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.

The California Architect and Building News.

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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.

Interesting to Architects.

Two decisions of interest to architects and builders have just been delivered by the French Cour d' Appel. The first is simply a reiteration of the principle so often affirmed by the English courts, that when a penal clause has been incorporated in a contract, obliging the contractor to pay a stipulated sum as ascertained damages for every day of delay beyond a fixed time, this clause must be sustained, as being the expression of the free intention of the parties, and the court can do no more than determine the actual number of days' delay chargeable to the contractor. The other decree applied to a case in which a dealer, who had furnished supplies to a sub-contractor for public work, on the bankruptcy of the sub-contractor applied to the principal contractor for his pay, on the ground that the agreement entered into on behalf of the State prohibited all sub-contracts, and provided that in case any such were made the principal contractor, together with his "caution," or forfeit money, should be held answerable for the work which he had delegated to another. The court held that this clause was intended simply as a guaranty to the State of the responsibility of the principal contractor, whether he made sub-contracts or not, and did not render him accountable to third parties, who had contracted with his sub-contractor, but between whom and himself there existed no legal relation.—*American Architect.*

Chimneys and Flues.

The importance of careful workmanship in the erection of chimneys is clearly demonstrated by the almost numberless conflagrations which from time to time have had their origin in "defective flues." Still these often-repeated warnings have but little effect upon the *careless class* of chimney builders, who are reckless to all after consequences, and rush their work through with no other concern than to reach payment for their labor.

There are doubtless hundreds, and perhaps thousands, of houses in San Francisco, and all large cities, which daily barely escape destruction by fire from the many unfilled joints in the brick-work of chimneys, particularly the cheaper class of buildings erected upon the economy principle, in the erection of which, for the sake of saving a few dollars, owners engage the *cheapest* man, asking no questions as to mechanical competency, beyond the volunteer statement of the parties that they "do first-class work," and with whom everything is first-class.

Nor do those who have suffered the loss of millions of dollars in payment of insurance policies exercise prudent concern in this connection. If there was a law compelling owners to produce the certificate of a competent chimney inspector, before an insurance company would accept risks, particularly upon frame buildings, fires from defective flues and chimneys would seldom happen.

Neither do owners of property sufficiently realize the risks that exist in connection with this feature of house construction. Contentment follows the laying up of bricks and mortar in the shape of a chimney, by all parties concerned, without any special practical anxiety in reference to the manner in which the work is done; and if the chimney builder is careless or incompetent, he may leave one or forty cracks and holes, either of which being sufficient, under certain circumstances, to furnish a means of communicating fire to the wood-work. Still these facts create no special or general attention; and the erection of defective chimneys and flues goes on daily, and thousands of conflagrations follow; and owners of property and insurance companies remain unconcerned, until fire after fire from this prolific cause destroys property, and insurance companies are called upon to foot the loss.

Security in this matter is both possible and practicable: first in the engagement of really competent masons to do the work—men who realize the contingencies involved in the careless laying of a single brick, or a single unfilled joint; and secondly, every chimney built should be plastered on the *outside*, as well as in the flues. The expense of this extra yet necessary precaution against defects would add but little to the cost of a building, and would afford positive security.

One Benefit from Dry Seasons.

The lands of this State most subject to drouth would never be provided with facilities for irrigation were it not for occasional dry years. These force irrigation problems to the front, and cause irrigating ditches to be built. We are undoubtedly indebted to dry years for all the irrigating canals and ditches that now exist in the State. Nor is this all. The land never gets a rest only when a dry year gives it one. It is constantly harrassed to produce the same crops, year after year. There is no rotation and no use of fertilizers. The quality of the land therefore rapidly deteriorates—an occasional dry year alone helps it, by giving it a rest. More tree and orchard planting is always done after a dry year, too, for the moisture-protecting and very beneficial aid of trees in warding off the effects of dry north winds, are always most plainly seen in a dry year. We do not mean to say that this season will be a notably dry year, for it will not be by any means. Present appearances indicates that we will have a full average harvest, taking the State as a whole. The crops look well in the Sacramento, Sonoma, Napa, and many other valleys. The rain which fell, came down in such gentle, soaking showers, that none of it was lost. The crops in the most of the San Joaquin Valley will be a failure, and the season will be a disastrous one for sheep and cattle in the most of the southern and southeastern counties. This, we believe, is the worst that can at present be said.—*Real Estate Circular.*

