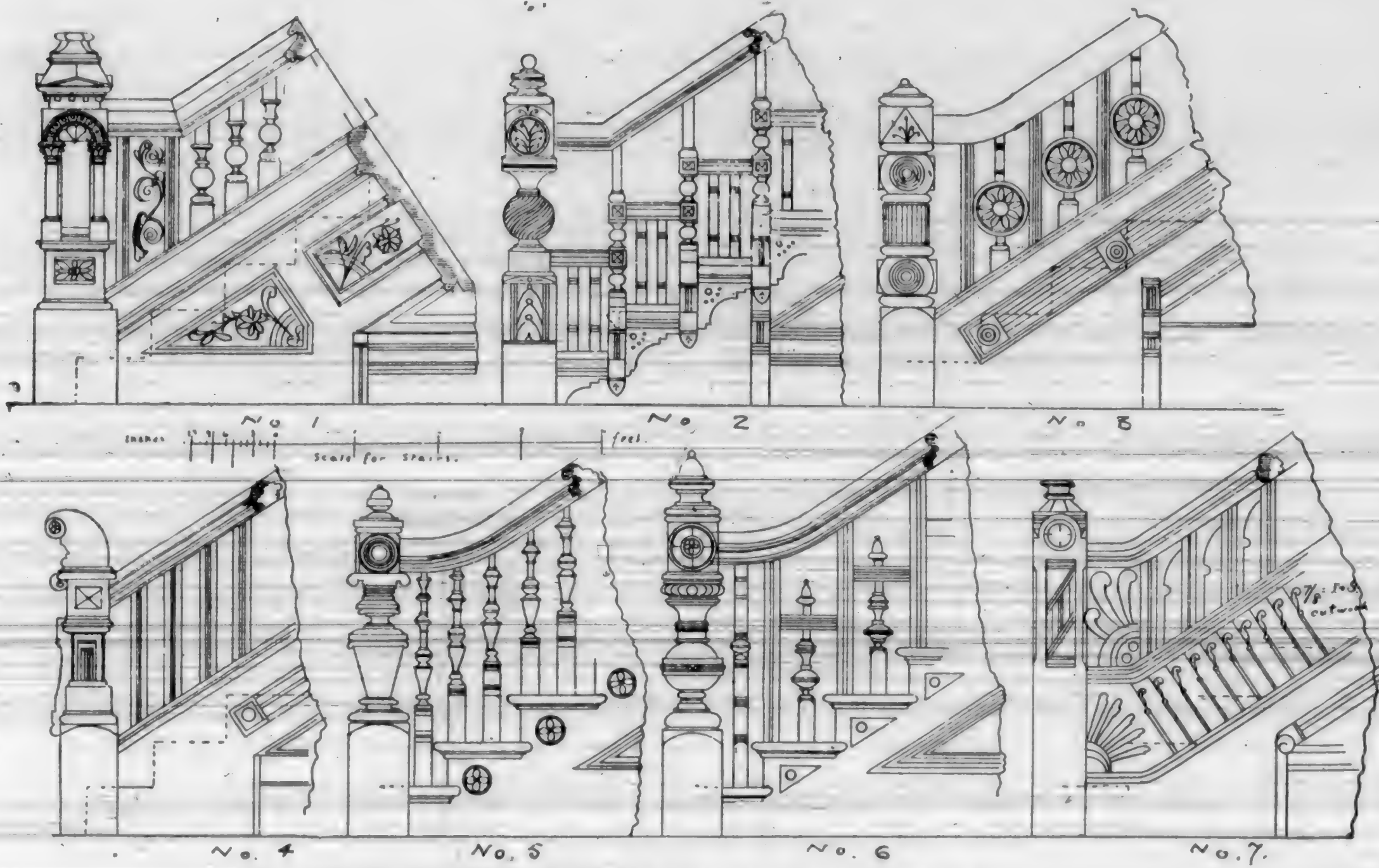
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CHARLES E. GUNN, San Francisco, Cal.

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



DESIGNS FOR NEWELLS AND BALUSTERS.

Just and Proper Methods Which Should be Observed by all Contractors in Their Relations to Each Other in Estimating.

RIGHTS OF SUB-BIDDERS AT THE HANDS OF GENERAL CONTRACTOR.—A principal contractor having been awarded a contract involving subcontracts, his estimate having been based upon sub-estimates, which he has solicited, should award the said subcontracts to the lowest bidders, and should notify the sub-bidders that their estimates have been accepted or rejected as soon as the contract has been awarded to him.

The fact that such sub-bids were received by the principal contractor, previous to the submission of his estimate, should be conclusive evidence that they were used by him.

UNSOLICITED BIDS.—Should a principal contractor receive a sub-estimate unsolicited, he should not be considered under obligation to use the said bid, even if it be the lowest; but he must not reveal the bid, nor use it in any way to influence any other party.

SUB-ESTIMATES IN ARCHITECT'S OFFICE.—Subcontractors should avoid leaving their estimates in architect's offices when they are received there simply as an accommodation to and for the information of principal contractors. By such action there is danger that bids may become known to competing subcontractors before estimates are closed.

Danger Behind the Boards.

In many old country houses there are wide-mouthed, discarded fire-places that have been walled in temporarily or permanently, not with brick and mortar, but with boards. The droppings of soot and ashes from the flues of the chimney throat soon accumulate in a combustible heap on the old hearth, liable, any hour, when there is fire in any stove leading into the flue, to ignite by a falling spark or cinder and set fire to this wooden partition of a perhaps unused room, and the press has another mysterious incendiary to report.

The only safe way is to brick such fire-places, or, if this is impracticable, and the old hearthstone is to be spared for occasional warming, its fire-board should often be removed and its walls and base stones brushed clean of soot and dust filled ashes, that are so readily ignited, else, some night may find your home cremated.

Get Some Tools.

A workman without tools is virtually a cipher. Like a cipher he must depend upon his neighbor for value, for standing alone, he is worthless. Mechanics do not need as many tools now as they did in the days of all hand work. Machinery has changed all that, but machinery will never allow a mechanic to dispense with his monkey-wrench, hammer and box full of small tools.

A mechanic needs no better recommendation than a good chest of tools, well worn and in shape. They tell more plainly than any written "character" what the man is. He may tell you one thing, and yet be another; but a look into his tool chest betrays him. A man who has worked long enough at certain work to be able to call himself skilled therein, should have acquired all the tools necessary, and a man who claims many years' experience, yet can show but few or inferior tools, should be looked at closely before his statements are received.

Many a young man is working at the carpenter's, machinist's or millwright's trade who has not acquired a fair set of tools. The best way for such men is to buy one tool every week, or more if their wages will permit. Another way is to lay aside so much money from each week's wages for books, papers and tools. Divide equally between books and tools, make a list of what is needed, then purchase the first on the list, as soon as the allotted cash amounts to the requisite sum.

But a very few years of this practice will be necessary before the young man has a good kit of tools and a nice little library. Another thing, too, he will have: He will have a habit of saving a little money, and the habit will outlast his tools.—*Manufacturer and Builder.*

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3066 South Ninth Street,
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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.

H. MAACK, Principal.



CITY BUILDING NEWS.

Burnham near 25th, two-story frame. Owner, Aushek; cost, 1,600.

Dolores corner 24th, two-story frame. Owner and builder, W. W. de Winton; cost, 4,000.

Filbert near Dupont, two-story frame and alterations to three old frames. Owner, G. Musante; architect, W. Mooser; contractor, G. Rocca; cost, 9,000.

Fourth and Minna, three-story and basement brick. Owner, M. A. Hampton; architect, C. J. I. Devlin; carpenters, Moore Bros, 9,376; masons, Richardson & Gale, 8,566; wrought iron, Rich & Firth, 2,820; plastering, P. B. Downing, 1,325; cast iron work, O'Connell & Lewis, 4,200; tinning, etc., Conlin & Roberts, 2,725; plumbing, Fritz & Kean, 1,384, total cost will be about 35,000.

Haight near Lyon, two-story frame. Owner and builder, A. H. Bailey; cost, 18,000.

Jones near Bush, two-story frame. Owner, L. A. Berteling; architect, M. J. Welsh; contractor, R. Parker; cost, 8,500.

Pacific, No. 1338, alterations. Owner, Thos. Kennedy; architect, W. H. Armitage; contractor, J. W. Sims; cost, 2,800.

Stevenson near 20th, additions. Owner, Robinson; contractor, Wilberg; cost, 1,200.

Shotwell near 25th, three two-story frame. Owner and builder, P. Haver; cost, 7,000.

Steiner and Jackson, two-story frame. Owner, A. P. Redding, architect, Chas. Man; contractors, Herbst & McLeod; cost, 10,000.

Stanyon corner Waller, one-story frame; cost, 2,000.

Valencia, between 21st and 22d, three-story frame. Owner and builder, Mr. Partridge; cost, 9,000.

Western Addition, block 198, two-story frame. Owner, John Ryan; architects, Schmidt & Shea; contractor, S. J. Wilkens; cost, 3,200.

The above too late for Classification.

Adair St., flat and stable. Owner, Wm. Gercke; architect, Jos. Kennedy; contractor, Jos. Kennedy; amount, \$2,120; limit, 70 days, signed, May 27; filed May 29; \$550 framed; \$500 roof on; \$600 standing; finished, \$470 completed.

Broderick, near Washington, cottage. Owner, H. Summerhayes; architect, H. J. Summerhayes, contractor, J. B. Gonyean; amount, 2,759; signed, May 28; filed June 1, 689 ready for shingling; 690 brown coated; 690 completed; 690, 35 days.

Buchanan, near Post, additional story. Owner, E. Durbrow; contractor F. A. Williams; cost 2,750.

Clay and Buchanan, painting etc. Owner Mrs. E. B. Hopkins; architects J. C. Mathews & Son, contractor, Geo. Eggers, amount 1,118; signed May 16; filed May 20; 75 per cent. of value of material used, and labor performed, balance 35 days.

Capp corner 24th, three two-story frame. Owner and builder A. Klahn; cost 5,000.

Castro and 16th, two-story flat. Owner Dennis Barry; architects, Townsend & Wyncken, contractor, G. W. Farnum; amount, 4,850; sureties, Harris & Jones, 2,500; signed, May 24; filed May 24; 1,000 framed; 900 ready for plaster; 800 one-half outside work is done; 900 outside doors hung; 1,250, 35 days.

California, between Mason and Taylor, two-story frame. Owner E. B. Pond; architects Mathew & Son; contractor W. F. Judson; cost 16,500.

Cole, between Haight and Page, six two-story frames. Owner and builder, Robert Cranston; cost 54,000.

Church and 30th, additions. Owner Captain Patterson; builder E. C. Worden; cost 2,000.

Dore and Bryant, to build. Owner, L. Cuneo & Co; architect, M. J. Welsh; contractor, C. Daly; amount, \$2,500; \$625 framed; \$625 brown coated; \$625 completed; \$625, 35 days; signed May 6; filed May 6.

Ellis and Franklin, plastering of three houses. Owner, Antonio B. Gonzalez; architect, J. Marquis; contractor, J. O'Brien; amount, \$1,845; signed May 10; filed May 17; \$600 brown mortared; \$400 arches finished; \$345 completed; \$500, 35 days.

Elizabeth, between Noe and Castro, move and alter. Owner, James McLaughlin; contractor, W. G. Jeffrey; amount, 1,550; signed, May 6, filed, May 13; 50 per cent. of material and labor as work progresses; 25 per cent. on completion; balance, 35 days.

Ellis and Franklin, mason work. Owner, Antonio B. Gonzalez; architect, John Marquis; contractor D. Jordan; amount 1,450; signed May 10, filed May 11, 525 area walls built; 525 chimneys and fence walls built; 400, 35 days.

Ellis and Franklin, carpenter work. Three frame buildings. Owner, Antonio B. Gonzalez; architect, John Marquis; contractor Moore Bros; amount 10,987; signed May 10; filed May 11; 1,944 rustic on; 1,944 stairs up; etc., 1,944 glazed etc.; 1,200 ready for painters; 1,155 completed; 2,800, 35 days.

Ellis and Franklin, plumbing. Owner, Antonio B. Gonzalez; architect John Marquis; contractor, Wm. S. Snook & Son; amount 1,046; signed May 10, filed May 11.

Ellis near Gough, preliminary contract. Owner, J. J. Rauer; contractor J. F. Eaton; cost 2,700.

Folsom street and Juniper Avenue, to build. Owner, Chas. Bogan; architect, J. P. Chadwick; contractor, Geo. H. Walker; amount, 9,900; sureties, Irvine Graham and Caspar Dix, 2,500; limit, August 15, '89, signed, May 26; filed, May 31; 1,840 framed; 1,840 floored; 1,840 brown coated; 1,840 one coat of paint on; 2,540, 36 days.

Fillmore, corner Germania, two story frame. Owner, Fred Hueber; architect, W. Schrof; contractor A. Norton; cost 4,800.

Francisco and Kearny, warehouse. Owner Joshua Hendy; architect, John H. Hendy; contractor, Thos. H. Day; amount, 4,035; signed, May 4; filed May 17; 75 per cent. of value work performed on 1st of each month, balance 35 days.

Fair Oaks, between 21st and 22nd, two-story frame. Owner, Thos. P. Stoney, architects, Copeland & Banks; contractor, O. E. White; amount, \$6,200; sureties, Chas. F. Doe and John T. Adcock; limit, 100 days; signed, May 24; filed, May 28, \$1,500 enclosed; \$2,000 outside finish on; \$1,150 completed; \$1,550, 35 days.

Fillmore and Germania, two-story house. Owner, Frederick Huber; architect, Wm. Schrof; contractor Albert Norton; amount 4,325; sureties F. Joost; limit August 17, '89; signed May 18; filed May 21; 850 chimney built; 850 outside finish on; 850 ready to paint, 850 fences and iron railings up; 1,085, 35 days.

Fell corner Devisadero, three-story frame. Owner J. B. Messing; architect W. Winterhalter, contractors Van Borstel & Conrad, cost 10,500.

Guerrero, between 25th and 26th, to build two flats. Owner, Adelia G. Tindermann; architect, Geo. Houston; contractor, Geo. Houston; amount, 3,840; limit, 100 days; signed, April 29; filed, May 17; 960 enclosed, 960 brown mortar is on; 960 white mortar is on, etc.; 960, 35 days.

Golden Gate Avenue and Webster, three-story frame. Owner, A. Lemaire; architect, H. Geilfuss; contractor, L. M. Weissman; amount, \$9,445; signed, May 6; filed May 7; \$1,180 framed; \$1,180 roofed; \$1,180 partitions set; \$1,180 brown coated; \$1,180 inside finish is on; \$1,180 completed; \$2,365, 35 days.

Golden Gate Avenue, near Laguna, three-story frame. Owner J. H. Curley; architect C. I. Havens; contractor P. Crichton; cost 7,500.

Green near Laguna, two-story frame. Owner E. L. Wagner; architect R. P. Waddell; contractor A. G. Vollmar; cost 6,000.

Golden Gate Avenue, between Hyde and Larkin, six, two-story frames. Owner, James Shea, architect, C. J. I. Devlin; contractor, C. P. & G. H. Moore; amount, 9,186; sureties, C. S. Holmes and F. Joost, 5,000; limit, 90 days; signed May 13; filed, May 13; 900 foundation done; 1,200 framed; 1,800 brown mortared; 1,200 plastered; 1,200 ready for painting; 2,300, 35 days.

Golden Gate Avenue, east Devisadero, two-story frame. Owner, David Irwin; architect, Emil John; contractor, Adam Miller; amount, 4,800; limit, Aug. 15, '89; signed, May 10; filed, May 14; 1,000 framed, 1,400 rough mortar is on; 1,200 accepted; 1,200, 35 days.

Golden Gate Avenue and Laguna, three-story frame. Owner, Jno. H. Curley; architect, Chas. I. Havens, contractor P. Crichton; amount, 7,000; signed May 6; filed May 9; 1,300 enclosed; 1,300 brown mortared; 1,300 hard finished; etc, 1,350 completed. 1,750; 35 days.

Howard, Nos. 1703, 1705, 1707, 1709 and 1711 and 207, 209, 211, 213 13th street, brick foundations and repairs. Owner, James Phelan; architect, John Marquis; contractor, Martin Fennel; amount, 4,500; signed, May 15; filed, May 16; 1,650 Howard street houses are finished; 1,650, all accepted; 1,200, 35 days.

Howard and 23d, one three-story and one two-story frame. Owner, John H. Rosenbohm; architect, Chas. I. Havens; contractor, C. Zwielerin; amount, \$9,600; signed, May 2; filed, May 7; \$1,800 enclosed; \$1,800 outside finish; \$1,800 outside mill work on; \$1,800 completed; 2,400, 35 days.

Howard and Seventh, three-story frame. Owner, John Wallace; architect, M. J. Welsh; contractor, Hugh McCracken; amount, 6,531; signed, May 9; filed May 16; 1,632 75 framed; 1,632 75 brown mortared; 1,632 75 completed; 1,632 75, 35 days.

Howard and 10th, plumbing, etc. Owner, estate, James Lick; architects, Wright & Sanders; contractor, Wm. F. Wilson; amount, 12,487; signed, May 6; filed, May 25; 75 per cent. on first day of each month as work progresses, balance, 35 days.

Howard, No. 822, 824, 826, 828, 830, and 832, alterations, etc. Owner, John F. Boyd; contractor, Alexander J. Wheeler; amount, \$26,564 50; limit, September 10, '89; signed, May 24; filed, May 31; \$1,300 ready-to-raise; \$1,500 foundations laid to cellar walls; \$2,500 first tier of joists on; \$2,500 chimney up; \$4,364 brown coated, etc.; \$5,800 completed; \$6,600 50, 36 days.

Howard and Erie, three-story frame. Owner, James Buchanan; architect, S. Hatfield; daywork, cost 7,000.

Jupiter and Bryant, two-story frame. Owner, Maurice Healy; architect, M. J. Welsh; contractor, Thos. F. Mitchell; amount, \$2,340; signed, May 7; filed, May 8; \$585 framed; \$585 brown mortared; \$585 completed; \$585, 35 days.

Laguna, between Pine and Bush, two-story frame and basement. Owner, C. Wright; architect, H. D. Mitchell; contractor, J. B. Gonyeau; amount, 2,480; limit, three months; signed, May 11; filed, May 13; 600 framed; 600 brown coated; 700 accepted; balance, 35 days.

Laguna, near Hayes, build brick foundation. Owner, Mrs. I. A. Mowry; architect, James E. Wolfe; contractor, R. Parker; amount, 1,075; signed, May 28; filed, May 31; 75 per cent. of value of work done, balance, 35 days.

Manitoba, near Vazoo, two-story frame. Owner, D. W. Irwin; contractor, F. Bohnenberg; cost 3,500.

Mississippi, 150 south Butte, to build. Owner, John T. Cairns; architects, Townsend & Wyneken; contractor, R. O. Davis; amount, 2,944; signed, May 14; filed, May 15; 400 enclosed; 700 brown mortared on; 700 sash hung, etc.; 408 completed; 736, 35 days.

McAllister, west Pierce, two frames. Owner, J. B. Caritey and wife; architect, Wm. Mooser; contractor, Geo. W. Farnum; amount, 11,650; signed, May 21; filed, May 23; 1,747 50 first tier of joists on; 1,747 50 roof on; 1,747 50 brown coated; 1,747 50 glazed, etc.; 1,747 50 completed; 2,912 50, 35 days.

McAllister, west Pierce, plumbing, etc. Owner, J. B. Caritey and wife; architect, Wm. Mooser; contractor, Thos. Clark & Son; amount, 1,050; signed, May 22; filed, May 23; 75 per cent. on first day of each month as work progresses; balance, 35 days.

Minna and 6th, to build. Owner, A. Cassini; architect, T. J. Welsh; contractor, Wm. Dorgen; amount, \$1,900; sureties, John Gleeson \$1,000; signed April 29; filed May 7; \$700 brown coated; \$700 completed; \$500, 35 days.

Minnesota, between Solano and Butte, two-story frame. Owner, Margaret Lovett; architects, Schmidt & Shea; contractor, Geo. J. Doering; amount 3,300; sureties, Jacob Ahlback; limit 90 days; signed May 21; filed, May 27; 618 enclosed; 618 brown coated, 618 hard finished; 618 completed, 828, 35 days.

Noe and Ford, two-story frame. Owner, Roger Waters; architect, M. J. Welsh; contractor, E. W. Hyde; amount, 3,600; signed, May 14; filed, May 15; 900 framed; 900 exterior finish is on; 900 completed; 900, 35 days.

Noe corner Ford, two-story frame. Owner, R. Waters; architect, M. J. Welsh; contractor E. W. Hyde; cost 4,000.

Page and Lyon, two-story and basement house. Owner, J. B. Martin; architect, J. J. Clark; contractor, White Bros; amount \$3,730; sureties, T. M. McLachlan and Geo. T. Shaw, \$3,730; signed May 16; filed May 18; \$900 framed; \$900 brown mortared on; \$900 inside finished; \$1,030, 35 days.

Polk and California, alterations. Owner, Mary A. Grant; architects, Pissis & Moore; contractor, T. Hock; amount, \$2,175; signed, May 22; filed May 28, \$1,000, brickwork is completed; \$630, completed; \$545, 35 days.

Pine and Webster, alterations, etc. Owner, John J. Rohrbach; architect, Chas. I. Havens; contractor, R. Doyle & Son; amount, 2,399; signed, May 8; filed, May 9; 599 enclosed; 600 outside finished; 600 completed; 600, 35 days.

Post and Buchanan, frame building. Owner, Regina Mitchell et al; architects Salfield & Kohlberg; contractor, Rohling & Crawford; amount 3,600; sureties, F. Joost and J. J. McKinnon; 3,600, limit 65 days; 900 framed; 900 brown coated; 900 completed; 900, 35 days; signed, May 4; filed May 9.

Pine, between Webster and Buchanan, two-story frame. Owner, M. W. Murry; architects Copeland & Banks; contractor J. Geary; cost, 8,000.

Pierce corner Pine, building for Old Ladies' Home. Owner, Mary Ann Crocker; architect, A. Page Brown; contractors Mahoney Bros; cost 115,000.

Sanchez and 16th, two-story frame. Owner, L. C. Dibert; architect, C. Zwielerin; contractor, C. Zwielerin; amount, \$3,300; sureties, J. F. Kennedy and L. B. Doe, \$3,000; signed, April 29; filed, May 7; \$1,000 enclosed; \$1,475 completed; \$825, 35 days.

Steiner and Pacific, two-story dwelling. Owner, Mrs. N. G. Kittle; architect, J. C. Mathews & Son; contractor, W. Winnie; amount, \$8,178; limit Oct. 1, '89; signed May 15; filed May 17; 75 per cent. of material used and labor done as work progresses, balance, 35 days.

Seventeenth and Sanchez, two-story frame. Owner, C. H. G. Wiebusch; architect, Bernard Dreyer; contractor Bernard Dreyer; amount, \$4,400; limit, Aug. 10, '89; signed, May 13; filed, May 15; \$1,000 framed; \$1,200 brown mortared; 1,100 white mortared, 1,100, 35 days.

Scott and Bush, two-story frame. Owner, E. Rattigan; architects, Copeland & Banks; contractor, W. E. B. Stiles; amount, \$2055; sureties, G. D. Nagle and E. Phillips, \$1,000, limit, 60 days; signed, May 27; filed, May 28; bills to be paid weekly as work done and materials used; bal., completed.

Seventeenth and Mission, two-story and alter three-story. Owner, Gustave Hueter; architect, H. Geilfuss; contractor, F. W. Kern; amount, 6,800; signed, May 21; filed, May 28; 1,100 framed; 1,000 partitions set; 1,000 outside finish on; 1,000 inside finish on, 1,000 completed; 1,700, 35 days.

Stanton, near Grattan, two-story frame. Owner, D. L. Westover; architect, McDougall & Son; contractor, J. R. McLean; amount, \$5,200; limit, 92 days; signed May 29; filed, June 1; \$500 chimneys up; \$700 ready for shingling; \$750 floors laid; 950 white coated; 900 completed; 1,400, 36 days.

Stockton, near Chestnut, one-story frame. Owner, A. J. Garibaldi; architect, Wm. Mooser, contractor, John Bruce; amount, 3,500; sureties, John S. Morgan and Henry C. Robinson, 2,000; limit, 70 days; signed, May 21; filed, June 1; 75 per cent. of value paid as work is done, balance, 25 per cent., 35 days.

Stevenson, south Herman, to build. Owner, Mrs. H. A. O'Brien; architect, T. J. Welsh; contractor, H. A. Conrad; amount, 2,895; signed, May 21; filed, May 22; 650 framed; 650 brown mortared; 700 completed; 895, 35 days.

