Market Reports.

LUMBER.—Owing to causes stated in another place, the demand for lumber has been light during the past month. There are large contracts to fill in the near future, that will give many of our lumber dealers all they want to do to furnish it on time and in the quantity needed.

Receipts since January 1st, 1882:

Lumber.....
Shingles.....
Laths.....

A correct price list of lumber will be found below:

Pine.

Common Rough, up to 40 feet, per M feet		$22 50
" 41 to 50 " "		23 50
" 51 to 60 " "		24 50
" 61 to 70 " "		26 50
" 71 to 80 " "		28 50
Refuse Rough	"	18 50
Common Rough, sized with planer $2 additional on above rates, per M feet.		
No. 1 Flooring, 6 inches and over,	"	32 50
" 4 " and under, and 1¼x4 and 1¼x6	"	35 00
Flooring and Stepping		
Rough Clear for Flooring, $1 less than above rates.		
Second quality Flooring and Stepping	per M feet	27 50
Ship Plank, Rough	"	28 50
" Planed 1 side	"	32 50
" 2 sides	"	35 00
Deck Plank, Rough	"	33 50
" Dressed	"	37 50
Laths	per M	3 75
Wool Slats	"	10 00
Shakes	"	12 00
Redwood Posts	per piece	17½

Redwood.

Rough Merchantable	per M feet	22 50
" Refuse	"	18 50
Surface No. 1	"	35 00
" 1 x 6	"	32 50
" No. 2	"	27 50
Rustic, No. 1, 1 x 8	"	32 50
" No. 1, 1 x 10	"	35 00
" No. 2	"	30 00
" Under 10 feet	"	30 00
T. & G., 1¼ x 4 and 1¼ x 6	"	35 00
" 6 in. 12 ft. and over	"	32 50
" " 7 to 11 feet	"	30 00
" " under 7 feet	"	27 50
" No. 2	"	27 50
T. & G., Beaded, 12 feet and over	"	35 00
" " 7 to 11 feet	"	30 00
" " under 7 feet	"	27 50
Half-inch Surface	"	30 00
Pickets, Fancy	"	27 50
" Rough, Pointed	"	20 00
" " Square	"	17 50
Siding, ¾ inch	"	25 00
Shingles	per M	2 50
Battens, ⅝ inch, lineal feet	"	1c

NAILS.—Remain same as last month; Since January 1st, 1882, we have imported..... kegs.

10 to 60 pennies, are quoted at		$4 25
8 " "		4 50
6 " "		4 75
5 and 4 " "		5 25
4 and 5 pennies, brad heads, at		5 50
6 " "		5 75
8 " "		6 00
10 and upward "		5 25
3 penny fines "		7 75

PAINTS.—The PIONEER is the only brand quoted, as its excellent qualities, and the fact that it is strictly a home production, has about driven all other brands out of market.

We quote Pioneer White Lead 8½ cts. per lb.

Building Intelligence.

We are well pleased at being able to chronicle the year just passed as being the most prosperous one that our State has witnessed for six years. The country has vied with the city in erecting stately mansions. From all parts we have received gratifying intelligence of contemplated improvements. This state of feelings has been brought about principally by two causes: two successive years of bountiful crops, and the non-speculating by farmers in mining stocks. Our exchanges are filled with accounts of barns being built, granaries erected, fences being repaired, houses being newly painted and furnished, new school-houses to take the place of the old rookeries that have for so long in many places served for "meeting places to teach young ideas how to shoot." In fact, farmers are not content to "keep the old house in repair for just one more winter"; they have in many places already secured lumber and other materials, so that when a spare day comes along they can help the village carpenter to put up a good substantial farm-house.

Very few contracts have been let in this city during the past month. This is due to two causes—rainy weather and the holidays. Work has been commenced on Blythe's new building, and contracts have been signed for the excavations, iron work, and brick work for the first section, 60 x 140. The store on the corner of Geary and Dupont has been leased by a prominent firm at a large rental.

A rumor has been on the street that one of the oldest hotel buildings in the State is to be torn down to make way for a fine business block. Many an old '49er will be sorry to see it taken away. If the report should be true, it will be the means of building up a locality that was once the liveliest part of town, but for many years past has degenerated into one of the dullest.

SAN FRANCISCO.

Improvements have been commenced on the property bounded by Geary and Market, east of Dupont. Five-story and basement brick building. Owner, T. H. Blythe; architect, F. R. Lueders; contractor for brick work and excavations, J. W. Fry. Total amount of contract, including iron work, about $45,000.

Four-story brick building, with basement, on north side of Ellis Street, between Stockton and Powell. Owners, N. & E. W. Hopkins; architect, Chas. W. Geddes; brick work, W. E. Stevens; carpenter work, T. H. Day. Cost, in the neighborhood of $50,000.

Two-story and basement frame dwelling, brick foundation, on Scott Street, near Haight. Owner and builder, J. Scheerer; days' work; cost, $3,500.

Two-story building, store and dwelling, on Hayes Street, near Gough. Owner, Benjamin Daniels; architect, W. H. Bayless; contractor, J. Dutton; cost, $3,500.

Two-story frame building on south side of Valencia St., between Seventeenth and Eighteenth. Owner, H. Bergerot; architect, W. H. Bayless; contractor, —— Downey; cost, $1,700.

Repairs to building, 514 Sixth Street. Owner, Hibernia Bank; architect, P. Huerne; contractor, —— Kraeger; cost, $1,000.

Additional story, with extensions in rear, with brick basement, 561 Mission Street. Owners, Allen & White; contractor, —— Kraeger.

Additional story to building, 510 Howard Street. Owner, —— Geary; contractor, —— Riley.

Three-story frame building for furniture factory, on Bluxome Street, between Fifth and Sixth. Owner, —— Crandall.

Store fixtures for Nolan Brothers, on Market Street below Dupont. Architect, T. J. Welsh; contractor, Alex. Flood.

Three-story and basement frame building on Stockton St., between Pacific and Broadway. Owner, —— Ketterman; contractors, Chase & Buckley; cost, $4,300.

Tank building on Mission Street, between Spear and Main. Contractor, W H. Wickersham.

OAKLAND.

Two-story addition to frame building on corner of Seventh and Webster. Owner, A. Davis; Day's work; cost, $2,500.

Remodeling of house on Webster near Seventh. Cost about $500.

Oakland View Homestead, westerly side of Vernon Street near junction of Lee. Owner, Thomas Ewing; architect, Chas. F. Mau; contractor, Robt. Smilie; cost, $20,000.

Alterations to dwelling on corner of Twelfth and Jackson. Owner, Hester Hands; architect, C. F. Mau; cost about $5,000.

One-story dwelling on Kirkham Street between Eighth and Tenth. Owner, Dr. Shardlow; architect, C. F. Mau; contractors, Haskell, Smilie & Co.; cost, $2,000.

HAYWARDS.

Two-story and basement frame dwelling near depot. Owner, —— Spear; architects, Wolfe & Son; contractor, B. F. Ellis; cost about $2,200.

BODIE.

The foundry owned by Wells & Kilpatrick, which was lately burnt down, is now being rebuilt.

MERCED.

Record vaults in connection with the Court House. Architect, H. D. Mitchell; contractors Hughes & McCann; cost, $12,000.

SAN LEANDRO.

Two-story frame building for manufactory. Owner, L. B. Connor; contractor, B. F. Ellis; cost, $2,500.

FRESNO.

Two-story frame building for blacksmith shop. Owners, Atkinson & Gray.

Two-story frame building for hotel. Builder, C. M. Jones.

One-story frame building for carpenter shop. Builder, Mr. Dearneal.

SAN MIGUEL.

Catholic church; architect, T. J. Welsh; contractor, R. Doyle.

COLUSA.

Two-story frame building. Owner, S. Pence; contractor, J. C. White; cost, $2,800.

Publication Notices.

We received too late for notice in our December issue, the first number of *The Manufacturer and Inventor*, published by U. E. Wren, N. Y.: a monthly journal of twelve pages, very neatly printed and illustrated. Its general character is indicated by its title. The salutatory says, in part: "*The Manufacturer and Inventor* has for its object the ci culation of advertisements of both manufacturers and inventors, among all trades and manufacturing interests, and in all the leading cities, towns and villages in the United States." Its selection of reading matter is good.

American Sanitary Engineering, by Edward S. Philbrick, C. E., published by the *Sanitary Engineer*, N. Y., is before us. It contains 129 pages of matter and practical diagrams in reference to sanitary plumbing and sanitary matters generally. It is one of the best American books published on the subjects named, and should be read by every architect, plumber and all owners of buildings. The intelligent discussion of sanitary theories, questions and principle cannot be too largely indulged in, as they involve the health and life of mankind to a degree unequaled by any other one cause—epidemics and sweeping scourges excepted. If the great mass of communities generally, and especially those of large cities, could be made to realize the terrible consequences which daily result from defective plumbing and sewer work, there would be less contentment and quietude in the ordinary class of buildings, in which n ucre than "usual care" has been observed in matters of sanitary import.

We therefore recomend the careful and attentive perusal of the publication under notice, as supplying a large amount of practical information. Price $2.00.

The Mechanic's SLIDE RULE, *and How to Use It*, by Fred. T. Hodgson, contains a number of valuable rules for its use, measurements of timbers, etc. Price 25 cents.

LAKEY'S VILLAGE AND COUNTRY HOUSES, containing one hundred pages of designs, is one of the best of its kind published. The illustrations are neatly executed, and of practical modern design; and many of them suitable for adoption on the Pacific coast. We heartly recommend it as worthy a place in every gentleman's library who enjoys a taste for architectural matters, as well as to all architects and builders.

THE ART AND SCIENCE OF CARPENTRY MADE EASY, by William E. Bell, *revised and enlarged edition*, published in 1881, is a book of great merit, and should be read and studied by every carpenter. Too many of our working-men are content with "knowing enough for all practical purposes," overlooking the great fact, that by reading and studying instructive books much more of valuable information may be obtained, which would so far simplify the daily manipulations of material as to remove or render easy of comprehension, the difficult problems which sometimes arise, adding perplexities to the toils of the day. Price $5.00.

All books noticed in these columns can be had at publishers prices at this office.

"*Practical Lessons in Architectural Drawings*, by William B. Tuthill, A. M., Architect, published by Comstock, N. Y., is one of the most practical and useful books of its kind that we have noticed. It contains 33 full-page plates of illustrations (one in colors), and 33 wood-cuts, showing methods of construction and representation."

"*This book was suggested by the frequent call for a work of a restricted technical character, one which would give to the student who already has some knowledge of geometrical drawings, the information necessary to properly prepare his work for the mechanic.*"

It may also be read with advantage by many *practicing* architects, who judged by their delineations in construction, have as yet learned but little correctly. Copies can be had at this office, at publisher's prices. $2.50.

"*Palliser's Useful Details*," and "*Model Homes*," are also in large demand, at $3 and $1 respectively. They are both good and useful publications.

"*Saw-Gumming Tongues*," by George Preston Brown, is one of the best practical books on the subject published. Every plumber, architect, and owner should have a copy. It treates the subject handled vigogously and practically. Price $1.25.

We have received new invoices of "The Art of Saw Filing," by Holly, and the "Workshop Companion," both valuable and instructive little works, copies of each of which should be in the hands of every mechanic. Prices $1, and 35 cents, respectively.

Copies of all the works from time to time noticed in this journal may be had at this office at publisher's prices. When stamps are remitted for books or subscriptions to this journal, our friends will oblige by sending the two-cent denomination, or one-cent and three-cent if the two-cent are not obtainable. The larger denominations are inconvenient.

Palliser, Palliser & Co.'s Useful Details.—Since their introduction in our catalogue of useful publications, the sales have been large. We have a full supply on hand. Sold at publisher's price, $3.00 each set, 20x26 inches, with 40 pages of detail drawings.

A supply of all books mentioned in our catalogue constantly on hand.

Cameron's Plasterers' Manual.—While all its suggestions may not harmonize with our California practice, it is "an invaluable book of reference, containing many useful instructions which cannot be retained in the memory; such as tables, dimensions, capacity of cisterns, weights, measures, etc. Price, 75 cents.

The Art of Saw-Filing, by H. W. Holly. A really valuable treatise on the subject named. Every carpenter should secure a copy. But few mechanics know how to file saws properly, and those who perchance may be proficient can give no special rule for the result. Thousands of dollars are wasted every day by saws not being properly filed and set, and whole volumns of oaths are repeated, caused by the vexations attending irregular and ill-shaped saw teeth. Correct saw-filing is an essential to good work and the workman's comfort. Price, 75 cents.

The Carpenters' Manual, by John D. Edwards. A very useful little book, containing a large range of practical ideas in connection with mechanical studies. Carpenters and builders will find it of much more value than its cost—50 cents.

Modern Architectural Designs and Details, published by William F. Comstock, successor to Bricknell & Comstock, in 10 parts, makes—bound—a very handsome and valuable book of designs for houses, and plates of details, useful alike to architects and builders. The "parts," or numbers, separately, can be had at this office, at publisher's price, of $1 each, or the ten "parts" neatly bound for $10. All other books on architecture, steel square, and all other subjects, can be had through this office at publisher's rates. Orders from all sections of this western coast, and places bordering upon the waters of the Pacific Ocean, filled with promptness.

The Steel Square and Its Uses, by F. T. Hodgson, is an excellent little book, which should be in the hands of every carpenter. It contains numerous illustrations and treatises upon the Square, and excellent information for those who have not acquired a *full* knowledge of the use of that important mechanical instrument. Wise heads, who "know it all," do not need this or any other work or advice; but men who "live to learn" will find much in its pages to instruct them. Price, 75 cents; to be had at this office at publisher's price.

The Work-Shop Companion is full of valuable information to mechanics, housekeepers, and all classes, in the form of receipts, rules, methods, processes, etc., for almost everything in general use in workshops and households. Price, 35 cents; to be had at this office at publisher's price.

The California Architect and Building News.

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— AND —
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CHANGE OF TITLE.

NEWS BEING SUBSTITUTED FOR REVIEW.

Hereafter this journal will be known as the CALIFORNIA ARCHITECT AND BUILDING NEWS.

BACK NUMBERS OF THIS JOURNAL.

Since we commenced our series of articles on the HISTORY, DESCRIPTION, AND USES OF THE STEEL SQUARE, we have had an unusual demand for back numbers containing said articles. We regret to say that we have on hand but a

☞ FEW NUMBERS ☜

of each month, counting from last September, and would advise those who want a complete series of this journal to send AT ONCE for any copies necessary to make their set complete.

BOUND VOLUMES.

Bound Volumes of 1881 are now ready for delivery. Sent postpaid to any part of the United States upon receipt of $2.50.

A limited number of Bound Volumes of 1880 on hand, to be had at the same price.

Meeting of the Architectural Association.

The regular monthly meeting of the Association was held on the 3rd inst., at which there was an improved attendance, and increased interest manifested. President Laver in the chair.

After the regular business was transacted, Mr. Harold D. Mitchell delivered an address before the Association, which will be found in another portion of this issue. It was well received, and contains suggestions of practical interest to all owners of property as well as to architects, and will repay perusal.

The president and secretary were instructed to adopt and forward to the association of British Architects, London, an expression of sympathy and condolence on the death of George Edmund Street.

It was also resolved that the Association hold a public meeting in April next, at which an address is to be delivered, and the presentation of premiums awarded for the best design for frontispiece or heading for this journal. *We hope that the architectural draughtsmen and students of the profession on this coast will receive increased encouragement by the announcement of this fact.* A committee of three, consisting of Messrs. Curlett, Sanders, and Mitchell, were appointed to select a speaker for the occasion.

Applications for membership were received, and other matters of interest receiving attention, the Association adjourned to meet the first Friday in March.

In Memoriam of George Edmund Street, R. A.

WHEREAS, The announcement of the death of George Edmund Street, of London, having been received by the Pacific Coast Association of Architects with profound sorrow and regret, it was deemed proper by the Association, that we join with our professional brethren of England and the entire civilized world, in adding tribute to the memory of him who in life enjoyed so pre-eminent a position in the profession.

The loss by death of leading men in any profession or pursuit of life naturally creates a void which, for the time being, none who remain feel competent to fill.