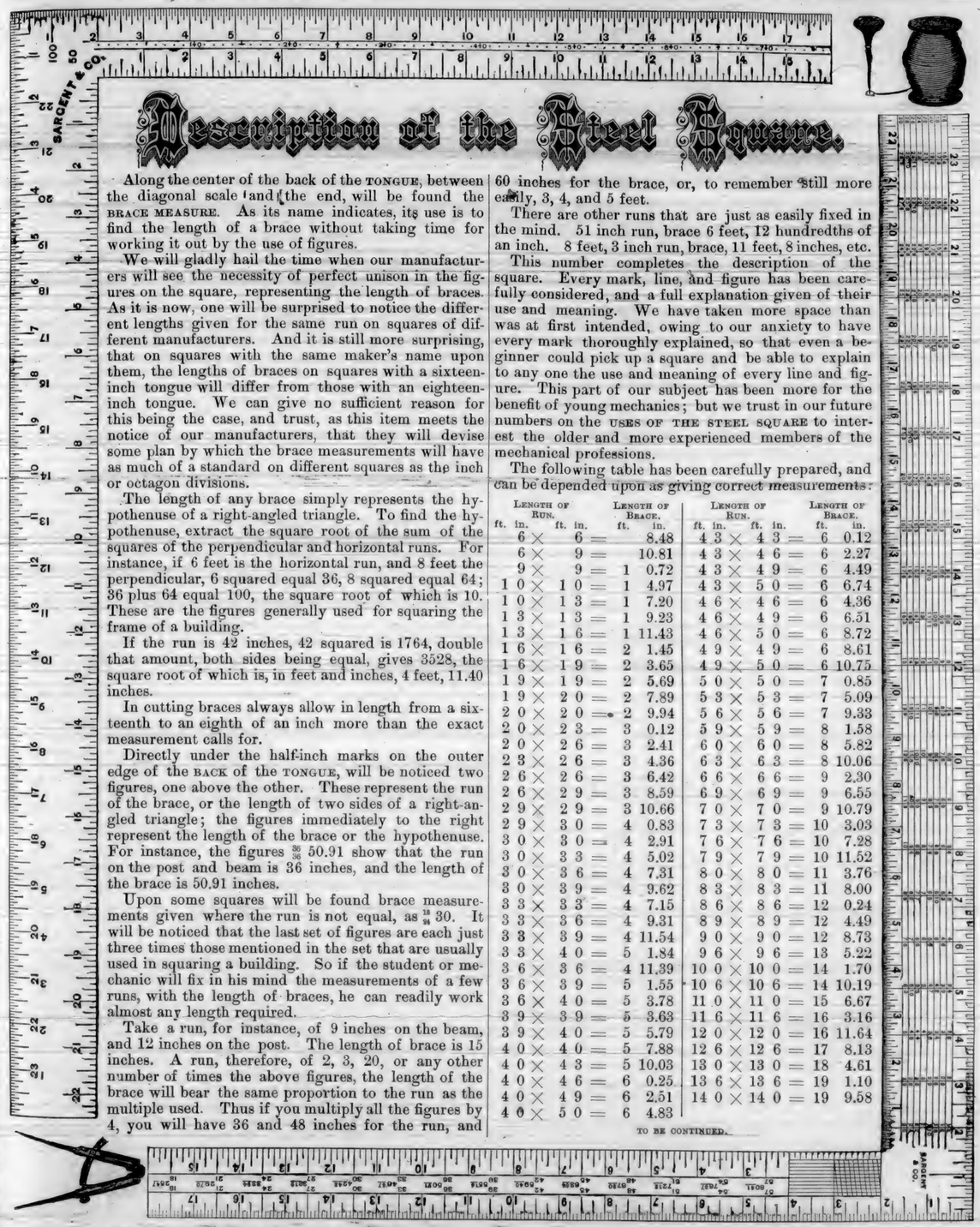
Puget Sound—The Mediterranean of the West and its Lumber Trade.