Seventh and Howard, to raise, etc. Owner, G. F. W. Fahrenkrug; architects, Huene & Everett; contractor, Jacob Berk; amount, 2,400; signed, May 8; filed, May 9; 600 brick work done; 1,200 completed; 600, 35 days.

Sanchez cor 17th, two-story frame. Owner, C. H. J. Wilbusch; contractor B. Dryer; cost 5,000.

Stanton corner Waller, one-story frame. cost, 2000.

Taylor Place, to build. Owner, Mrs. M. Gorman; architect, W. H. Bayless; contractors, Mulford & Rodgers; amount, 1,875; sureties, J. C. Rodgers and W. H. Barton; limit, 85 days; signed, May 7; filed, May 14; 300 framed; 500 first coat of plastering is on; balance at completion.

Tenth and Howard, wrought and cast iron work. Owner, estate, James Lick; architects, Wright & Sanders; contractor, Rix & Firth; amount, 5,500; signed, May 6; filed, May 28; 75 per cent. paid on first of each month, balance, 35 days.

Treat avenue and 26th, alterations, etc. Owner, Wm. F. Klein; architect Chas. I. Havens; contractor R. P. Traxler; amount, 2,475; signed May 23; filed May 27; 550 water pipes in; 550 outside finished; 550 completed; 575, 35 days.

Tennessee and Butte, move and alter. Owner, Herbert Crapo; architects, Townsend & Wyneken, contractor, R. O. Davis; amount 1,275; signed May 10; filed May 11; 200 moved; 450 studded up; 300 completed; 325, 35 days.

Third and Everett, alterations, cost 600.

Van Ness Avenue and O'Farrell, iron lathing for R. C. Cathedral. Owner, P. W. Riordan; architect, T. J. Welsh; contractor, M. J. Donovan; amount, \$3,175; signed, May 4; filed, May 29, 75 per cent. on value of work done, balance, 35 days.

Van Ness Avenue and O'Farrell, plastering. Owner, P. W. Riordan; architect, T. J. Welsh; contractor, Thos. Winters; amount, \$9,300; sureties, Richard Doyle and Richard McCann; signed, May 13; filed May 29; 75 per cent. on value of work done, balance, 35 days.

Van Ness Avenue and O'Farrell, heating with hot water, R. C. Cathedral. Owner, P. W. Riordan; architect, T. J. Welsh; contractor, Duffy Bros; amount, \$3,950; sureties, O. E. Brady and Peter Crichton; signed May 29; filed, May 29, paid on completion and satisfactory test of work.

June 15, 1889.]

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Van Ness Avenue and O'Farrell, plumbing and gas fitting for R. C. Cathedral. Owner, P. W. Riordan; architect, T. J. Welsh; contractor, Wm. J. Nelson; amount, \$1,798; sureties, \$1,000; signed, May 9; filed May 29; \$899 work is roughed in; \$400 completed, \$499, 35 days.

Valencia and Herman, to build. Owner, M. A. Mercer; architect, T. J. Welsh; contractor, R. Doyle & Son; amount, \$5,969; sureties, P. F. Ward and T. Winters, \$3,000; signed, May 1; filed, May 7; \$1,489 framed; \$1,489 brown mortared; \$1,849 completed; \$1,502, 35 days.

Vallejo, west Gough, two-story frame. Owner, G. T. Bigelow; architects, Percy & Hamilton; contractor, J. B. Gonyean; amount, 5,800; signed, May 17; filed, May 21; 75 per cent. of value work done, first Saturday of each month; balance, 35 days.

Waller and Germania, one building on Waller and one on Germania. Owner, Chas. Maxwell and wife; architect, John Gash; contractor, Jessie Rickard; amount, 6,650; sureties, Michael Casey & J. A. C. Macdonald, 2,000; signed, May 13; filed, May 15; 832 tin roof on; 832 brown coated; 832 brown coated and sash in; 832 two coats paint on; 832 50 complete; 827 complete and accepted, 1,662 50, 35 days.

Waller, near Devisadero, two-story frame. Owner, Louis Friedlander; architect P. S. Barber; contractor E. W. Hyde; cost 5,000; signed, May 29; filed, May 29, paid on completion and satisfactory test of work.

COUNTRY BUILDING NEWS.

LOS ANGELES.

The only way to realize how Los Angeles is growing is to take a ride through the city and its suburbs and note the number of buildings that are in course of construction. Residences of all sorts and descriptions, from the palatial abode of the millionaire to the less pretentious domicile of the breadwinner, are going up by the hundred, and in spite of the vast number of business places already thrown open, there are those who can foresee that the supply is, by no means, equal to the coming demand, and are acting accordingly. Among the additions to the city that are in contemplation is a two-story brick building on the north-east corner of Third and Spring streets, the size to be 140x192 feet. The estimated cost of the project is \$45,000.

NEW BRICK BLOCKS.

It is stated on good authority that the residence of Mr. J. A. Graves, on the corner of Third and Fort streets, will be moved, and that in its place a handsome business block will be built. It will be of brick and four stories in height.

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Fort & Temple, Los Angeles.

Two new blocks are contemplated near the cable engine house, in East Los Angeles, and they will be commenced very shortly.

A Main street architect reports that he has plans for four business blocks, which will be commenced in about six weeks. Two of these are on Main street, one on Los Angeles street, and the other on Spring street.

BUILDING NOTES.

The excavations for the foundations of the J. M. Griffith building, on Fort street, is about completed. This building is to be five stories in height, and will cover an area of 120 feet on Fort street by 150 in depth.

The foundations for the building to be occupied by the Los Angeles Athletic Club, on Spring street, near Third are being put in.

Mr. O. W. Childs is about to make extensive additions to his residence on Main street. The plans are in the hands of Mr. Hass, the architect, and the additions will cost, when completed, in the neighborhood of \$15,000.

A contract has been completed between W. H. Jay, of Glendale, and J. A. Murphy and H. E. Dillon, of this city, to, on or before the 17th of July, 1889, erect and finish the building to be known as the West Vernon School house. The cost of the structure will be \$2,190.

OAKLAND.

One of the most conspicuous and handsome houses in this city is being put up on the east side of Harrison street, south of Durant, by Toohig & Moore, for D. Edward Collins. The house is after plans prepared by Charles Mau. The house is of two stories, with attic and basement. The cost of the building complete will not be far from \$14,000.

The same builders have under way a two-story flat of twelve rooms on Webster street near Fourteenth for a Mrs. Mour, to cost about \$6,000.

On Ninth street between Harrison and Alice streets L. H. Levy is erecting a double two-story flat of six rooms in each flat or twenty-four in all. The building is of substantial modern construction and cost about \$7,000.

A handsome two-story modern house of two stories with nine rooms, bay windows, and all conveniences is being erected on the west side of Harrison street, near Durant by Mrs. J. W. Roland of which W. H. Weilbye is the architect and contractor. The cost of the improvement is about \$4,500.

At the southwest corner of Seventh and Alice street a two-story house of twelve rooms is being put up for Josephine Nolan by Hugh McCracken, to cost \$2,500. The same contractor has recently completed a cottage on the opposite side of Alice street for Jeremiah Casey, at a cost of \$1,900.

Contractor S. J. Shelper is erecting a handsome two-story tenement house of eighteen rooms for J. C. Adriance on the corner of Sixth and Madison streets for \$5,000.

E. L. G. Steele has had some extensive repairing and improving done to his house on the corner of Sixth and Jackson streets. He is now having a stable erected on the lot immediately adjoining his house. Con Cannon is the contractor.

S. R. Andrews is erecting two cottages of five rooms each on Madison between Fifth and Sixth streets. The cost will be \$1,500 each.

A neat little cottage of five rooms is being erected by J. H. Babcock on Fourth street between Oak and Madison. The cost will be about \$1,000.

On Third street between Jackson and Madison, the house of Mr. Lewis which has been raised is being improved with an additional story beneath. Contractor Louis Macomber is doing the work.

Louis Macomber is erecting a cottage of five rooms on Third and Alice streets for Mrs. Lizzie Honohan. The cost is \$1,750.

J. A. Easton has contracted to erect a building for J. Nelson, to cost \$1,800.

A. S. Barney has contracted with E. J. Farnham to erect a building on Oakland avenue, near Vernon street, to cost \$2,600.

Smith & Lake are building a double flat on Nineteenth and Brush streets for J. Hayes, after plans by W. H. Weilbye.

W. H. Weilbye has prepared plans and is putting up a handsome two-story house for Ex-County Clerk Andy Ryder at Loomis, Placer county, where he will make his home.

Toohig & Moore are building a two-story house for Mr. Murry on the corner of Twenty-eight and Myrtle streets to contain seven rooms and cost about \$5,000.

Mrs. J. W. Roland is putting up a two-story flat on the west side of Chestnut street near Tenth of modern design and containing five and six rooms each. W. H. Weilbye is the architect and builder and the cost will be about \$5,000.

The cottage of Mrs. Hinkling on Campbell street, between Seward and Taylor streets, is being remodeled and an addition built at a cost of about \$900. I. H. Underwood is doing the work.

Mahoney & Shay are the contractors for a seven room basement cottage being erected to the order of Dr. R. E. Cole on Union street, near Tenth, to cost about \$2,500.

On the west side of Union street, between Tenth & Twelfth streets, W. H. Martin is building for himself two modern two-story houses of eight rooms, to cost \$2,800 apiece.

The new residence of W. H. Sigourney on Third avenue and East Fourteenth street is built by W. H. Weilbye, after plans of his own, and will cost when completed about \$10,000.

Jesse Rickard has contracted with Josephine, wife of R. Mastick, to erect a building on lot 77, Encinal Park tract, Alameda, for \$3,050.

W. H. Weilbye is building a barn 30x49 with a 15 foot shed, on Broadway near Durant, for Whittier, Fuller & Co., to cost about \$1,000.

SAN DIEGO.

The subjoined list of buildings is only a partial one, and represents only the more important building enterprises, still it foots up a total of some \$200,000. This does not include the new opera house nor the changes in the Consolidated bank building, besides many other structures, now planned, but not yet in course of construction.

About two months ago the excavation made for a building over a year ago on the corner of Fourth and E streets, began to look as though something was to be done towards erecting a structure there. The plans were made and work was soon commenced. The building is now up to the second story, as far as it will be built at present. Messrs. Pauly & Gassen are owners, and expect to expend \$65,000 in the construction. McDougal & Sons are the architects, and J. C. Sloan has the contract for the work.

The foundation was laid this week on Sixteenth and N streets for a warehouse 50x90 feet, and two stories in height. It is a frame structure, costing, perhaps, \$5,000. It is being built by Captain Sherman, and is to be used in connection with the San Diego, Cuyamaca and Eastern railroad freight depot. It will probably be covered with corrugated iron, and will be finished in about two months.

B. R. Arnold has a two-story brick building in course of construction on his lot on the north-east corner of Fifth and K streets. The building will cost in the neighborhood of \$12,000.

Monday morning work will be commenced on the Backesto block, on Fourth and H streets. It will be two stories and basement, built entirely of brick. W. F. Fitzpatrick has the contract. The building will cost about \$25,000. J. P. Backesto, of San Jose, is the owner.

The two new school buildings are going rapidly forward. On the one on Twenty-fourth and K streets about fifty men are em-

ployed, and it is all inclosed. The roof is partly on, and the plumbers are at work in the basement. The one on Sixth and B streets is only up to the second story, but the work is being pushed, and both will be completed in time for the September term. They are both built on nearly the same plan, Comstock & Trotsche being the architects and J. P. McCormick the contractor. The total cost, furnished, will be in the neighborhood of \$30,000.

Mrs. Parker has laid the foundation for a two-story frame dwelling at the corner of Union and Albatross streets. The estimated cost is \$5,000.

In the early part of next month Judge Pierce will commence work on his residence on Florence Heights. It will be a one story frame structure, to cost \$3,000.

Many private dwellings are receiving alterations and additions amounting to from \$200 to \$1,000, so that builders are kept in a reasonable amount of work.

FULTON.

Calvin Osborne is erecting a commodious dwelling.

SAN LEANDRO.

A contract has been placed on record between F. I. Williams and Rev. John McEvoy for the erection of an addition to the convent in San Leandro to cost \$5,530.

SAN JOSE.

[From our Special Correspondent.]

First, between San Antonio and San Fernando, two-story brick and sandstone business block. Owner C. Doerr, architects J. Lenzen & Son, contractor J. H. Kohlhauer, cost 20,000.

First, between Santa Clara and San Fernando, three-story brick and sandstone business block. Owner Mrs. Knox Goodrich, architect G. W. Page, contractor for carpenter work, R. Summers, 4,860, contractor for brickwork, W. J. Wolcott, 3,777, total cost 8,637.

Brown, corner Delmas Avenue, one and one-half story cottage. Owner S. H. Leach, architect J. O. McKee, contractor A. J. McIlvain, cost 2,000.

Fountain Alley, additions to building, Owner L. Archer, architects, J. Lenzen & Son, contractor F. Davis, cost 2,521.

Crittenden, near St. John, one-story cottage. Owner H. Prindle, architect J. O. McKee, contractor J. E. Clinton, cost 1,200.

Second near Santa Clara, additions to M. E. Church. Owner M. E. Church, architects Lenzen & Son, contractors Mabury & Phillips, cost 4,636.

Tenth and San Antonio, one-story cottage. Owner J. R. Patton, architect J. O. McKee, contractor J. J. Hill, cost 3,000.

Seventh near Keys, two-story dwelling. Owner J. B. Wyatt, architects J. Lenzen & Son, contractor A. Kelsey, cost 3,000.

ALAMEDA.

A modern \$3,125 cottage house will soon be erected for Mary C. Lewis on Verdi street, near Santa Clara avenue.

SANTA ROSA.

A brick addition to the building occupied by P. H. Kroncke, of the Santa Rosa Planing Mills, is being put up, 40x61 feet, one-story high.

HAYWARDS.

Daniel Luce, of Haywards, is about to erect a \$12,000 brick block on B street in that town.

Mr. Hackett will commence the erection this week of a \$1,500 barn for Dr. Du Bois on his place on Haywards avenue.

Mr. Hackett has secured the contract for building another \$2,000 cottage on the corner of Hayes and Ward streets for Dr. Du Bois. The work will be pushed, as the cottage has already been spoken for.

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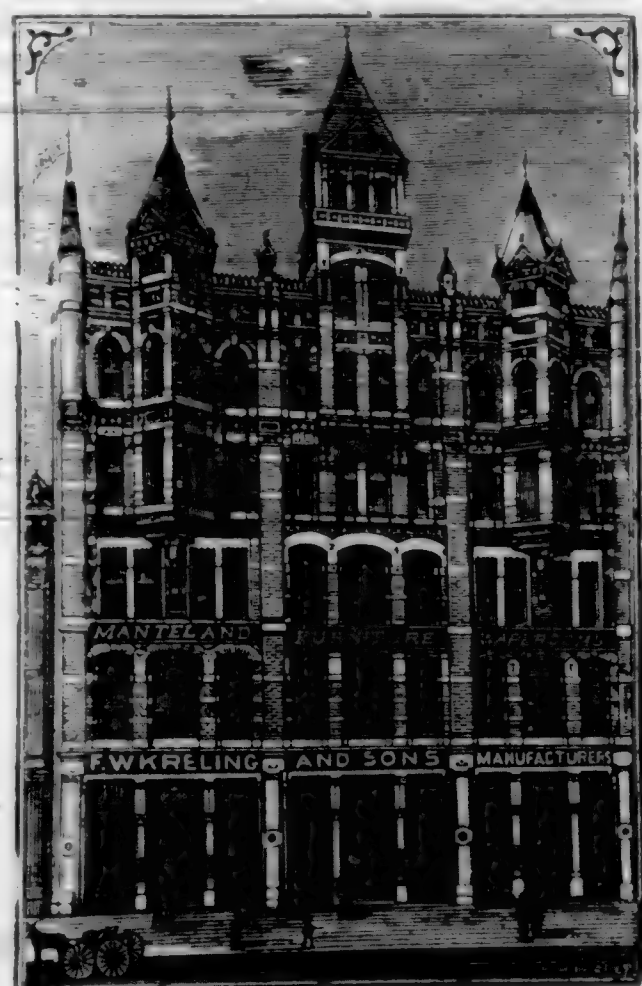
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SAN FRANCISCO, CAL.



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NOW IN ITS TENTH YEAR.

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Incorporated Jan. 1889.

+THE+

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ADVERTISING RATES FURNISHED ON APPLICATION.

SAN FRANCISCO, JULY 15, 1889.

FOR some time, the question has been agitated in regard to the consolidation of the American Institute of Architects and the Western Association of Architects. To decide the question, a vote was taken simultaneously in New York and Chicago. Even the most sanguine friends of consolidation did not foretell the unanimity with which the project would be received. In the American Institute, but nine negative votes were recorded. In the Western Association a still more positive vote was polled. Out of a total of 265 votes there were but three against the proposition. We do not know by what name the new organization will be known; the *National Association of Architects* has been suggested. The old name of the *American Institute* is dear to scores on this coast and we should like to see it retained. San Francisco has one of the largest Chapters, in point of numbers, in the Union, and one and all of its members wish a long and happy life to the new organization.

WHILE our city savants are considering the subject of durable pavements, they should also consider the hygienic qualities of the materials used. In 1878, over 12,000 people died in New Orleans from yellow fever, and it is stated as a fact, that a large proportion of that number contracted the disease from the germs held by the absorbent pavements in use at that time in the city. Where asphalt is used, there are no crevices to hold dirt. In cobble stone pavements especially, there are innumerable crevices which hold the dust and other organic matter, in summer and pollute the air by its exhalations in damp weather. Another fact should be seriously considered. Stone pavements as ordinarily laid absorb this organic matter, which, festering in the earth, becomes a breeder of disease. There is a serious question for all City Councils to consider besides the one of a few dollars difference in cost, and that is, what pavement is the best, in a hygienic sense, for the welfare of our people!

A RECENT decision in a New York Court of Appeals, would lead to curious results if our own Judges should decide the same way. The Judge declared "that a stable, however well it may be built, is a nuisance in the vicinity of handsome residences, and that an action can be brought to have it removed." In this city, most of the fine dwellings have a stable in close proximity thereto and are regarded as valuable adjuncts. We think, however, that in the decision, reference was only made to livery stables or the immense buildings used by the Car Companies for their stock. It would be difficult to control Californians in the selection of a site for a stable, as some of the finest ones are located in the midst of various districts devoted to artistic dwellings.

DURING the six months ending June 30, 1889, there was received in this city 134,352,727 feet of pine lumber and 94,400,715 feet of red wood lumber. Of shingles, the number is 52,294,325, while the figures 13,232,100, represent the number of laths. In connection with the spruce, laurel, ash, maple and oak sent to this city, the grand total number of feet received is 230,000,000. This is the largest amount ever received for a similar period in the history of the city.

WHILE the above is true in regard to the amount of lumber received, it must be allowed that many previous similar periods have been much more satisfactory as regards business. Prices are reasonably low, yet a very large quantity of lumber is piled up in our lumber yards awaiting purchasers. The late disastrous fires in Seattle and other towns, will, for the purpose of rebuilding, draw from those who supply this city, many millions of feet, that would otherwise be added to our already extensive stock on hand.

EXPORTS of lumber are not as large as usual so far this year being, to the date given, but 6,744,901. The largest amount for a single year was that of 1882, when the total reached 22,094,393 feet. In 1888 the amount was 21,000,915, while the former year exceeded the latter in number of feet, the value of the shipments of the latter year was greater by about \$100,000, showing that a finer grade of lumber was exported.

SUB-CONTRACTORS and contractors should take notice of the following provision in the new lien law of Ohio: "Any contractor or sub-contractor, who shall purchase materials on credit, and represent at time of purchase that the same are to be used in a designated building or other improvement, and shall thereafter use, or cause to be used, the said materials in the construction of any building or improvements other than that designated, without the written consent of the person of whom the materials were purchased, with intent to defraud such person, shall be deemed guilty of a misdemeanor, and on conviction, shall be punished by a fine not exceeding five hundred dollars."

IN another section a good point is represented which declares "that every person for whose immediate use, enjoyment or benefit, any building erection or improvement shall be made, shall under this Act, be included in the words owner or proprietor."

AMERICAN elevators, so far, seem to have the preference in European cities. Per example, two of those in use in the Eiffel tower are of American manufacture, the other two being French. While the speed of the latter is 200 feet a minute, the former is just double or 400 feet a minute. Thus, the products of American genius are gradually being introduced throughout Europe. In connection with above we may add, that in comparison with this country, the elevator is but little used in the continent of Europe.

A PRINCIPAL contractor should have a list of selected subcontractors, on whom he is satisfied he can rely both for good work and for its prompt execution, and such only should he ask for bids. He knows that there are subcontractors whose offers would involve him in loss, no matter how low their estimates might be. When a mason is carrying up the walls of a building, and is compelled to stop work and discharge his men in the midst of their operations for the want of cut stone or of iron or other work, delayed through the want of executive efficiency on the part of the subcontractors for such part of the work, he not only experiences a loss of temper but also a considerable amount of his anticipated profits. The architect is also considerably chagrined to find the progress of the work thus brought to a sudden stop, and comes to the conclusion that he is also materially interested in the proper selection of the subcontractors. He, therefore, evinces a certain amount of reasonable concern, when the principal contract is awarded, as to who are to be the subcontractors, and thus there is established an interested relation also between the subcontractor and the architect. Fortunately for the latter the former knows that it is necessary for his work to pass the inspection of the architect and to meet with his approval before it will be accepted by the principal contractor.

ONE important measure was introduced at the late meeting of the National Association of Builders. Briefly stated it is as follows: On certain work contractors are required, when submitting estimates or closing contracts, to furnish bonds, and, in order to comply, are obliged to ask friends to become responsible for them. This necessity is always an embarrassing one, and while, on the one hand, the contractor feels very delicate about asking the accommodation, on the other hand his friends consent with great reluctance. The suggestion referred to is that a bureau or department of the National Association be established, which may furnish such bonds under proper conditions and for a satisfactory consideration. The committee appointed, reported favorably in regard to the suggestion offered and recommended that steps be taken to establish such a bureau. The matter will be discussed in full at the next Annual Convention.

WHEN the trades unions set up their rules limiting the number of apprentices to be taught their trade in any shop, they did it for the purpose of preventing the market being over-stocked with skilled labor and the consequent reduction of wages from an over supply. Contrary to expectations the rule has not worked as intended. Skilled workmen in every branch of mechanical trades are more numerous than ever. Those who are the most injured by the rule, are the sons of Americans, who are virtually prohibited from learning their father's trade. Our employers are constantly obtaining skilled labor from Europe, who take the places that should be filled by our own children. Is it any wonder that we see so many young men drifting around our streets, when they are actually debarred from entering our workshops and learning a legitimate trade.

THERE appears to be such a thing as a diagnosis of disease in wood and the botanical physicians profess to know that it may be contagious or sporadic. Dry rot is called contagious and it is said that the germ of that disease may be communicated to sound wood by tools which have been at work in diseased. It is thought possible that the theory accounts for many incomprehensible breakages of timber. The suggestion is that sound lumber should not be cut with the same saw, without cleaning, that has passed through stuff affected by dry rot.

FIRE crackers have caused a loss during the past five years of over \$2,000,000. Pennsylvania seems to have suffered the most. It is a noticeable fact, that fires started from fire crackers exploding, have a small average loss. In this city of wooden buildings, too much care cannot be exercised in preventing conflagrations, and it is an open question if some other more appropriate way cannot be devised for our youth of both sexes to celebrate the noisy Fourth than by the heathenish way of exploding fire crackers. Fireworks can be tolerated, but the dangerous Chinese bombs, double heads and fire crackers should be suppressed.

How to Teach Boys to Become Bricklayers.

THE following practical remarks were delivered by President Stevens at the late annual Convention of the National Association of Builders:

I have my ideas on the above subject, and I will express them to you. You want to know how we would teach a boy to be a bricklayer in our school. First, I would have a lecturer to teach him by lecture all that could be taught him in regard to his business, or the materials connected with it; for instance, I would have the lecturer tell the boy what sand is made of and all about sand; I would have him tell the class what lime is made of and how it is made; I would have him tell the class what bricks are made of and how they are made; I would have him tell them all about cement and explain to them its nature and combination. By the time the boy was through with those lectures he would know why you could not make mortar,—I am an iron man, and I do not know much about bricklaying, but I will tell you all I know about it,—the boy would then know why you could not make mortar out of ashes and lime, or out of loam and lime. He would know why you had to use gravel and why you had to use sand.