While the intelligent world bows in submission to the decree of Him who cannot err in the removal of loved and honored ones from the paths of life, from circles of friends and kindred dear, and the association of trusting and admiring minds, it is but right that those who are spared should unite in expressions of sorrow and words of common sympathy. Therefore be it

Resolved, That the Pacific Coast Association of Architects, meeting at the city of San Francisco, State of California, recognizes an irreparable loss to the profession generally in the death of our late professional brother, George Edmund Street.

Resolved, That this Association sincerely regrets the untimely death of him who in life became one of the best and brightest lights of the profession, and by his superior intelligence and devotion to the science of architecture added so much to its intelligent development, purity, and grandeur, and by his skill as an artist and power as a writer, won for himself the high esteem and admiration of his architectural brethren throughout civilization.

Resolved, That this Association extends its sincere sympathy and condolence to our brethren of England in the great loss sustained by the profession; and to the bereaved family and friends of him whose loss we mourn.

Resolved, That a copy hereof be forwarded to the Royal Institute of British Architects, and through it to the family of our deceased brother, George Edmund Street.

A Monument to the Honored Dead.

That one should be erected in this city to the memory of the late beloved Chief Magistrate of the United States, James A. Garfield, cannot admit of a question; and its accomplishment should be as free from error as the life of him whose name will be inscribed upon its tablets was pure and honest.

The gentlemen having the matter in hand enjoy good reputations among their fellow-men in the business and ordinary relationships of life. But in the matter of securing designs and providing for the erection of a monument, they have not thus far exhibited any special qualifications. Their first step, the invitation for designs, was an error, with a large intermixture of injustice and unfairness, as far as the conditions thereof are concerned. They have asked architects to spend time, skill, and labor in working up and designing a monument suitable to the memory of the great and good man whose memory it is to perpetuate, and offered a compensation by no means adequate for the purpose. It is expected that architects will produce something really handsome, something which in art designing requiring the same amount of artistic ability and labor would command five or ten times the sum offered as first premium. And to render the inadequacy and injustice more complete, the architect who produces the most elegant conception is to be debarred the rightful privilege of superintending the execution of his own mind's creation. This is how the matter at present stands, and the course pursued shadows forth a purpose of some character not clearly made manifest by the invitation for designs, and justifies the inquiry whether the committee have selected some one who they consider *specially* qualified to superintend the execution of the work. If so, they should have confined the preparation of the design to such party, and not seek to buy, by means of competition, at insignificant compensation, the skill and artistic conceptions of competent architects to assist those who may be unable to conceive or produce on paper a suitable design for the purpose contemplated. There is certainly an error in procedure, and the gentlemen of the committee should amend their action, and shape matters so that the successful designer shall enjoy the fair and equitable privilege of consumating in practical execution that which by his skill shall received the first award.

To those familiar with such matters, the affair as at present presented involves a question as to the unimpeachableness of future management, and the committee should endeavor to amend their action in the premiums so far had, and yield the right to the successful architect to perfect his production by details and personal superintendence.

We cannot refrain from repeating our disapproval of the too common practice of seeking to obtain the artistic and skillful labors of architects at unfair and insufficient pay, and using their productions with as little advantage or profit as possible to those whose mind work is unchecked except by the slumbers of night.

The Forests of Louisiana.

The New Orleans *Democrat* says that the most valuable and important woods suitable for lumber, in the State, are the oak, of several varieties, principally the live and white; the pine both long and short leaf: the cypress, cottonwood, gum, and black-walnut. Each of these trees has its particular use and advantage, which makes it especially adapted to one of those numerous industries in which wood forms the principal material. There are other States which have good box-timber, others again with plenty of material for house-building, for shipbuilding, or for staves; but Louisiana possesses such a variety of timber as would make it a field for every one of the sixty odd industries into which wood enters, from the simple sawmill lumber to the best veneering, polished and fancy woods. The pine is the most abundant tree in the State, and constitutes over a third of the lumber wood of Louisiana. The cypress is unexcelled for shingles. Walnut and gum are well adapted to cabinet making. The first is master of the furniture field, while the gum has a brilliant future before it, and promises to be its successor at an early day. The cottonwood has been found fully equal to the famous white pine of Michigan for boxes, and even stronger and more durable. The live-oak is admittedly the best timber for ship-building in the world. Growing in the swamps, it becomes completely impervious to water, and will resist water-rotting longer than any other wood known. The white oak has been found unexcelled for staves for the tougher barrels and casks. In shipping this timber to Europe, New Orleans does a large business. The ash and smaller oaks are unexcelled for fuel; they are firm and hard, and give a long-lasting and hot fire. Excellent charcoal is furnished by the pine. These varieties of woods are to be found in nearly every portion of the State, and cover nineteen-twentieths of the forest area of Louisiana. It is estimated that the State of Louisiana contains about 80,000,000,000 feet of good lumber, more than twice as much as Michigan; and 300,000,000 cords of wood fuel, worth, when sawed, some fifteen times the assessed value of the State, some $20,000,000.—*American Architect.*

Leaden Pipes and Cement.

Leaden pipes and cement both play such important parts in the building trade that their mutual relations offer a subject of great practical interest. In this country, if we are not mistaken, the notion is very prevalent among practical men of the trade that the two things harmonize to perfection, and that no reason exists why they should not be placed together, even in the most intimate contact. It is believed, that agreeing at first and for a season, they agree permanently or forever, that is to say, as long as they respectively exist or continue good for use.

It would appear, however, that the foregoing common notion touching leaden pipes and cement must be somewhat modified, if not surrendered, if recent communications from Germany are to be accepted as true. In the underground apartment of the railway station edifice at Brunswick, a part of the tube system connected with the water-closets ceased to answer its purpose; in words, it became disordered. On examination, it was found that a leaden pipe of 0.013 meter internal, and 0.02 meter outer diameter, so far as it lay in the mason-work and was surrounded by cement, had been destroyed, corroded by external influences. The corroded parts exhibited a reddish gray color and a granular quality.

The condition of the pipe, and generally the circumstances of the case, suggested, in view of the known nature of the cement, that the destruction of the pipe had resulted from the alkali in the cement being set free. The case seemed sufficiently interesting to justify the sending of the injured pipe to the celebrated professor of chemistry, Dr. Fr. Knapp, in order to obtain his opinion.

With characteristic readiness to impart knowledge and oblige inquirers, Dr. Knapp, after a little while, replied by letter as follows: "Cements, and especially Portland cements, possess the peculiarity that, in the act of hardening and by reason of their content of lime in excess, they give off free alkali (kali, natron, potash), which, along with the water of the cement paste, form what is usually called lye, or corroding lye. Under the influence of water and air the lead becomes coated with a thin layer, a sort of lead lime, which adheres very firmly, and (as a rule) forms a protective covering against further corrosion. Even this protective covering, however, does not resist the operation of the alkali (kali, natron), and is easily taken up by it, so that, the protecting sheet being withdrawn, the corrosion proceeds. As the piece of pipe you have sent me (with your permission I add it to my collection) clearly shows, the corrosion, in accordance with the foregoing view, has not gone on from within outwards, but from without inwards; and furthermore, in the concrete case, the strongly crystaline quality of the lead has furthered and hastened the destruction. In order to arrive at a conclusive judgment, an investigation of the case in all details, and not merely of the leaden pipe, would of course be necessary."

In answer to the question, What means should be applied to prevent the occurrence of such mischiefs? Professor Knapp replied: "If my supposition as to the cause of the destruction is correct, then I should recommend, as a preventive remedy, the repeated washing of the cement plaster, after the hardening, in order to remove the alkali which has become free. Perhaps a coating of the leaden pipe with gypsum before applying the cement might be advantageous. It is to be presumed that cements of different origins are very different or unlike in their influence upon lead."

So far concludes Professor Knapp, as reported by Herr Albert Fuldner, an engineer connected with the management of the Brunswick railway. Soon after the publication of the foregoing statement, the case became the subject of discussion in the Polytechnical Society of Berlin. On that occasion, in answer to the question, Can leaden pipes be laid in cement without danger? Herr Elster said: "It often happens that masses or pieces of lead which have lain during some years in a cellar, become partially corroded, but in such cases we must presume that the lead was not pure, but was adulterated with zinc, and that an electrical operation came into play especially on damp ground."

Some one remarked that when sulphur or gypsum is in the cement, the lead may be thus corroded.

Herr Maerz said: "When the drainage and other pipes were being laid in my father's house, the contractor refused to lay the lead in cement, for the reason that the lead would be corroded by the cement." Herr Maerz promised to make further inquiries on the subject, and report the result.

Later, apparently at a subsequent session of the Polytechnical Society, Herr Maerz resumed the subject, saying:

"I have further taken pains to find out how far it is true that leaden pipes are affected by cement, and from many practical pipe layers I learn that lead brought into contact with cement becomes hard, brittle, and easily broken, and in a short time ceases to be impervious to water, so that to lay leaden pipes in cement is a mistake. Masons whom I questioned were of the opposite opinion. They said that in cement lead holds out perfectly good, but not in lime. It was, of course, safe to take for granted *a priori* that leaden pipes would not keep good in moist lime, since alkaline substances affect lead."

In order to gain additional knowledge of an experimental kind, continued Herr Maerz, "I applied to the Machinists' Union, from some ten of whose members I obtained the answer that lead by no means keeps good in cement. A single member said that he had known a leaden pipe connected with a water-closet to last many years in good condition, though it was built in with cement. Perhaps a good deal depends upon the quality of the cement, of what sort it is, though I know nothing definite on that point. On the other hand, I was told that lead in lime keeps good, though not in cement—a flat contradiction of what I had been assured by others. In places where old metals are dealt in, it is alleged that old lead pipe offered for sale is at once examined for traces of cement, and if they are found on it the pipe is for the most part marked as worthless."

Herr Maerz finally described an experiment he was about to try with the object of testing the influence of cement on lead, and thus settling the question in controversy. Whereupon, Herr Elster remarked that in his opinion it all turned on the point of moisture. If moisture is present the lead will be destroyed by lime, etc., as it enters into the basic as well as acid combinations.

Dr. Darmstaedter closed the discussion with the remark that in the destruction of leaden pipes by cement carbonic acid probably plays a part, as it is combined with lead in the formation of carbonate of lead. That corrosion may take place the addition of moisture is necessary, and without it Herr Maerz's experiments can yield no results.—*Brick, Tile, and Metal Review.*

The Position of the Skilled Mechanic.

No matter to what extent the refinement in machine tools may be carried, it is in the end the careful and painstaking operation of the skilled mechanic that must bring the products of these tools to a perfection that will meet the requirements of modern demands. The lathe will not turn so round that, in this respect, its production cannot be improved by the handwork of the skilled machinist; nor will the milling or planing machine produce surfaces so true that he is not called upon to rectify them with the file and scraper. Now, as ever, the beautiful finish on iron and steel is the result of the individual effort of the operator, rather than of the perfection of tools.

Years ago the opinion prevailed to a considerable extent, that the services of the highly skilled mechanic would not be so much a matter of necessity in the future as in the past, but those who built on such grounds built poorly. The man will always be superior to the machine, and must always see better than he can perform.

One man may direct the efforts of fifty skilled workmen to the production of good work; but fifty men cannot get good work from one unskilled workman. Improved tools and mechanical appliances will simply assist the artisan in the production of fine work; but the greater the refinements of these tools and appliances, the greater must be his skill. Instead of relieving him of his responsibilities, which would be in every sense a misfortune, they add to them, which makes him, in every way, the better, in being able to meet them.

Altogether, the position of the skilled mechanic is in every way satisfactory, in its relation to improved machine production; and the tools and appliances of the future, however refined, can never usurp his place in the industries of the world, nor relieve him of the part he is to play in future mechanical advancement.—*Mining and Scientific Press.*

Description of the Steel Square.

Being a History and Description of the Square. Methods and rules given by which the length and bevels are obtained of all kinds of rafters, braces, collar-beams, brackets, etc. Its application to the various cuts in stair-building. The whole designed to be a complete *help* to mechanics, by which they can work in a systematic manner all the various problems in regard to the *cuts in carpentry.*

It will no doubt seem superfluous to many mechanics in this age of progress, to insert in this series of articles a description of the Board Measure, as it was on squares, made twenty years ago. During the past two months we have received several letters on this very subject, and we, in deference to their wishes, insert a description of the now ancient way to find the number of feet in a board.

According to the old way, an *approximate* measure only was found; the contents were given in feet, and the fractions were disregarded. It would not do in these days to call a board sixteen feet, when in reality it measured five inches over that amount.

The engraving shows that the figures are arranged diagonally instead of being directly under each other, as will be seen by referring to our border. The use of this measure is simlar to the one described below. This scale has been given up for want of accuracy, and is only to be found on the cheaper grade of squares.

The scale in use at present, and the one adopted by our first-class manufacturers of squares, is known as the "ESSEX BOARD MEASURE." It is always found on the back of the "body" of the square, and is used by combining it with the inch graduations on the outer edge.

Under the figure 12, of the inch graduation marks, along the outer edge of the "body" will be found the figures 8, 9, 10, 11, 12, 13, 14, 15, which represent the length of the board to be measured. The board measure in feet and inches will be found under the particular inch-mark along the outer edge of the board to be measured. Suppose the board measure is required of a board 8 feet long and 6 inches wide: Find the figure 8 in the scale, immediately under the 12-inch graduation mark, and pass the pencil along to the left, on a line with the figure 8 to the graduation mark 5, which represents the width of the board, and you stop in the scale at the figure 4, which is 4 feet, the board measure required.

If the board is the same length and 10 inches wide, look under the graduation mark 10, on a line with the figure 8 before mentioned, and you will find 6 feet 8 inches board measure. If 18 inches wide, then to the right under the graduation 18, and 12 feet is found to be the board measure.

If 13 feet long and 7 inches wide, find the figure 13 in the scale under the before-mentioned graduation mark 12, and on the same line, under the 7 inch graduation (which represents the width), will be found 7 feet 6 inches board measure.

If the board is half this length, take half of the above result; if double the length, then double the result. In this way the scale covers all length of boards.

If the board is 27 feet in length, take 13 and 14 foot lengths and add them together. The above illustrations apply to boards one inch in thickness. It is evident, therefore, that the amount of lumber contained in any piece of timber may be readily obtained by first finding the number of feet in a board 1 inch thick, and multiplying by the number of inches contained in the thickness of the timber.

Near the junction of the "BODY" and "TONGUE" on the "BACK" of the square, between the figures 2 and 4, will be found the "HUNDREDTHS" or "DIAGONAL" scale. The fine lines between the figures 2 and 4, parallel with the edge of the tongue, divide the inch into TENTHS. The diagonal lines which cross the parallel lines subdivide the tenths into hundredths, thus forming a scale by which we can readily obtain the "hundredths of an inch."

The diagonal scale is formed as follows: One inch is divided into 10 equal parts, both above and below; from the top of the first perpendicular, draw a line to the first division below; continue parallel lines, as shown in the cut of square in our border; the first division on the second line from the top becomes one-hundredths of an inch, and each of the others on the parallel lines, one-tenth.

The scale of hundredths reads downwards from the second parallel line, at the intersection of the first diagonal at the right hand corner, this being the hundredths of an inch; the space next below is two-hundredths, the next three-hundredths, and so on to the last, which is ten-hundredths, or one-tenth of an inch. Many sets of drawing instruments contain this scale, the use of which is identical with that found on the square.

TO BE CONTINUED.

In response to a question proposed to us during the last month, we would say that the Octagonal scale can be used for any size of timber. If the timber is larger in size than the numbers of divisions in the scale, double or treble the measurements as may be necessary.

The Octagon scale is also on most of the pocket rules, given on two lines, marked M and E. The divisions on the line M will be found to correspond with those on the square, and are used in the same way.

This series of articles on the square was commenced in the September number, 1881. Back numbers can be supplied at 20 cents each.

Japanning and Japans.

When finished wood, papier-mâché composition, or materials are varnished in the usual manner and left to dry in the air, the drying is in most cases imperfect, and the coating more or less uneven. If the surface thus varnished is heated for some time to a temperature of from 250° to 300°, F., or higher, it is found that the whole of the solvent or vehicle of the gums or resins in the varnish is soon driven off, and the gummy residue becomes liquefied or semi-liquefied, in which state it adapts itself to all inequalities, and if the coating is thick enough, presents a uniform glossy surface, which it retains on cooling. This process of drying out and fusion secures a firm contact and adhesion of the gums or resins to the surface of the substance varnished, and greatly increases the density of the coating, which enables it to resist wear and retain its gloss longer.