Puget Sound, Washington Territory, perhaps the least known in the East of all our important water surfaces, is the one for which its acquaintances claim the largest future fame. It covers an area of 2,000 square miles, with a breadth rarely exceeding ten miles, and has a coast-line of 1,500 miles. Its shores are bold and its water deep, and it is quite free from shoals and reefs. The large lumber vessels which frequent the sound are bothered to find good anchorage, scarcely less than a hundred fathoms of water appearing anywhere. So deep are the waters of this Mediterranean of the West, says a recent visitor, that a great commodore of the United States Navy once innocently almost ruined the chances of one of the Puget Sound towns for being the final terminus of the Northern Pacific Railroad, by taking his ship up to the town. On sounding the water for anchorage ground, he failed to find as little as thirty fathoms of water anywhere, excepting one place, and that so near the bank that there was danger of the ship going ashore when swinging with the tide. He had to depart and anchor at the other place, where there is a large natural bay, affording excellent advantages of the kind he was seeking. The pure water of this sound swarm with fish. There are eighty-five varieties, it is said. The salmon is the prince of fish here. The catch of salmon sometimes amounts to 40,000,000 pounds a year. A species of cod is also very abundant. It is dried and salted in large quantities.

The principal industry of the sound is lumbering. The timber comprises ash, dogwood, alder, white oak, maple, cottonwood, spruce, hemlock and laurel, among other varieties; but these are in limited quantities. The greater part of the timber is yellow fir and cedar. This vast fir forest is thought to be the finest tract of valuable timber land on the face of the earth. It covers an area of 32,000 square miles, according to the rough estimates which are current in the Territory. It is accesible from every point on the sound, and from the ocean coast for a vast distance southward. The proprietors of the logging camps fell their first trees so close to the shore that they could be made to fall directly into the water if desired. The yellow fir is from 150 to 300 feet high, the trunks being from 5 to 12 feet in diameter at man's hight from the ground. The first lumbermen cut only the five and six foot trees. The saw-mills could not handle logs which were larger than that. Even yet there is no saw-mill on Puget Sound which can saw a log that is more than eight feet in diameter. The consequence has been that at first, for many years, the axmen left the small trees and the very large ones; and a piece of timber land which has been cut over once presents the singular phenomenon of a collection of small and of gigantic trees, with none of medium size among them. Since the enlargement of the mills, some camps are sending their men over the ground a second time to fell the big timber. The firs are cut off about five or six feet from the ground. The butts are generally unsound.

It requires from half an hour to an hour to fell a good-sized tree. A large number of the fir tree trunks are unsound. The principal defect is what is called a "shake." It is a small track inside the tree, formed by the swaying of the tall tree in the wind. When such a crack forms, it soon becomes filled with the turpentine-like balsam which is characteristic of the fir. The woodchopper at work on a big tree is frequently astonished by driving his ax through one of these fissures and seeing several gallons of turpentine suddenly run out. If the tree, when felled, is found to be defective, it is left where it lies. If sound, it is cut up into logs from 30 to 130 feet in length, and hauled out of the woods. Sticks 150 feet long are sent out. The United States is exceedingly jealous of this vast tract of valuable timber land. It permits the timber to fall only into the hands of those who wish to do a legitimate business in logging. The regulations are quite strict, both as to keeping the land out of the hands of speculators, and as to the waste of timber. To buy a square section of timber land costs $1,600. The logger employs about six men and a team of eight oxen. He builds a rough camp and boards the men. His running expenses are about $35 a day, and he is able to get out of the woods about 30,000 feet a day. The rafts of logs are towed off to the neighboring saw-mill at a cost of $1.50 per thousand feet, and he sells them there at the rate of $6 per thousand feet.