After the boys have been taught to that extent, I would have them taken to a limekiln and let them have an object lesson,—let them see how it was done. I would have them taken another day to a brickyard, and let them see how bricks are made. I would have them taken to one of our terra-cotta establishments, and let them see how terra cotta is made. I would suppose then, so far as that was concerned, the boys' education was completed theoretically.

Now comes the question, "What shall we do with them?" I would have then a first-class journeyman mechanic, a journeyman bricklayer,—such a man as you would make one of your foremen to take charge of your buildings,—and I would have him take these boys, a class of say six or eight, or ten, and say to them, "Boys, you have been told by your professor how mortar is made; now I am going to show you." Then he would call up his laborer, and say, "Here, Billy, bring so many bushels of lime, and so many bushels of sand," and he would bring them and put them down on the ground. Then the teacher would tell them "Now, when you put water on this lime, it slacks it. Now, we are going to put water on this lime and we will see it slack." Then we would mix that up, and it would make mortar, and he would be talking to them, and all the time they would be seeing. That finished, he would say to the boys, "The first thing you have to learn is how to use a trowel. Here are the trowels. Now, William, you put a shovelful of mortar on each one of those boards, and each one of you boys take a trowel, and I will show you how to spread this cement and mix the mortar," and keep the boys practicing at that, and say, "George, that ain't the way; do it this way." They would soon learn how.

The next day he would come there, and say, "Boys, I am going to build a wall for you, and I want you to see how I do it." He would dig out, and commence to lay it out, and talk to the boys as he went on; "Boys, we spread our mortar this way; we take our bricks this way; this is the way we put a leader; we run up three courses here and three courses there, and we use this plumb-bob to see that it is plumb, and then we strain a line over this way and lay a number of bricks in proportion. That is the way we will do it." Then we would tell the boys how he was going to strike the joints. He would build that wall with those boys looking at him. "Do you understand that, boys?" "Yes." Then he would say, "William, have this wall torn down and everything cleaned up. Now, boys; to-morrow morning we will go to work," and the next morning he would say to the boys, "I want each one of you to lay out a wall as I did yesterday. You saw me do it, and I want you to do it." They would start in, and he would watch them. "John, don't pick up your bricks that way, this is the way. Bill, you are not doing as I showed you, run that corner up and run this up. George, that is not the way to hold the plumb-bob, hold it this way, and strike your joints this way."

Do you think those boys would learn anything? I think in six months' time I would have pretty good bricklayers out of those boys. After I had taught them how to put a wall up, I would take them on pressed brick-work, and I would teach them how to run arches; and I think those boys would learn more under six months' instruction of that kind than they would in six years in your building with nobody to tell them, and left just to pick up what they could.



SKETCH FOR A COUNTRY DWELLING. M. G. BUGBEE, ARCHITECT.

OUR New City Hall has been the subject of much inquiry among many of those who have watched its gradual advancement in regard to the money so far spent in its construction. We are able to give full particulars in regard to the same, which should be kept for reference.

The New City Hall to June 30, 1889, has cost \$3,750,106 59 and there should be added to this and deducted from the balance in the Treasury, for payments to fall due on existing contracts, the sum of \$29,653 73, and the total cost to date will reach \$3,779,760 32. The estimated amount to complete the New City Hall, without considering the cost of a mansard roof, but finish the two McAllister street wings, the basement and unfinished rooms in the main building on the upper floors, lay out the walks and grounds, erect all proposed granite steps and fences, and build a suitable main tower, will amount to \$1,000,000 additional and absorb the balance unexpended June 30, 1889, together with the levy for this and most of that allowed as the limit for the next two fiscal years. This will make the New City Hall cost, when finished complete, without the mansard roof, about \$4,780,000, and take until the latter part of 1892.

On February 2, 1874 over fifteen years ago, architects David Farquharson and John P. Gaynor submitted a report to the Board of Supervisors containing a detailed estimate of the cost to that date and the amount required to finish the building as above, without the mansard roof. They reported: * * * "The total cost of the building would be the sum of \$4,854,060," which is not very far out of the way, as appears at this date.

TO calculate the number of shingles for a roof, ascertain the number of square feet and multiply by 9 if shingles are laid 4 inches to the weather, by 8 if laid 4½ inches, and 7½ if laid 5 inches. The length of rafter of one-third pitch is equal to three-fifths of width of building, adding projection.

IF our architects should adopt the above absurd rule, how long would it be before the profession would be classed among the "Lost arts." When the sewing machine was introduced what a hubbub was raised that it would cause thousands of women to be thrown out on the charities of the cold world. In early days flooring was worked by hand, and a tough job it was was too. When a machine was made through which thousands of feet could be run in a day, a universal howl was made that the bread and butter was to be taken from thousands of men. Same way in regard to molding machines, mortise and tenon machines, by which it is possible to make hundreds of doors in a single day. Shingle machines caused a universal growl among the craft. In fact, every improvement in machinery was received by a howl from those whom the old fashioned ways supported. Reference is only made to these few facts to show how differently the situation is to-day from the "good old times." Give our own boys a chance to learn a trade, and with their natural abilities, they would soon outstrip the imported men, rendering it unnecessary to send abroad for the very skill that lies dormant in our midst.

Business Changes.

E. J. Weston has opened an office at 873½ Market street and will in future devote his whole attention to his profession as an architect.

John & Balcynski have gone into partnership and secured offices on the corner of Grant avenue and Geary street.

M. G. Bugbee is nicely located at 330 Pine street.

Shingles, Hips and Valleys.

HINGLES in valleys and on hips last longer when laid with their grain running in the same direction as that of the hip or valley. When they are cut on the angle, the end wood absorbs water and hastens rot, whereas the straight, close running grain of the wood rejects the moisture more, and leaves the shingles more durable. Few carpenters can now be found, except among the older hands, who are familiar with this mode of shingling, as it is really a very old, yet excellent one, and yet comparatively simple, involving little more time than the later and inferior method. All that is necessary, is to taper the shingles so that they radiate as it were from the angle of the hip or valley to straight joint square to the eave. Combs on ridges are scarcely to be recommended, but if they must be employed for the sake of economy, are best run up on that side on which the angle of the rain in that latitude usually falls. Tongued and grooved ridge boards are an improvement on the comb, that is, if the joint is well bedded with white lead. Wooden ridge rolls are better still, and the best of all is the galvanized iron trestling. Rolls and ridge boards should be well nailed through the shingles and into rafters, and not to the shingles only. Hip shingles should be cut with the saw to make a straight job and not hewn with the hatchet, and properly overlapped.

Another Question of Law.

THE *American Architect* has another question of law propounded by a subscriber as follows:

A builds a block of tenement houses and employs B, an architect, to prepare plans, let and superintend the works, C is contractor and D a sub-contractor. The specification has this clause in it: "The contractor or his sub-contractors, and his and their workmen, must agree (and this writing is the agreement) that they shall remove from the building any work or material not in accordance with the plans, details, elevations and specifications. And they must agree that the opinion and decision of the architect is binding to them, as well as it is to the proprietor." The sub-contractor D signs a contract with the main contractor C to the same effect, that is, that the opinion and decision of the architect is binding to all, etc.

The specification further reads, that it must not be understood that the sub-contractors will receive certificates direct from the superintendent. The main or principal contractor only will receive these, assigned for the special benefit of the sub-contractor.

Now, D, the sub-contractor, quarrels with C, the main contractor, as to certain works to be done and which he (D) tries to avoid; finally he is compelled to do them, and gives final receipt for all his work, including all disputed matters. A day after D, the sub-contractor, calls on the architect with a bill of extras, one-fourth of which the architect acknowledges as correct, and three-fourths as incorrect, and then, because the architect refuses to agree upon the whole, D sues the principal, A, for a number of items and damages in which all the disputed matters settled with the main contractor, C, figure again.

The question before the architect, B, is this:

Question.—1. Shall the specifications and contract stand good before the law where it says that the main contractor shall only get certificates to be assigned to the sub-contractor?

2. Shall the agreement of A with the main contractor and his sub-contractor, "that the opinion and decision of the architect is binding to them, as well as to the proprietor," remain valid in law?

As you have a legal gentleman attached to your editorial staff, we will be pleased to see the *American Architect's* answer to these questions, as it is a matter in which every citizen making a contract for a building is interested.

Respectfully yours, V. & S.

Answer.—We do not find anything in the contracts and other facts referred to in the above communication to prevent D, the sub-contractor, from collecting his claim from A, the owner, providing he can satisfy a jury that the work which he claims as an extra was ordered by the owner or by the architect, and, in the latter case, that the architect has authority to give the order. The terms of the contract and the fact that there was any contract at all between the plaintiff in the action and the principal contractor, would have nothing to do with the case except as evidence tending to rebut the plaintiff's claim that the work in question was done under contract between him and the owner. The decision, however, in such cases is always with the jury; a

written contract between the plaintiff and some third party is evidence merely and not conclusive; and if the jury believes that the owner and plaintiff entered into a separate and distinct arrangement for the work in question they will find for the plaintiff.

The clause in the sub-contract subjecting all matters of dispute to the decision of the architect would have no binding force in any action between one of the parties to this contract and a third party. The owner not being a party to the contract could take no advantage of the clause.

Whether the receipt given by the sub-contractor to the main contractor covered the work in question would also be a question for the jury; if the work was outside the sub-contract and undertaken under a direct arrangement with the owner, of course a receipt given to the main contractor would not bar the sub-contractor from recovering the price agreed upon with the owner.

We are therefore compelled to answer both of the questions which our correspondent puts at the end of his communication in the negative; that is to say, the specifications and contract would not "stand good before the law," nor would the decision of the architect be binding, at least in the sense which our correspondent means. This whole question, like most of the disputes that are continually arising in the building trade, is one of fact simply; and the best way to avoid them is for the architect not to get a general authority from the owner to order extras, but whenever anything is needed, that is not in the contract, to make a new formal contract in writing, either with the main contractor or some other person. — *American Builder*

A Painter and the Architect.

A GOOD deal of attention has been directed of late to the relationship which exists between the painter and the painter and the architect. The subject has been discussed at length in our columns, and was debated at several of the painters' conventions lately held.

A careful study of all the opinions advanced shows that, while the trouble may be attributed to a variety of causes, the peculiar position which the painter occupies as sub-contractor is largely responsible for it. There are drawbacks attendant on the position of all sub-contractors, as they are dependent more or less upon the completeness of the work of those who have gone before them. The painter's lot, however, is hardest of any for it is the painter who has to make good the work of all the others.

As a business man a contractor carefully estimates the work he is to perform, and gives in his price accordingly. But how is a painter to allow for the work he may or may not have to do in filling open joints and making good the resinous and shaly timber?

Of course the architect should not pass such defects; but if he does, the painter has no remedy. As a fact, the architect or superintendent does not scrutinize the work in progress with such minuteness as he does at its completion, and thus is the poor painter made the scapegoat.

One way out of the difficulty would be for the painter to insist upon the insertion of a clause in his contract that all work delivered to him should be in proper condition. A remedy is certainly worth trying for. — *House Painting*.

Architectural Picture-Making with Pen and Ink.

BY B. LINFOOT. PUBLISHED BY THE OLD ELOR COMPANY.

This work is intended to convey to the architect and student, the manner in which a building may be portrayed on paper so as to convey to the mind of him who is about to build, that the bright jaunty free hand sketch shown, will when finished in the reality, be just what is wanted. Some men will spend months looking for a desirable location for building; when found, an architect is selected to prepare the plan. May be he gets a sketch of a very good house, but in such hard straight-lines, that it produces on the client a feeling of disappointment, and frequently of abandonment. In this work, the architect is shown how to keep the enthusiasm of his client alive and active, by submitting sketches of his contemplated work and surroundings. To the student, the illustrations termed "Sky Suggestions," are worth careful study. They will show what few lines are absolutely necessary to form a picture.

The book is handsomely illustrated with 32 large plates in size 12x18 inches. We will have copies of this work on sale, which will be furnished at publishers price, \$4.

The Children's Home at the Park

The accompanying engraving fitly represents the new play house for children, which has lately been finished, and is now one of the features of Golden Gate Park. Messrs. Percy and Hamilton were the architects. The view presented is a very good one, and gives an adequate idea of the structure without an extended description.

An Apology—Academy of Science Building.

For the past two months, our engraver has been at work on a fine cut of the Academy of Science Building. The engraving was finished and was in the hands of the party who runs the ruling machine, to put on the border, etc. By one of those unaccountable accidents which sometimes happens, the block broke into a dozen pieces, and of course was rendered utterly useless. Immediate measures were taken to reproduce the engraving, but they were unavailing to have the same ready for this issue. It was a grievous disappointment to the manager as well as to hundreds who had engaged copies as a souvenir, for the ceremonies of laying the corner stone on the 12th of July.

A Tin Roof.

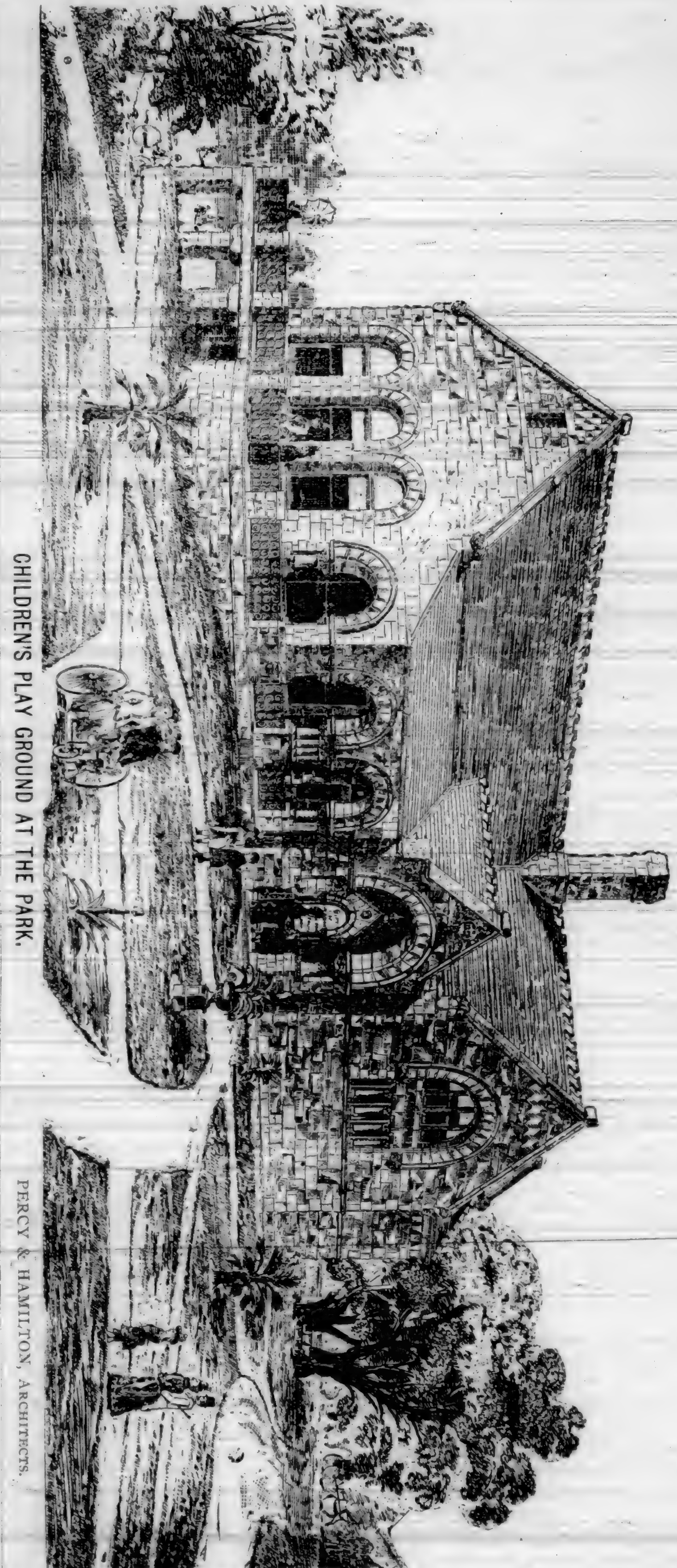
Messrs. Merchant & Co., have just issued a book entitled "A Tin Roof." It is a neat, handsomely bound volume and will be sent free to all applying for the same to Merchant and Co., Philadelphia. It is very instructive in regard to the best methods of laying tin plates, and although it is not egotistically written, still it does convince its readers that the plates manufactured by Merchant & Co., are among the best in the market. Architects especially should see that the above mentioned book is in their reference list.

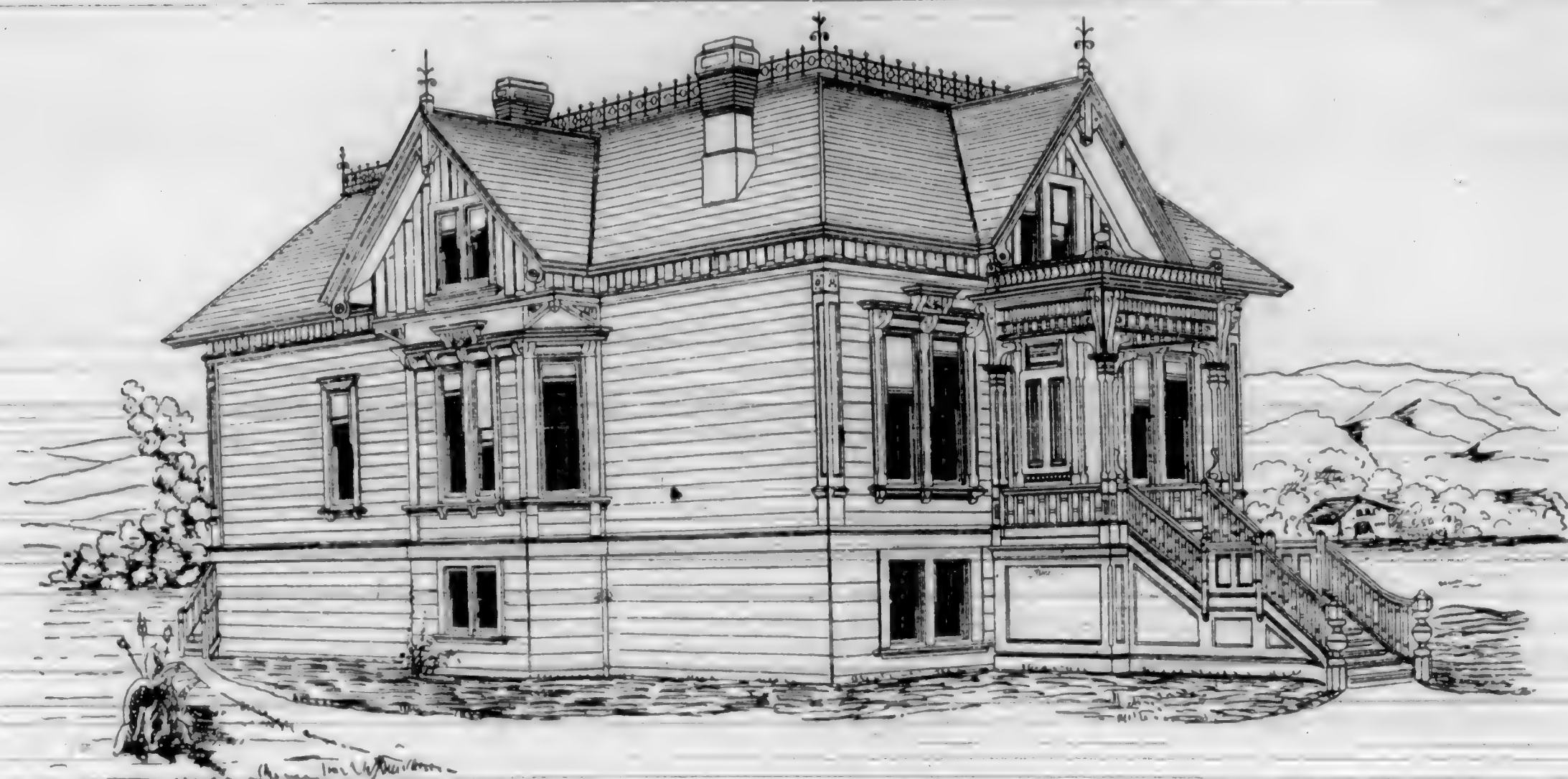
Palliser's American Architect.

Messrs. Palliser have taken a new departure in their publication department and now issue a quarterly number, giving 100 pages of designs and plans for every description of a country dwelling. These quarterly parts begin with April 1889, and are sold at \$1 00 each. The subscription price is \$4 00 per year. They are in paper covers, but may also be had in cloth covers at \$2.00 each.

Mechanics' Institute Fair.

Several times we have called the attention of our mechanics to the necessity of having an exhibit of mechanical skill at the next fair of the Mechanics' Institute. We have been spoken to in regard to the matter more than once. A committee has been appointed by the Chapter of Architects in regard to a similar matter, and information can be obtained through either G. W. Percy or H. T. Bestor.





ELEVATION OF A COSY COUNTRY COTTAGE.

Brick Piers.

THE only way to build a good and substantial pier of brick is to lay each course the full size of the pier, and not to, as is often done in this city, build up the outer four inches of the pier seven or eight courses high and afterward fill in the interior, as it is impossible to get proper bed or bond; brick of the hardest possible quality only should be used where heavy weights have to be borne. Avoid bats and use as little mortar as is necessary to get solid work. Make the size of piers so that whole brick can be used to obtain proper bond; tamp each brick after it is laid in position with a hammer or brick.

In small piers lay the brick on a bed of mortar and flush up solidly every course; in larger piers make a joint or rub on the bed and lay headers every fourth course. If bond stones are to be inserted the joints should not be too tight, say from three-fourths to an inch in thickness, the larger the pier the larger the joint, and bedded high in the middle, and in no case on the outer edges of the pier only. Use cement in all mortar in connection with lime, and wet the brick in all cases where there is not any danger from frost; where iron plates or coils set on bond stones, the plate should cover the bond stone as nearly as possible. The present custom of laying brick in dead walls gives one the impression that the quantity of work done is of far more importance than quality. The only way to obtain good solid brick walling is to either flush the joints solid with mortar every course, or make a shove joint; the former method takes too much time, and the latter is rarely done except in very heavy work.

The custom generally adopted is to spread the mortar on the brick (a portion only of which gets in the joints) and lay the brick on top, each succeeding course being bedded in mortar, but the longitudinal and cross joints are only partially filled. Grouting with cement mortar every two courses in height might be adopted for basements and first stories of buildings where unusual strength is required. Full headers for face brick are better than clipping and should be specified for all heavy buildings. The face brick are often built up fifteen or twenty courses high before the backing up is done, and thus the wall is never well bonded and sufficiently tied together.—*Building Budget.*

Sad as well as pleasing duties have to be met in the publication of a Journal, and to us, a notice of the death of Mr. Andrew Carrigan, of the Dunham, Carrigan & Hayden Co., who lately passed away is a truly sad one. During many years of business intercourse, his kindness of heart and nature, combined with strict business qualities, manifested themselves in numerous ways, and his loss cannot be other than a severe one—not only to those dear to him by the sacred ties of love, but to the firm of which he was an honored member, and the host of attaches and business and personal friends, who will miss him from their circle.

What Becomes of Our Saws.

IT is estimated that there are about 400,000 carpenters and joiners in the United States, and when we know the Disstons, of Philadelphia, employ 2,100 hands and turn out four hundred dozen saws a day, we are in a quandary to know what becomes of all the saws. True, there are about 150,000 people employed in the furniture trades, and perhaps 75,000 more as wheelwrights and millwrights, but, all who would be likely to use saws will not figure up more than one million; and suppose that each one of these workers should make use of five saws—say one rip-saw, one crosscut, one panel saw, one tenon and one compass—this would need about 5,000,000 saws to suit the wants of the workmen in the United States; but this does not cover the whole ground, for every house should contain at least two or three saws—a cut-off saw, a butcher's saw and a hack saw—thus swelling the needs to at least another million. Then there are the blacksmiths, the machinists, the plumbers, and a host of others who work in metals who require hack-saws and wood-saws of various kinds, which will probably foot up another million. There are also the gardeners, the saw mill men, the surgeons, the ship-builders and many other people who must have saws, and who probably require one million, so that it will not be stretching the matter at all if we say in round numbers it requires about ten million saws, of all sorts, to satisfy the needs of the 65,000,000 of people in these United States. So that after all, the 4,800 saws turned out daily by the Disstons do not do much more than make up for wear, breakages, losses and the new conditions that crop up with each new day.—*The Builder and Wood-Worker.*

New Work on Hand-Railing.