This process of hardening and finishing varnished or lacquered work by the aid of heat constitutes the chief feature of the japanner's art.

In practice, the work to be japanned is first thoroughly cleansed and dried. If of wood, composition, or other porous material it is given while warm several coats of wood filler, or whiting mixed up with a rather thin glue size, and is, when this is hardened, rubbed down smooth with pumice stone. It is then ready for the japan grounds. Metals as a rule require no special preparation, receiving the grounds directly on the clean, dry surface.

In japanning, wood and similar substances require a much lower degree of heat and usually a longer exposure in the oven than metals, and again a higher temperature may be advantageously employed when the japan is dark than when light-colored grounds are used; so that a definite knowledge of just how much heat can be safely applied and how long an exposure is required with different substances and different grounds can only be acquired by practical experience.

The japanner's oven is usually a room or large box constructed of sheet metal, and heated by stove-drums or flues, so that the temperature—which is indicated by a thermometer or pyrometer hung up inside, or with its stem passing through the side wall midway between the top and bottom of the chamber—can be readily regulated by dampers. The ovens are also provided with a chimney to carry off the vapors derived from the drying varnish, a small door through which the work can be entered and removed, and wire shelves and hooks for its support in the chamber. The ovens must be kept perfectly free from dust, smoke, and moisture.

A good cheap priming varnish for work to be japanned consists of:

Shellac (pale)	2 ounces.
Rosin (pale)	2 "
Rectified spirit	1 pint.

Two or three coats of this is put on the work in a warm, dry room. A good black ground is prepared by grinding fine ivory black with a sufficient quantity of alcoholic shellac varnish on a stone slab, with a muller, until a perfectly smooth black varnish is obtained. If other colors are required, the clear varnish is mixed and ground with the proper quantity of suitable pigments in a similar manner: for red, vermilion or Indian red; green, chrome-green or Prussian blue and chrome-yellow; blue, Prussian blue, ultramarine, or indigo; yellow, chrome-yellow, etc. But black is the hue commonly required. The following are good common black grounds:

1.

Asphaltum	1 pound.
Balsam of capivi	1 "
Oil of turpentine	q. s.

The asphaltum is melted over a fire, and the balsam, previously heated, is mixed in with it. The mixture is then removed from fire and mixed with the turpentine.

2. Moisten good lampblack with oil of turpentine, and grind it very fine with a muller on a stone plate. Then add a sufficient quantity of ordinary copal varnish and rub well together.

3.

Asphaltum	3 ounces.
Boiled oil	4 quarts.
Burnt umber	8 ounces.
Oil of turpentine	q. s.

Melt the asphaltum, stir in the oil, previously heated, then the umber, and when cooling thin down with the oil of turpentine.

An extra fine black is prepared from:

Amber	12 ounces.
Asphaltum (purified)	2 "
Boiled oil	½ pint.
Resin	2 ounces.
Oil of turpentine	16 "

Fuse the gum and resin and asphaltum, add the hot oil, stir well together, and when cooling add the turpentine.

A white ground is prepared from copal varnish and zinc white or starch. Large japanners seldom make their own varnishes, as they can procure them more cheaply from the varnish maker.

From one to six or more coats of varnish are applied to work in japanning, each coat being hardened in the oven before the next is put on. The last coat in colored work is usually of clear varnish, without coloring matters, and is in fine work sometimes finished with rotten stone and chamois. For ordinary work the gloss developed in the oven under favorable conditions is sufficient.—*Scientific American.*

Tracing the Storms.

The matter of a Signal Service system for the Pacific coast, by which we may be enabled to fix their entrance on this coast and trace their direction, has long been talked of and desired. The prospects are now that the system will soon be inaugurated. Lieut. C. H. Kilbourne has recently returned from a trip north, where he went to select sites for the establishment of the new Service stations, which it is thought that Congress will this winter appropriate funds for. He reports, as the result of his observations, that the general path of storms upon the Pacific coast is from the west eastward, with a southeasterly trend. The storm center strikes about Victoria, and the southern outer circle of the storm usually strikes Cape Flattery, the most north-western point on our territory, first. The full force of the storms is felt in British Columbia, where the winds work great ravage. Therefore, a station upon Cape Flattery would give the first indications of approaching storms. For this reason Flattery is chosen as one of the proposed posts. Another station will be established at the mouth of the Columbia or on Tillamook rock.

Another point that the lieutenant is specially instructed to investigate is at Cape Mendocino. The benefit arising from taking observations at those points can hardly be estimated, as the whole system of calculations must be based mainly upon them. There are now but two coast stations—that in this city, and the San Diego station. It is thought that, in addition to these stations, another will be established at Cape Disappointment. In the event of an appropriation being passed for these stations this winter, an independent coast weather service will be inaugurated here, the observations of which will eventually add much to the general knowledge of the meteorology of the Pacific coast.

Defective Flues.

As usual, after a few days of very cold weather, accounts come in from all quarters of damage done by "defective flues." The worst of these occurrences during the past week seems to have been the total destruction of the Hartford High School Building, involving a loss of one hundred and twenty thousand dollars. It is true that accounts disagree as to whether the catastrophe should be attributed to a "defective flue" or an "overheated furnace," but in point of fact these expressions mean the same thing; and if they really indicate the origin of the fire, either of them simply means that through the ignorance or neglect of some one, wood-work was placed in the construction in dangerous proximity to apparatus for containing and conveying burning fuel, gas, and heated air, and on its temperature being raised to a degree somewhat higher than usual, on account of the necessary urging of the neighboring fire, it obeyed the natural law provided for it, and entered into combustion. There is nothing new or surprising about this; and the needful thickness of the walls of flues, the necessary distance of wood-work from them and from heated furnaces or pipes, and the proper means of protecting exposed surfaces, are all well known: so that the explanation of the destruction of such a structure by the theory of overheated furnaces or defective flues always, to the professional mind, casts a serious imputation on those who had the care of building it. The architect may not be, and very probably is not, at fault; indeed, in such cases, he is usually the one who pleads for safe and solid construction, to be overruled by his committee, who decline to sanction any departure from the common modes of building; but such matters should no longer be left to chance or caprice. Let school committees and school architects build for themselves what they will, they have no right, and should be forcibly prevented from trifling with the lives of the children whose safety is intrusted to their care. It is humiliating to reflect that school-houses, even the most costly ones, are considered by underwriters to be among the more hazardous of ordinary buildings, and this quite independent of the planning, which is such that the burning of one during school hours is almost always attended with serious or fatal casualties. There is in England a certain society for promoting the erection of churches, which employs its large income in assisting poor parishes to provide themselves with houses of worship. In the exercise of this charity it has acquired a very great and beneficial influence over ecclesiastical architecture, by publishing a set of rules for convenient and suitable planning, and strong and sincere construction, which must be observed by those who apply for its aid. These rules are strictly enforced by the simple means of refusing any grant whatever to a church not built in accordance with them. It would not, perhaps, be amiss to provide for imposing similar care upon the builders of school-houses, by prohibiting the expenditure of public funds on any in which such an accident as that at Hartford would be possible. If architect, contractor, and committee knew that their only chance for obtaining money to pay for such a building depended upon the certificate of disinterested experts, that under no circumstances could the children who were to occupy it be burned, suffocated, trampled to death, or even seriously frightened or injured, on account of fire, the standard of school-house construction would soon be materially raised.—*American Architect and Building News.*

The Toilers and Workers.

In reviewing the greatness of own fair land of freedom—great in itself, in its wealth and endless resources, and among the nations of the earth unequaled in its rapid attainment of the enviable position reached within a few generations—naturally invites inquiry as to the secret of this unparalleled advancement from infancy to national manhood and vigor. Century after century rolled over the inhabitants of the "parent countries," the nations of the Old World, only to find, at the end of each, the masses still groping in the mists and gloom of mastery and servitude. Liberty of thought, the exercise of mind powers among the workers, were held in restraint, and freedom of action denied, the "masters" assuming all the higher rights and privileges to themselves, and exacting of those under them uncomplaining obedience to every command and dictation.

Thus for ages the mechanical world moved not beyond the prescribed limits and grooves which customs, sometimes cruel in their severities, had defined for the classes. Yet but little murmuring was heard, because men had been trained to accept those conditions, and taught to feel that there could be no other.

But in the course of human events, as though the great power wrapped in the mantles of impenetrable mystery and infinity had tired at the sight of this unequal condition of things, the day star of release was made to appear, with the discovery of the great American continent, and the pilgrim landing was but the escort to the results which have followed. The beginning, true, was small, and the number of those who first began the work of rolling away the ponderous stones which had so long held the working classes of earth in the sepulchral-like slumbers of submissive servitudes and enforced ignorance, was small; but in due time, the dawn of deliverance appeared, and the gates of human progress were opened upon the American continent, and wide-spreading fields by degrees revealed, in which the oppressed of every land might find a refuge and a home. Slowly at first, but steadily, the work went on, and the taper-light of advancement, lighted by the pilgrim fathers, the pioneers of freedom, expanded into more brilliant rays, until it reflected across the waters of great oceans, and was seen by thousands whose fathers and grandsires had lived through centuries and died under systems of oppression, without realizing that the invisible order of things had appointed to all men the right to think and act for themselves.

That which has followed and resulted from this small beginning is beyond the power of pen or tongue to write or tell; nor is it our purpose to dwell upon the historical incidents and wonderful developments which have ensued. The point aimed at is to invite the reflection of the laboring and mechanical masses to a consideration of the state of facts which have been strewn all along our nation's pathway from then till now. Have they used the innumerable advantages and privileges opened up to them as wisely as they might have done? Have they controlled the currents of events so as to gather unto themselves the fruits of their toil, in the richness and fullness made possible by grand opportunities? It cannot be denied that the brains and strong arms of the working classes have been the power that has moved and kept in motion the great machinery of progression, and opened up the resources of this mighty continent; and that from their ranks have sprung nearly all the great minds and intellects which have mastered and encompassed all sciences, and placed our earth almost in converse with the numberless planets and systems which, through inconceivably numerous cycles of time, have continued to swing out in incomprehensible space. It is only sometimes that the children of fortune, and those born in palaces and abodes of luxury, have added mechanical or scientific gems to the world's great cabinet of precious things. These come more from those inured to earnest, persistent mental and physical toil, who live by doing and to do. But is it not also a fact, that many who have plowed and planted more have reaped and gathered but little? How many millions of men of genius and sterling abilities and worth have spent their lives, consumed their talent, and shortened their stay on earth, through excessive application and devotion in perfecting devices and discoveries originating with them, or completing those begun and in part completed by others? Yet it can scarcely be claimed that compensating results have always followed their efforts. These few reflections suggest the question, whether the toilers of the world have not failed to enjoy that richness and largeness of reward so faithfully earned and deserved, through excessive application to the special objects of their lives, without due appreciation of the compensations which should ever be the heritage of those who bring forth new things in thought or in material form, or who, by their labor, assist in beautifying this footstool of God, in skillfully manipulating the great resources of our earth.

The Chinese Problem

Cannot be too earnestly agitated by those having the best interests of the United States and its thousands of hard-working inhabitants at heart. It is not a question made prominent by unprincipled demagoges, for the purpose of rallying the masses in movements through which the leaders may and expect to secure large personal or political advantages; but one of universal importance, bearing heavily upon all interests, and threatening serious injury to every class of labor, manufacture, and to capital itself. While California has been and always will be the greater sufferer from Chinese immigration, because her "Golden Gate" is the more convenient ingress, still, it is only a matter of time, when, if restriction is not provided and enforced against their coming, other cities and States of this country will smart under the like scourge, with that which has been so severely felt within the cities and States of this Western coast.

The people of the Eastern States have been slow in accepting the great facts of the issue, and have inclined to question and disregard the voice of their Western brothers, who, groaning under the load imposed upon them through the presence of scores of thousands of the Mongolian race, have cried in strong and earnest tones for relief. This cry has been and is sincere, and comes from every section and from all classes: for all, *all* have been made to realize the thousand-fold greater evils arising from the competitions and aggressive movements of the Chinese on this coast, than the few advantages that may have been gained through cheap Chinese labor.

There is nothing more necessary and essential to the welfare and prosperity of the Pacific States than the right kind of immigration; and if the Chinese element was not *absolutely injurious*, the people of the "Flowery Kingdom" would be welcome to our midst, as compensating for the absence of people of our own race and affiliations. But the experiences of the past thirty odd years in California have fully demonstrated the fact, that Chinese competition, in either labor, manufacture, or any of the common pursuits which give employment to the masses, is of the most objectionable and damaging character; while, as it has before been stated in this journal, even capital itself on this coast has felt the effects of Chinese encroachments. The few who have formed Chinese alliances in business relationships have doubtless profited thereby; while Chinamen themselves have been the greater gainers in learning our customs, mechanical arts, methods of business, etc., which in time will be used by them with master hands. For they are as selfish and unscrupulous as they are cunning and treacherous, and will utilize every advantage gained to their own benefit.

All this is fully demonstrated in San Francisco. During the entire time of its existence as a city, with all the many millions of dollars gained by the Chinese people, not one of them has ever invested a single dollar in the purchase and improvement of real estate for *residence* purpose outside of what is known as the Chinese quarters, which in themselves, as a whole, are a disgrace to the city in which they are permitted to exist. These quarters have always been overcrowded and filthy in the extreme; still the additional thousands added to their former number, by arrivala within the current year, have been stowed away within limits wherein all laws of health and all sanitary regulations have been held in constant disregard.

This city and State have suffered enormously more from the presence of the Chinese than it is possible to estimate. But for them, there would have been a much larger population, sand-lotism would never have been heard of, Dennis Kearney would have remained unknown, and the terrible pressure that rested upon the business interests of this city during '78-79 would never have occurred. But they furnished pretext for the hue and cry of demagogues—"The Chinese must go"; and all business interests were, for a period, prostrated and paralyzed, and the laboring classes borne down to almost starvation. Under these circumstances and conditions, it is but reasonable and right that the people of this coast should continue to agitate the Chinese question, and ask and demand a solution of the problem which, in its practical operation, has been so disastrous to all classes, and which will most assuredly work terrible injury to the entire country, if not checked by congressional legislation of the most stringent and positive character.

An Iron-clad Contract.

A ship-building firm on the Thames has undertaken to build an iron-clad of novel construction for the Brazilian Government, under a contract which includes a novel series of penalty clauses. The ship is designed to steam fifteen knots per hour, but if she fails by a quarter of a knot a penalty of £2,000 is to be paid; and so for every quarter of a knot in an ascending scale, until for a shortcoming of a knot of speed per hour a penalty of £16,000 will have to be paid; while the loss of a knot and a quarter will involve a fine of £32,000, and if a speed of less than thirteen and a half knots per hour can only be attained, a sum equal to one-sixth of the total price of the vessel will be forfeited. If, again, the vessel when launched draws an inch of water more than the draught named in the contract, £1,000 is to be deducted from the price to be paid for the ship, and so on, again in ascending scale, until a penalty of £25,000 is reached for six inches excess of draught.—*American Architect.*

There are at present in the Old World and the New World more than 100,000 railway locomotives. Their total force is equal to 30,000,000 horse power, and all the other steam engines on the globe are estimated at 46,000,000 horse power. The technical "horse power," however, is really equal to three average horses, and each horse to about seven men; the aggregate power, therefore, of all the engines being vastly more than the effective force of all the human workers living. Four-fifths of the steam engines now at work have been made within a quarter of a century or so.—*American Inventor.*

EVERYBODY'S COLUMN.

"FAS EST AB HOSTE DOCERI."

[While this column is open to all, farmers as well as mechanics, engineers as well as architects, we would call particular attention to one and all to have their questions and the information desired to be in accord, as far as possible, with the interests of this journal and for the carrying out of those principles for which the only monthly of its kind this side of the continent, was established. We will endeavor to answer all questions in a fair and impartial manner, and if it becomes necessary, will furnish cuts for the illustrations of any problem, provided we regard the solution thereof as beneficial to the majority of our readers. We would urge upon our patrons the necessity of being pointed in their questions, concise in the language used; let the writing be distinct, and one side of the paper only to be used; give full name and address, and particularly mention if their proper name shall be used.

We want it distinctly understood that the responsibility of signed articles rests with the authors.

Correspondents will please direct all communications to the business manager of this journal—240 Montgomery street, rooms 12 and 13.]