The yellow fir is known in the East as Oregon pine or Puget Sound pine. It is a wood of great value, owing to its toughness and strength. The first cargoes of it were sent to San Francisco about twenty-five years ago. The length and beauty of the timber attracted the attention of Admiral Farragut, who caused tests of it to be made at the Mare Island navy yard. Still other tests were made at the navy yard in 1878, by Constructor Much, for the purpose of discovering the sizes of scantling required for building the United States screw steamer Manzanita with Pacific Coast woods instead of with oak. Tests have also been made recently in the oak. It is proved that yellow fir is fully the equal of Eastern white oak in tenacity, strength, and toughness. There is no doubt left upon the point, and yellow fir is now the universal building wood on the Pacific Coast.—*Scientific American.*



Description of the Steel Square.

Along the center of the back of the TONGUE, between the diagonal scale and the end, will be found the BRACE MEASURE. As its name indicates, its use is to find the length of a brace without taking time for working it out by the use of figures.

We will gladly hail the time when our manufacturers will see the necessity of perfect unison in the figures on the square, representing the length of braces. As it is now, one will be surprised to notice the different lengths given for the same run on squares of different manufacturers. And it is still more surprising, that on squares with the same maker's name upon them, the lengths of braces on squares with a sixteen-inch tongue will differ from those with an eighteen-inch tongue. We can give no sufficient reason for this being the case, and trust, as this item meets the notice of our manufacturers, that they will devise some plan by which the brace measurements will have as much of a standard on different squares as the inch or octagon divisions.

The length of any brace simply represents the hypothenuse of a right-angled triangle. To find the hypothenuse, extract the square root of the sum of the squares of the perpendicular and horizontal runs. For instance, if 6 feet is the horizontal run, and 8 feet the perpendicular, 6 squared equal 36, 8 squared equal 64; 36 plus 64 equal 100, the square root of which is 10. These are the figures generally used for squaring the frame of a building.

If the run is 42 inches, 42 squared is 1764, double that amount, both sides being equal, gives 3528, the square root of which is, in feet and inches, 4 feet, 11.40 inches.

In cutting braces always allow in length from a sixteenth to an eighth of an inch more than the exact measurement calls for.

Directly under the half-inch marks on the outer edge of the BACK of the TONGUE, will be noticed two figures, one above the other. These represent the run of the brace, or the length of two sides of a right-angled triangle; the figures immediately to the right represent the length of the brace or the hypothenuse. For instance, the figures $\frac{36}{36}$ 50.91 show that the run on the post and beam is 36 inches, and the length of the brace is 50.91 inches.

Upon some squares will be found brace measurements given where the run is not equal, as $\frac{18}{24}$ 30. It will be noticed that the last set of figures are each just three times those mentioned in the set that are usually used in squaring a building. So if the student or mechanic will fix in his mind the measurements of a few runs, with the length of braces, he can readily work almost any length required.

Take a run, for instance, of 9 inches on the beam, and 12 inches on the post. The length of brace is 15 inches. A run, therefore, of 2, 3, 20, or any other number of times the above figures, the length of the brace will bear the same proportion to the run as the multiple used. Thus if you multiply all the figures by 4, you will have 36 and 48 inches for the run, and 60 inches for the brace, or, to remember still more easily, 3, 4, and 5 feet.

There are other runs that are just as easily fixed in the mind. 51 inch run, brace 6 feet, 12 hundredths of an inch. 8 feet, 3 inch run, brace, 11 feet, 8 inches, etc.

This number completes the description of the square. Every mark, line, and figure has been carefully considered, and a full explanation given of their use and meaning. We have taken more space than was at first intended, owing to our anxiety to have every mark thoroughly explained, so that even a beginner could pick up a square and be able to explain to any one the use and meaning of every line and figure. This part of our subject has been more for the benefit of young mechanics; but we trust in our future numbers on the USES OF THE STEEL SQUARE to interest the older and more experienced members of the mechanical professions.