Nonpareil System of Hand-Railing. By John V. H. Secor, 5 1/2 x 8 1/2 inches. 78 pages. 157 line engravings. Bound in cloth. Price, post paid, \$2.

Mr. Secor is a practical stair-builder of many years' experience, and has put into the little book on hand-railing, which he has just issued an exposition of those principles which he has long employed in his own work. The learner is led step by step from the simplest problem encountered in stair-building to those of the most complex character. The work is preceded by a glossary and is supplemented by a very complete index. A leading feature of the book is the method of ascertaining the length of the mold. The system of bevels presented is also simple and of universal application. The book is adapted to the needs of any one in the line of joinery who desires molds for any kind of stairs that may have been constructed. The cuts and text are placed side by side, and in all respects the book is arranged in a way to be attractive to the reader and useful to the student.

Nashville's Estimating Rules.

THE rules under which estimates in the building trades will hereafter be submitted in Nashville, Tenn., are given below as an example of the effect of concerted action in the direction of uniformity:

1. General drawings, when offered for final or competitive estimates, should be presented on a scale not less than one-eighth of an inch to the foot, and details not less than three-fourths of an inch to the foot. These should be done in ink or by some process that will not fade or obliterate, and be complete in all parts. Specifications should also be presented in ink.

2. The specifications, figured drawings, and details should be taken as the guide for estimating, and all demands made by the specifications or said drawings should be covered in the estimates offered, unless objection be made thereto in writing when the estimate is submitted.

3. Specifications should be plain and definite, and everything required in the various branches of work should be mentioned, described and grouped under appropriate headings—each trade to itself.

4. When the specifications require goods of a certain manufacturer, or material of a certain quality, the name and catalogue number of such manufacturer's goods, and the trade mark of such material, should be mentioned in the section to which such goods or materials belong.

5. Bills of quantities should be left to the intelligence of the contractor, and shall not be required of the architect.

6. Contractors should be responsible to each other for work damaged during the erection of the building.

7. When the contractor for the whole is to be restricted as to whom he shall employ as sub-contractors, that fact should be named in the specifications.

8. Contracts should be closed at some stated time, and no estimate should be considered if received after that time has expired.

9. Contracts should be awarded within ten days from the time of closing estimates.

10. Architects should invite to bid on the work only those from whom they desire an estimate on that particular job.

11. All bids received from those not invited should be excluded.

12. No contractor should make an estimate in an architect's office unless invited to do so.

13. When a contract involves the taking down or using the material of an old building, it should be fully set forth in the specifications.

14. No bids should be exhibited or made known by either architect, owner, or principal contractor before the time for closing estimates on the job.

15. No contractor should be allowed to alter or amend his bid after the time of closing estimates.

16. Contractors should decline to give estimates in the aggregate when bids are being received under the separate heads. Sub-contractors should also decline to give the architect or owner an estimate for his branch of the work when bids are being received for the work as a whole.

17. When the contract is to be completed within a certain time, that fact should be mentioned in the specifications, giving the date; and if a penalty for non-completion by the specified time is to be exacted it should be so stated.

18. The bidder to whom a contract is awarded should be required to sign a contract and furnish bond or withdraw his estimate.

19. The principal contractor should pay the sub-contractor in the same manner that the sub-contractor receives his estimates from the architect, when the work is let separately, to wit: 75 per cent. as his work progresses, and a final payment when his branch of the work is completed satisfactorily.—*Sanitary News.*



PLAN FOR A COSY COUNTRY COTTAGE.

A Cosy Country Home.

The above plan, with the elevation on opposite page, will, in furnished in the reality as shown by the engravings, be a more than ordinary cosy home. There is no attempt at elaboration in the elevation. Neatness has been the essential requirement. The plan meets all the requirements of a moderate sized family. If desirable a fine billiard room can be made in front part of basement. S. C. Newsom is the architect who has kindly furnished us the design.

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.



On Cutting Rebate.

BY DAVID DENNING.

IF the question, what kind of plane should be used to form rebates or rabbets with? were asked of two men, both workers in wood, but one of them a carpenter and the other a cabinet maker, the answers would probably differ. The carpenter would probably say a fillister, the cabinet maker a rabbet plane; perhaps going a step further, each would say the other was making a mistake. The inference which might naturally occur to the mind of the non-technical from such different opinions would be that either tool might be used, or that neither of the men knew what he is talking about. Paradoxical as it may seem, both these inferences are correct, for either the rabbet plane or the fillister may be used in making any ordinary rebate, and the man stating that one or other tool should be used exclusively, could certainly know very little of the work to be done by the other.

How then does it happen, it may be fairly and properly asked, that two men, both presumably skilful in their own departments of joinery, one the cabinet making and the other the building, use different tools to effect the same result? The answer is simply because each finds the tool he advocates is the best for his own purposes. Ask a cabinet maker why he prefers a rabbet plane, and he will at once say that it is better for the comparatively small work he is generally employed in making. It is to the fillister what the smoothing is to the jack plane. Even the toiner will at once acknowledge that if a finely-finished rebate is wanted, the rabbet plane may be used with advantage, but only after the fillister has done its share of the work. The cabinet maker, on the other hand, will object to using the fillister at all, unless, indeed, on exceptional pieces of work or from personal idiosyncrasy. He will state that any advantages which may exist in the fillister are rendered useless from the account of labor required to force the cutter in front of the iron through hard wood—a piece of Spanish mahogany, for example. He is not far wrong, for though it would be incorrect to say that a rabbet could not be cut with a fillister—the side fillister in ordinary cases preferably—in hard wood no sensible man would voluntarily choose the tool which induces the greatest amount of fatigue when another would answer his purpose as well or better. In soft wood, such as the builder mostly uses, the fillister cuts well enough.

But, says this individual, only just look at the convenience of being able to "set" the fillister to any gauge, and the fence to serve as a guide; the rabbet plane is destitute of these, and with it the work cannot be so well done. What is there to keep the plane straight?

Well, skill assuredly counts for a good deal. If a man has been in the habit of working without a fence, he does not feel the need of it so much as another who has been trained to depend on it. Of course, a line to work must be marked in some way, with an ordinary gauge, for instance, or, where extreme accuracy is not required, by drawing with a pencil. Careful manipulation does the rest. As for the actual details, such as the mode of holding the plane and the use of accessory tools, they vary. One man will use the plough to form a groove to the required depth, another will be content with cutting gauge and chisel to remove a little of the waste wood before taking up the rabbet plane, while a third will simply rely on his fingers. Each, if he be intolerant of other ideas than his own, will claim his own method as the best, and doubtless it will be for him; but if he be a man of liberal mind he will at once say that there is no absolute best, and that it altogether depends on the custom of the worker.

It is rarely indeed that a good practical artisan, who has arrived at the years of discretion, has not found out which is the most convenient way for himself personally to use the ordinary tools of his craft. He may go to the length of telling youngsters who ask him which way he finds best, or even in friendly chat will discuss with others equally as competent as himself the pros and cons of various methods, but as for saying that every other but his own must be wrong—well, to do so would not reflect credit on his intelligence, but it might, and very likely would, be very strong presumptive evidence that his work would be that of a "duffer." Not that even such workers are not useful sometimes, so if any of them read these lines, and feel inclined to take umbrage, perhaps they will kindly remember that the word is used in a Pickwickian sense, and that they are frequently to be relied on for doing whatever they have been accustomed to do—

turning the grindstone, for instance, to the entire satisfaction of all concerned.

But, it may be inquired, do no workers fall into bad habits in their methods? do they invariably choose the best for their particular purpose? To answer this fully it would be necessary to consider many points in detail; but without by any means suggesting that absolute perfection exists in any workshop, professional or amateur, it may safely be conceded that most mechanics have a very fair idea of what suits them best. The cabinet maker and the carpenter can therefore very well agree to differ on cutting rabbets and the proper tools to use, remembering that to find fault with each other simply shows imperfect knowledge of the requirements of both trades, however competent one may be to express an opinion about his own. "Eh, mon, it's a great peety that we canna a' think alike; but ah'll no change ma ain opeenion for that o'ny ither body." "Ma ain opeenion" is that it is at any rate rash to condemn other methods of tools if we do not know the reasons for them being used; and that occasionally, very occasionally, the least little bit of toleration of other people's mode of working might be better than done at all, or whole-sale condemnation.—*American Workman.*



Builder's Association.

The Builder's Association have elected the following named to serve as officers for the ensuing term: President, S. H. Kent; Vice-President, M. C. Lynch; Recording Secretary, A. Jackson; Treasurer, W. B. Kroger; Executive Committee, J. Mahoney, C. C. Terrill, J. R. Wilcox, J. J. Dunn, R. K. Anderson, A. Norton, C. E. Dunshee, Financial Secretary, Louis Albert Larsen.



New Sheathing Lath.

Since the publication in our last issue of the method of placing the Byrkit Lath in position, we have received several inquiries in regard to the same. Architect Percy is using it in his fine \$12,000 house which he is now having erected on Contra Costa's fair shores. Full particulars may be had by addressing John F. Byxbee, No. 42 Market street.

Metrical Measures.

This term means a system by tenths, the same as we employ in computing common numbers, carrying one for every ten, or transferring from one division to another whenever ten, or a unit of the next higher division is reached. The metrical system means simply the application to lengths, volumes, weights, areas, and so on; the same rules we use in abstract numbers, and is only common sense applied to practical use; no matter if it is opposed by some people who rank high as those of judgment and learning.

This division of measures and weights into metrical or decimal units was first done in France, to the great credit of that nation, who are the "classifiers" of the world. An old European adage says: "The German people deduce, or draw conclusions, the French 'classify' and the English 'apply.'" This does not however, apply to the metrical system, the inception of which, as well as classification and application came from France.

Nearly all the countries of Europe, except England, have adopted decimal divisions, or the French metrical system. In the United States metrical divisions are legalized, but owing to English influence, some commercial reasons, and the opposition of people who do not "think," the system has made but little progress. In some cases we have been compelled to adopt it. The coinage of the country is decimally divided, so also are inches, because the absurd binary division into halves, quarters, eighths, sixteenths, and so on, while convenient enough for working purposes, does not answer at all for computation. The multiples for our lineal measure are independent of fractional quantities, 12, 3, 5, 40 and 8, representing inches, feet, rods, furlongs and miles. In adding up lengths there has to be a distinct column for each of these divisions, and we first carry 1 in 12, then 1 in 3, next 1 in 5, then 1 in 40. Could anything be more absurd? This is the "compound" addition and multiplication of our school books.

English money has to be written in three columns, each with a sign over it to indicate its place as pounds, shillings, and pence. The multiples are 4, 12, and 20, not counting farthings, four of which make a penny, but people's patience breaks down at farthings, and three columns only are used. Comparing this with dollars, cents and mills, or as we should say, dollars, dimes, cents and mills, the advantage will be seen. We set down a row of figures thus: \$12345, it means "money;" the dollar sign qualifies all. If one figure is pointed off it becomes dimes, if two are pointed off they become cents, or dimes and cents. To divide by 10 we point off one figure; to divide by 100, two figures, and the sum, let it be what it will, is treated just the same as common numbers and decimals.

In the French metrical system there are employed short terms indicating the division as follows: *Milli*, 1000th part; *Centi*, 100th part; *Déci*, 10th part; *Déka*, 10 times; *Hécto*, 100 times; *Kilo*, 1000 times. The first three are below unity. Adding *Meter* to the term above, we have *Millimeter*, *Centimeter*, *Décameter*, *Dekameter*, *Hektometer*, and *Kilometer*. These are the terms for measures of length, and take the following form:

To compare with this we will arrange a foot, the common British and American unit, in the same manner.

The utter absurdity of such a notion is apparent on its face, and no one attempts to defend it on other grounds than present expediency.

The London *Engineer* says such notation is "like a language," turns English measures into metrical to show it does not produce even fractions, with other "balderdash" not worth while to repeat. Mr. Coleman Sellers, of Philadelphia, is a champion of the English system, and among other commercial arguments against the metrical system, says machine patterns would be lost. Granting this to be true, which it is not, it would be much the same to say canal boats and stage coaches will be lost by building railways, hence railways should not be built. There are no scientific arguments worth repeating.

Our remarks and illustrations thus far relate to linear measures alone. The same thing, only in an aggravated degree, applies to other measures. Weight, volume and area are the same, a jumble throughout. The bushel is an illustration. There are nearly as many "bushels" as there are states in the Union.

California has happily got rid of this nuisance, and computes in most cases by quantities decimally divided.

We are not arguing for the immediate adoption of a decimal or metrical system, but to urge the readers of *INDUSTRY*, especially the younger ones, to learn the method and prepare for its adoption which is sure to come in future. There is a vast difference between admitting and understanding the results of a new thing, and adopting it.

National jealousy, we suspect, lies at the bottom of British opposition to metrical measures, and may have something to do with the matter here, but common sense should teach that science and learning have nothing to do with national lines, and opposition on such grounds is mere bigotry. At least one-half the scientific literature of our time is written in metrical quantities, and not to be familiar with the method is a great impediment to understanding, practice and progress in those countries where metrical divisions are employed.—*Industry.*



Wastes of Society.

Fresh air is something which God has set great value upon, but which most men think little of. In this is the heritage of health.

Architects seldom find an Owner of a Dwelling, who is willing to live, as God meant he should, by breathing *Fresh Air*, all for the sake of saving a few dollars, which ought to be expended in providing for Ventilation. Men of wealth pay more attention to the architecture and adornment of their homes, than to proper ventilation.

There is nothing more poisonous than the effluvia and exhalations that proceed from man.

In a close room where a family is assembled, they will, in twenty minutes, breathe the air over once—in another twenty minutes they will have breathed it twice—in another twenty minutes three times, and by that time every person in that room will have inhaled the effluvia from every other person in the room.

What wonder then that our streets are filled with wan-visaged men, women and children.

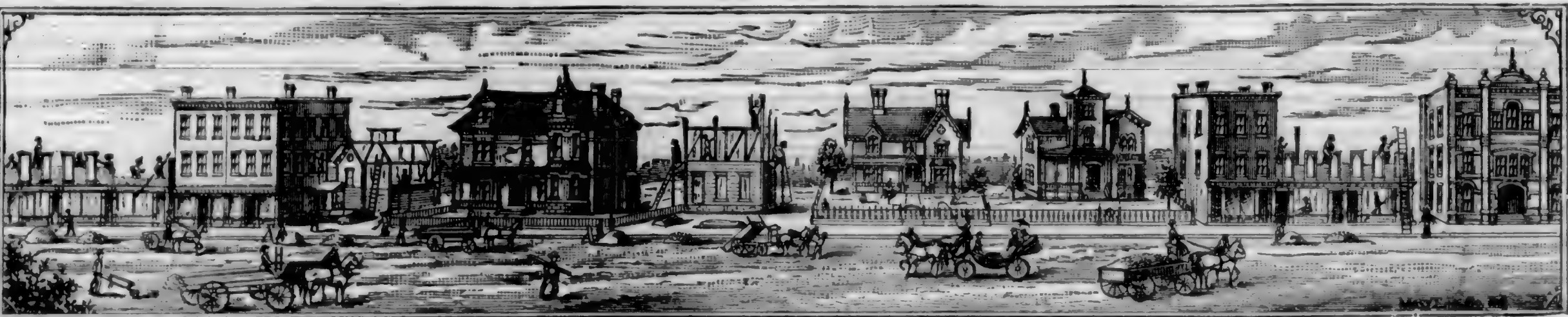
It is really lamentable to see people slowly and surely undermining their health, by persisting in building houses, without providing for ventilation without draughts (which can be had by the expenditure of a few dollars,) and thus sacrificing the greatest blessing heaven bestows upon man—by persisting in no ventilation or ventilation from Open Windows.

The Homes of the Rich and Poor alike should be ventilated by ABRAHAMSON'S PATENT VENTILATOR WITHOUT DRAUGHTS.

NATURAL GAS seems to partake, at least, of one of the qualities of the manufactured article. A plumber in the city of Indianapolis went hunting for a natural-gas leak with a lighted lantern. He found the place. Result—he had a large funeral, and some contractor will soon have the job of rebuilding the house in which the leak was located.

Modern Rural Homes.

A handsomely printed book, 7x11 inches, containing fifty-four plates of original designs in the latest modern architectural styles. The elevations are very picturesque. The book has been carefully prepared and is well worth the price set upon it, viz., \$2.



CITY BUILDING NEWS.

Alabama and Twentieth, one-story frame. Owner, P. Burns; architect, T. J. Welsh; contractor, G. Knopf; amount, \$1,800; sureties, Charles Williams & F. Kinkaid, \$1,000; limit, September 1, 1899; \$500, brown mortared; \$500, completed; \$500, 35 days; signed, June 18; filed, June 19.

Broadway and Clay, brick and carpenter work. Owner, W. S. Haney; architect, T. J. Welsh; contractor, Blake & Powers; amount, \$21,252; sureties, F. P. Ritoran & J. J. McKinnon, \$10,000; signed, June 17; filed, June 24; limit, 4 months; \$3,000, foundation in; \$4,000 exterior studding up; \$5,000, brown mortared; \$4,000, white mortared; \$5,500, completed; \$5,340, 35 days.

Hush street, No. 1715, additions. Owner, S. Wangerheim; architect, J. E. Wolfe; contractor, E. S. Libby; cost, \$1,500.

Hurban near Twenty Fifth, two-story frame. Owner, Mr. Aushok; cost, \$1,000.

Buchanan near Halght, Additions to Protestant Orphan Asylum; contractor, G. H. Walker; cost, \$2,500.

Broadway near Larkin. Additions; cost, \$600.

Battery near California. Repairs to burned building; cost, \$2,500.

Drumman, between Second and Third, move, etc. Owner, James N. Kilgus; architect, M. C. H. contractor, Wm. McDonald; amount, \$8,045; limit, 70 days; signed, June 11; filed, June 15; 75 per cent, as work progresses; balance, 35 days.

B roadway near Franklin, three-story frame. Owner, Gustav L. Spear; architects, Huernie & Everett; contractor, James Campbell; cost, \$5,000.

Broadway, No. 327, two-story building. Owner, Mr. Schuchel; architect, A. C. Rogers; amount, \$1,900; signed, June 26; filed, June 30; payments made as needed, balance when completed.

Broadway and Franklin, three-story frame. Owner, Gustav L. Spear; architects, Huernie & Everett; contractor, James Campbell; cost, \$4,595; signed, June 24; filed, July 1, \$1,148.75; sheathed; \$1,148.75, brown coated; \$1,148.75, completed; \$1,148.75, 35 days.

Capp and Twenty-Third, two-story frame. Owner, Isabella McCormick; architect, John J. Clark; contractor, Richard Doyle & Son; amount, \$2,398; sureties, P. F. Ward and Thos. Winters, \$2,000; signed, June 24; filed, June 25; \$700 brick work completed; \$500 brown mortared; \$700 inside finish done; balance, 35 days.

Clay, near Scott, building. Owner, Victor R. Ullman; architects, Salfeld & Kohlberg; contractor, Fritz & Kean; amount, \$500; limit, 90 days; \$1,100, framed; \$500, brown coated; \$500, white coated; \$1,200, completed; \$1,100, 35 days; signed, June 4; filed, June 4.

Clay, near Scott, painting, etc. Owner, Victor R. Ullman; architects, Salfeld & Kohlberg; contractor, George Besthorn; amount, \$290; \$100, ready for grainer; \$100, completed; \$95, 35 days; signed, June 6; filed, June 6.

Connecticut and Napa, one-story cottage. Owner, John Culhane; architect, T. F. Mitchell; contractor, Timothy Sullivan; amount, \$1,150; sureties, F. Joost and W. Thyack; limit 60 days; signed June 12; filed June 13. \$287.50 framed; \$287.50 brown mortared; \$287.50 accepted; \$287.50, 35 days.

Ca'toreia and Kearny, brick and iron building. Owner, F. G. Merchand; architect, Orlitt; contractor, Day; amount, \$54,070; signed, June 27; filed, June 27; \$5,500 walls up to second story; \$4,000 walls up to third story; \$4,500 brown mortared; \$2,000 white mortared; \$2,000 completed; balance, 35 days.

Clinton Park and Guerrero, two houses. Owner, Henry Hoffman; architect, Geo. Houston; contractor, Geo. Houston; amount, \$5,370; limit, 100 days; signed, June 25; filed, June 26; \$1,465 enclosed; \$1,465 brown coated; \$1,165 white coated; \$1,475, 35 days.

California and Baker, carpenter work. Owner, Francis Crofte; architect, A. J. Barnett; contractor, C. N. Smith; amount, \$4,340; surety, Frank P. Latson, \$2,000; limit, 20 days; signed, June 14; filed, June 15; \$1,100, roof boards on; \$500 brown coated; \$500, white coated; \$755 completed; \$1,080, 35 days.

Clay, between Cherry and First, two-story dwelling. Owner, Thomas Langford; architect, John Gashi; contractor, Jesse Rickard; amount, \$3,220; signed, April 25, filed, June 29; \$400 shingled; \$400 brown mortared; \$400 white mortared; \$400 white coat of paint on; \$400 completed; \$437 accepted; \$313, 35 days.

California near Gough, two-story frame. Owner, B. A. Becker; architect, W. Mosser; contractors, Norton & Perry; cost, \$14,000.

California and Gough, to build. Owner, B. A. Becker; architect, Wm. Mosser; contractors, Norton & Perry; amount, \$9,500; sureties, A. W. Starbird and R. Goldstone, \$5,500; signed, June 10; filed, June 11; 75 per cent of work done; balance 35 days.

Clay near Scott, plumbing, etc. Owner, Victor R. Ullman; architects, Salfeld & Kohlberg; contractor, Fritz & Kean; amount, \$368; signed, June 4; filed, June 6; \$150 rough work in, \$218 completed.

Devisadero and Geary, three-story frame. Owner, John Friesenhausen; architect, Emil John; contractor, Fritz & Kean; amount, \$4,400; signed, June 13; filed, June 14; \$600 framed; \$800 partitions set in; \$800 white coated; \$900 accepted; \$1,100, 35 days.

Douglas and Eighteenth, one-story frame. Owner, Jos. Oswald; contractor, August Disher; amount, \$2,050; signed, June 18; filed, June 18; \$500, framed; \$500, first coat of plaster on; \$500, completed; \$550, 35 days.

Devisadero and Clay, alterations. Owner, Max Ordensstein; architect, J. Gashi; contractor, H. Griffin; cost, \$1,550; signed, June 13; filed, July 3; \$500, ready to plaster; \$500, plumbing done; \$250, completed; \$400, 35 days.

Dolores and Sixteenth, brick and carpenter work. Owner, P. W. Ritoran; architect, T. J. Welsh; contractors, Blake & Powers; cost, \$8,083; sureties, J. F. Lynch and T. J. Ford, \$4,000; limit, 90 days; signed, June 17; filed, July 2; \$2,000, framed; \$2,000, brown mortared; \$2,000, white mortared; \$3,083, 35 days.

Ellis and Franklin, two three-story flats. Owner, A. F. Knopf; architect, Emil John; contractor, Daniel Chisholm; amount, \$12,900; signed, June 8; filed, June 12; \$2,000 framed; \$2,000 partitions set; \$3,000 outside finish on; \$2,675 accepted; \$3,225, 35 days.

Ellis near Franklin, two three-story frames. Owner, A. F. Knopf; architect, E. John; contractor, D. Chisholm; cost, \$17,000.

Ellis near Mason; brick, stone and iron work for a five story brick and frame. Owner, C. M. Mason; architect, H. T. Beaton; contractor, John Wagner; amount, \$6,947; signed, June 22; filed, June 26; 75 per cent. of value of work done as work progresses, balance of 25 per cent, 35 days.

Ellis and Franklin, plumbing and gasfitting. Owner, A. F. Knopf; architect, Emil John; contractors, Thos. Clark & Son; amount, \$1,468; signed, June 8; filed, June 12; \$500, rough work delivered; \$600, accepted; \$368, 35 days.

Ellis and Franklin, plastering. Owner, A. F. Knopf; architect, Emil John; contractors, Huntzmann & Harper; amount, \$1,790; signed, June 8; filed, June 12; \$375 rough mortar on; \$975 white mortar on; \$475 white mortar on; \$419, 35 days.

Ellis and Willow avenue, three-story frame. Owner, A. F. Knopf; architect, Emil John; contractors, John Quadi; amount, \$1,075; signed, June 8; filed, June 14; \$400, ready for graining; \$400, accepted; \$275, 35 days.