TO CUT A RAKE CROWN MOLDING SO AS TO MITER WITH A PLUMB EAVE.

"Make the *plumb* cuts down the sides of the box as shown at A A, and cut the miter across the top as usual; but remember, a *square miter* will not do.

"TO GET THE SIDE BEVEL.—Measure the diagonal of the rise of one foot run of the common rafter, measuring across the square from 6 to 12 (for a quarter pitch), which will be nearly 13½ inches. Now lay down the square to 12 and 13½, the same as laying out a miter, and use the *long* bevel. The *down* bevel will be the same as that of a common rafter.

"This rule applies to *any* pitch, by taking the pitch line of one foot run, and taking this with 12 to obtain the miter, using the *long* bevel. The same bevel will also do for mitering rake, facia, and frieze, or *any* raking member to a level one standing plumb."

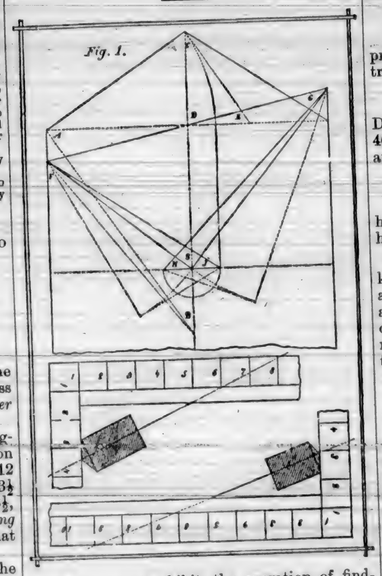
The above is taken from a work entitled, "The Carpenters' Pocket Companion." We will forward a copy of the same to any address upon receipt of ONE DOLLAR.

BUSINESS MANAGER OF ARCHITECT: Can an architect residing in Victoria, B. C., become a member of the Association of Architects in San Francisco. L., New Westminster.

ANS.—The object of the Association is to include every architect on the Pacific slope, British Columbia as well as California.

BUSINESS MANAGER OF ARCHITECT: Will you please explain, in your Everybody's Column, the difference between fire-clay and ordinary clay.
RAVENSWOOD.

"The main chemical difference between fire-clay and ordinary clay is that the former contains no lime or iron. These substances are not objectional for ordinary building brick, but they render the material unfit to resist strong heat, as they cause the brick to vitrify first and to fuse finally, when high temperatures are attained. In physical appearance the fire-clay or *slate-clay* is gray or grayish yellow; massive, dull, or glimmering from admixture of particles of mica. Its fracture is slaty, approaching sometimes to earthy. It is soft, sectile, and easily broken. It adheres to the tongue, and breaks down in water. It occurs along with pit coal. For making fire-brick it is ground, and reduced into a paste with water. Common clay or *loam* is soft to the touch, and forms with water a somewhat tenacious paste, but is in general more compact, more friable, than the plastic clays, which are more readily diffusible in water. Although soft to the touch, the common clay wants unctuosity, properly so called. It is usually of a bluish or blackish color. Those of its strata which effervesce with acids partake of the nature of marl. It is employed in the manufacture of bricks, tiles, and coarse pottery ware."



The above cut exhibits the operation of finding a section of the hip rafters for an obtuse and acute-angled building, with the steel square.

Figure 1.—The plan and elevation of an obtuse and acute-angled building; also, the elevation of the common rafters. Join F S and G S, the plan of the hip rafters. Draw A B and C E at right angles to A C, the common rafter; join B F. To find the lengths of the hip rafters: from the point A as center, with A C as radius, describe an arc; from the point C, and extend to the line H J, join F J and G H, the lengths required.

To find the backing, or section of the hip rafters for the obtuse angle when in position, place the square on the line of the rafter, with the distance A B on the blade, and the distance C D on the tongue; then the tongue gives the angle required. To find the section of the hip rafter for the acute angle, take the distance F B on the blade, and C E on the tongue; then the tongue gives the angle to form the section required.

To find the section or backing of a hip rafter for right-angled buildings, place the square on the line of the rafter, with the length on the blade and the rise on the tongue; then the tongue gives the angle required.

The angle to cut the sides of the common and jack rafters are the same for both. The angle to cut the face of the jack rafters are at H and J. The lengths of the jack rafters are found by dividing the common rafter into as many parts as there are jack rafters required. The horizontal and vertical lines for cutting the hips are shown by the dotted lines drawn from G H and F J.

To find the length of the common rafter A C, place the blade of the square on the line A D; square up twelve inches from the point A to the line A C; then the length from the point of intersection to the point A, multiplied by the number of feet in the line A D, gives the length required; also the horizontal and vertical cuts for the ends of the rafters. The same operation applies to finding the lengths and cuts of braces.

The above is taken from a new work entitled, "Steel Square Problems." A copy of the Steel Square and Its Uses, and Steel Square Problems sent to any address upon receipt of $1.25.

BUSINESS MANAGER OF ARCHITECT: What proportion does the rough lumber cut from a tree bear to the clear lumber.
INQUIRER, Santa Rosa.

ANS.—It varies in different localities. In Del Notre and Humboldt counties, it is about 46 per cent.; in Mendocino, about 56 per cent.; and in Sonoma, 76 per cent.

A "young mechanic" wants us to inform him how to tell whether butts are for left or right hand doors.

Lay the butts on the bench or table with the knuckle-joint towards the right hand. If they are open at the top they are right hand, if open at the bottom they are left hand. A door that opens away from you to the right, is called a right-hand door. If it opens away from you to the left, it is called a left-hand door.

Cistern Water.

We have received frequent inquiries regarding the use of cistern water for drinking purposes. No general reply can be given that will hold good in all cases. Under certain conditions cistern water is found to be very pure, and excepting for the flat, insipid taste, is preferable to most well water. First, then, in considering whether cistern water is fit to drink, we ask whether the roof on which it falls is of tin, wood, lead, or slate. Are any injurious metals employed for gutters or leaders? Is the house surrounded by overhanging trees, from which the leaves collect in the gutters and are washed into the cistern? Do pigeons or fowls frequent the roof, and soil it? For these and other reasons it is not advisable to permit the first washings of the roof to enter the cistern. The cistern itself should be well made, carefully cemented, and thoroughly cleansed at least every two years. It should have free access of pure air, not the air of a cellar, and the pump-pipe should not reach too near the bottom so as to stir up the sediment. It is well to throw into the cistern from time to time a peck of freshly burnt charcoal. One corner of the cistern may be walled off with porous brick, so as to strain the water that passes through, and the pump-pipe may be placed within this little cell. Lead pipe must under no circumstances be placed in a cistern, because lead is attacked by soft water, and here both exterior and interior are exposed to its action. Iron is less objectionable, but it is preferable to have it coated within and without with asphalt varnish, or, better yet, with india-rubber. When cistern water acquires a bad smell, stop using it, except for cooking or making tea. If it is during the dry season, when you cannot afford to pump it out and cleanse it, try the addition of charcoal and forcing air through it. Cisterns ought not to be in close proximity to drains and cess-pools, although they are much safer than wells similarly situated. — *Boston Journal of Chemistry.*

REMOVAL OF STRONG ODORS.—It is said that ground mustard is an excellent agent for cleansing the hands after handling odorous substances, such as cod-liver oil, musk, valerianic acid, and its salts. Scale pans and vessels of various kinds may also be readily freed from odor by the same substance.

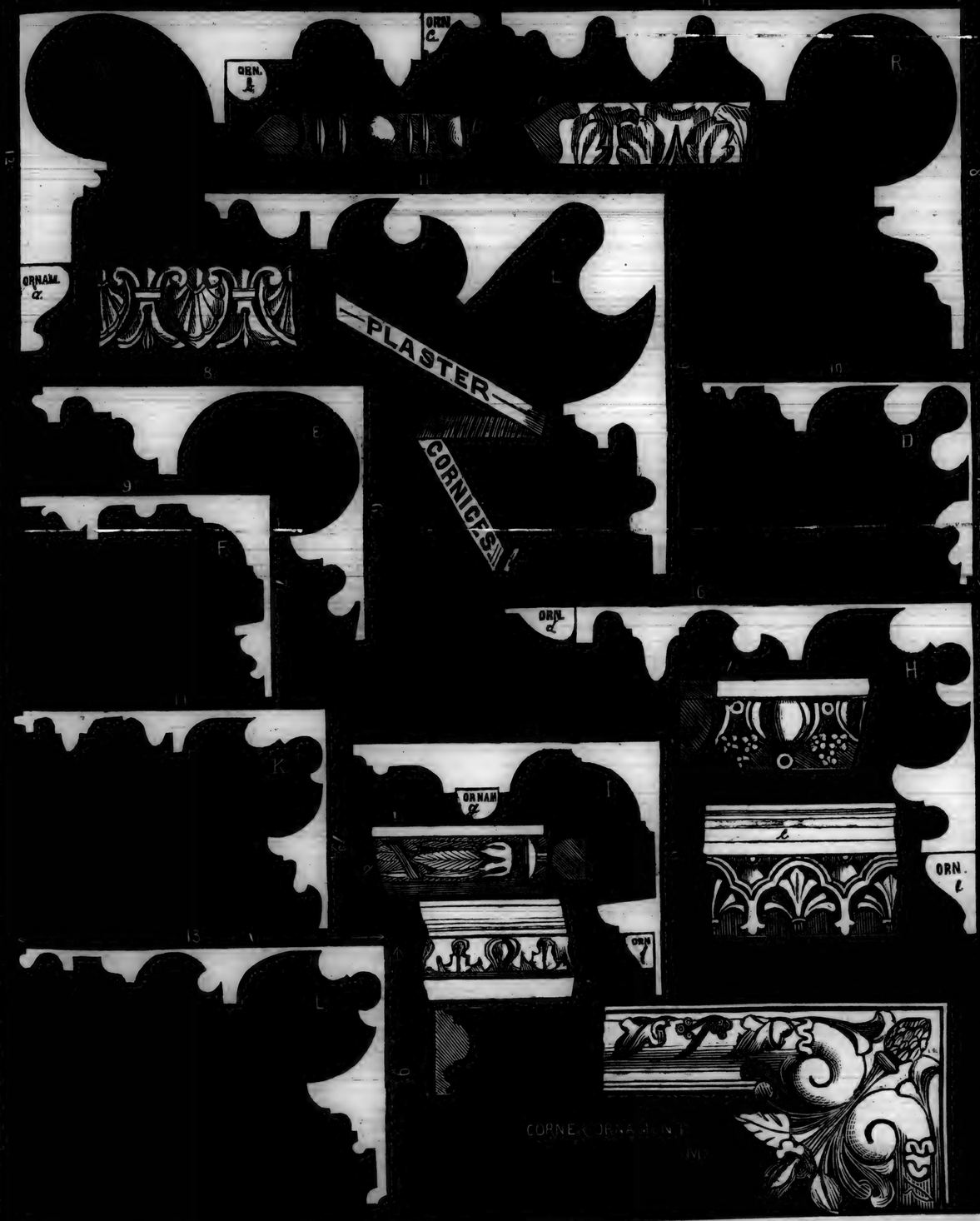


PLATE 1.—PLASTER CORNICES AND ORNAMENTS.

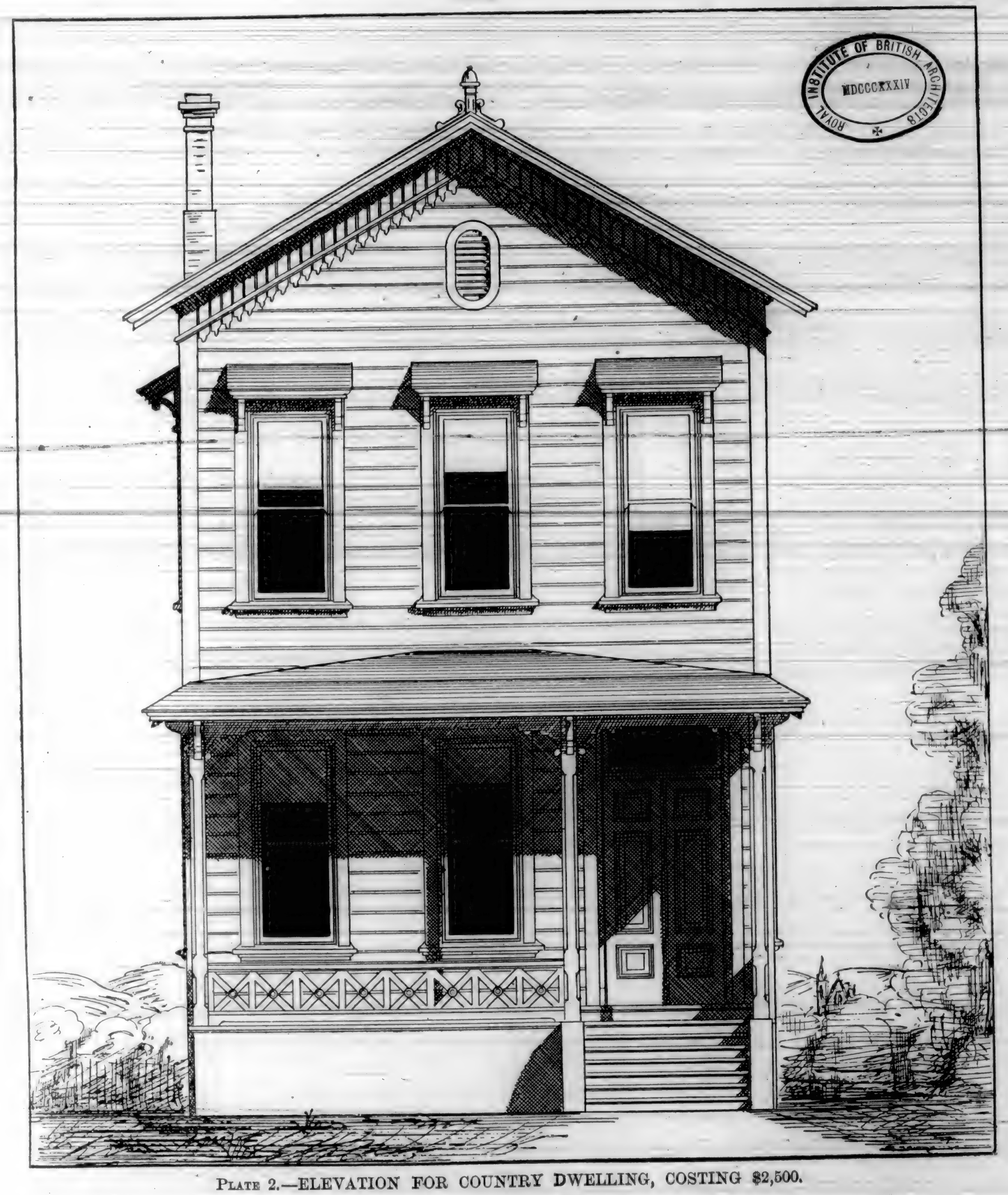


PLATE 2.—ELEVATION FOR COUNTRY DWELLING, COSTING $2,500.