The following table has been carefully prepared, and can be depended upon as giving correct measurements:

Length of Run.				Length of Brace.		Length of Run.				Length of Brace.	
ft.	in.		ft.	in.		ft.	in.		ft.	in.	
6	×	6	=	8	48	4	3	× 4 3 =	6	0	12
6	×	9	=	10	81	4	3	× 4 6 =	6	2	27
9	×	9	=	1	0 72	4	3	× 4 9 =	6	4	49
1	0	× 1 0	=	1	4 97	4	3	× 5 0 =	6	6	74
1	0	× 1 3	=	1	7 20	4	6	× 4 6 =	6	4	36
1	3	× 1 3	=	1	9 23	4	6	× 4 9 =	6	6	51
1	3	× 1 6	=	1	11 43	4	6	× 5 0 =	6	8	72
1	6	× 1 6	=	2	1 45	4	9	× 4 9 =	6	8	61
1	6	× 1 9	=	2	3 65	4	9	× 5 0 =	6	10	75
1	9	× 1 9	=	2	5 69	5	0	× 5 0 =	7	0	85
1	9	× 2 0	=	2	7 89	5	3	× 5 3 =	7	5	09
2	0	× 2 0	=	2	9 94	5	6	× 5 6 =	7	9	33
2	0	× 2 3	=	3	0 12	5	9	× 5 9 =	8	1	58
2	0	× 2 6	=	3	2 41	6	0	× 6 0 =	8	5	82
2	3	× 2 6	=	3	4 36	6	3	× 6 3 =	8	10	06
2	6	× 2 6	=	3	6 42	6	6	× 6 6 =	9	2	30
2	6	× 2 9	=	3	8 59	6	9	× 6 9 =	9	6	55
2	9	× 2 9	=	3	10 66	7	0	× 7 0 =	9	10	79
2	9	× 3 0	=	4	0 83	7	3	× 7 3 =	10	3	03
3	0	× 3 0	=	4	2 91	7	6	× 7 6 =	10	7	28
3	0	× 3 3	=	4	5 02	7	9	× 7 9 =	10	11	52
3	0	× 3 6	=	4	7 31	8	0	× 8 0 =	11	3	76
3	0	× 3 9	=	4	9 62	8	3	× 8 3 =	11	8	00
3	3	× 3 3	=	4	7 15	8	6	× 8 6 =	12	0	24
3	3	× 3 6	=	4	9 31	8	9	× 8 9 =	12	4	49
3	3	× 3 9	=	4	11 54	9	0	× 9 0 =	12	8	73
3	3	× 4 0	=	5	1 84	9	6	× 9 6 =	13	5	22
3	6	× 3 6	=	4	11 39	10	0	× 10 0 =	14	1	70
3	6	× 3 9	=	5	1 55	10	6	× 10 6 =	14	10	19
3	6	× 4 0	=	5	3 78	11	0	× 11 0 =	15	6	67
3	9	× 3 9	=	5	3 63	11	6	× 11 6 =	16	3	16
3	9	× 4 0	=	5	5 79	12	0	× 12 0 =	16	11	64
4	0	× 4 0	=	5	7 88	12	6	× 12 6 =	17	8	13
4	0	× 4 3	=	5	10 03	13	0	× 13 0 =	18	4	61
4	0	× 4 6	=	6	0 25	13	6	× 13 6 =	19	1	10
4	0	× 4 9	=	6	2 51	14	0	× 14 0 =	19	9	58
4	0	× 5 0	=	6	4 83						

TO BE CONTINUED.

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

The Timber Supply of Europe.

From an approximate summary of the timber production and trade of Europe, as given by the *Journal of the Agricultural Society of France*, may be drawn some lessons which may be of benefit in showing the dangers threatening our timber supply, and the advantages of an intelligent public policy of preservation. A man in business cannot be expected to sacrifice himself for the benefit of posterity, but the Government should see to it that such great resources should not be sacrificed in one generation. The policy of Austria has almost a counterpart in that of this country. Sweden and Norway have exhausted their oak as we almost our walnut, and, according to the *Journal*, their pine is going the way of ours. The following are the figures given by the paper mentioned above: Sweden and Norway, which still do a large export trade in deals, are now compelled to buy their oak in Poland; and in Russia the forests along the shores of the Baltic, in Finland, and in the southern provinces, are rapidly thinning, so that the forest produce of the empire is now only one in ten. There are about 34,000,000 acres of forest in Germany (of which 20,000,000 are in Prussia), estimated to be worth £500,000,000, and bringing in an income of £10,000,000 per annum. The State forests are taken great care of in all parts of Germany, in Prussia alone £100,000 being spent every year in replanting; yet the imports of timber exceed the exports by over 2,000,000 tons. The oak and the beech are the kinds of trees which do best in Denmark, but the timber trade of that country is very small. Austria and Hungary have upwards of 43,000,000 acres of forest; but in Austria proper the State does not possess more than seven per cent. of the wooded area, as owing to the wasteful policy of the Ministry of Finance from 1855 to 1872 more than 5,000,000 acres were sold for sums so far below their value that there was a popular saying in Vienna, "If you want to become rich, buy State forests." The speculation came to an end in 1873, but Austria is now obliged to buy most of her timber in Bosnia and Montenegro. Servia and Roumania have some very fine forests; but Italy, though her forest area extends over nearly 14,000,000 acres, does not do much in the way of a timber trade, as the roads leading to the forests are so bad that it is almost impossible to move the timber when cut. Much the same is the case with Spain, which has 8,500,000 acres of forest; while Portugal, which has only 1,000,0000, finds a good market for her timber. Sweden and Norway export about £32,000,000 worth of timber every year, and at this rate their fine forests will soon be exhausted.—*North-western Lumberman.*