Ellis near Mason, three-story frame building and basement. Owner, H. Matthews; architect, H. T. Beator; contractor, C. E. Mason; amount, \$23,330; signed, June 24; filed, June 25; \$2,500 brick walls up; \$2,500 framed; \$2,500 floor-laid; \$3,500 brown mortared; \$3,500, white mortared; \$1,590 completed; \$3,340, 35 days.

Folsom and Second, elevator work. Owner, Boyd & Davis; architect, J. M. Curtis; contractor, Calhoun & Hall; amount, \$4,405; limit, 90 days; signed, May 21; filed, June 12; \$500 elevators are sunk full depths; \$550 casings and elevator heads are in and guide posts up; \$550 ready to deliver, balance, 35 days.

Fillmore and Broadway, addition. Owner, C. R. Sanders; architect, H. D. Mitchell; days work; cost, \$4,000.

Fell and Devisadero, plumbing, etc. Owner, J. B. Mering; architect, W. A. Winterhalter; contractor, John Boh; amount, \$325; \$400, rough pipes in; \$425, completed, signed, June 4, filed, June 4.

Fifth near Harrison, additional story; cost, \$850.

Fourth corner Minna, three-story and basement, brick. Owner, M. A. Hampton; architect, C. J. I. Devlin; carpenters, Moore Bros; masons, Richardson & Gale; cost, \$35,000.

Green, between Buchanan and Webster, to build complete. Owner, Harry W. Tuckey; architect, S. W. Hegenway; contractor, John Dyar; amount, \$3,260; sureties, Jon Peers and J. Mulver, \$800; limit, 161 days; signed, May 23; filed, June 26; 75 per cent on first day of each month, balance, 35 days.

Geary and Laguna, four frames. Owner, I. R. Hall; architect, Geo. E. Voelkel; contractor, F. Klatt; amount, \$25,000; sureties, F. Joost and George T. Shaw, \$25,000; signed, June 6; filed, June 27; \$2,000 first story joists on; \$2,000 on; \$2,000 second coat of plaster on; \$3,000 ready to paint; \$2,000 accepted; \$10,000, 35 days.

Gough and Clay, to build. Owner, C. A. Belden; architects, T. E. Mathews & Son; contractor, R. P. Hurlbut; amount, \$70,500; signed, June 6; filed, June 12; \$1,575, one-fifth done; \$1,575, two-fifths done; \$1,575, three-fifths done; \$1,575, four-fifths done; \$1,575 completed; \$2,325, 35 days.

Gough near Clay, two-story frame. Owner, C. A. Belden; architect, W. J. Mathews; contractor, R. P. Hurlbut; cost, \$12,000.

Golden Gate avenue and Webster street, three-story frame. Owner, Geo. Schaefer; architect, H. Geiffuss; contractor, L. M. Weissmann; cost, \$11,625; signed, July 2; filed, July 3; \$14,000, framed; \$1,450, roofed; \$1,450, partitions set; \$1,450, brown coated, etc.; \$1,450, inside finish on; \$1,450, completed; \$2,925, 35 days.

Golden Gate avenue and Lott street, two-story frame. Owner, Wm. Stafford; architect, John J. Clark; contractor, R. R. Thornton; cost, \$4,454; limit, 60 days; sureties, Harris & Jones, \$2,576; signed, June 28; filed, July 2; \$600, framed; \$600, brown coated; \$600, inside finish done; \$654, 35 days.

Green and Fillmore, carpenter work, etc. Owner, Emma V. Foote; architect, Samuel Newsum; contractor, R. M. Murray; cost, \$7,550; signed, June 28; filed, July 3; \$1,132.50, framed; \$1,132.50, roof-d; \$1,132.50, brown coated; \$1,132.50, outside primed; \$1,132.50, two-story frame; \$1,387.50, 35 days.

Howard near Fourteenth, two-story frame. Owner, M. J. Kahn; cost, \$5,000.

Hayes street, No. 714, additions. Owner, C. Klopstok; architect, Curlett & Cuthbertson; contractor, Ingerson & Gre; amount, \$2,550; signed, June 14; filed, June 18; 75 per cent. to be paid according as work is done, balance, 35 days.

Howard and Tenth, two tanks in Engine house. Owner, Omnibus Cable Company; contractor, J. C. Lamson; amount, \$325; limit, August 1, 1899; signed, June 15; filed, June 18; 75 per cent on completion, balance 35 days.

Hickory avenue, between Laguna and Octavia, frame building. Owner, J. W. Sims; architect, W. R. Sims; contractor, Henry Eldebutle; amount, \$1,615; limit, July 1; signed, April 24; filed, June 29; \$200 outside on; \$100 brown coat d; \$175 windows hung, etc., balance completed, also weekly payments \$3.00 per day for each man on the work, until completed.

ACADEMY

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3066 South Ninth Street,
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.

H. MAACK, Principal.

Hermann and Webster, two-story frame. Owner, Jacob Dohlsner; architect, A. J. Barnett; contractor, John Farnes; amount, \$5,788; surety, Frank P. Latson, \$2,000; limit, 5 months; \$741, roof boards on; \$700, brown coated; \$700, white coated; \$700, completed; \$947, 35 days; signed, June 1, filed, June 3.

Howard and Tenth, raising and glazing. Owner, Estate James Lick; architects, Wright and Sanders, contractors, Fraser & Keefe; amount, \$2,406.75; 75 per cent. to be paid on first day of each month as work progresses; balance, 35 days; signed, May 6; filed, June 8.

Howard, between Fourth and Fifth, plumbing, etc. Owner, J. F. Boyd; contractor, C. K. Calman; amount, \$2,375; \$363.75, pipes in; \$592.15 rough plumbing in; \$508.75, finished; \$592.15, 35 days; signed, May 25; filed, June 4.

Howard and Seventeenth, three-story frame. Owner, Wm. Dyar; architect, M. J. Welsh; contractor, John Robertson; cost, \$4,300; signed, July 29; filed, July 3; \$1,000, fr.-m-d; \$1,100, brown mortared; \$1,100, completed; \$1,100 35 days.

Howard near Shotwell, two-story frame. Owner, F. W. Runge; architect, H. Geiffuss; contractor, H. J. Weiss; amount, \$8,165; signed, June 28; filed, June 28; \$716 framed; \$775 roofed; \$775 partitions; \$1,275 outside completed; \$1,275 inside finish on; \$1,275 comp eted; \$2,050, 35 days.

Larkin and Filbert, two two-story frames. Owner, Peter Scully; architect, Schmitt & Shia; contractor, John F. O'Brien; amount, \$7,175; sureties, J. Peaca & Geo. O. C. nad; limit, 100 days; signed, June 21; filed, June 22; \$1,345, framed; 1,345, rough plumbing in; \$1,345, primed; \$1,345, completed; \$1,705, 35 days.

Lavenworth near Jackson, brick and carpenter work. Owner, James P. Dunne; architect, A. J. Barnett; contractor, Richard McMan; amount, \$8,400; sureties, Behrend Joost, \$4,000; limit, 150 days; signed, June 22; filed, June 23; \$2,000 rough boards on; \$1,000 brown coated; \$1,500 white coated; \$1,000 outside finish up; \$345 completed; \$2,115, 35 days.

Lavenworth near Jackson, plumbing, etc. Owner, James P. Dunne; architect, A. J. Barnett; contractor, Fritz & Kean; amount, \$1,027; limit, 110 days; signed, June 22; filed, June 23; \$500 rough work done; \$260 completed; \$260, 35 days.

Lyon street, near Golden Gate avenue, one-story frame. Owner, Chas. C. Morris; architect, R. O. Chandler; contractor, R. O. Chandler; amount, \$2,200; signed, July 6; filed, June 14; \$300 1st story joists on; \$600 partitions set; \$500 white coat d; \$600, 35 days.

L. guna, between Fell and Hayes, two two-story frames. Owner, Mr. Winkelmann; contract r, M. Gor nan; cost, \$5,500.

Laguna and Linden avenue, three-story frame. Owners, H. Winkelman and wife; contractor, M. J. G. rman; amount, \$2,323; signed, June 14; filed, June 15; \$1,000, framed; \$1,000, brown coated; \$1,000 outside finish up; \$975, white coated; \$1,000 completed; \$1,320, 35 days.

Lavenworth and Turk, to build. Owner, Mrs. A. A. Smith; architect, Wm. Mosser; contractor, J. J. Dun n; amount, \$2,900; surety, F. Joost; \$1,900; signed, June 1; filed, June 14; 75 per cent. work done; balance, 25 per cent, 35 days.

Lott and Golden Gate avenue, etc. Owner, H. Clancy; contractor, A. McDonald; cost, \$1,850; limit, 90 days; signed, July 1; filed, July 3; \$500, framed; \$500, ready to lay; \$500, brown coated; \$500, white coated; \$500, completed.

Market between Fourth and Fifth, galvanne d iron work. Owner, California Academy of Science; architect, Percy & Hamilton; contractor, Wm. Cronon; amount, \$5,170; sureties, Calvi Nutting and George Mahony; \$2,500; signed, June 7; filed, June 27; 25 per cent of value of work done on first Monday in each month, balance 35 days.

Market between Fourth and Fifth, painting etc. Owner, California Academy of Science; architect, Percy & Hamilton; contractor, Paul Agn & amount, \$8,750; sureties, G. Am rip, i nter Bros & Company, \$2,000; signed, June 7; filed, June 21; 75 per cent of value of work done on first Monday in each month, balance 35 days.

Montgomery and Commercial streets, concrete work. Owner, Davis Examiner Publishing Company; architect, J. Marquis; contractor, Geo. Goodman; amount, \$1,615; signed, June 17; filed, June 18; \$1,000, when finished, \$615 35 days.

M. Allister and Laguna, a two, three story flats. Owner, John Ewing; architect, Emil John; contractor, Tegeler & Muller; amount, \$8,950; signed, June 3; filed, June 12; \$2,000 framed; \$3,000 rough mortared; \$3,950, 35 days.

McAllister near Laguna, three, two-story frames. Owner, J. Ewing; architect, E. John; contractors, T. gel r & Muller; cost, \$10,000.

McAllister and Polk, excavation and stone work. Owner, J. E. Loneyan; architect, Wm. Mosser; contractor, Chas. in & Clift; amount, \$7,000; signed, June 14; filed, June 24; 75 per cent of value of work done subject to main contract.

Mission corner Ninth, one two-story frame on Mission near Ninth and one on Ninth near Mission. Owner, Milbrae Dairy Co; cost, \$5,000.

McAllister near Lyon, additions. Owner, F. P. Adams; architect, E. E. Henriksen; contractor, L. Helbing; cost, \$2,000.

Minnesota, between Solano and Butte, two-story frame. Owner, P. Trick Dixon; architect, Schmidt & Shea; contractor, Geo. J. Doering; amount, \$5,400; limit, 90 days; signed, June 24; filed, June 29; \$815 enclosed; \$815 brown coated; \$815 hard finished; \$815 completed; \$928, 35 days.

McAllister and Lyon, repairs, etc. Owner, Frank P. Adams; architect, E. E. Henriksen; contractor, Louis Helbing; amount, \$1,612; signed, June 15; filed, June 17; \$770 roofing and siding on; \$770, outside finished; \$72, sashes glazed and hung.

McAllister and Polk, carpenter work. Owner, A. P. Hotaling; architect, Wm. Mosser; contractor, J. B. Gonyean; amount, \$30,985; sureties, C. A. & G. W. Hooper, \$20,000; signed, June 18; filed, June 17; \$6,000, first story joists on; \$6,000, enclosed; \$6,000, rear platforms up; \$6,000, sashes hung etc; \$6,000, completed; \$9,985, 35 days.

McAllister and Polk, plumbing, etc. Owner, A. P. Hotaling; architect, Wm. Mosser; contractor, John H. Lane; amount, \$1,900; sureties, J. Meyers & Mrs. L. B. McKeever, \$1,400; signed, June 13; filed, June 17; \$1,000 water and drains in; \$900, comp eted; \$900, 35 days.

McAllister and Polk, painting, etc. Owner, A. P. Hotaling; architect, Wm. Mosser; contractor, Henry Wagner; amount, \$1,900; surety, Jacob Weiss, \$1000; signed, June 13; filed, June 17; 75 per cent as work progresses, balance when completed.

Main, near Howard, excavating, brick work and sewer. Owner, S. Mathews; contract r, J. McCarthy; amount, \$2,300; limit, 40 days; signed, June 24; filed, June 25; 75 per cent. as work progresses; balance, 35 days.

Mission between Eighteenth and Nineteenth, one-story building. Owner, C. Gerdes; architect, W. H. Armitage; contractor, F. V. Steinman; amount, \$1,600; surety, Frank P. Latson, \$1,000; limit, 60 days; signed, June 18; filed, June 25; \$400, framed; \$400 brown coated; \$400 completed; \$400, 35 days.

Natoma, between Lafayette and Eleventh, one-story frame. Owner, Dennis Sweeney; architect, C. Peterson; contractor, C. Peterson; amount, \$1,175; limit, 60 days; signed, June 25; filed, June 29; \$241.25 chimney up; \$241.25, brown mortared on; \$241.25 completed; \$241.25 bills paid.

O. k a d Octavia, two-story frame. Owner, Peter Craven; architect, M. J. Welsh; contractor, Rufus Parker; amount, \$4,570; signed, June 10; filed, June 12; \$325.50 framed; \$325.50 outside finish on; \$325.50 completed; \$325.50, 35 days.

Oak near Octavia, two-story frame. Owner, Peter Craven; architect, M. J. Welsh; contractor, R. Parker; cost, \$4,200.

Octavia and Sutter, plumbing. Owner, James G. Fai; architect, Schulze & Meeker; contractors, Fritz & Kean; amount, \$2,200; surety, John J. Mahoney, \$2,500; limit, Nov. 1, 1899; signed, June 10; filed, June 16; first day of each month 75 per cent, as work progresses; balance, 35 days.

Pacific, between Leavenworth and Hyde, alterations. Owner, Thomas Kennedy; architect, W. H. Armitage; contractor, J. W. Sims; cost, \$2,800.

Pacific, between Montgomery and Sansome, reconstruction of engine house. Owner, City of San Francisco; contractors, McCann and Riddell; cost, \$8,550.

Parker Avenue near Fulton street, two-story frame. Owner, J. D. Wils n; architect, H. T. Beator; contractor, R. P. Tracer; amount, \$5,450; limit, Oct. 1, 1899; signed, June 16; filed, June 27; \$550 r-tic on to first story; \$730 brown coated; \$550 white coated; \$550 completed; \$870, 35 days.

Pierce near Page, mill work. Owner, R. H. White; sub-contractors, F. V. Steinman and Michael McCloskey; amount, \$1,600; signed, June 24; filed, June 27; 75 per cent. of value of work as is delivered, balance, 25 per cent, 35 days.

Pacific and Gough streets, two-story frame. Owner, Louise S. Beyer; architect, M. G. Buehler; contractor, O. E. White; amount, \$5,500; sureties, Chas. F. & Frank P. Doe; limit, 100 days; signed, June 17; filed, June 18; \$1,625, enclosed; \$1,625, brown mortar is on; \$1,625, completed; \$1,625, 35 days.

Pierce and Page, two two-story frames. Owner, Michael McCloskey; architect, R. H. White; contractor, F. V. Steinman; amount, \$8,005; sureties, Frank P. Latson & John Diemer, \$5,000; limit, 90 days; signed, June 17; filed, June 19; \$1,100, framed; \$890 framed; \$1,847 50; brown coated; \$1,087 50 standing finish is on; \$1,700, completed; \$2,390, 35 days.

Polk and Washington, three-tenements and two stores. Owner, Alexander Ferran; architect, Wm. H. Wharf; contractor, Hiram G. Hatch; amount, \$6,500; sureties, A. A. Moore, \$2000; limit, September 1, 1899; signed, June 3; filed, June 17; \$975, brick work completed; \$975, framed; \$975, enclosed; \$975 white mortared; \$975, completed; \$975, 35 days.

Pacific street, No. 1338, alterations, etc. Owner, Thos. Kennedy; architect, A. W. H. Armitage; contractor, J. W. Sims; amount, \$2,550; sureties, Dennis Jordan; limit, 30 days; signed, June 6; filed, June 8; 75 per cent. as work progresses, balance 35 days.

Pacific and Pierce, two-story frame. Owner, Simon Anspacher; architect, Samuel Newsum; contractor, George R. Lang; amount, \$7,550; surety, Frank P. Latson; limit, 120 days; signed, June 14; filed, June 19; \$1,132 50 frame up; \$1,132 50, roof or; \$1,132 50, brown mortared; \$1,132 50, outside primed; \$1,132 50, completed; \$1,887 50, 35 days.

COUNTRY BUILDING NEWS.

SEATTLE.

The work of rebuilding is pushed with energy. We are indebted to the *Post-Intelligencer* for the report of work now in progress.

McNaught Bros., have engaged architect Boone, to prepare plans for a brick building to be erected by them on their property in the south east corner of Jackson and South Sixth streets. The ground floor will be divided into five stores with entrance on Jackson street. The three upper floors will be cut up in flats, and rented for tenement purposes. The building will be erected of brick, iron and stone, and work will begin as soon as plans are completed.

Mr. Sanderson is having plans drawn for a building to be erected on his property on Yesler avenue, between Commercial and South Second street. The building will be three stories high with basement. Work will commence on excavation for the basement at once.

Mr. J. Kenyon states that he will erect a brick building on his property on Commercial street, between Washington and Main. He will probably be joined by Messrs. McNaught and W. H. Maud, who own adjoining property.

The Gordon Hardware Company is preparing to go ahead with the construction of its building on its old site on Front street.

T. R. Hill has a force of men excavating on the site of the Oakland lodging house, on Commercial street, near Main. It is his purpose to erect a three-story brick, as soon as street lines and grade elevations are established by the council.

Mr. Chris Sherman will build on his property, situated on the northeast corner of Front and Cherry streets, as soon as the debris can be removed and the excavations made. The building will be built of brick, iron, stone and terra cotta, and will be a model structure. The dimensions are 60x120 and it will be three stories in height. The lower floor will be divided into two stores.

Fisher, the architect, has about completed the plans, and the building will be completed inside of four months. The estimated cost is \$30,000.

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Judge J. R. Lewis will erect a \$20,000 building on Front street. Architect Nestor is preparing plans.

Engle & McElroy will have a \$25,000 building erected from plans prepared by architect Nestor. Architect E. H. Fisher is preparing plans for a four-story building for Mrs. L. A. Starr.

G. W. Young will erect a \$10,000 building, the plans of which are being prepared by architect Nestor.

A Catholic church will be built at a cost of \$25,000. Branigan and Ryan have the contract.

Architect Larkin has plans ready for a \$6,000 building, for Mrs. M. A. Foster.

Architect Thomas will soon let contract for three houses for Mr. Glenn. They will cost \$9,000.

SAN JOSE.

J. Lensen & Son are preparing plans for a three story brick and stone building for C. T. Ryland.

Two-story brick and frame business block. San Antonio between Third and Second streets. F. H. Trope, owner; J. Lensen & Son, architects; Fuller & Cross, contractor; cost, \$5800.

One-story cottage in the Devendorf Addition. C. Warfield, owner; F. Davis, contractor; cost, \$1710.

Two-story dwelling on the Davis tract. Prof. Cox, owner; Hazard & Lyth, contractors; cost, \$2000.

Cottage in the Willows. Mr. Fleming, owner; Shottenhamer, contractor; cost, \$2200.

Additions to a dwelling on Third street. Mr. McCabe, owner; J. Lensen & Son, architects.

Dwelling on Fourth near Jackson street. A. Berryessa, owner; J. Lensen & Son, architects; A. C. Bates, contractor; cost, \$1100.

Dwelling house on Willow street. Mr. Ross, owner; Shottenhamer, contractor; cost, \$1800.

Dwelling house on Vine street. M. Lensen, owner; J. Lensen & Son, architects; E. A. Van Dalsem, contractor; cost, \$3000.

Two-story dwelling, Fifth near San Salvador street. Mrs. Burdett, owner; W. S. Boyles, contractor; cost, \$3500.

Dwelling house corner Fourth and Reed streets. O. L. Bennett, owner; built by day work; cost, \$3500.

ALAMEDA.

J. A. Leonard will erect three more dwellings on corner of Chestnut and Encinal avenue.

R. W. Mastick has let contract for a \$4000 house to be built on St. Charles street.

Senator Stewart will build on Blanding avenue near Willow street.

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Miss A. B. Karr, is having built by days work, a large double house to cost about \$8000. S. Hatfield, of San Francisco, prepared the plans.

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Mr. Thatcher intends to erect a \$10,000 hotel. I. J. Ludwig of Santa Rosa has the contract.

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Mr. Perry is having a neat house erected in the eastern portion of town.

YOUNTVILLE.

A \$3010 hospital building will be erected. J. Morton of Calistoga has the contract.

SACRAMENTO.

It is understood that the firm of Lubin & Weinstock will erect a five story brick building.

PORTERVILLE.

C. K. Kirby, architect, of Fresno, has plans finished for a block of stores for Lawrence Barrett.

HAYWARDS.

Daniel Luce is having erected a two-story brick building.

SANTA ROSA.

Mrs. Geo. Kennedy is having a residence built near town. Kuykendall & Nelson are the contractors.

BERKELEY.

A. H. Broad has been awarded a contract for building two residences.

W. W. Rednow will have erected for himself a \$5,000 dwelling.

REYNOLDS & ADAMS,

547 Brannan Street,

Hardwood Flooring,

Parquet Floors,

Wood Carpets,

—AND—

ENGLISH TILE FLOORS.

Designs and Estimates furnished on application.

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ADVERTISING RATES FURNISHED ON APPLICATION.

SAN FRANCISCO, AUGUST 15, 1889.

It is not often that trade journals pay attention to matters entirely out of the line for which said journals were established. In the issue of July 27th, of the *American Architect*, will be found a very able editorial in regard to the late trouble in this City between the Musician's Union and the Military Authorities. It says:—"The Trades Union in San Francisco came into a collision with a force which they will probably find less amiable and easy of circumvention than the civil law. The 4th of July Committee offered \$6 00 per day for each musician, instead of \$8 00, the amount paid on previous occasions. The Musician's Union thereupon issued orders that none of its members be allowed to play on that day. It happened, however, that among the musicians who were expected to take part, were the members of the three regimental bands, who, although they belonged to the Musician's Union, were regular enlisted men in their several regiments of militia. Upon their failure to appear for duty, the colonels of their regiments took up the code of militia regulations to inquire into the duty of enlisted musicians. As the officers concisely put the case "If some new military body has more power over any part of the military force stationed in San Francisco than the commander-in-chief, it is a better time to learn it now than to wait till an emergency arises, and they or other similar societies array themselves against the law and the officers appointed to administer the same." The *American Architect* thinks a salutary example should be made of the first offenders for so gross a military fault.

(The findings of the Court Martial were very much in keeping with the spirit of the above extract, as the leaders were dishonorably discharged and a fine imposed, besides. Appeal, however, is being prepared for executive clemency.—Editor *California Architect*.)

VALUE of sunshine.—A physician in New York reports, that during an epidemic of diphtheria in that city, there were five times as many cases on the shady side of the street as on the sunny side.

COMPETITION in laying artificial stone pavements has brought about the usual result. Low prices means the use of poor materials, not only in pavements, but in every thing else. Years ago, when cement sidewalks were first laid, people were slow to believe that they would last a quarter of a century and show but little wear from the thousands passing over them. Yet, there are pavements that have been used half of that time, on one of the most traveled portions of Kearney street, and the noticeable wear would not average an eighth of an inch. At that time, we believe, the price was about twenty cents per square foot. Numerous patents were taken out for various ways of laying the artificial stone pavement, and then the competition began. The price was reduced to 15 cents; then by one half of a cent at a time, down to 13 cts. This price was regarded as the very lowest that it was possible to lay a pavement. But still competition cut under that figure and walks have been laid as low as 10 cents a square foot. One enterprising individual on Market street, just below Sixth, used ashes instead of gravel in making the concrete bed. With a great flourish he proclaimed that his patent excelled them all, and \$20,000 was wanted for the same for this city alone. It was but a few months after being laid, that the utter worthlessness of ashes instead of gravel was thoroughly proven, and a short time ago, it was necessary to replace the sidewalk entirely. It is so every time. Grind the price down to 10 cents, and you will have a 10 cent sidewalk. All over the city, sidewalks are crumbling to pieces that have been laid but a short time, many of them less than a year; while those put down by such men as Geo. Goodman, E. L. Ransome and a few others, have stood the test of more than 10 years, and the walks are as good to-day as when first laid. If property owners would consider that there is but \$20 difference between a first class job and a 10 cent sidewalk, that one will last an ordinary lifetime, and the other but a few years, surely it would seem that no hesitation should be shown in choosing the better article. It is absolutely impossible to lay a good pavement at 10 cents, or even 12 cents, per square foot, and use gravel and cement as they should be used. Note how the cheap walks are laid. Gravel is used in the proportion of 1 part gravel and about 2 parts of earthy matter, the presence of which utterly precludes a good concrete for the foundation. Even with this cheap mixture, the contractor seeks to get off by making it not over an inch and a half in thickness. On top of this, a mixture of sand and cement is placed, and then the top is merely washed with a thin coating of cement. In one year the sidewalk is useless and people begin to condemn the cement sidewalk. Let owners figure on 15 cents per square foot for their pavements, give the laying of them to responsible parties only, and our word for it, they will never regret the difference in cost.