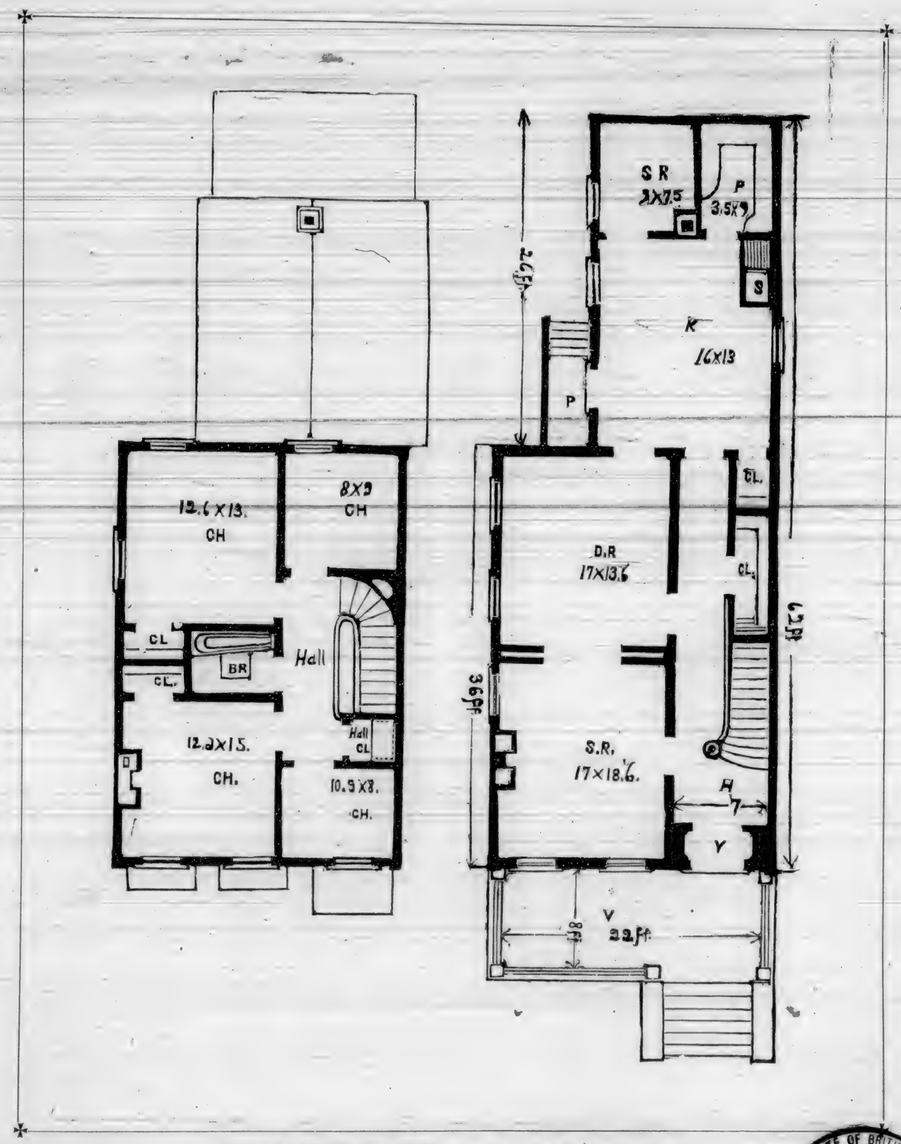


PLATE 3.—GROUND PLAN FOR COUNTRY RESIDENCE.

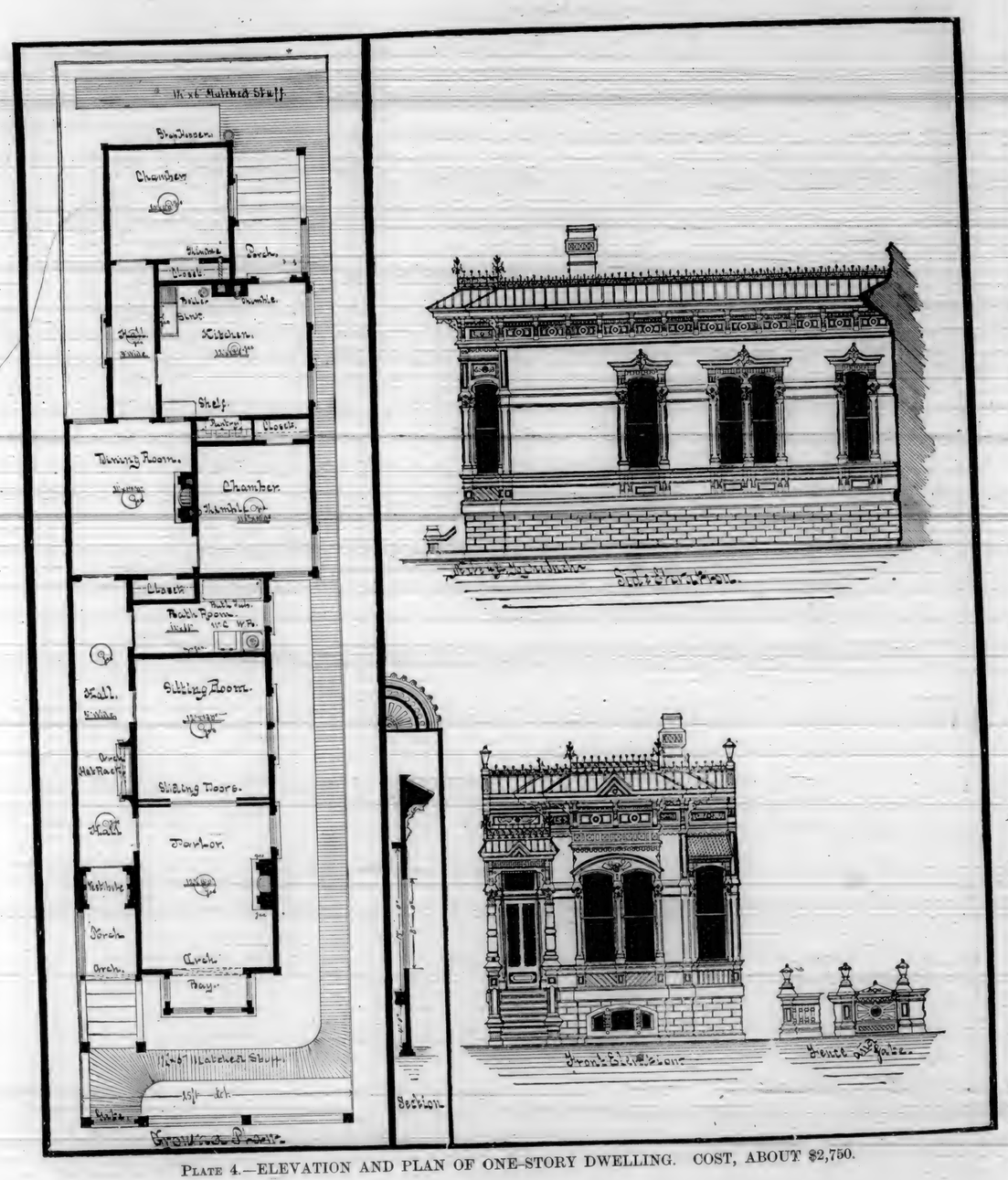


PLATE 4.—ELEVATION AND PLAN OF ONE-STORY DWELLING. COST, ABOUT $2,750.

Architecture in America: Its History up to the Present Time.

Architecture, venerable with ages of honor, yet holds a prominent position in the progress of the world, and puts forth ever and anon new claims to attention. While America remained a colony, there was neither time nor opportunity for the practice of the fine arts. A new country, far removed from all the comforts belonging to an advanced civilization, its early settlers found themselves fully occupied in supplying their immediate wants and protecting themselves from the savage enmity which they had by their exorbitant greediness of gain awakened. When the Revolution was over, however, and the country's independence a foregone conclusion, Congress, in spite of heavy debt, poor credit, and an army of growlers, proceeded to lay out a national capital, and erect buildings. To the nations of Europe they looked for models in architecture, as well as in law and government; and therefore the classic styles, as they are called, then very popular, were at once adopted. The first public building of any note erected in America was the Capitol, at Washington. It is of the Renaissance, and consists of two stories, rising from a lofty basement. The ground plan is a central pavilion, with north and south wings. The principal façade is on the east side, where a portico of Corinthian columns thirty feet in hight fronts the pavilion, while pilasters of the same order are continued along the wings. The right middle columns project so as to admit of another inner row, and these sixteen columns support a noble pediment, adorned with a bas-relief, the subject being allegorical. The approach to this imposing portico is by a flight of broad marble steps. The central portion of the edifice is, for the most part, occupied by a circular apartment, measuring about one hundred feet in diameter and hight, and known as the Rotunda. It is ornamented with paintings and bas-reliefs illustrative of our national history. The paintings are separated from one another by gilded pilasters, which rise to the dome, forming the roof. The pediment of the north wing is especially noticeable for its sculptures, representing America surrounded by a group of figures emblematic of her history and sources of wealth; as, the Pioneer, the Miner, the Indian, Education, etc. The original dome of the Rotunda, which sprung directly from the roofing, has been replaced by one of dimensions corresponding to the present size of the building. Upon a solid octagonal base rests the lofty drum, pierced by two rows of narrow arched windows, separated by pilasters. From the top of the entablature rises a second narrower base, its cornice separated by inverted consoles, and from this spring the ribs of the dome. They are thirty-two in number, and support a lantern. The whole is crowned by a bronze statue of America. This dome, two hundred and forty-one feet in hight, is imposing from its size, and forms the principal feature in every view of the city, and bears a considerable resemblance to the dome of St. Paul's, London—almost equaling the latter in architectural beauty and effect.

Besides the numerous buildings of the Renaissance style erected in Washington, others, not only by the Government, but by banking corporations, commercial houses, etc., have been erected in various parts of the country.

There is much that we can study over in our styles of to-day which may give us some idea of how we actually stand in reference to true taste; for that is founded on unchangeable laws: and that it is so, we should feel thankful, because nothing save a breach of those laws can ever permit us to wander far from the truth; and should we so stray, a consideration of those laws will surely lead us back again to the point from whence we deviated.

The laws we allude to are founded on common sense, and therefore cannot lead us into error by clinging to them.

That the Renaissance is open to a vast deal of objection, there is no doubt, for it will not stand the test of close investigation tried by those laws; so that, although we have gained much by the adaptability of iron to ornamental architecture, we have, through its means, run riot in the field of taste; and in endeavoring to outdo the past, have very likely subjected the present to a charge of absurdity.

In fact, we have suffered our art to become a mere vehicle of whim; a thing of fashion, to be enjoyed for a season, like a lady's bonnet, and then be set aside for some newer fangle, which may become popular, not on account of its intrinsic merit, but by reason of mere novelty. For it is unfortunately the fact that our most sensible architects are compelled to follow in the track of capricious Fashion, or be left lingering and neglected by the wayside. While deploring this state of affairs, we must follow the old saying, "For those who live to please, must please to live."

The truth is—and I shrink not to declare it—that our brethren on this continent do not assert their native independence, nor exercise their inventive taste, which would give them character at home and abroad.

Is there any reason why American architects should not be something more than mere copyists of European models? I think they would undoubtedly be more respected by the age they live in, as well as by ages yet to come, if their works carried more the stamp of originality; in fact, more truly American, unreflected from the other side of the water.

Why, I ask, should we citizens of the wealthiest republic under the sun, both in finance and inventive genius, be compelled to follow in the footsteps of England and the continent of Europe? Why should Charles Eastlake be the dictator and we his diciples in this our latest revival in architecture, if some of the examples which we see occasionally perpetrated in San Francisco by a very few—thank goodness—of our young conceits in this "very latest." I say it is a great misfortune to the public at large, that these ingenious gentlemen cannot all be skewered with antique pins upon one of their "so-called" Eastlake elevations, and sent spinning down the illimitable reaches of eternal bosh. This class of charlatans, who have not the capacity to learn, and who build houses so flimsy the wonder is they don't fall down like a pile of ginger-bread, who start out as architects of some new school or other, and think they are the masters. It would be a charity if some one would curb the vaulting ambition of these pretenders with a hod and shovel, or some other implement of labor.

The rapid strides which our country has taken during the last thirty years lead us to give more attention to the architectural beauty of our edifices. One of these is the use of better materials: brick, stone, and iron, are now principally employed in our cities in such buildings as are intended to be permanent. The use of iron as a building material is confined, for the most part, to the last few years, except in the form of bands and rods to strengthen weak walls, its lightness and cheapness recommending it particularly in roofing. It is also molded into pilasters, columns, etc., for commercial houses and public buildings, but it is far inferior to stone, which it replaces; then again it warps when exposed to fire, and bends under great pressure, so that an iron building cannot begin to compare with the noble stone front.

At the same time, there are some *radical* defects, the most serious of these is the sacrifice of *security* to *cheapness* in the building of walls; a fault, I am happy to say, not so often chargeable upon the architect or builder, as upon the corporation or private individual who authorizes the execution of such work. Then again we are in too much haste, "a fault characteristic of us as a nation"; the consequence is, we resort to shams, and top out these eight-inch walls with entablatures and brackets of painted and sanded redwood, where the red will be cropping out all too soon.

In the erection of dwelling houses we have made much advance within the last twenty years, and no one will doubt the prevalence of an American style, especially the palatial mansions of our railway magnates, mining men, etc., which have been built regardless of expense, and which, though sometimes over-ornamented, seem almost perfect, both in architecture and arrangement.

The time must come sooner or later (and why not now?), when an original *American style* must be born of the national genius; then may the brain of our profession find ample scope for the fullest development of the æsthetic; and in a region so boundless that the sun's course across it marks a semi-circle, surely there is plentiful room for fancy.

We allow all possible credit to the architects of England and France, as well as the rest of Europe, for what they have done and are now doing. But their position in reference to architecture is very different from ours in many respects. Their taste must more or less be governed by the institutions they live under, and the demand upon them to keep alive in their works the history of past ages. The American architect has no such nightmare squatting on his breast. To him the past is as nothing compared to the mighty future. His thoughts are unchained by the commands of rulers; and his *patron* is the *public*, whose favor he must win, but whose extensive liberal opinion is more worthy of his best efforts than the despotic patronage of any emperor or king on the face of the earth.

In our national style we would be governed altogether by the fitness of design. Its fitness for the purpose for which it is to be erected. Its fitness for the locality where it is to stand. Its fitness in the material chosen, not alone as regards strength and durability, but with respect to color also. The fitness of ornamentation is a feature of our national style which should be especially attended to. *Let us have no leaves or flowers that belong not to our soil, no animals that never had an existence, such as griffins, dragons, and the like.* None of these: let everything be American in feeling and effect. Such is my idea of what a national style ought to be.

Does the American architect feel nervous as to his ability to originate such a style, and with the vast amount of information that he has in nobly edited books and accurate engravings, such as no other profession can boast of, to aid him in his glorious task? There is one good and substantial reason for our present conglomerate of architecture. Our nation is made up of many different nationalities, whose architects coming to this country bring with them the ideas of design common in their respective lands; and not alone that, but they keep up those early teachings by importing their country's architectural books and engravings.

English and American architects have taken the publications with which London can so liberally supply them. Let us patronize home industry, and the public will take a growing interest in this departure, and will expect to hear from our professional friends on subjects more akin to ourselves as a people; for no foreigners, as a body, hold the

institutions they have left in such regard as to desire their being transplanted in the architecture of this country. They simply accept this importation of old-time thoughts, for the reason that they find no pure architectural features native to this country of their adoption.

The next important thing, perhaps, in reference to our architecture is to let scientific and constructive skill proceed in their onward course unshackled by considerations of decoration or artistic beauty. Beauty is utility in blossom; and science and art are ever coeval.

The architect must throw the traces around the neck of circumstances, architecture being, like ourselves, very much the creature of circumstances. Art dwells not in any particular class of buildings, or in any particular style, but in the soul of the true artist; and its mission is not to exhibit an old style, but to imbue the necessary construction of the day with life, vigor, and sentiment. No age has been richer than our own in means and appliances, or presented scope for greater originality, and everything points to progress in our architecture—progress in many respects eclipsing anything that has gone before. We cannot again build Egyptian pyramids, Roman amphitheaters, or Greek temples, and we need not regret this; for placing architecture in a higher sphere, bringing it into loftier associations, we may and can build works of which the Roman masters of by-gone ages would have been proud, and at the same time we must not narrow up or pinch our ideas. Adoption of any particular historic style, as the manner of Queen Anne's reign, shows a narrowness of mind and mistaken idea of the true nature of fine art.

We want a style broader than anything that the architecture of Queen Anne's reign suggests, and such is the one in question—a truly American conception, which may include all styles and all periods of art, and be not a little influenced by the ecclesiastical style of the Gothic, which was so highly prized by three of England's leading architects—Barry, Scott, and the late lamented G. R. Street. While other men were studying Virtruvius, Chambers, etc., Barry (who designed the grandest Gothic building in the world, the Palace of Westminster, in London) and his colleagues were studying the inexhaustible beauties of the Gothic style, and like true artists, got hold of an idea, and worked it out; then began the battle of the styles in England. Gothic won the day, and on the heads of our late professionals rests all the glory.

Then, again, all excess is disorder. Dr. Johnson's definition of superstition is, "Religion without reason"; and the *exact proportion*, the "golden mean" in the use of ornament in architecture, as of *wine* in *gastronomy*, will forever be the *true test* of a mature intelligence and a well-balanced judgment; the frivolous and the slip-shod will never understand it.