Polishing Wood.

Turned articles must be brought to a fine, smooth surface with the finest sand-paper, and the direction of the motion should be occasionally reversed, so that the fibers that are laid down by being rubbed one way may be raised up and cut off. To apply the polish, which is merely a solution of shellac in alcohol, take three or four thicknesses of linen rag, and place a few drops of polish in the center; lay over this a single thickness of linen rag, and a drop or two of raw linseed oil over the polish. The rubber is then applied with light friction over the entire surface of the work, while revolving in the lathe, never allowing the hand or mandrel to remain still for an instant, so as to spread the varnish as evenly as possible, especially at the commencement, and paying particular attention to the internal angles, so as to prevent either deficiency or excess of varnish at those parts. The oil in some degree retards the evaporation of the spirit from the varnish, and allows time for the process; it also presents a smooth surface and lessens the friction against the tender gum. When the varnish appears dry, a second, third, and even further quantities are applied in the same manner, working, of course, more particularly upon those parts at all slighted in the earlier steps.

Flat surfaces are polished in a similar manner. The wood must be filled, as it is called, and for this nothing is better than whiting, colored so as to resemble the wood, and kept dry. Rub the latter with linseed oil, and then sprinkle it with whiting. Rub the latter well in, wipe it off carefully and give time to dry. This is far superior to size.

The polisher, however, generally consists of a wad of list, rolled spirally, tied with twine, and covered with a few thicknesses of linen rag. Apply a little varnish to the middle of the rubber, and then inclose the latter in a soft linen rag, folded twice. Moisten the face of the linen with a little raw linseed oil, applied to the middle of it by means of the finger. Pass the rubber quickly and lightly over the surface of the work in small circular strokes, until the varnish becomes nearly dry; charge the rubber with varnish again, and repeat the rubbing till three coats are laid on, when a little oil may be applied to the rubber, and two more coats given it. Proceed in this way until the varnish has acquired some thickness; then wet the inside of the linen cloth, before applying the varnish, with alcohol, and rub quickly, lightly, and uniformly the whole surface. Lastly, wet the linen cloth with a little oil and alcohol, without varnish, and rub as before until dry. Each coat is to be rubbed until the rag appears dry, and too much varnish must not be put on the rag at one time. Be also very particular to have the rags clean, as the polish depends in a great degree upon keeping everything free from dust and dirt.

Outside Ladder Accident.

We have been consulted, during the month past, in reference to our opinion in the matter of one of those occurrences which several months ago we predicted would occur, and which we again predict will be a matter of frequent occurrence hereafter. The responsibility for a dislocated thigh is the issue. Our answer: the injured party must bear both the pain of the accident and all consequent expenses. The case is this: A certain owner engaged a "roofer" to do some roof work on a building, the approach to which was by one of those *miserable traps*, an outside wooden ladder, secured to the wall of the building with nails, and the rounds of the ladder itself secured to the uprights in the same manner. The roofer proceeded with and completed his work, and after having left the roof as completed, he returned and again ascended the ladder for the purpose of recovering a chisel, which had been forgotten, and in his final descent of the ladder one of the rounds gave way, and the roofer fell, with a dislocated thigh as the result. Had the fall occurred during the execution of the work, the owner might have been responsible; but inasmuch as the injured party returned to the roof of his own accord, and for purposes in which the owner had no interest, he, the broken-thigh man, cannot recover damages from the owner.