So far the proceedings of the International Congress of Architects, whose sessions were held in Paris, commencing June 17, do not amount to much. A paper was read by M. de Baudot, the subject of which was "Teaching of Architecture." The views taken by the speaker, according to the *American Architect*, were unfavorable to the system pursued at the Ecole des Beaux-Arts, and he argued very effectively in favor of a more practical training for young architects, which should remove from them the reproach of being able only to make handsome water-color drawings. After the paper was read, considerable discussion ensued, the opponents of M. de Baudot's views being in a decided majority. By a little sharp practice, the Convention finally dodged the issue with great discretion, by adopting a resolution to refer the matter to the next Convention which is not likely to be held for another ten years, at least.

The only other matter of professional interest, was that of requiring architects to pass an examination and receive a diploma before allowing them to practice. Arguments, pro and con, were freely indulged in, and the Convention dodged the issue in the same manner as above.

San Francisco Chapter American Institute of Architects.

The regular monthly meeting of the Chapter was held in their rooms, 408 California St., on Friday, August 2d. W. P. Moore occupied the chair. There was a very good attendance of the members.

The following named were nominated for officers for the ensuing term: President, Seth Babson; Vice-President, G. W. Percy, W. J. Cuthbertson, W. P. Moore; Secretary, O. Everett; Treasurer, J. M. Curtis; Trustees, Wright, Pissis, Percy, Gash, Bestor, Moore.

Applications for membership were received from D. L. Williams and F. Williams, both of Portland, Oregon.

An amendment was offered to the By-Laws by which the night of meeting is to be changed to the second Friday of the month.

The members of the Technical Society were invited in from their meeting room to listen to a paper read by John Gash, entitled, "THE STONE AGE." The paper was well received by those present, and an interesting discussion ensued in regard to stone and the causes that lead to its deterioration.

The thanks of the Chapter were extended to the speaker for his able address.

The Mechanics' Fair.

ARRANGEMENTS are in active progress for the opening of the Mechanics' Fair on the 27th of the present month. It will last to October 5th. From the extent of the preparations made, the next exhibit will be superior to any its predecessors. We are in hopes that the exhibit of building materials, finished as well as raw materials, will be such as to command the attention of strangers. We understand the Chapter of Architects have a committee on this subject, who are working harmoniously with committees from other associations, and we trust their efforts will be successful. Especially is it desired to have a complete line of building stone from the various quarries all over the coast. These should be accompanied by a certificate of chemical analysis from some well known assayer or chemist. Mechanics should show what they can do and the one who produces the longest thick shaving, and the longest thin shaving should each be entitled to a medal. We will give our customary review of all articles connected with the building interests.

A Dwelling House Elevator.

VERY few people like to climb stairs. If such a thing were possible and practical as an elevator in an ordinary private house, costing to erect and operate not so much as to put it beyond the means of an average house-owner, it would undoubtedly be a boon. A Berlin inventor has proposed a plan of "a simple and inexpensive elevator for private dwellings," which is worthy of mention. It is on the principle of the inclined railway, and the motive power is furnished by the city water, which is applied in the cellar; each flight has its separate chair, so that, for example, one person can ascend from the first to the second story while another is on his way from the second to the third, or still another is descending from the fifth to the fourth. The chair, being only the width of a human body, requires but little space, and still leaves a free passage for any who wishes to walk up or down, instead of riding. It is set in motion by a simple pressure upon one of its arms, while after it has been used it slides back to the bottom step, its descent being regulated in such a manner that the carrying of a passenger is a matter of entire safety. The motive power is, of course, more or less expensive, according to the cost of water, this being, it is stated, in Berlin at the rate of a little more than one-tenth of a cent only for each trip.

They have a fire-brick trust in England. And yet Englishmen call this country the land of monopolies and trusts. Those who live in glass houses should not throw fire bricks.—*Western Architect and Building News.*

Away From Home for News.

AN extract from the *North-Western Lumberman* will be interesting reading to those on this coast connected with the interests represented. Truly we have to go away from home for news, but, in this case, the news is a series of mistakes:

"Pacific coast lumbermen have been behind the times in some respects, but they are beginning to adopt improved methods, and from now on they will doubtless manufacture and sell lumber to better advantage. The band saw is being established in that region, and the dry kiln is making its way. It seems singular that coast lumbermen should be so slow to adopt improvements demonstrated to be of great value in other parts of the country; but it is a fact that strong pressure was required to get the band saw introduced in the manufacture of redwood and fir lumber, and it is of comparatively recent date that the feasibility of drying redwood was recognized. About a year ago a few kilns were put in at Stockton, San Jose and other points, and a few months ago the first one was put in at San Francisco. Now they are going in quite numerous through California, Washington and Oregon. The advent of lumbermen from fields east of the coast has resulted in various innovations in operations, and continued improvements and increased energy may be looked for."

ETCHING SAW BLADES.—Please inform me how saw manufacturers do fancy etching on the sides of steel saws? How could I put on a lion's head, with my name around the same?—B. A., Toronto, Ont.

Answer.—Saw manufacturers have the design and lettering engraved first on a copper plate by a competent engraver, by usual methods. This is done so as to read the same as the finished saw in appearance (not reversed, as printing-plates are done.) One or more impressions are then taken on a copper-plate press, with an ink that has had added to it some bitumen, or acid-resisting resin with beeswax. These impressions should be made on a thin, even paper, and the ink is afterwards transferred from this print on to a polished steel plate. Diluted nitric acid being put on the steel, the general surface is etched away, so that the letters and ornamentation stand up in relief instead of being sunk, as they are in the copper plate. The steel plate is then cleaned off, and is printed from in like manner to produce impressions for transferring to the saws. These impressions have the letters and ornamentation white on a black ground. If several impressions of the copper plate are transferred to the steel plate side by side, and etched, then each sheet printed from the steel plate will supply several transfers, when cut apart, for use on as many saws, thus economizing labor very considerably. If any of the transfers on steel or saw should be incomplete—not thoroughly protecting the surface, some asphaltum varnish, or shellac varnish with a little lampblack in it, can be applied with a camel's hair brush to the bare parts, to make them safe. The transfers on the saws are then etched, though not so deep as the first transfer on the plate, and the result is a duplicate of the original copper plate, with black letters, etc. Care must be taken to neutralize any traces of acid remaining on the saws when they are cleaned off, to prevent rusting after they are laid away. If this inquirer desires to decorate but one saw for himself, he must use ordinary methods of engraving. Cover the saw with an asphaltum varnish, draw through that with a steel point, or etching needle, the design he wishes, and then apply diluted nitric acid (acid, 1 part; water 4 parts) with a feather or camel's-hair brush until the design is etched black enough to suit him; wash off with water, then with turpentine, and lastly with soda solution. He will probably find it difficult to draw his lines just as he wishes them over the coarse grinding of the surface of the saw. —*Manufacturer and Builder.*

Architectural Picture-Making with Pen and Ink.

This book is handsomely illustrated with 32 large plates in size 12 x 18 inches. We have copies of this work on sale, which will be furnished at publishers price, \$4.

Palliser's Quarterly for one year in conjunction with the *California Architect*, Price for the two \$4.



DESIGN FOR CITY DWELLING—HUERNE & EVERETT, Architects.

COUNTRY BUILDING NEWS.

SEATTLE.

The work of rebuilding is pushed with energy. We are indebted to the *Post-Intelligencer* for the report of work now in progress.

McNaught Bros., have engaged architect Boone, to prepare plans for a brick building to be erected by them on their property in the south east corner of Jackson and South Sixth streets. The ground floor will be divided into five stores with entrance on Jackson street. The three upper floors will be cut up in flats, and rented for tenement purposes. The building will be erected of brick, iron and stone, and work will begin as soon as plans are completed.

Mr. Sanderson is having plans drawn for a building to be erected on his property on Vesler avenue, between Commercial and South Second street. The building will be three stories high with basement. Work will commence on excavation for the basement at once.

Mr. J. Kenyon states that he will erect a brick building on his property on Commercial street, between Washington and Main. He will probably be joined by Messrs. McNaught and W. H. Maud, who own adjoining property.

The Gordon Hardware Company is preparing to go ahead with the construction of its building on its old site on Front street.

T. R. Hill has a force of men excavating on the site of the Oakland lodging house, on Commercial street, near Main. It is his purpose to erect a three-story brick, as soon as street lines and grade elevations are established by the council.

Mr. Chris Sherman will build on his property, situated on the northeast corner of Front and Cherry streets, as soon as the debris can be removed and the excavations made. The building will be built of brick, iron, stone and terra cotta, and will be a model structure. The dimensions are 60x120 and it will be three stories in height. The lower floor will be divided into two stores.

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Dwelling house on Vine street owner; J. Lensen & Son, and Dalsem, contractor; cost, \$3000.

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IRREGULAR PAGINATION

COMPETITION in laying artificial stone pavements has brought about the usual result. Low prices means the use of poor materials, not only in pavements, but in every thing else. Years ago, when cement sidewalks were first laid, people were slow to believe that they would last a quarter of a century and show but little wear from the thousands passing over them. Yet, there are pavements that have been used half of that time, on one of the most traveled portions of street, and the noticeable wear would not average an f an inch. At that time, we believe, the price was twenty cents per square foot. Numerous patents were t for various ways of laying the artificial stone paved then the competition began. The price was reduced to then by one half of a cent at a time, down to 13 cts. e was regarded as the very lowest that it was possible pavement. But still competition cut under that figure ts have been laid as low as 10 cents a square foot. One ing individual on Market street, just below Sixth, used lead of gravel in making the concrete bed. With a irish he proclaimed that his patent excelled them all, 000 was wanted for the same for this city alone. It a few months after being laid, that the utter worthlessness instead of gravel was thoroughly proven, and a e ago, it was necessary to replace the sidewalk entirely. very time. Grind the price down to 10 cents, and you a 10 cent sidewalk. All over the city, sidewalks are g to pieces that have been laid but a short time, many less than a year; while those put down by such men as dman, E. L. Ransome and a few others, have stood the ore than 10 years, and the walks are as good to-day as t laid. If property owners would consider that there is difference between a first class job and a 10 cent side- one will last an ordinary lifetime, and the other but a s, surely it would seem that no hesitation should be choosing the better article. It is absolutely impossi- a good pavement at 10 cents, or even 12 cents, per ot, and use gravel and cement as they should be used. the cheap walks are laid. Gravel is used in the pro- 1 part gravel and about 2 parts of earthy matter, the of which utterly precludes a good concrete for the n. Even with this cheap mixture, the contractor seeks by making it not over an inch and a half in thickness. this, a mixture of sand and cement is placed, and then s merely washed with a thin coating of cement. In the sidewalk is useless and people begin to condemn the idewalk. Let owners figure on 15 cents per square eir pavements, give the laying of them to responsible nly, and our word for it, they will never regret the in cost.

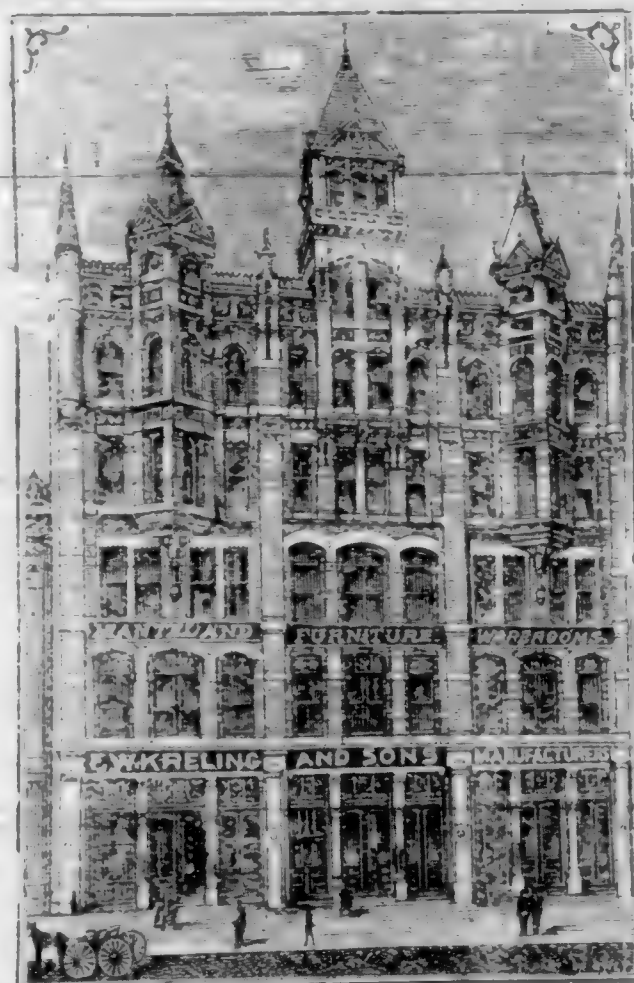
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McNaught Bros., have engaged architect Boone, to prepare plans for a brick building to be erected by them on their property in the south east corner of Jackson and South Sixth streets. The ground floor will be divided into five stores with entrance on Jackson street. The three upper floors will be cut up in flats, and rented for tenement purposes. The building will be erected of brick, iron and stone, and work will begin as soon as plans are completed.

Mr. Sanderson is having plans drawn for a building to be erected on his property on Vesler avenue, between Commercial and South Second street. The building will be three stories high with basement. Work will commence on excavation for the basement at once.

Mr. J. Kenyon states that he will erect a brick building on his property on Commercial street, between Washington and Main. He will probably be joined by Messrs. McNaught and W. H. Maud, who own adjoining property.

The Gordon Hardware Company is preparing to go ahead with the construction of its building on its old site on Front street.

F. R. Hill has a force of men excavating on the site of the Oakland lodging house, on Commercial street, near Main. It is his purpose to erect a three-story brick, as soon as street lines and grade elevations are established by the council.

Mr. Chris Sherman will build on his property, situated on the northeast corner of Front and Cherry streets, as soon as the debris can be removed and the excavations made. The building will be built of brick, iron, stone and terra cotta, and will be a model structure. The dimensions are 60x120 and it will be three stories in height. The lower floor will be divided into two stores.

Fisher, the architect, has about completed the plans, and the building will be completed inside of four months. The estimated cost is \$30,000.

Architect Boone has completed plans for a frame building to be erected on the south side of Washington street, between South Sixth and Seventh streets, by Mr. S. Baxter. The building will be 60x120 feet in dimensions, and four stories in height. There will be three stores on the ground floor. The three upper floors will be divided into sixty rooms, for tenement purposes. Plans are also completed for a building identically the same in proportion, and to be used for the same purpose, which will be erected by Mr. S. Baxter on the east side of Front street, between Virginia and Lenora streets. These buildings will be put up at once.

The excavations for the Guy C. Phinney building on the northeast corner of Front and Seneca streets, are completed, and work on the building will commence to-day.

Architect Boone is preparing plans for rebuilding the Wah Chung building, situated on the north east corner of South Third and Washington streets. The dimensions of the building as it

formerly stood, were 60x45 feet. It will now cover 60x111 feet of ground and will be as originally, two stories high with a basement.

Whittier, Fuller & Co., will erect a building to cost \$75,000.

On corner of Cherry and Third, Mr. Dexter Horner will erect a four story brick building. Architect Boone has the plans about ready for same. Cost, \$90,000.

Judge J. R. Lewis will erect a \$20,000 building on Front street. Architect Nestor is preparing plans.

Engle & McElroy will have a \$25,000 building erected from plans prepared by architect Nestor.

Architect E. H. Fisher is preparing plans for a four-story building for Mrs. L. A. Starr.

G. W. Young will erect a \$10,000 building, the plans of which are being prepared by architect Nestor.

A Catholic church will be built at a cost of \$25,000. Branigan and Ryan have the contract.

Architect Larkin has plans ready for a \$6,000 building, for Mrs. M. A. Foster.

Architect Thomas will soon let contract for three houses for Mr. Glenn. They will cost \$9,000.

SAN JOSE.

J. Lensen & Son are preparing plans for a three story brick and stone building for C. T. Ryland.

Two-story brick and frame business block. San Antonio between Third and Second streets. F. H. Trope, owner; J. Lensen & Son, architects; Fuller & Cross, contractor; cost, \$5500.

One-story cottage in the Devendorf Addition. C. Warfield, owner; F. Davis, contractor; cost, \$1710.

Two-story dwelling on the Davis tract. Prof. Cox, owner; Hazard & Lyth, contractors; cost, \$2000.

Cottage in the Willows. Mr. Fleming, owner; Shottenhamer, contractor; cost, \$2200.

Additions to a dwelling on Third street. Mr. McCabe, owner; J. Lensen & Son, architects. J. D. Stewart, contractor; cost, \$1200.

Dwelling on Fourth near Jackson street. A. Berryessa, owner; J. Lensen & Son, architects; A. C. Hates, contractor; cost, \$1100.

Dwelling house on Willow street. Mr. Ross, owner; Shottenhamer, contractor; cost, \$1800.

Dwelling house on Vine street. M. Lenzon, owner; J. Lensen & Son, architects; E. A. Van Dalsen, contractor; cost, \$3000.

Two-story dwelling, Fifth near San Salvador street. Mrs. Burdett, owner; W. S. Boyles, contractor; cost, \$3500.

Dwelling house corner Fourth and Reed streets. O. L. Bennett, owner; built by day work; cost, \$3500.

ALAMEDA.

J. A. Leonard will erect three more dwellings on corner of Chestnut and Encinal avenue.

R. W. Mastick has let contract for a \$4000 house to be built on St. Charles street.

Senator Stewart will build on Blanding avenue near Willow street.

Eugene J. Bates will build on San Antonio avenue. Pattiani & Co., have the contract.

MARYSVILLE.

Miss A. B. Karr, is having built by days work, a large double house to cost about \$8000. S. Hatfield, of San Francisco, prepared the plans.

HOPLAND.

Mr. Thatcher intends to erect a \$10,000 hotel. I. J. Ludwig of Santa Rosa has the contract.

PETALUMA.

Mr. Perry is having a neat house erected in the eastern portion of town.

YOUNTVILLE.

A \$3000 hospital building will be erected. J. Morton of Calistoga has the contract.

SACRAMENTO.

It is understood that the firm of Lubin & Weinstock will erect a five story brick building.

PORTERVILLE.

C. K. Kirby, architect, of Fresno, has plans finished for a block of stores for Lawrence Barrett.

HAYWARDS.

Daniel Luce is having erected a two-story brick building.

SANTA ROSA.

Mrs. Geo. Kennedy is having a residence built near town. Kuykendall & Nelson are the contractors.

BERKELEY.

A. H. Broad has been awarded a contract for building two residences.

W. W. Rednow will have erected for himself a \$5,000 dwelling.

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SAN FRANCISCO, CAL.



The * California * Architect * and * Building * News

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ADVERTISING RATES FURNISHED ON APPLICATION.

SAN FRANCISCO, AUGUST 15, 1889.

It is not often that trade journals pay attention to matters entirely out of the line for which said journals were established. In the issue of July 27th, of the *American Architect*, will be found a very able editorial in regard to the late trouble in this City between the Musician's Union and the Military Authorities. It says:—"The Trades Union in San Francisco came into a collision with a force which they will probably find less amiable and easy of circumvention than the civil law. The 4th of July Committee offered \$6.00 per day for each musician, instead of \$8.00; the amount paid on previous occasions. The Musician's Union thereupon issued orders that none of its members be allowed to play on that day. It happened, however, that among the musicians who were expected to take part, were the members of the three regimental bands, who, although they belonged to the Musician's Union, were regular enlisted men in their several regiments of militia. Upon their failure to appear for duty, the colonels of their regiments took up the code of militia regulations to inquire into the duty of enlisted musicians. As the officers concisely put the case: "If some new-military body has more power over any part of the military force stationed in San Francisco than the commander-in-chief, it is a better time to learn it now than to wait till an emergency arises, and they or other similar societies array themselves against the law and the officers appointed to administer the same." The *American Architect* thinks a salutary example should be made of the first offenders for so gross a military fault.

(The findings of the Court Martial were very much in keeping with the spirit of the above extract, as the leaders were dishonorably discharged and a fine imposed besides. Appeal, however, is being prepared for executive clemency.—Editor *California Architect*.)

VALUE of sunshine.—A physician in New York reports, that during an epidemic of diphtheria in that city, there were five times as many cases on the shady side of the street as on the sunny side.

COMPETITION in laying artificial stone pavements has brought about the usual result. Low prices means the use of poor materials, not only in pavements, but in every thing else. Years ago, when cement sidewalks were first laid, people were slow to believe that they would last a quarter of a century and show but little wear from the thousands passing over them. Yet, there are pavements that have been used half of that time, on one of the most traveled portions of Kearney street, and the noticeable wear would not average an eighth of an inch. At that time, we believe, the price was about twenty cents per square foot. Numerous patents were taken out for various ways of laying the artificial stone pavement, and then the competition began. The price was reduced to 15 cents; then by one half of a cent at a time, down to 13 cts. This price was regarded as the very lowest that it was possible to lay a pavement. But still competition cut under that figure and walks have been laid as low as 10 cents a square foot. One enterprising individual on Market street, just below Sixth, used ashes instead of gravel in making the concrete bed. With a great flourish he proclaimed that his patent excelled them all, and \$20,000 was wanted for the same for this city alone. It was but a few months after being laid, that the utter worthlessness of ashes instead of gravel was thoroughly proven, and a short time ago, it was necessary to replace the sidewalk entirely. It is so every time. Grind the price down to 10 cents, and you will have a 10 cent sidewalk. All over the city, sidewalks are crumbling to pieces that have been laid but a short time, many of them less than a year; while those put down by such men as Geo. Goodman, E. L. Ransome and a few others, have stood the test of more than 10 years, and the walks are as good to-day as when first laid. If property owners would consider that there is but \$20 difference between a first class job and a 10 cent sidewalk, that one will last an ordinary lifetime, and the other but a few years, surely it would seem that no hesitation should be shown in choosing the better article. It is absolutely impossible to lay a good pavement at 10 cents, or even 12 cents, per square foot, and use gravel and cement as they should be used. Note how the cheap walks are laid. Gravel is used in the proportion of 1 part gravel and about 2 parts of earthy matter, the presence of which utterly precludes a good concrete for the foundation. Even with this cheap mixture, the contractor seeks to get off by making it not over an inch and a half in thickness. On top of this, a mixture of sand and cement is placed, and then the top is merely washed with a thin coating of cement. In one year the sidewalk is useless and people begin to condemn the cement sidewalk. Let owners figure on 15 cents per square foot for their pavements, give the laying of them to responsible parties only, and our word for it, they will never regret the difference in cost.

SO far the proceedings of the International Congress of Architects, whose sessions were held in Paris, commencing June 17, do not amount to much. A paper was read by M. de Baudot, the subject of which was "Teaching of Architecture." The views taken by the speaker, according to the *American Architect*, were unfavorable to the system pursued at the Ecole des Beaux-Arts, and he argued very effectively in favor of a more practical training for young architects, which should remove from them the reproach of being able only to make handsome water-color drawings. After the paper was read, considerable discussion ensued, the opponents of M. de Baudot's views being in a decided majority. By a little sharp practice, the Convention finally dodged the issue with great discretion, by adopting a resolution to refer the matter to the next Convention which is not likely to be held for another ten years, at least.

The only other matter of professional interest, was that of requiring architects to pass an examination and receive a diploma before allowing them to practice. Arguments, pro and con, were freely indulged in, and the Convention dodged the issue in the same manner as above.

San Francisco Chapter American Institute of Architects.

The regular monthly meeting of the Chapter was held in their rooms, 408 California St., on Friday, August 2d. W. P. Moore occupied the chair. There was a very good attendance of the members.

The following named were nominated for officers for the ensuing term: President, Seth Babson; Vice-President, G. W. Percy, W. J. Cuthbertson, W. P. Moore; Secretary, O. Everett; Treasurer, J. M. Curtis; Trustees, Wright, Pissis, Percy, Gash, Bestor, Moore.

Applications for membership were received from D. L. Williams and F. Williams, both of Portland, Oregon.