Living, as we are, in an age of the world when knowledge is strewn broadcast over every country, and inspired with a spirit of emulation spurring us on to excel even the best works of our noble predecessors, surely we may indulge the hope that, after the present fever of gaudy excess and delirium in ornament has spent itself, True Art will be elevated to an honorable distinction above all shams and counterfeits; for notwithstanding our theories of "original sin" or of human depravity, Truth still lives, still rules the world, whether expressed in architecture, religion, or ethics—and the devoted art student, ever walking modestly, tractably, and manfully with *nature* (the loving mother of us all), shall meet his reward in a greater faith, a brighter hope, and a truer love at every progressive step towards the ineffable light of THE OMNISCIENT.

HAROLD D. MITCHELL.

Expansion of Cement and Concrete.

Opinions of authorities differ much as to the behavior of cement in setting. An examination of extensive concrete walls, such as those of the new Victoria docks, discloses a number of vertical cracks, which seem to indicate that a contraction of the mass has taken place. From the experiments made by Messrs. Dyckerhoff, it would appear that expansion and not contraction had taken place. In Mr. Henry Faija's little book, "Portland Cement for Users," which we lately noticed, two tables giving the results of experiments by Messrs. Dyckerhoff on a prism of cement of ten centimeters in length and five centimeters square, lying in water, are introduced. These tests show the amount of expansion in twelve varieties of cement from one week to twelve months old. Mixed with three parts of sand, the expansion is much diminished, and for architectural works, the results need not cause any serious apprehensions. Mr. Faija's remarks point to a possible contraction during the action of setting, which, however, is afterward replaced by a slight expansion.

This expansion or contraction is not so great that architects or engineers may feel any distrust of the value of cement concrete. It is, in fact, so slight that in practice, as Mr. Faija says, it may be disregarded, and we think it useful to quote the latter gentleman's observation on the experiments: "Ignoring, therefore, Messrs. Dyckerhoff's experiments (although they may have a theoretical value), in practice, when laying any large space, such as a courtyard or a length of footway with a concrete paving, it is advisable to lay it in sections, separating each by thin wooden battens. These battens may be removed in a few days, or when the concrete is thoroughly set and hard, and their space filled up with a similar concrete to that already laid; by this means there will be no danger of the appearance of the work being spoiled by the cracking of the concrete." For the walls of buildings this advice becomes of less importance, if the concrete is filled up in frames or panels, as we have more than once hinted; besides which, the occurrence at intervals of doors and windows, etc., would relieve any large surface.

When finished surfaces have to be made, Mr. Faija deprecates the practice of putting a differently proportioned concrete as a finishing coat. It is nearly sure to crack or peel off. It is preferable to make the concrete of a finer kind, and work the face up with a trowel or float. Thus treated, the surface may be made to have the appearance of rough-cast, or a smoother finish if desired. The crushing strength of concrete seems to have been repeatedly made the subject of experiment; yet architects and engineers, in applying the ordinary weights given in tables, seem to think that the same results ought to be reached in building everywhere, whereas those tests have only reference to a small cube of an inch each way. A one-inch cube of cement will bear a great deal more than a small pillar of it twice or three times the hight and of the same base.—*Building News.*

Wind Pressures.

The wind pressures experienced in India are remarkable. On October 5th, 1864, on the Eastern Bengal railway, two trains were upset during a violent storm. One of these was a train of eight passenger vehicles, and was upset near Echapore. The other was a train of twelve passenger vehicles, and was upset near Arrunghatta. In both cases all the passenger vehicles were blown over on their sides. Besides these carriages, four wagons were blown from a siding at Buggoolalo, and capsized about half a mile north of that station on the same day, from collisions caused by wagons which were started from sidings from the force of the wind. On September 21st, 1878, a long train of wagons, traveling at about eight miles an hour, on the Eastern Bengal railway, was brought to a standstill by a heavy storm, and was then forced back about a mile, with full steam and brake against it; eighteen wagons were then detached, but even with half the train it was found difficult to continue the journey. On November 20th, 1880, at Negapatano, on the South Indian railway, an empty covered goods wagon was upset by the wind while standing at rest in a siding. Numerous instances have occurred on the Indian railways of trains being stopped, or nearly so, by the force of the wind.

The wind pressures above alluded to are certainly very remarkable for continuous pressures; but in the exceptional cases of tornadoes, such as those which passed over portions of Kansas and other States in that vicinity during the two last seasons, the pressures were far in excess of anything related of India. If the accounts are reliable, large animals, such as horses, were lifted completely from the ground, and carried long distances in the air; human beings were lifted in the same way, and dashed to death. Houses were utterly destroyed to their foundations, and their timbers and boards scattered far and wide over the adjacent fields. Electricity doubtless has much to do with the violence of such tornadoes.—*Mining and Scientific Press.*

Glass Water Pipes.

The suggestion is made that glass would be a good material for water pipes. Glass is satisfactorily applied to several important uses where great strength and durability are required of it. It is used quite generally for paving and flooring, and as a material for railway ties possesses all the advantages of wood, and lasts 75 per cent. longer. The glass manufacturers of Pittsburg, Pa., claim that the common grades of glass turned out from their factories have nearly four times more crushing strength than the strongest quality of granite, and they say that the glass can be made into blocks suitable for the construction of buildings, and capable of being readily cemented together. It is a wonderful material, and will undoubtedly be found available in many ways, to which at present it might be thought very much unsuited. Glass used in water pipes would possess several important advantages over iron or terra cotta. Glass tubes are completely impervious to water, and are scarcely at all affected by corrosion or chemical action, to which iron is very vulnerable, and terra cotta somewhat susceptible. Glass can be made more cheaply than cast-iron. Certainly enough can be said in favor of glass water pipes to make it an object on the part of builders and plumbers to give them a fair trial.—*American Plumber.*

To make quickly-drying polish or varnish to be applied to small turned articles while in the lathe, with a hard and glossy surface, dissolve ten ounces of shellac in one gallon of wine spirit by gently heating over a water bath, and stirring. Let it stand for several days in a covered vessel, then draw off the clear portion from any sediment, for use. For ebonizing articles of this kind, put the wood for about half an hour into a hot solution of one ounce of logwood extract in a quart of water, and then transfer to a warm solution of one pound of copperas in a gallon of soft water, and let it remain in this bath for several hours. Give the pieces a second dip in the logwood and iron liquors, then rinse and dry.—*Mining and Scientific Press.*

Unprofessional Practices.

The readers of this journal will bear testimony to the fact, that we have pursued a course in its conduct calculated to elevate and ennoble the practices of the architectural profession in this city, and to discountenance all jealousies, inharmonies, and unfair procedures; and to cultivate and stimulate those kindly and fraternal relationships which should control and characterize the acts of men assuming the responsible position of architects.

Such being our purposes, reference to professional irregularities becomes exceedingly unpleasant, and it is with regrets that the allusions herein contained are made and justified by well-sustained facts.

The point in issue is the dishonorable effort put forth by some architects to secure engagements. It is *notoriously* the case with *one*, and there are several of the same class, who obtain the greater part of their work through personal and persistent solicitation, and influences other than professional merit in themselves. We *know* of cases in which, after arrangements have been completed between owners and architects, such parties have sought to intervene and disrupt completed arrangements, and by a system of *falsifying* and *misrepresentation*, both as to their own capabilities and integrity, and the qualifications of those against whose just business rights and interests such *mean*, and not too much to add, dishonorable and *dishonest*, procedures have been instituted, to rob others out of secured business engagements. The facts in one recent case will suffice in illustration to show the corruption and baseness existing in some natures. A gentleman having purchased a lot, engaged an architect to prepare plans and specifications. When the preliminary plans were about completed, the owner was called upon by the *notorious* party, who was informed of the fact that an architect had been engaged. Instead of accepting this as conclusive in the matter, this same individual began his *usual* unscrupulous method of sending *influences* to change the owner's determination, and break up the engagement already secured by a brother architect. It was not a contest to win in honorable competition, but an effort to supplant and *cheat* a professional brother out of that which to him possessed a moneyed value; for it must be admitted that when an architect obtains a professional engagement with an owner, it at once becomes a matter of actual cash value, and its loss by the intrigue or connivance of others amounts to nothing less in effect than direct robbery. This state of things is mainly the result of the unregulated surroundings of the profession during past years. The absence of society influences and established rights, rules, and principles of action, have produced in the profession all the irregularities which in the nature of the case must follow when personal interests and caprice alone shape and control in matters which should be regulated by the wise counsel and good judgment of many.

While language too strong cannot be used in denunciation of the parties and practices referred to, a relief is found in the fact that the greater number of architects in San Francisco are above reproach, as far as the disreputable and unprofessional wrong complained of is concerned; and the purification of the profession of all that tends to demoralize and corrupt its practices should receive attention. Architects who resort to questionable practices may gain personal advantages in certain cases; but every departure from strictly correct and honorable procedures must work a common injury. Pettifogging is a term used to designate a class of creatures who operate under professional assumptions, without personal merit as to qualification or integrity, and applies as well in the architectural as the legal fraternities. Baseness of any kind is condemnable, and nothing can be more vile than one party in any connection seeking to obtain all, without any consideration for the rights of others.

We challenge the accusation, that we have, in our professional career in San Francisco, in any one case, departed from the strict lines and rules of honorable and unimpeachable fairness toward brother professionals, or have ever sought to *defraud* others by *forcing* our services, when we have had the slightest information that other architects have been consulted. We therefore stand upon high ground while penning condemnation upon those who, forgetful of and indifferent to every honorable and fair inspiration or rule of action, are guilty of conduct of the disgraceful character outlined in this article. We are prepared with facts to establish much more than is contained in this article, and shall use them when occasion requires.

Test of St. Louis Water-proofing for Bricks.

The following tests of St. Louis water-proofing for bricks were recently made by Mr. F. E. Kidder, for the committee on the building materials exhibited at the Mechanic Fair recently held in Boston. The tests were made on St. Louis hydraulic-pressed brick, treated on all sides by the St. Louis Water-Proofing Company of St. Louis, in the physical laboratory of the Massachusetts Institute of Technology; very sensitive balances being used for weighing the bricks before and after immersion.

The following is taken from Mr. Kidder's report to the committee:

In order to ascertain what amount of water the bricks would absorb in their natural condition, two bricks of the same kind as those which were treated with the water-proofing were immersed in water, and at the end of one hour one brick had absorbed 9 7-10 per cent. of its weight of water, and the other 10 per cent. This was all that the bricks would absorb, as the weight of the bricks did not increase after several hours' immersion. To ascertain the effect of freezing on the saturated bricks, one of them was exposed, for a few hours, to a temperature somewhat below the freezing point of water, and the freezing of the water in the bricks burst a piece some three or four square inches in area, and about one-half an inch thick at its thickest part, out of one face of the brick.

To test the protecting qualities of the water-proofing, three of the same kind of bricks, treated on all sides with water-proofing, were immersed in water at a temperature of about 65° Fahrenheit for 70 hours, when no increase could be detected in the weight of the bricks due to immersion.

One of the bricks was afterwards immersed in water which was for a short time at a temperature of 78° Fahrenheit, and at the end of 43 hours it had absorbed 6-10 of one per cent. of its weight of water. After 120 hours further immersion in water at 65° Fahrenheit, it had absorbed 1 7-10 per cent. of its weight of water. This brick had several small cracks in it, through which this small amount of water probably entered the brick.

Two other bricks of the same kind, treated on all sides, were immersed in water at 65° Fahrenheit for 1½ hours without absorbing any water.

In 45 hours' immersion one brick absorbed 8-10 of one per cent. of its weight of water, while the other brick absorbed no water at all.

During sixteen days' immersion the brick which before had absorbed a small amount of water took up 1 3-10 per cent. of its weight of water, while the other brick took up only 7-10 of one per cent. of its weight of water. Both of these bricks had a large number of small cracks, and it was probably in these cracks that the small amount of water taken up by the bricks was contained.

The results of these tests may be summed up as follows:

Bricks *not* treated with water-proofing were entirely saturated after one hours' immersion, when they contained about 1-10 of their weight of water.

Three bricks treated on all sides with the water-proofing solution absorbed *no* water during 70 hours' immersion in water at the ordinary temperature.

Two bricks during sixteen days' immersion absorbed 1-144 and 1-73 of their weight of water respectively. The protecting power of the water-proofing is destroyed by immersing bricks treated with it in water at a higher temperature than 100° Fahrenheit, and probably even at a temperature of 85°. But bricks in ordinary situations would never be subjected to the presence of water at such high temperatures. The bricks tested were treated with water-proofing about two months before the tests were made.—*American Architect.*

Ventilation.

With respect to ventilation, it is the thing that the natural man abhors. In reference to it, I feel inclined to paraphrase that which has been said about charity, namely, that it is an emotion of the mind in which A never sees B in want, without desiring to relieve him, not with the goods of A, but with the goods of C. Similarly, it may be said that when A feels the atmosphere of a room stuffy, he desires it to be changed, not at the risk of himself, A, catching cold, but at the risk of B, or any person other than A. If a proof of this were wanted, let me refer you to any assembly where there is some big man whose orders are taken—a judge on the bench, or a chairman of a meeting. What is the direction to the attendant when the judge or chairman feels there is a need of ventilation? "I feel the air of this court or room very close; open two of those windows down there;" not "open two of the windows near me." The big man, with the natural fear of ventilation, lets somebody else bear the burden, while he himself gets the benefit. It is very rarely, indeed, that the man "down there" has either the readiness or the courage to protest. The only instance that occurs to me of the kind is that of Sydney Smith, when, as a curate, sitting at a dinner largely attended by the higher orders of the clergy, he said to the waiter, who was about to open a window close by, "Don't give me my death of cold; open one behind a bishop."—*Sir F. J. Bramwell, to the Society of Arts.*

Electrical Ball Finding.

Professor Bell has submitted to the Paris Academy another electric method (in addition to that of the induction balance) for detecting a projectile in the human body. It consists in inserting a fine needle near where the ball is supposed to be. This needle being connected by wire with one terminal of the telephone, while a metallic plate laid on the skin is connected with the other terminal, when the point of the needle reaches the ball a current arises (the ball and the metallic plate naturally forming a couple), and a sound is heard in the telephone. The needle may be inserted in several places with little pain, and the pain may be prevented by means of ether spray. The method has been tested on a piece of beef containing a ball. Contact of the needle with bone gave no sound, but there was a distinct sound whenever the ball was reached. The arrangement may be modified by introducing a vibrator into the circuit; a musical sound is then heard when the needle meets the ball. The circuit may also comprise a weak battery. In this case there is a sound from the moment the needle enters the skin; but at contact with the ball the sound is greatly intensified.

institutions they have left in such regard as to desire their being transplanted in the architecture of this country. They simply accept this importation of old-time thoughts, for the reason that they find no pure architectural features native to this country of their adoption.

The next important thing, perhaps, in reference to our architecture is to let scientific and constructive skill proceed in their onward course unshackled by considerations of decoration or artistic beauty. Beauty is utility in blossom; and science and art are ever coeval.

The architect must throw the traces around the neck of circumstances, architecture being, like ourselves, very much the creature of circumstances. Art dwells not in any particular class of buildings, or in any particular style, but in the soul of the true artist; and its mission is not to exhibit an old style, but to imbue the necessary construction of the day with life, vigor, and sentiment. No age has been richer than our own in means and appliances, or presented scope for greater originality, and everything points to progress in our architecture—progress in many respects eclipsing anything that has gone before. We cannot again build Egyptian pyramids, Roman amphitheaters, or Greek temples, and we need not regret this; for placing architecture in a higher sphere, bringing it into loftier associations, we may and can build works of which the Roman masters of by-gone ages would have been proud, and at the same time we must not narrow up or pinch our ideas. Adoption of any particular historic style, as the manner of Queen Anne's reign, shows a narrowness of mind and mistaken idea of the true nature of fine art.

We want a style broader than anything that the architecture of Queen Anne's reign suggests, and such is the one in question—a truly American conception, which may include all styles and all periods of art, and be not a little influenced by the ecclesiastical style of the Gothic, which was so highly prized by three of England's leading architects—Barry, Scott, and the late lamented G. R. Street. While other men were studying Virtruvius, Chambers, etc., Barry (who designed the grandest Gothic building in the world, the Palace of Westminster, in London) and his colleagues were studying the inexhaustible beauties of the Gothic style, and like true artists, got hold of an idea, and worked it out; then began the battle of the styles in England. Gothic won the day, and on the heads of our late professionals rests all the glory.