An amendment was offered to the By-Laws by which the night of meeting is to be changed to the second Friday of the month.

The members of the Technical Society were invited in from their meeting room to listen to a paper read by John Gash, entitled, "THE STONE AGE." The paper was well received by those present, and an interesting discussion ensued in regard to stone and the causes that lead to its deterioration.

The thanks of the Chapter were extended to the speaker for his able address.

The Mechanics' Fair.

ARRANGEMENTS are in active progress for the opening of the Mechanics' Fair on the 27th of the present month. It will last to October 5th. From the extent of the preparations made, the next exhibit will be superior to any its predecessors. We are in hopes that the exhibit of building materials, finished as well as raw materials, will be such as to command the attention of strangers. We understand the Chapter of Architects have a committee on this subject, who are working harmoniously with committees from other associations, and we trust their efforts will be successful. Especially is it desired to have a complete line of building stone from the various quarries all over the coast. These should be accompanied by a certificate of chemical analysis from some well known assayer or chemist. Mechanics should show what they can do and the one who produces the longest thick shaving, and the longest thin shaving should each be entitled to a medal. We will give our customary review of all articles connected with the building interests.

A Dwelling House Elevator.

VERY few people like to climb stairs. If such a thing were possible and practical as an elevator in an ordinary private house, costing to erect and operate not so much as to put it beyond the means of an average house-owner, it would undoubtedly be a boon. A Berlin inventor has proposed a plan of "a simple and inexpensive elevator for private dwellings," which is worthy of mention. It is on the principle of the inclined railway, and the motive power is furnished by the city water, which is applied in the cellar; each flight has its separate chair, so that, for example, one person can ascend from the first to the second story while another is on his way from the second to the third, or still another is descending from the fifth to the fourth. The chair, being only the width of a human body, requires but little space, and still leaves a free passage for any who wishes to walk up or down, instead of riding. It is set in motion by a simple pressure upon one of its arms, while after it has been used it slides back to the bottom step, its descent being regulated in such a manner that the carrying of a passenger is a matter of entire safety. The motive power is, of course, more or less expensive, according to the cost of water, this being, it is stated, in Berlin at the rate of a little more than one-tenth of a cent only for each trip.

They have a fire-brick trust in England. And yet Englishmen call this country the land of monopolies and trusts. Those who live in glass houses should not throw fire bricks.—*Western Architect and Building News.*

Away From Home for News.

AN extract from the *North-Western Lumberman* will be interesting reading to those on this coast connected with the interests represented. Truly we have to go away from home for news, but, in this case, the news is a series of mistakes:

"Pacific coast lumbermen have been behind the times in some respects, but they are beginning to adopt improved methods, and from now on they will doubtless manufacture and sell lumber to better advantage. The band saw is being established in that region, and the dry kiln is making its way. It seems singular that coast lumbermen should be so slow to adopt improvements demonstrated to be of great value in other parts of the country; but it is a fact that strong pressure was required to get the band saw introduced in the manufacture of redwood and fir lumber, and it is of comparatively recent date that the feasibility of drying redwood was recognized. About a year ago a few kilns were put in at Stockton, San Jose and other points, and a few months ago the first one was put in at San Francisco. Now they are going in quite numerous through California, Washington and Oregon. The advent of lumbermen from fields east of the coast has resulted in various innovations in operations, and continued improvements and increased energy may be looked for."

ETCHING SAW BLADES.—Please inform me how saw manufacturers do fancy etching on the sides of steel saws? How could I put on a lion's head, with my name around the same?—B. A., Toronto, Ont.

Answer. Saw manufacturers have the design and lettering engraved first on a copper plate by a competent engraver, by usual methods. This is done so as to read the same as the finished saw in appearance (not reversed, as printing-plates are done.) One or more impressions are then taken on a copper-plate press, with an ink that has had added to it some bitumen, or acid-resisting resin with beeswax. These impressions should be made on a thin, even paper, and the ink is afterwards transferred from this print on to a polished steel plate. Diluted nitric acid being put on the steel, the general surface is etched away, so that the letters and ornamentation stand up in relief instead of being sunk, as they are in the copper plate. The steel plate is then cleaned off, and is printed from in like manner to produce impressions for transferring to the saws. These impressions have the letters and ornamentation white on a black ground. If several impressions of the copper plate are transferred to the steel plate side by side, and etched, then each sheet printed from the steel plate will supply several transfers, when cut apart, for use on as many saws, thus economizing labor very considerably. If any of the transfers on steel or saw should be incomplete—not thoroughly protecting the surface, some asphaltum varnish, or shellac varnish with a little lampblack in it, can be applied with a camel's hair brush to the bare parts, to make them safe. The transfers on the saws are then etched, though not so deep as the first transfer on the plate, and the result is a duplicate of the original copper plate, with black letters, etc. Care must be taken to neutralize any traces of acid remaining on the saws when they are cleaned off, to prevent rusting after they are laid away. If this inquirer desires to decorate but one saw for himself, he must use ordinary methods of engraving. Cover the saw with an asphaltum varnish, draw through that with a steel point, or etching needle, the design he wishes, and then apply diluted nitric acid (acid, 1 part; water 4 parts) with a feather or camel's-hair brush until the design is etched black enough to suit him; wash off with water, then with turpentine, and lastly with soda solution. He will probably find it difficult to draw his lines just as he wishes them over the coarse grinding of the surface of the saw.

—*Manufacturer and Builder.*

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DESIGN FOR CITY DWELLING—HUERNE & EVERETT, Architects.

A Tin Roof.

After the brand of tin has been selected for a roof, there yet remains the question of how it shall be worked by the tinner in forming the roof. Two leading styles of tin roofs are recognized. One of these is known as "Flat Seam," or "Flat Lock," roofing, and the other is designated by such terms as "Standing Seam," or "Standing Groove," roofing. These two styles are not necessarily in competition with each other, for one of them is particularly adapted to flat or level roofs, while the other is better for use on roofs having a considerable pitch. In some parts of the country, tinner do not seem to be acquainted with standing seam roofs at all, and use the flat seam on all occasions.

Flat seam roofs are laid by locking the sheets together on all four edges alike and soldering, the result being one huge sheet covering the entire surface of the roof. As the sheets are laid, they are securely fastened to the roof by nailing through them under the edges turned up for the locks, or preferably by the use

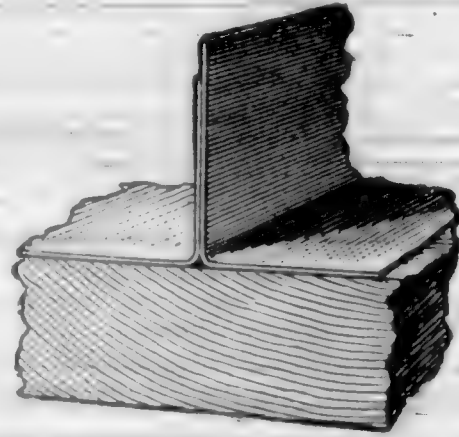


FIG. 4.—Edges of sheets turned up—first operation in laying a Standing Seam Roof.

of flat cleats. After laying, the seams are pounded flat and soldered. Such a roof is best for flat surfaces, but where a pitch of a half inch to the foot, or greater, can be obtained, better results are secured by laying the roof standing seam, which is illustrated in detail.

Standing seam roof is variously laid, and in the space of this pamphlet we can do no more than indicate the more common methods, and illustrate one of them. The sheets are first joined in the shop in long lengths by locking and soldering well on the upper side. The long strips are then rolled up and taken to the building. The strips are placed up and down the roof, and are united at their edges by the kind of joints that give the name to the style of roofing, namely standing seams. The construction of these joints is illustrated in figures 4, 5, 6, 7. Either of the sizes of sheets before mentioned may be used in a standing seam roof, and each of them may be worked in either of two ways; that is, either the wide or narrow way. Probably the larger number of standing seam roofs, the country over, are laid the 20-

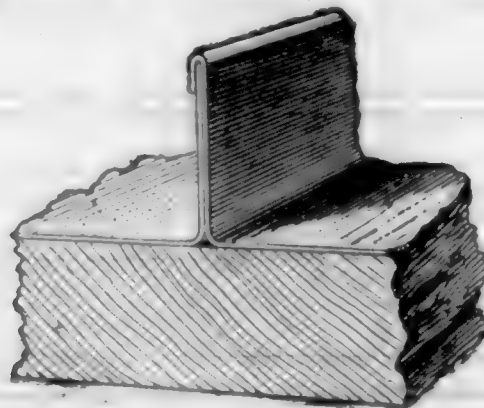


FIG. 5.—The high edge bent over the lower—the second operation.

inch way of the sheets whichever size of plate is used. Different roofers prefer different methods, and in all cases more depends upon the intelligence with which the work is done than upon which way of the sheet the roof is laid, or of the size of the sheets. In the same way the height of the standing seam varies from $\frac{1}{2}$ of an inch minimum to $1\frac{1}{2}$ inches maximum. In the diagrams which we have introduced in this connection, we have employed the size of seams to which a large majority of tinner are accustomed to work.

STANDING SEAM ROOFS: 14x20 PLATES.

Many roofers claim that a better roof can be made of 14 x 20 plates than of 20 x 28. It costs a little more to lay a roof of the 14 x 20 size than it does of the 20 x 28 size, owing to the greater number of seams. In our estimation locality or custom has much to do with the use of the two different sizes. The 14 x 20 plates can be used for standing seam roofs in two ways. The more desirable way is by laying the sheets the 14 inch way, as illustrated in Fig. 1.

Using the tin in the manner shown in Fig. 1, as compared with

the plan of working the sheets the other way about, requires more cleats and nails, as well as labor. The figures in the engraving represent the net surface of each sheet when laid the 14-inch way, and finished with a standing seam 1 inch in height. The cross locks are calculated $\frac{1}{2}$ of an inch wide.

PUTTING TIN TOGETHER.

Figure 2 shows how the sheets are formed and put together in lengths preparatory to laying them on the roof.

STANDING SEAM ROOF, 20 x 28 PLATES.

Figure 3 shows the appearance of a Standing Seam Roof laid, of 20 x 28 sheets, and represents the net surface of each sheet when laid the 20-inch way.

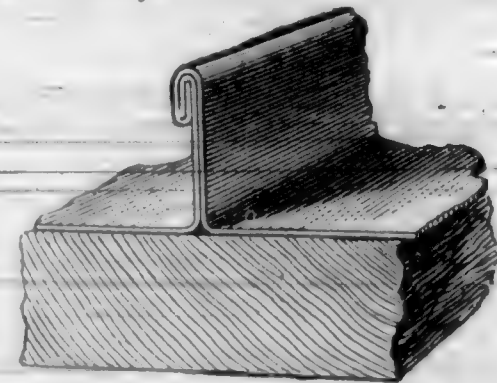


FIG. 6.—The top, turned over the second time forming the double seam.

If two roofers figure to lay a roof of 20 x 28, and one lays it the 20-inch way he cannot lay it as cheaply as the one who would lay it the 28-inch way. But the 20-inch way makes the better roof.

ADVANTAGES OF A STANDING SEAM ROOF.

Where there is enough slope or fall to the roof, we recommend that the standing seam be used, and the same run down as far as within 5 inches of the level of the gutter water line, and that the cross seams be well soldered.

The advantage to be derived from the standing seam is an allowance for a greater amount of expansion and contraction than from the flat seam; as flat seams being soldered, make the entire roof practically a solid sheet.

We show in Figs. 4 to 7, inclusive, the method of making a standing seam. Fig. 4 shows sheets formed, or the edges turned up; Fig. 5 shows the first seam turned; Fig. 6 shows the seams double-locked and closed, and Fig. 7 shows the seams double-locked, closed, with paper under a standing seam roof, also showing cleat in finished seam.

CLEATS FOR A STANDING SEAM ROOF.

Are made of tin about $1\frac{1}{2}$ wide by $4\frac{1}{2}$ long, and they should be placed at intervals of not more than 14 inches, and should always be used of style as shown in Fig. 8.

Two good sized barbed wire nails should be used for holding the cleat in place. Nailing through a single thickness of tin is not enough to hold the work in place. Always cover the heads of the nails and prevent them coming in contact with the roof covering. These considerations give rise to the form of cleat illustrated in Figs. 8 and 9.

Empire Sheathing paper under a flat or standing seam tin roof, as under all metal roofs, is an advantage. Fig. 7 illustrates the

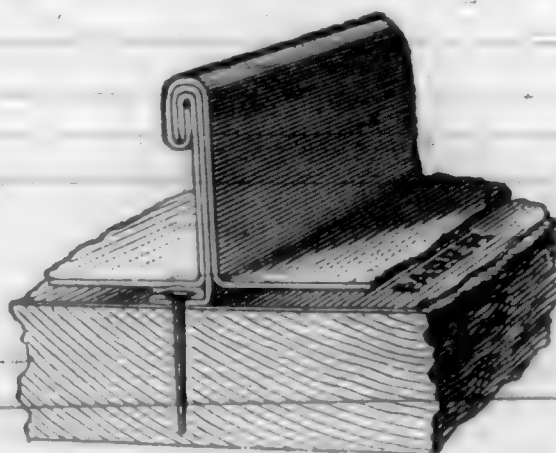


FIG. 7.—Paper under a Standing Seam Roof; also showing cleat in finished seam.

combination, and also shows the form of cleat illustrated in Figs. 8 and 9 in position.

GUTTERS.

Have the tin carefully put together, and the seams well soldered. Have the strips well cleated to the boards, and see that the gutters run up high enough to be above the water line. For gutters we recommend the 1X thickness.

FIRE WALLS.

Have the Fire-Walls thoroughly covered with tin, which should be strapped or fastened to the walls every twelve inches.

SOLDERING.

We recommend the use of Rosin only as a flux in soldering,

and after soldering all Rosin should be carefully cleaned from the surface, otherwise it will appear after roof is painted." Half and Half" solder (a mixture of half tin and half lead) is the quality most suitable for roofing purposes.

100 square feet standing seam roofing should not take less than 3 pounds solder; 100 square feet flat seam roofing requires 7 pounds solder, which amount should be rigidly insisted upon to properly solder roof.

PAINTING THE ROOF.

The best paint for the purpose is composed of:—

7 pounds Prince's Metallic Paint, dry.

1 gallon Pure Linseed Oil ($\frac{1}{4}$ boiled and $\frac{3}{4}$ raw).

The above amount will cover 500 square feet.

The substitution of Benzine or Fish Oils for the Pure Linseed Oil should not be allowed.

The roof will last longer and be less liable to rust if painted on the under surface before laying, and should be so painted in every instance. It should also have two coats of paint on upper side as soon as the roof is laid and soldered. It is a good plan to put one layer of Empire Sheathing paper under the tin to serve

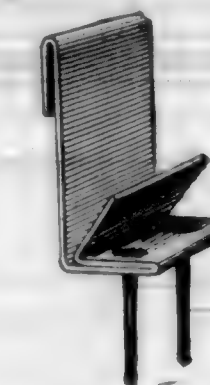


FIG. 8.—Cleat with double nailing flange and cap.

as a cushion for same, and to deaden the noise made by the rain falling on the tin. This also prevents the annoyance of condensation on the under side, which frequently causes such a drip as to make it appear that the roof leaks.

A year after the first painting the roof should be painted again, and then a good roof will only require painting once in five years.

THE NUMBER OF SQUARE FEET A BOX OF ROOFING TIN WILL COVER.

For flat seam Roofing, using 1-2 inch locks, a box 14x20 size will cover about 192 square feet and for standing seam, using 3-8-inch locks, and turning $1\frac{1}{4}$ and 1 1-2 inches edges, making one inch standing seams, it will lay about 168 square feet.

For flat seam roofing, using 1-2-inch locks, a box of 28x20 size will cover about 399 square feet and for standing seam, using $\frac{3}{8}$ -inch locks and turning $1\frac{1}{4}$ and 1 1-2 inches edges, making 1-inch standing seams, it will lay about 365 square feet.

Every box of roofing plates (1C or 1X 14x20 or 20x28 sizes) contains 112 sheets.

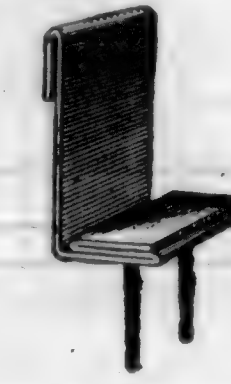


FIG. 9.—Same cleat, with cap covering the nail heads.

SUGGESTIONS TO THOSE SPECIFYING TIN ROOFING.

In view of the foregoing, we would suggest to architects desiring to specify the best roofing tin and selecting our guaranteed brands, that the following precautions be taken in the wording of their specifications:

1st. That the name of the brand be written down in full, "Gilbertson's Old Method" or "Merchant's Roofing" or "Camaret."

2d. Every sheet to be stamped not only with the name of the brand, but also the thickness to be used—1C or 1X.

If either of the above-named brands be used as a standard, and a cheaper brand be inserted in the same specification, there is, of course, little or no chance of our plates being used. Furthermore, after a specification has been so written as to allow inferior brands to be used—and very possibly the imperfect or waster sheets of same—and the roof commences to leak or show defects (as it would undoubtedly do in a short time), the specification is looked up, and our brands are condemned, when, in fact, they have never been used upon the roof in question.

We are prepared to prove that we were the first to introduce guaranteed plates and stamp every sheet with the name of the brand and thickness; and having also done away with the imperfect or waster sheets to further protect architects who wish to specify, and property owners who want to use the best, we feel that we have a right, under these circumstances, to ask that our guaranteed brands shall not be specified along with other brands in the market, which are inferior in quality, coating, weight and assortment.

We are at all times ready to afford any further information desired on this subject.

Samples of our "Gilbertson's Old Method" and "Merchant's Roofing" and "Camaret" brands of guaranteed Roofing Plates mailed on application. Merchant & CO., Philadelphia.

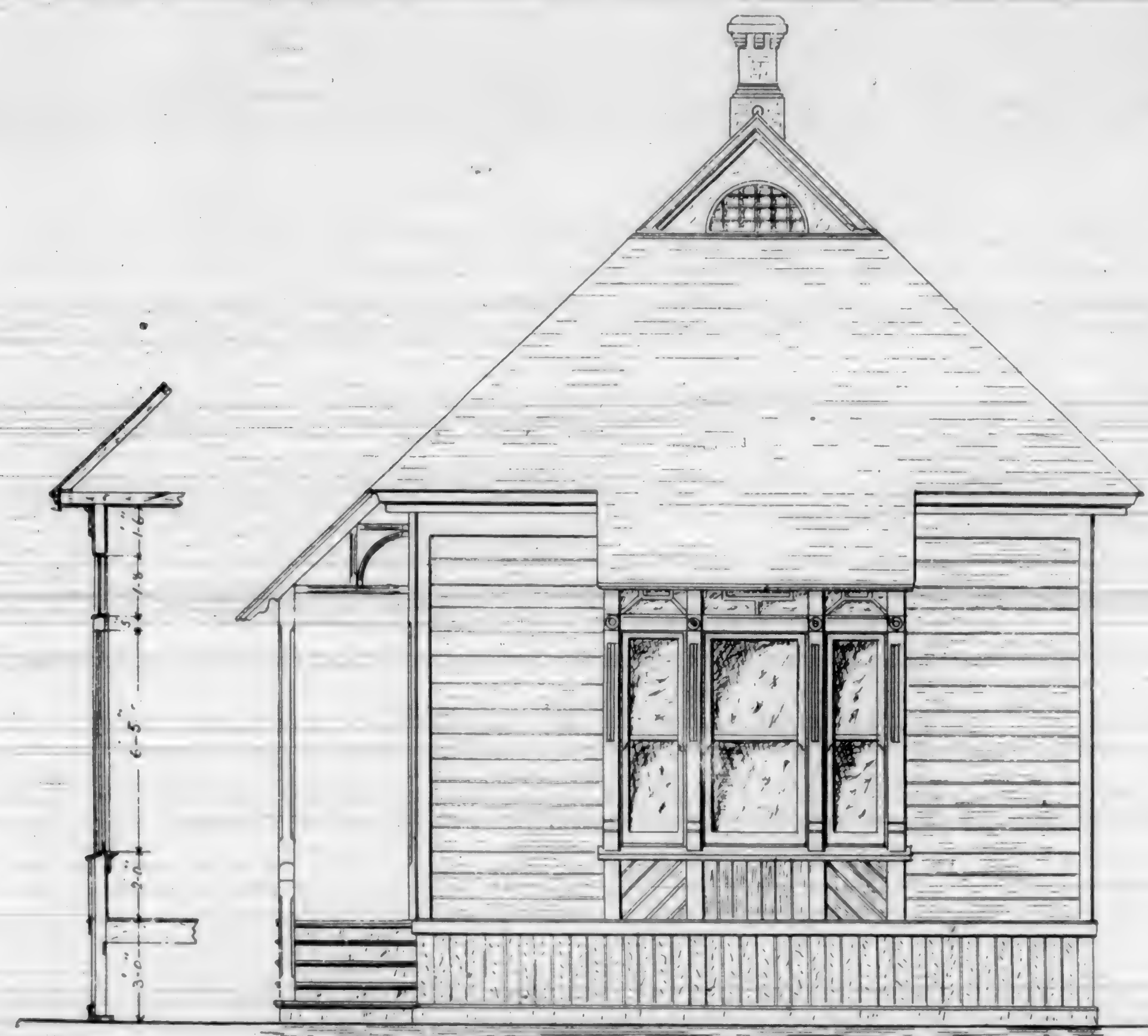
Mothers as Wage-Earners.

FOR years the world has been on a moral crusade against the employment of children in mines and factories, while the far greater evils that result from the mothers going out as wage-earners have attracted comparatively very little attention. Labor, within certain limits, is good for the child, giving it a wholesome moral discipline, and training it for the business by which it is to earn its livelihood; but when a married woman has to neglect her natural duties for the responsibilities that properly belong to the other sex, it is time for humanity to protest in the name of her offspring. No one individual can fulfill satisfactorily the double or, I should say, the triple function of bearing and rearing children, and providing for their maintenance. I am a laboring woman myself, and have met with some success as a bread-winner; and I know the conditions of performing this function satisfactorily are quite incompatible with those arduous and important duties which make such heavy demands upon every conscientious mother, especially among the poor. In the homes of the very poor there are no hired servants to keep the household machinery running smoothly while the mistress is away. The wife of the laboring man is frequently cook, nurse, house-maid, laundress—all in one; and if she must go out as a bread-winner besides, what is to prevent the domestic engine from running off the track and getting itself hopelessly ditched? Of the two evils, if both are evils, I am persuaded that it is better that the child should go out to labor than the mother. Liberty, uncurbed by the check-rein of parental restraint, is a more than doubtful blessing for the loss of which the child that takes its mother's place in the shop or the mill is more than compensated by the advantage of having her care at home.—Eliza F. Andrews.

A Good Thing for Boys.

MANUAL training is one of the few good things that are good for everybody. It is good for the rich boy, to teach him respect for the dignity of beautiful work. It is good for the poor boy, to increase his facility for handling tools, if tools prove to be the things he must handle for a living afterward. It is good for the bookish boy, to draw him away from his books. But, most of all, it is good for the non-bookish boy; it shows him that there is something that he can do well. The boy utterly unable, even if he were studious, to keep up in book knowledge and percentage with the brighter boys, becomes discouraged, dull and moody. Let him go to the work-room for an hour, and find that he can make a box or plane a rough piece of board as well as the brighter scholar, yes, very likely better than his brighter neighbor, and you have given him an impulse of self-respect that is of untold benefit to him when he goes back to his studies. He will be a brighter and better boy for finding out something that he can do well. Mind you, it is plaining the board in the presence of other boys who can no longer look down upon him when they see how well he can plane. He might go home after school and plane a board in the bosom of his family, or go to an evening school to learn to plane, without a quarter part, nay, without any of the invaluable effects upon his manhood that it will have to let him plane side by side with those who in mental attainments may be his superiors.—Selected.

We will send Palliser's Quarterly for one year (price \$3.00) and the California Architect (price \$2.00)—the two for \$4.00.



A NEAT COTTAGE—PLAN ON OPPOSITE PAGE.

Decomposition of Stone.