Then, again, all excess is disorder. Dr. Johnson's definition of superstition is, "Religion without reason"; and the *exact proportion*, the "golden mean" in the use of ornament in architecture, as of *wine* in *gastronomy*, will forever be the *true test* of a mature intelligence and a well balanced judgment; the frivolous and the slip-shod will never understand it.

Living, as we are, in an age of the world when knowledge is strewn broadcast over every country, and inspired with a spirit of emulation spurring us on to excel even the best works of our noble predecessors, surely we may indulge the hope that, after the present fever of gaudy excess and delirium in ornament has spent itself, True Art will be elevated to an honorable distinction above all shams and counterfeits; for notwithstanding our theories of "original sin" or of human depravity, Truth still lives, still rules the world, whether expressed in architecture, religion, or ethics—and the devoted art student, ever walking modestly, tractably, and manfully with *nature* (the loving mother of us all), shall meet his reward in a greater faith, a brighter hope, and a truer love at every progressive step towards the ineffable light of THE OMNISCIENT.

HAROLD D. MITCHELL.

Expansion of Cement and Concrete.

Opinions of authorities differ much as to the behavior of cement in setting. An examination of extensive concrete walls, such as those of the new Victoria docks, discloses a number of vertical cracks, which seem to indicate that a contraction of the mass has taken place. From the experiments made by Messrs. Dyckerhoff, it would appear that expansion and not contraction had taken place. In Mr. Henry Faija's little book, "Portland Cement for Users," which we lately noticed, two tables giving the results of experiments by Messrs. Dyckerhoff on a prism of cement of ten centimeters in length and five centimeters square, lying in water, are introduced. These tests show the amount of expansion in twelve varieties of cement from one week to twelve months old. Mixed with three parts of sand, the expansion is much diminished, and for architectural works, the results need not cause any serious apprehensions. Mr. Faija's remarks point to a possible contraction during the action of setting, which, however, is afterward replaced by a slight expansion.

This expansion or contraction is not so great that architects or engineers may feel any distrust of the value of cement concrete. It is, in fact, so slight that in practice, as Mr. Faija says, it may be disregarded, and we think it useful to quote the latter gentleman's observation on the experiments: "Ignoring, therefore, Messrs. Dyckerhoff's experiments (although they may have a theoretical value), in practice, when laying any large space, such as a courtyard or a length of footway with a concrete paving, it is advisable to lay it in sections, separating each by thin wooden battens. These battens may be removed in a few days, or when the concrete is thoroughly set and hard, and their space filled up with a similar concrete to that already laid; by this means there will be no danger of the appearance of the work being spoiled by the cracking of the concrete." For the walls of buildings this advice becomes of less importance, if the concrete is filled up in frames or panels, as we have more than once hinted; besides which, the occurrence at intervals of doors and windows, etc., would relieve any large surface.

When finished surfaces have to be made, Mr. Faija deprecates the practice of putting a differently proportioned concrete as a finishing coat. It is nearly sure to crack or peel off. It is preferable to make the concrete of a finer kind, and work the face up with a trowel or float. Thus treated, the surface may be made to have the appearance of rough-cast, or a smoother finish if desired. The crushing strength of concrete seems to have been repeatedly made the subject of experiment; yet architects and engineers, in applying the ordinary weights given in tables, seem to think that the same results ought to be reached in building everywhere, whereas those tests have only reference to a small cube of an inch each way. A one-inch cube of cement will bear a great deal more than a small pillar of it twice or three times the hight and of the same base.—*Building News.*

Wind Pressures.

The wind pressures experienced in India are remarkable. On October 5th, 1864, on the Eastern Bengal railway, two trains were upset during a violent storm. One of these was a train of eight passenger vehicles, and was upset near Echapore. The other was a train of twelve passenger vehicles, and was upset near Arrunghatta. In both cases all the passenger vehicles were blown over on their sides. Besides these carriages, four wagons were blown from a siding at Buggoolalo, and capsized about half a mile north of that station on the same day, from collisions caused by wagons which were started from sidings from the force of the wind. On September 21st, 1878, a long train of wagons, traveling at about eight miles an hour, on the Eastern Bengal railway, was brought to a standstill by a heavy storm, and was then forced back about a mile, with full steam and brake against it; eighteen wagons were then detached, but even with half the train it was found difficult to continue the journey. On November 20th, 1880, at Negapatano, on the South Indian railway, an empty covered goods wagon was upset by the wind while standing at rest in a siding. Numerous instances have occurred on the Indian railways of trains being stopped, or nearly so, by the force of the wind.

The wind pressures above alluded to are certainly very remarkable for continuous pressures; but in the exceptional cases of tornadoes, such as those which passed over portions of Kansas and other States in that vicinity during the two last seasons, the pressures were far in excess of anything related of India. If the accounts are reliable, large animals, such as horses, were lifted completely from the ground, and carried long distances in the air; human beings were lifted in the same way, and dashed to death. Houses were utterly destroyed to their foundations, and their timbers and boards scattered far and wide over the adjacent fields. Electricity doubtless has much to do with the violence of such torna does.—*Mining and Scientific Press.*

Glass Water Pipes.

The suggestion is made that glass would be a good material for water pipes. Glass is satisfactorily applied to several important uses where great strength and durability are required of it. It is used quite generally for paving and flooring, and as a material for railway ties possesses all the advantages of wood, and lasts 75 per cent. longer. The glass manufacturers of Pittsburg, Pa., claim that the common grades of glass turned out from their factories have nearly four times more crushing strength than the strongest quality of granite, and they say that the glass can be made into blocks suitable for the construction of buildings, and capable of being readily cemented together. It is a wonderful material, and will undoubtedly be found available in many ways, to which at present it might be thought very much unsuited. Glass used in water pipes would possess several important advantages over iron or terra cotta. Glass tubes are completely impervious to water, and are scarcely at all affected by corrosion or chemical action, to which iron is very vulnerable, and terra cotta somewhat susceptibie. Glass can be made more cheaply than cast-iron. Certainly enough can be said in favor of glass water pipes to make it an object on the part of builders and plumbers to give them a fair trial.—*American Plumber.*

To make quickly-drying polish or varnish to be applied to small turned articles while in the lathe, with a hard and glossy surface, dissolve ten ounces of shellac in one gallon of wine spirit by gently heating over a water bath, and stirring. Let it stand for several days in a covered vessel, then draw off the clear portion from any sediment, for use. For ebonizing articles of this kind, put the wood for about half an hour into a hot solution of one ounce of logwood extract in a quart of water, and then transfer to a warm solution of one pound of copperas in a gallon of soft water, and let it remain in this bath for several hours. Give the pieces a second dip in the logwood and iron liquors, then rinse and dry.—*Mining and Scientific Press.*

Unprofessional Practices.

The readers of this journal will bear testimony to the fact, that we have pursued a course in its conduct calculated to elevate and ennoble the practices of the architectural profession in this city, and to discountenance all jealousies, inharmonies, and unfair procedures; and to cultivate and stimulate those kindly and fraternal relationships which should control and characterize the acts of men assuming the responsible position of architects.

Such being our purposes, reference to professional irregularities becomes exceedingly unpleasant, and it is with regrets that the allusions herein contained are made and justified by well-sustained facts.

The point in issue is the dishonorable effort put forth by some architects to secure engagements. It is *notoriously* the case with *one*, and there are several of the same class, who obtain the greater part of their work through personal and persistent solicitation, and influences other than professional merit in themselves. We *know* of cases in which, after arrangements have been completed between owners and architects, such parties have sought to intervene and disrupt completed arrangements, and by a system of *falsifying* and *misrepresentation*, both as to their own capabilities and integrity, and the qualifications of those against whose just business rights and interests such *mean*, and not too much to add, dishonorable and *dishonest*, procedures have been instituted, to rob others out of secured business engagements. The facts in one recent case will suffice in illustration to show the corruption and baseness existing in some natures. A gentleman having purchased a lot, engaged an architect to prepare plans and specifications. When the preliminary plans were about completed, the owner was called upon by the *notorious* party, who was informed of the fact that an architect had been engaged. Instead of accepting this as conclusive in the matter, this same individual began his *usual* unscrupulous method of sending *influences* to change the owner's determination, and break up the engagement already secured by a brother architect. It was not a contest to win in honorable competition, but an effort to supplant and *cheat* a professional brother out of that which to him possessed a moneyed value; for it must be admitted that when an architect obtains a professional engagement with an owner, it at once becomes a matter of actual cash value, and its loss by the intrigue or connivance of others amounts to nothing less in effect than direct robbery. This state of things is mainly the result of the unregulated surroundings of the profession during past years. The absence of society influences and established rights, rules, and principles of action, have produced in the profession all the irregularities which in the nature of the case must follow when personal interests and caprice alone shape and control in matters which should be regulated by the wise counsel and good judgment of many.

While language too strong cannot be used in denunciation of the parties and practices referred to, a relief is found in the fact that the greater number of architects in San Francisco are above reproach, as far as the disreputable and unprofessional wrong complained of is concerned; and the purification of the profession of all that tends to demoralize and corrupt its practices should receive attention. Architects who resort to questionable practices may gain personal advantages in certain cases; but every departure from strictly correct and honorable procedures must work a common injury. Pettifogging is a term used to designate a class of creatures who operate under professional assumptions, without personal merit as to qualification or integrity, and applies as well in the architectural as the legal fraternities. Baseness of any kind is condemnable, and nothing can be more vile than one party in any connection seeking to obtain all, without any consideration for the rights of others.

We challenge the accusation, that we have, in our professional career in San Francisco, in any one case, departed from the strict lines and rules of honorable and unimpeachable fairness toward brother professionals, or have ever sought to *defraud* others by *forcing* our services, when we have had the slightest information that other architects have been consulted. We therefore stand upon high ground while penning condemnation upon those who, forgetful of and indifferent to every honorable and fair inspiration or rule of action, are guilty of conduct of the disgraceful character outlined in this article. We are prepared with facts to establish much more than is contained in this article, and shall use them when occasion requires.

Test of St. Louis Water-proofing for Bricks.

The following tests of St. Louis water-proofing for bricks were recently made by Mr. F. E. Kidder, for the committee on the building materials exhibited at the Mechanic Fair recently held in Boston. The tests were made on St. Louis hydraulic-pressed brick, treated on all sides by the St. Louis Water-Proofing Company of St. Louis, in the physical laboratory of the Massachusetts Institute of Technology; very sensitive balances being used for weighing the bricks before and after immersion.

The following is taken from Mr. Kidder's report to the committee:

In order to ascertain what amount of water the bricks would absorb in their natural condition, two bricks of the same kind as those which were treated with the water-proofing were immersed in water, and at the end of one hour one brick had absorbed 9 7-10 per cent. of its weight of water, and the other 10 per cent. This was all that the bricks would absorb, as the weight of the bricks did not increase after several hours' immersion. To ascertain the effect of freezing on the saturated bricks, one of them was exposed, for a few hours, to a temperature somewhat below the freezing point of water, and the freezing of the water in the bricks burst a piece some three or four square inches in area, and about one-half an inch thick at its thickest part, out of one face of the brick.

To test the protecting qualities of the water-proofing, three of the same kind of bricks, treated on all sides with water-proofing, were immersed in water at a temperature of about 65° Fahrenheit for 70 hours, when no increase could be detected in the weight of the bricks due to immersion.

One of the bricks was afterwards immersed in water which was for a short time at a temperature of 78° Fahrenheit, and at the end of 43 hours it had absorbed 6-10 of one per cent. of its weight of water. After 120 hours further immersion in water at 65° Fahrenheit, it had absorbed 1 7-10 per cent. of its weight of water. This brick had several small cracks in it, through which this small amount of water probably entered the brick.

Two other bricks of the same kind, treated on all sides, were immersed in water at 65° Fahrenheit for 1½ hours without absorbing any water.

In 45 hours' immersion one brick absorbed 8-10 of one per cent. of its weight of water, while the other brick absorbed no water at all.

During sixteen days' immersion the brick which before had absorbed a small amount of water took up 1 3-10 per cent. of its weight of water, while the other brick took up only 7-10 of one per cent. of its weight of water. Both of these bricks had a large number of small cracks, and it was probably in these cracks that the small amount of water taken up by the bricks was contained.

The results of these tests may be summed up as follows:

Bricks *not* treated with water-proofing were entirely saturated after one hours' immersion, when they contained about 1-10 of their weight of water.

Three bricks treated on all sides with the water-proofing solution absorbed *no* water during 70 hours' immersion in water at the ordinary temperature.

Two bricks during sixteen days' immersion absorbed 1-144 and 1-73 of their weight of water respectively. The protecting power of the water-proofing is destroyed by immersing bricks treated with it in water at a higher temperature than 100° Fahrenheit, and probably even at a temperature of 85°. But bricks in ordinary situations would never be subjected to the presence of water at such high temperatures. The bricks tested were treated with water-proofing about two months before the tests were made.—*American Architect.*

Ventilation.

With respect to ventilation, it is the thing that the natural man abhors. In reference to it, I feel inclined to paraphrase that which has been said about charity, namely, that it is an emotion of the mind in which A never sees B in want, without desiring to relieve him, not with the goods of A, but with the goods of C. Similarly, it may be said that when A feels the atmosphere of a room stuffy, he desires it to be changed, not at the risk of himself, A, catching cold, but at the risk of B, or any person other than A. If a proof of this were wanted, let me refer you to any assembly where there is some big man whose orders are taken—a judge on the bench, or a chairman of a meeting. What is the direction to the attendant when the judge or chairman feels there is a need of ventilation? "I feel the air of this court or room very close; open two of those windows down there;" not "open two of the windows near me." The big man, with the natural fear of ventilation, lets somebody else bear the burden, while he himself gets the benefit. It is very rarely, indeed, that the man "down there" has either the readiness or the courage to protest. The only instance that occurs to me of the kind is that of Sydney Smith, when, as a curate, sitting at a dinner largely attended by the higher orders of the clergy, he said to the waiter, who was about to open a window close by, "Don't give me my death of cold; open one behind a bishop."—*Sir F. J. Bramwell, to the Society of Arts.*

Electrical Ball Finding.

Professor Bell has submitted to the Paris Academy another electric method (in addition to that of the induction balance) for detecting a projectile in the human body. It consists in inserting a fine needle near where the ball is supposed to be. This needle being connected by wire with one terminal of the telephone, while a metallic plate laid on the skin is connected with the other terminal, when the point of the needle reaches the ball a current arises (the ball and the metallic plate naturally forming a couple), and a sound is heard in the telephone. The needle may be inserted in several places with little pain, and the pain may be prevented by means of ether spray. The method has been tested on a piece of beef containing a ball. Contact of the needle with bone gave no sound, but there was a distinct sound whenever the ball was reached. The arrangement may be modified by introducing a vibrator into the circuit; a musical sound is then heard when the needle meets the ball. The circuit may also comprise a weak battery. In this case there is a sound from the moment the needle enters the skin; but at contact with the ball the sound is greatly intensified.

Market Reports.

LUMBER.—Fair demand, steady supply, prices firm, is all we can chronicle.

Receipts since January 1st, 1882:

Lumber	19,428,450
Shingles	5,185,500
Laths	3,308,500

A correct price list of lumber will be found below:

Pine.

Common Rough, up to 40 feet, per M feet	$22 50
" 41 to 50 " "	23 50
" 51 to 60 " "	24 50
" 61 to 70 " "	26 50
" 71 to 80 " "	28 50
Refuse Rough	18 50
Common Rough, sized with planer $2 additional on above rates, per M feet.	32 50
No. 1 Flooring, 6 inches and over, "	32 50
" 4 " and under, and 1¼x4 and 1¼x6	35 00
Flooring and Stepping	
Rough Clear for Flooring, $1 less than above rates.	
Second quality Flooring and Stepping, per M feet	27 50
Ship Plank, Rough "	28 50
" Planed 1 side "	32 50
" " 2 sides "	35 00
Deck Plank, Rough "	33 50
" Dressed "	37 50
Laths, per M	3 75
Wool Slats "	10 00
Shakes "	12 00
Redwood Posts, per piece	17½

Redwood.