DR G. W. HAWES, in a report to the United States Government says: There are many more factors which determine the value of stone for purposes of construction than are often considered in the elementary treatises upon this subject, and the rules laid down are often determined by the local circumstances. A more extensive study of building stones frequently vitiates the rules which apply in limited areas. It is, for example, stated that, in order to determine whether a stone will withstand the action of the weather, one should visit the quarry and observe whether the ledges that have been exposed to the weather are deeply corroded, or whether these old surfaces are still fresh. This is not a fair criterion, because the applicability of such a test is modified by geological phenomena. North of the glacial limit, all the products of decomposition have been planed away and deposited as drift formation over the length and breadth of the land. The rocks are therefore in general, quite fresh in appearance, and possess but a slight depth of cad or worthless rock. The same classes of rock, however in the South are covered with the rotten products resulting from long ages of atmospheric action. They may be rotten to great depths, and the removal of the worthless rock is often difficult. This is due to the circumstances that no agencies have here operated to scrape off and remove the loose material from their surfaces in recent geological time.

There are other peculiarities of decomposition regarding which too absolute rules have been laid down. Pyrites is considered to be the enemy of the quarryman and constructor, as it decomposes with ease, and stains and discolors the rock. But here, too, there are features which very seriously modify the effect of this decomposing substance. Pyrites, in sharp, well defined crystals, sometimes decomposes with great difficulty. If a crystal or grain of pyrites is embodied in soft, porous, light colored sandstones, like those which come from Ohio, its presence will with certainty soon demonstrate itself by the black spot, which will form about in the porous stone, and which will permanently disfigure and mar its beauty. If the same grain of pyrites is situated in a very hard, compact, non-absorbent stone, the constituent minerals of which

are not rifted or cracked, this grain of pyrites may decompose and the products be washed away, leaving the stone untarnished.

Again, some of the constitutional elements of rocks are so frequently found in a decomposed condition that they are considered to be deleterious, when present in large quantity, on account of their well-known tendency to decompose. For example, olivine indicates a very marked tendency to decompose, as indicated by the vast accumulations of serpentine, which are so frequently found to be a result of its decompositions; but the circumstances which in past time has brought about this decomposition may have been very different from those which indicate that it will decompose under the present influences. We wish to bring prominently forward that we consider that a decision as to the probable action of the agents producing decomposition in rocks should be largely dependent upon careful microscopic examination of the structure of the rock. Our experience has demonstrated that a rock of a given character, as regards ultimate composition and mineral constituents, may be easily affected by the weather if its constituent minerals, as indicated by their microscopic structure, are so fractured that they are laid open to atmospheric agencies through rifts, no matter how small, while the same stone, with the same constituent minerals are sound, whole, and impermeable, as indicated by the microscopic structure.

In the old world, where immense cathedrals, planned long ago, have been in the process of construction for hundreds of years, it has not been uncommon to see portions of the building fall into decay before the structure was finished, and the process of restoration often consumes large sums of money while the process of construction is yet going on. It thus very frequently happens that a variety of stones is used in the construction of the same building, because in this process of construction experience is gained indicating inapplicability of the stone used for durable structures. In this case it is experience alone which finally dictates the most suitable material, and even to this day, here in America, there is no other criterion to apply to a building stone save the test of experience; and the result is that buildings can be pointed to which, like those old, immense structures before referred to, are already crumbling while yet in the process of construction.

Colors of Stone in Building.

A STUDENT of architecture in Boston, went to the professor of architecture in the Institute of Technology in that city and said: "Why is it that the new cathedral on Washington street has such a pale sallow look?"

"That is it," he said, "it is pale and sallow. The stone is of a grey color, not very light, neither very dark. The trimmings are of a whitish cast. Still there is not a great distinction between the two. This fact, as much as anything else, has to do with the failure on this great building."

The buildings of this country do not compare in artistic elegance with those of France or Germany. The reason is not on account of the amount of money expended, but is rather because of the lack of education of our architects. The mercantile rather than the artistic instincts are developed in a member of this profession. Not but that the artistic element is present to a certain extent, but so much of the business success of an architect is dependent upon his trade instincts that it often happens that the artistic development suffers through an enlargement of the importance of the business feature. Thus is it that very little attention has been paid to the proper blending and selection of color in building. Especially is this true where the color selections are depended upon the arrangement of materials as they naturally exist. This same grey stone that is used in the cathedral in Boston has been used successfully elsewhere through a different arrangement of color. The trimmings in some cases have been of brownstone, the grey of the body being affected advantageously thereby, and the brownstone itself being enriched by its contrast with the body color. This same grey stone has been successfully used with buff Amherst sandstone and Nova Scotia stone. The result of the use of these warm tinted materials is that an agreeable contrast is afforded between the grey body stone and that of the trimmings. The warmth of the trimming stone is emphasized by the cold grey tints of the main structure, and the latter is brought into agreeable effect through its association with other material. In one instance there is the neutral body and the enriched tone of the trimmings. It makes the difference between a building which is weak and flat in appearance and one which is vigorous, imposing and artistic.

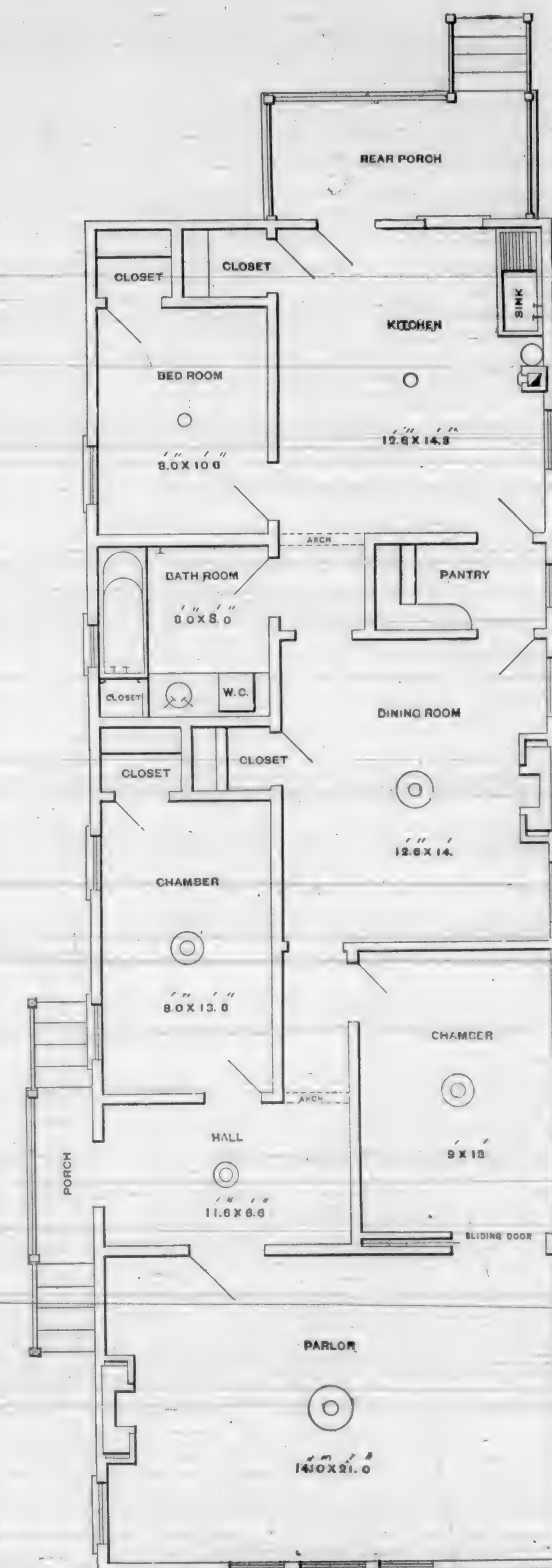
The union of brownstone trimmings with the grey granite body was a favorite combination with Mr. Richardson. He used it in the libraries at North Easton, Quincy and Woburn. Also in the city hall at Albany. It is much better to use a single tint of stone than two cold colors one of which will emphasize the weakness of the other. In the court-house at Pittsburgh, and the Chamber of Commerce at Cincinnati, grey stone is used exclusively, and the result is highly satisfactory. Relief is afforded by the carving and the recesses in the openings and by moldings, decorative and otherwise.—Stone.

A NEW building law in force at Berlin requires the submission of the plans of every building to the Government. Only two-thirds of the lot can be used for the building, which must not be higher than the width of the street. The stairs must be of stone. After the building has been finished it must lie idle for six months to let the walls dry. Then the health officer inspects the structure and decides how many people may sleep in each room.

Measuring Brickwork.

PROBABLY the best way to measure brickwork, in the opinion of an American writer, is by the dimensions. The unit of measurement in this case is not important. The cubic foot or yard is employed to some extent, but the perch of 25 cubic feet and the superficial rod in brickwork one brick thick are often used. Unfortunately the term "rod" has no very definite significance. Two hundred and seventy-two and a half square feet and one and a half bricks thick, 16½ feet square or 27½ square feet and one brick thick, 16½ square feet and 63 square feet, are all termed "rods." Under these circumstances it would probably be of advantage if the cubic foot or yard could be made the standard unit of measurement for brickwork throughout the country.

It may be added that the number of bricks contained in any piece of built brickwork may be approximately ascertained by deducting one-tenth for the volume of mortar.



PLAN OF A NEAT COTTAGE.

Note our offer for books in connection with CALIFORNIA ARCHITECT—See page 115.

Remarkable Discoveries in Egypt.

The two large July gatherings held in London, England, by the Victoria Institute are considered to have been of much importance. The President, Sir G. G. Stokes, Bart., President of the Royal Society took the chair at both, and on each occasion the members crowded the large hall engaged to the doors. At the first meeting, Professor Sayce's account of his examination of the library brought by Amenophis III. from Assyria to Egypt 34 centuries ago, was given. The Lord Chancellor delivered an eloquent speech on the occasion, and M. Naville, the discoverer of Succoth-Pithom, Bubastis, and other places of great historical importance in Egypt, characterized the discovery described by Professor Sayce as one of the most important, and perhaps really the most important, of this century; and the Victoria Institute's members were not slow in recognising the value of their fellow-member's work. At the second meeting, the members assembled to welcome M. Naville on his arrival in England after his discovery of the site of Bubastis, and his exploration thereof. The business of this meeting was commenced by the election, as members, of several who had applied to join the Institute as supporters, including His Excellency Count Bernstorff, and several Australian and American associates, after which M. Naville himself described his own discoveries at Bubastis, for the first time in England,—his last visit to England having been previous to those discoveries. The Society of Arts have most kindly placed their apparatus at the disposal of the Victoria Institute, he showed, by lime-light, the photographs he had made on the spot.

M. Naville commenced by quoting the prophecy of Ezekiel against Egypt, because it contained the names of the leading buried cities, the recovery of the records of which he is so desirous to obtain; and here we may be permitted to digress for a moment to call attention to the fact that the authoress of the last published work in regard to the East declares that prophecy had not been fulfilled according to the prophet's words. Strange that the greatest and most successful Egyptian explorer of modern times should go to this very prophecy for light, to enable him to find that which others had failed to discover! Taking the last city named, he described how he found Pibseth-Bubastis, how each day's excavating work brought him new relics, new inscriptions: how he found Ramesses II., in the 19th dynasty, had as usual, blotted out the names of previous Pharaohs, and put his own name on everything, even on the statue of a Pharaoh of the 4th dynasty; and how, by careful comparison, aided by the fact that Ramesses II. had not been quite thorough in his appropriations, he had discovered which Pharaoh of the 4th dynasty the statue represented. He came to the conclusion that Bubastis was founded at least as early as in the reign of Cheops, between whom and Pepi, of whose influence there were traces, 500 years intervened, 800 years after there was a transformation of the city in the 12th dynasty; in the 14th dynasty there was the invasion of the Hyksos or shepherds, who, from the statues of great beauty found, and from other evidences, must have been a highly cultivated people, who, he considered, must have come from Mesopotamia. Dr. Virchow considered that their monuments represented Turanians, and Professor Flower considered them to represent people of a Turanian or Mongoloid type, but that did not mean that the population itself was Turanian. Their worship and language was of a Semitic type, but the statues of their kings showed that they were not Semites. M. Naville added: "It was then what it is still now; and I believe that the conquest of Egypt by the Hyksos is not unlike what would happen at the present day if the population of Mesopotamia overran the valley of the Nile; you would have masses, in great majority of Semitic race, speaking a Semitic language, having a Semitic religion, and being under the command of Turks, who are not Semites but Turanians."

M. Naville, having referred to the head of a Hyksos King, which he had sent to the British Museum, added that he had found two statues of Apepi, the Pharaoh of Joseph, and inscriptions in regard to the Pharaoh of the Exodus, and many others of high interest. But it would be impossible to refer to the mine of interesting matter in this paper, and we can only congratulate the members of the Victoria Institute on possessing it: it is certainly worth the whole year's subscription to possess this one paper. M. Naville, in concluding, said: "I cannot dwell at great length here on the events of the Exodus, yet I should like to mention that the successive discoveries made in the Delta have had the result of making the sacred narrative more comprehensible in many points, and in one especially in showing that the distances were much shorter than was generally thought. I con-

sider, for instance, it important to have established that Bubastis was a very large city, and a favorite resort of the king and his family. It is quite possible that, at the time when the events preceding the Exodus took place, the king was at Bubastis, not at Tanis, as we generally believed."

Sir George Stokes, Bart., having conveyed the thanks of the members to M. Naville, a short discussion took place, during which Captain Francis Petrie, the Honorary Secretary, pointed out that what Professor Sayce's paper has done as regards Assyrian and Babylonian history, M. Naville's had done as regards Egyptian history. They were papers advancing the practical work of the Institute in investigating philosophical and scientific questions, especially any questions used by those who unhappily sought to attack the Bible in the name of Science; and both would appear in the Journal, which would be presented at the Institute's Rooms, 1A, Adelphi Terrace, to all members and associates who were now on the list, or who might apply to join after the 10th of July. The President, members and associates then adjourned to the Museum, where refreshments were served.

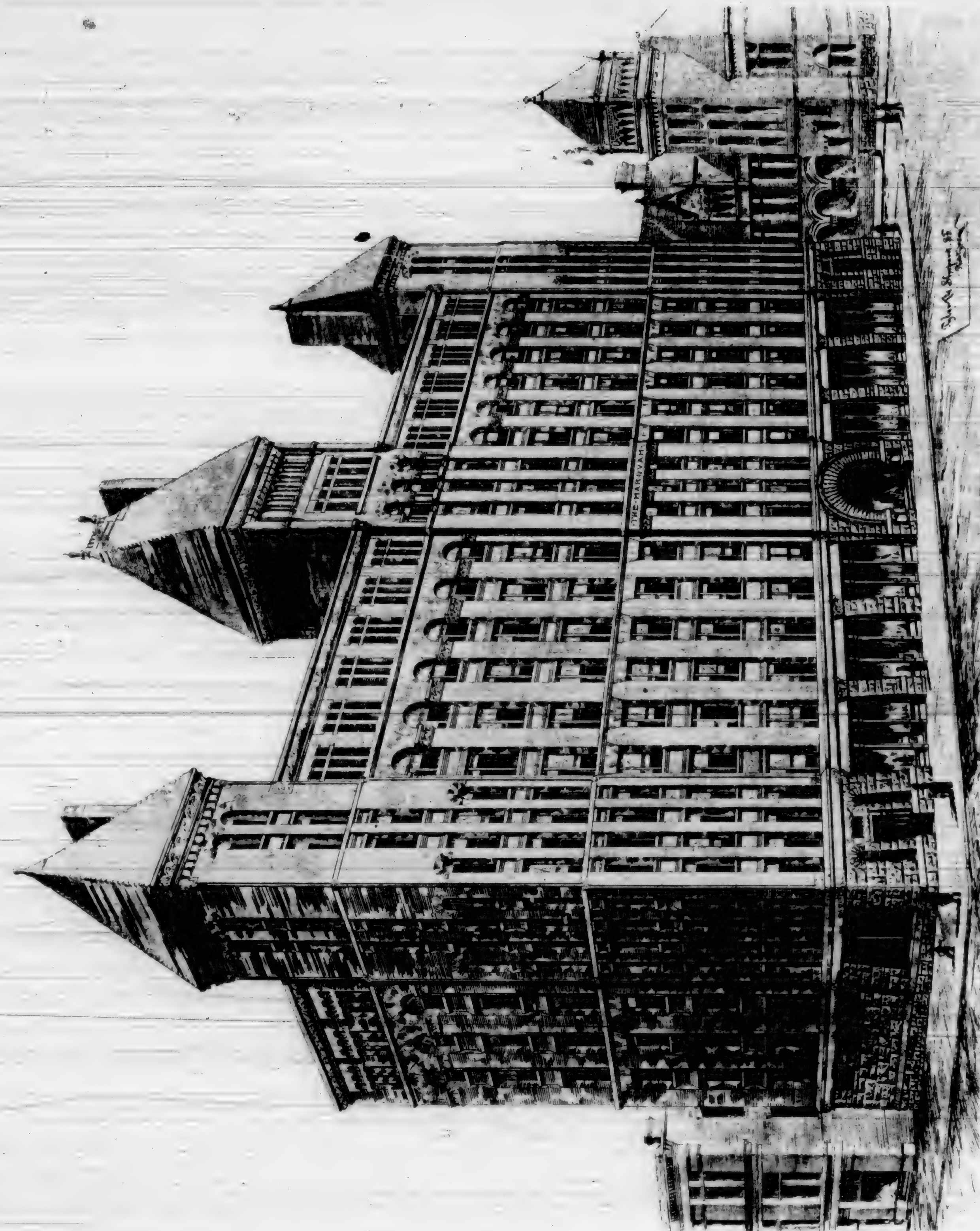
To Keep Iron Pipes From Rusting.

A SIMPLE and economical way of tarring sheet iron pipes to keep them from rusting is the following, suggested by a correspondent of the *Gas Light Journal*. The sections as made should be coated with coal tar and then filled with light wood shaving, and the latter set on fire. It is declared that the effect of this treatment will be to render the iron practically proof against rust for an indefinite period, rendering future painting unnecessary. In proof of this assertion the writer cites the example of a chimney of sheet iron erected in 1866, and which, through being treated as he describes, is as bright and sound to-day as when erected, though it has never had a brushful of paint applied to it since. It is suggested that by strongly heating the iron after the tar is laid on the outside, the latter is literally burnt into the metal, closing the pores and rendering it rust proof in a far more complete manner than if the tar itself was first made hot and applied to cold iron, according to the usual practice. It is important, of course, that the iron should not be made too hot, or kept hot for too long a time, lest the tar should be burnt off. Hence the direction for the use of light shavings instead of any other means of heating.

Don't Neglect The Plumbing.

A writer in the *Sanitary Engineer* says: At this season of the year it is usual for the man of the house to walk and carry himself with modest mien; if, under other circumstances, he might be bold enough to have something to say upon domestic affairs or utter a word of advice, he will find silence to be golden at the present; and why? Because for the last month house-cleaning has taken possession of what was once home; painters, calciminers, carpet-beaters, scrub-women, etc., jostle him rudely and look upon him with superb disdain as he meekly goes and comes. His wife, the partner of his joys and sorrows, seems a changed being, as, with a towel for headgear, she issues her imperious edicts. This is well, and in a sanitary point of view, much of it is necessary and beneficial; but usually it is but seldom that any thought is given to the plumbing or sewerage of the house. The plumbing, Tennyson's book is expected to run on forever. New curtains must be had, furniture upholstered, new carpets purchased, but not one thought is given the faithful servant that brings to the room the luxury of hot and cold water, the ever-ready basin, sink, bath, or closet—a luxury to the householder when in good health, a necessity when sick. The plumbing is left year after year without examination, repairs grudgingly allowed or not made at all, and this man who pays more for the carpet for the parlor than the original plumbing of his building cost, will be first to bewail the cost of needed repair. It never occurs to him that closets, traps, and waste-pipes, no matter how well adapted for the work, will in time need cleansing. Sewer connections may be broken by settling of the building, and that abomination authorized by the law and maintained by ignorance and incapacity, the disease breeder, the enlarged slop-pail in the yard, called the catch-basin, generating and belching forth the gases arising from its gathered filth—that needs cleansing, and needs it often.

It should be the mission of plumbers' associations to educate the people in this direction. The press will aid them. Here is work for their sanitary committees. The field is before them. Let this city take the lead.



J. M. Wood, Architect

THE MARQUAM.

Treatment of Ceilings.

The ceiling is perhaps the part of an apartment that calls most loudly for decoration, and no architectural feature is more susceptible of it, where it might be introduced with more effect, or give more pleasure to the inmate; yet this feature we almost invariably neglect. We naturally look up for beauty; however lovely the earth, the sky, both night and day, presents us with greater charms; we are cheered in our outdoor hours by its ever-changing picture, for which a flat white plane is a miserable substitute in our indoor life. To houses of the very highest class these remarks will apply, for it is a feature which has not had its due proportion of attention, in point of decoration, in any class of buildings, from the cottage to the palace. There certainly can be no more fitting place for decoration in the habitation of a being created upright. Can inconsistency be more extreme than that presented by thousands of apartments, where a rich, elaborately decorated carpet is under the feet, and a plain, dead, flat ceiling above? In the interior of Arabian buildings the ornaments almost invariably become richer, more delicate and minute, as their height from the floor increases, and the most exquisite productions of the artist are lavished on the ceiling. With respect to the form, the curve is at all times preferable to the flat, though the latter by various means is capable of great beauty also. No very great additional height is required in order to have a curved ceiling, as, whether coved or segmental, the rise need not be very great. For rooms of great pretension there is no form more noble and natural than the vault and dome, particularly the latter, whether hemispherical or segmental, as far as it suits the plan or can be adopted by pendentives or otherwise. It is the best substitute for the blue vault of the sky, the starry concave of the heavens. It was a fine idea of the builders of the mosque of St. Sophia at Constantinople—a conception in advance of ours—to make the curve of its dome so flat that it should seem to correspond with that of the sky, and be a portion of the firmament. We want an enlarged, improved, enriched, and at the same time inexpensive system of interior decoration, for domestic and ecclesiastical, commercial and other buildings, in our Anglo-Classic styles. For churches, collegiate and other buildings in the Pointed style, we have examples in our cathedrals and other buildings, which prove that the genius of interior decoration was once among us, as well as the taste to employ it. At Henry the Seventh and King's College Chapels; the oratory at Beauchamp Chapel; the Temple Church; Wolsey's Hall, Hampton Court; Christ Church Hall, Oxford; Westminster Hall, and others, we have ceilings and roofs that might vie with any that Europe could show. For assistance in evolving a system of Classic decorations we might look to some parts of the Continent. Exterior decorations there has sometimes probably been carried too far, a few Continental edifices exhibiting ornaments so minute and fragile as to seem at least unfit for exposure to the weather in any climate. But this could not be said of interiors. The Moorish or Morisco-Spanish architecture suggests to us what richness might be produced by very simple means; their icicle pendants, inlays, and casings, and purely geometrical and imaginative ornaments, are very effective, and with them they often produce greater results than we, with all nature to imitate, have attained to. But the art of interior decoration was better understood and more successfully practiced in the great age of modern art in Italy, and indeed throughout the Middle Ages than at present in any country. We never had any decoration, to be compared with the mural and fresco paintings of the Italians, and there is probability in the supposition that their system was obtained from remains of the ancients, which time or violence has not spared to us. Beside the curved and richly emblazoned ceilings produced by the Italians, and the pictorial embellishment of their walls, ours might symbolize poverty itself. The ceilings of the principal apartments of a Roman, Genoese, Venetian or Florentine palace were considered as most important features, and on their design and execution the highest talent was employed. In ecclesiastical buildings the contrast with ours would be still greater. Whilst the interior of the churches of Italy glow with every rich hue of the marble quarry, and are virtually galleries of art, what is the aspect of ours?—*London Architect.*

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Architectural and Mechanical Works.

In our list below will be found the names of books on architectural and mechanical subjects, the prices of which have been greatly reduced if taken in connection with the CALIFORNIA ARCHITECT. Old subscribers will be given the books at a large discount, so that they may feel that no favoritism is shown. It will be noticed that some of the books are given free to new subscribers.

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The following are justly recognized as standard publications. Some of them are perfectly new works, but we make the same general reduction:

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Picture-Making with Pen and Ink.....	4 00	5 25
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Palliser's New Quarterly, per year.....	3 00	4 00

We can furnish any book printed at publishers' prices, and will send all books free by either mail or express.

PLASTERING by a new process of hardening so as to make it available for the construction of floors in place of wood, has been brought before the French Academy of Science by M. Jute, says an exchange. A mixture of six quarts of plaster of good quality and one part of finely sifted, recently slaked white lime is employed like ordinary plaster. After it has become thoroughly dry, the object manufactured from it is saturated with a solution any sulphate whatever whose base is precipitated in an insoluble form by lime. The sulphate especially recommended for the purpose are those of iron and zinc. In order to obtain the maximum of hardness and tenacity it is necessary to temper the limed plaster well in as brief a space of time as possible, and with no more water than is strictly necessary.

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