Rough Merchantable, per M feet	22 50
" Refuse "	18 50
	25 00
Surface No. 1 "	32 50
" 1 x 6 "	27 50
" No. 2 "	32 50
Rustic, No. 1, 1 x 8 "	35 00
" No. 1, 1 x 10 "	30 00
" No. 2 "	30 00
" Under 10 feet "	35 00
T. & G., 1¼ x 4 and 1¼ x 6 "	32 50
" 6 in. 12 ft. and over "	30 00
" 7 to 11 feet "	27 50
" under 7 feet "	27 50
" No. 2 "	35 00
T. & G., Beaded, 12 feet and over "	30 00
" 7 to 11 feet "	27 50
" under 7 feet "	30 00
Half-inch Surface "	27 50
Pickets, Fancy "	20 00
" Rough, Pointed "	17 50
" Square "	25 00
Siding, ½ inch per M	2 50
Shingles "	1c
Battens, ½ inch, lineal feet "	

NAILS.—Remain the same as last month. Since January 1st, 1882, we have imported 8,480 kegs.

10 to 60 pennies, are quoted at	$4 25
8 " "	4 50
6 " "	4 75
5 and 4 " "	5 25
4 and 5 pennies, brad heads, at	5 50
6 " "	5 75
8 " "	6 00
10 and upward "	5 25
3 penny fines "	7 75

PAINTS.—The PIONEER is the only brand quoted, as its excellent qualities, and the fact that it is strictly a home production, has about driven all other brands out of market.

We quote Pioneer White Lead 8½ cts. per lb.

Unpropitious Weather.

The severe north winds which have so largely prevailed during the past six weeks, without sufficiency of rain to counteract their bad effects, have materially checked the progress of contemplated improvements in San Francisco. The quantity of rain that has thus far fallen is far below the average for the same extent of usual wet season, and unless copious showers descend in time to compensate for the lack thus far experienced, the winter of 1881–82, may be numbered among the dry seasons in California.

That such should be the case is greatly to be regretted. As full recovery from the depression of former years, and a return to wonted prosperity only fairly set in with 1881, we are scarcely prepared for a set back by reason of an unpropitious season, or otherwise. Still it is not too late for an abundance, and we hope and trust that the later rains may fully atone for the lightness of the early showers. The prevalence of the north winds is quite as much to be regretted as the limited supply of rain.

Building Intelligence.

Very few contracts have been let this month, or in fact this year, so far. 1882 has started in very poorly compared with 1881, in the number of buildings being erected. The dry weather has, no doubt, caused some to wait awhile before erecting dwellings. The high prices of lumber, hardware, and other materials have caused the non-erection of several dwellings that have been *figured on*, estimates being too high to meet owners' views. Such contracts as have been signed during the month will be found below.

SAN FRANCISCO.

Excavations and brick foundation for two-story and basement dwelling on southeast corner of Post and Gough. Owner, Jacob Levi, Sen.; architects, Wolfe & Son; contractors, Byron Bros.; cost, $1,100.

Three-story frame building with brick basement on northwest corner of Powell and Post. Owner, J. W. Williams; architect, H. D. Mitchell; contractor, R. P. Hurlbut; cost, $10,000.

Two-story tenement frame building on the north side of Ellis, between Laguna and Octavia. Owner, Jerome English; architects, Curlett & Eisen; contractor, David Perry; cost, $4,000.

Two-story frame dwelling on south side of California street, between Buchanan and Laguna. Owner, C. P. Blethen; architects, McDougall & Son; contractor, T. H. Day; cost, $7,000.

Two-story frame dwelling on southwest corner of Fair Oaks and Twenty-first streets. Owner, S. W. Dick; architects, McDougall & Son; contractor, J. Furness; cost, $5,000.

Repairs and alterations to building on northeast corner of Sansome and Pacific. Owner, R. H. McDonald; architect, J. Marquis; contractor, B. F. Ellis; cost, about $10,000.

Two-story frame dwelling on corner of Twenty-fourth and Sanchez. Owner, J. M. Cohen; architect J. Gosling; contractor, J. Martin; cost, $3,000.

Additions to brick building on Pine street, between Kearand Montgomery. Owner, ——Hennessey; Days' work.

One-story frame dwelling on Kisling street, between Eleventh and Twelfth. Owner, J. E. Tosney; architect, J. T. Kidd; contractor, T. Sullivan; cost, $1,287.

Two-story and basement frame dwelling on Jackson street, between Octavia and Laguna. Architects, Wright and Sanders; contractor, J. Robinson; cost, about $12,000.

Two-story frame building—stores and dwelling—on Post street, west of Polk. Owner, Levi Straus; architect, J. P. Gaynor; contractors, Bowles and Darrow; Cost, about $6,000.

Contract for carpenter work on Blythe's building has been let to Thos. H. Day. About $35,000.

Two-story frame building on corner of Fifteenth and Mission. Owner, ——McNicol; contractor, ——Laherty; cost, $3,500.

Two-story frame building on Scott street, between California and Sacramento. Owner, W. E. Norwood; architect, J. Marquis; contractor, W. M. Fletcher; cost, $5,500.

Northwest corner of Lake and Second Avenue. Two-story frame dwelling with basement. Owner, Mrs. A. De Watson.

Frame building on corner of California and Fourth Avenues. Owner, Jos. Colando.

South San Francisco. On Fifth Avenue. A two-story frame building to be used for a manufactory. Owner, J. Bouile. Days' work; cost, about $2,000.

FRESNO.

One-story and basement frame dwelling at Washington Colony. Owner, Geo. Rowell; contractor, C. F. Carlson; cost, $2,000.

One story and basement frame dwelling. Owner, Chas. Burke; contractor, C. F. Carlson; cost, $1,400.

One story frame dwelling. Owner, Judge Holmes; architect, ——Atkinson; contractor, ——Madera; cost, $2,500.

One-story frame dwelling. Owner, Dr. Graves; cost, $1,700.

One-story frame cottage. Owner, E. Hall; architect, W. J. Beers; Days' work; cost, 3,000.

Two-story and basement brick building on Mariposa street for stores and offices. Owners, M. J. Donahue and others; architect, W. H. Donahue; contractor, ——Clifford; cost, $15,000.

NEWARK.

Tank Building, tanks, etc. Owner, E. A. Davis; architect, H. Geilfuss; carpenter work, J. Lenzen; brick work, ——McCarthy; cost, about $5,000.

BERKELEY.

Frame dwelling for C. L. Storch. Builder, C. Beardslee, cost, $1,700.

RIVERSIDE.

Two-story frame dwelling on Brockton Avenue. Owner, Capt. B. B. Handy; cost, $2,500.

Two-story brick building on Main street. Owner, S. J. Branch; cost, $2,500.

WOODLAND.

One-story residence on North Court street. Owner and builder, Al. Sears.

CHICO.

Building for a flour mill. Owners, Hubbard and Shand; contractor, L. Hansen.

Publication Notices.

The Mechanic's SLIDE RULE, *and How to Use It*, by Fred. T. Hodgson, contains a number of valuable rules for its use, measurements of timbers, etc. Price 25 cents.

LAKEY'S VILLAGE AND COUNTRY HOUSES, containing one hundred pages of designs, is one of the best of its kind published. The illustrations are neatly executed, and of practical modern design; and many of them suitable for adoption on the Pacific coast. We heartly recommend it as worthy a place in every gentleman's library who enjoys a taste for architectural matters, as well as to all architects and builders.

THE ART AND SCIENCE OF CARPENTRY MADE EASY, by William E. Bell, *revised and enlarged edition*, published in 1881, is a book of great merit, and should be read and studied by every carpenter. Too many of our working-men are content with "knowing enough for all practical purposes," overlooking the great fact, that by reading and studying instructive books much more of valuable information may be obtained, which would so far simplify the daily manipulations of material as to remove or render easy of comprehension, the difficult problems which sometimes arise, adding perplexities to the toils of the day. Price $5.00.

All books noticed in these columns can be had at publishers prices at this office.

"*Practical Lessons in Architectural Drawings*, by William B. Tuthill, A. M., Architect, published by Comstock, N. Y., is one of the most practical and useful books of its kind that we have noticed. It contains 33 full-page plates of illustrations (one in colors), and 33 wood-cuts, showing methods of construction and representation."

"*This book was suggested by the frequent call for a work of a restricted technical character, one which would give to the student who already has some knowledge of geometrical drawings, the information necessary to properly prepare his work for the mechanic.*"

It may also be read with advantage by many *practicing* architects, who judged by their delineations in construction, have as yet learned but little correctly. Copies can be had at this office, at publisher's prices. $2.50.

"*Sewer-Gas and its Dangers*," by George Preston Brown, is one of the best practical books on the subject published. Every plumber, architect, and owner should have a copy. It treates the subject handled vigogously and practically. Price $1.25.

We have received new invoices of "The Art of Saw Filing," by Holly, and the "Workshop Companion," both valuable and instructive little works, copies of each of which should be in the hands of every mechanic. Prices $1, and 35 cents, respectively.

Copies of all the works from time to time noticed in this journal may be had at this office at publisher's prices. When stamps are remitted for books or subscriptions to this journal, our friends will oblige by sending the two-cent denomination, or one-cent and three-cent if the two-cent are not obtainable. The larger denominations are inconvenient.

Palliser, Palliser & Co.'s Useful Details.—Since their introduction in our catalogue of useful publications, the sales have been large. We have a full supply on hand. Sold at publisher's price, $3.00 each set, 20x26 inches, with 40 pages of detail drawings.

A supply of all books mentioned in our catalogue constantly on hand.

Cameron's Plasterers' Manual.—While all its suggestions may not harmonize with our California practice, it is "an invaluable book of reference, containing many useful instructions which cannot be retained in the memory; such as tables, dimensions, capacity of cisterns, weights, measures, etc. Price, 75 cents.

The Art of Saw-Filing, by H. W. Holly. A really valuable treatise on the subject named. Every carpenter should secure a copy. But few mechanics know how to file saws properly, and those who perchance may be proficient can give no special rule for the result. Thousands of dollars are wasted every day by saws not being properly filed and set, and whole volumns of oaths are repeated, caused by the vexations attending irregular and ill-shaped saw teeth. Correct saw-filing is an essential to good work and the workman's comfort. Price, 75 cents.

The Carpenters' Manual, by John D. Edwards. A very useful little book, containing a large range of practical ideas in connection with mechanical studies. Carpenters and builders will find it of much more value than its cost—50 cents.

Modern Architectural Designs and Details, published by William F. Comstock, successor to Bricknell & Comstock, in 10 parts, makes—bound—a very handsome and valuable book of designs for houses, and plates of details, useful alike to architects and builders. The "parts," or numbers, separately, can be had at this office, at publisher's price, of $1 each, or the ten "parts" neatly bound for $10. All other books on architecture, steel square, and all other subjects, can be had through this office at publisher's rates. Orders from all sections of this western coast, and places bordering upon the waters of the Pacific Ocean, filled with promptness.

The Steel Square and Its Uses, by F. T. Hodgson, is an excellent little book, which should be in the hands of every carpenter. It contains numerous illustrations and treatises upon the Square, and excellent information for those who have not acquired a *full* knowledge of the use of that important mechanical instrument. Wise heads, who "know it all," do not need this or any other work or advice; but men who "live to learn," will find much in its pages to instruct them. Price, 75 cents; to be had at this office at publisher's price.

The Work-Shop Companion is full of valuable information to mechanics, housekeepers, and all classes, in the form of receipts, rules, methods, processes, etc., for almost everything in general use in workshops and households. Price, 35 cents; to be had at this office at publisher's price.

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BACK NUMBERS OF THIS JOURNAL.

Since we commenced our series of articles on the HISTORY, DESCRIPTION, AND USES OF THE STEEL SQUARE, we have had an unusual demand for back numbers containing said articles. We regret to say that we have on hand but a

☞ FEW NUMBERS ☜

of each month, counting from last September, and would advise those who want a complete series of this journal to send AT ONCE for any copies necessary to make their set complete.

BOUND VOLUMES.

Bound Volumes of 1881 are now ready for delivery. Sent postpaid to any part of the United States upon receipt of $2.50.

A limited number of Bound Volumes of 1880 on hand, to be had at the same price.

Illness of the Editor.

It is with much regret that we announce the serious illness of the senior editor of this journal. On the 19th of February he contracted a very severe cold, which in a few days settled into a serious attack of pneumonia. Erysipelas soon after made its appearance, and for a while it was in much doubt whether he would survive the disease. Skillful doctors and tender nursing, aided by a robust constitution, gained the mastery, and we are happy to announce that upon the date of this issue, he is well enough to sit up and converse with his friends.

We cannot but thank his many professional brethren who have called upon him during his sickness for the kind welfare they have expressed for his recovery. From the nature of the disease they have not been permitted to see him, but the kind words left on their cards will be the source of much gratification and pride when he peruses them, when fully restored to health. It shows the esteem in which he is held when scores of inquiries have been made each day upon his recovery.

We have done the best we could in this issue to keep up the high standard of this journal to which the senior editor has always endeavored to maintain since its inception. The earnest articles which have appeared month after month from the pen of the sick journalist will of course be missed. But we have the proud satisfaction of knowing that we have *tried* to approach the editor's style of writing, and hope that all shortcomings will be passed over. Our experience in the business department of this journal has been of much benefit to us in this emergency, and we lay this issue before our many readers, assuring them that with the large corps of writers we have at our command, and with the return of the editor to his usual good health, the great goal of his ambition will ultimately be reached; viz., the universal adoption of the CALIFORNIA ARCHITECT AND BUILDING NEWS by architects, mechanics, and the public generally, as the leading paper on the Pacific coast in regard to mechanical, architectural, and scientific matters generally.

We are happy to state, just before going to press, that the editor has so far recovered as to be able to sit up and converse freely with his friends. His physicians assure us that he is entirely out of danger, and in the course of another week will be able to appear again in his sanctum.

When oil is heated sufficiently in a closed vessel from which the air is excluded, it turns to gas, which occupies many times the bulk that the oil did. This is the philosophy of pop-corn, and explains its tendency to burst into curious forms on being roasted.

"Eastlake."

Desiring to convince himself that the *monstrosities* denominated "Eastlake" by some of the architects in this city had no connection whatever with the unique and beautiful designs projected by Charles L. Eastlake, of Leinster Square, London, the editor of this journal, forwarded to the gentleman whose name has been given to the "NEW STYLE," a copy of our criticism on said style (as published in October number, 1881), together with designs of so-called Eastlake houses. Mr. Eastlake kindly answered the letter with permission to publish his views.

"* * * *Judging from the specimens I have seen illustrated may be said to* BURLESQUE *such doctrines of art, as I have ventured to maintain by criticism of modern works, or deduced from the study of ancient examples.*"

The above quotation at once expresses the tenor of the letter, and his opinion of the samples sent to him of the travesties on his style.

We defer publishing the letter in full until our next issue, on account of the illness of the senior editor. He has spent much time and study on this subject, and we know his views will be much more acceptably received by the numerous readers, who look with pleasure to the monthly appearance of his earnest articles in this journal.

Pacific Coast Association of Architects.

The regular monthly meeting of this association was held in the rooms of the Art Association on Friday evening, March 3rd. Vice-President John Wright presided, in the absence of the President.

Mr. J. C. Cebrian was elected a member of the association.

The secretary was instructed to insert in the notices of the next meeting that the meeting would consider the advisability of at once becoming a chapter of the American Institute of Architects. Also that a nominating committee would be appointed for the purpose of selecting officers for the ensuing term.

Interesting remarks followed, in which all present took part, showing the benefit this association has already been in keeping up the dignity of the profession, and by a thoroughly understood schedule of rates, enable the client and architect to agree at once upon the value of service rendered.

Meeting adjourned to meet on the first Friday in April.

TO IMPROVE POOR DRAWING-PAPER.—To size poor drawing-paper, take 1 oz. of white zinc, 1 oz. of white soap, and ½ oz. of alum. Soak the glue and the soap in water until they appear like jelly, then simmer in 1 quart of water until the whole is melted. Add the alum, simmer again, and filter. To be applied hot.

CO-PARTNERSHIP NOTICE.

WOLFE & SON, ARCHITECTS.

From and after this date, my son, George H. Wolfe, will have an equal interest with me in the **ARCHITECTURAL BUSINESS**, *conducted by me singly for the past three years, under the firm name of Wolfe & Son. He will also have an equal interest in the* **CALIFORNIA ARCHITECT AND BUILDING NEWS.**

JAMES E. WOLFE.

San Francisco, March 1st, 1882.