This is but one of many cases that will occur from like cause. It needs no spirit of prophecy nor special inspiration to foretell coming events in this connection. It is simply a matter of common sense—mechanical judgment. Such ladders are seldom made with any special regard to strength and firmness. Two pieces, of 2 x 3 or 2 x 4 inches, for uprights, of Oregon pine lumber, with 1 x 3 or 1 x 4 inch rounds or slats, joined into the uprights, and nailed generally with 10-penny, but sometimes, when the larger nails are scarce, 8 or 6-penny, whichever is most acceptable, are used, without any consideration of the strength or holding value of either, so that *two* nails are represented in the face of the slats. When new, such ladders are barely safe for the purposes for which they are intended; and when subjected for a few years to the effect of natural wear and tear, exposure to rains, dews, sun, etc., they certainly cannot be, and they are not, safe means for *perpendicular* ascent up the walls of two or three story buildings, particularly as the uprights are almost always nailed close against the walls, so that parties ascending are compelled to take hold of the slats. And in cases of older persons, whose knee-joints may be in any degree weakened by age or infirmities, the hands and arms are made to do service in drawing the body upward, and this extra pull above increases the danger. Men advanced in years, and those of more than one hundred and forty pounds avoirdupois, should never attempt to climb these neck, back, leg, or arm breakers. The removal of every one of these risky wooden affairs should be compelled by law, and their construction hereafter prohibited. Well-made, wrought-iron ladders, firmly secured, should alone be permitted where outside ladders are a necessity. Chief of the Fire Department Scannell should interest himself in this matter, or some day or night he may be required to take care of one or several firemen with broken limbs, or worse, caused by attempts to reach roofs of buildings by the dangerous means under notice.

Contractors and Architects.

The demands of the contractors for certain changes in the printed agreements which are furnished by architects for signature, previous to the commencement of work, have not as yet been agreed to. In fact, it is doubtful if the architects will agree to the conditions sought to be imposed at all. One of them is that in case of dispute for extra work arbitrators be appointed—one by the contractor, one by the architect, and another by the proprietor of the building. This the architects claim would cause a great deal of useless labor and annoyance. They claim that in all the leading cities the matter of extra pay is left in the hands of the architect, and they do not see any necessity for having any exception made in the case of London. In the mean time the contractors have had a lengthy set of rules drawn up by W. R. Meredith, Q. C., and submitted to the architects. It is stated they will not tender for any work offered by those architects who refuse to agree to the terms laid down by them.—*London (Ont.) Gazette.*

Dovetail.

Is the generally received derivation of this technical term correct? I do not remember to have seen any other suggested, and turning to the only English dictionary within ready access, I find: "Dovetail, joint in form of a dovetail spread." It seems probable that the word is no more derivable from "dove" than "rabbet"—another term of carpentry—from "rabbit," but is one of many familiar technical terms borrowed from the French. The French *douve* (which appears in German as *daube*) is a cask-stave, and is connected, Littré says, by Ducange with L. Latin *doga*, a vase, a cup—the transition from *doga* to *douve* being normal. So "dovetail," if *douve-taille* as surmised, would have meant such "cutting" (French *tailler*) as was applied to cask-staves. Whether such staves are precisely dovetailed, affects the question but little. Their joints were necessarily water-tight, and thus a very close joint may well have been called a "dovetail." It is right to add that the compound word *douve taille* (possibly obsolete) does not appear in any of the several French dictionaries I have consulted.—*Notes and Queries.*

How to Make the Chinese Law Effective.

It has been claimed by many that it will always be impossible to exclude the Chinese from this coast, no matter what law may be passed by Congress. It is claimed that though a law of Congress may limit the number of Chinese landing at ports of the United States, that law cannot be made to apply to the ports of Mexico or British Columbia. It is said that, when they find they cannot land in one of the United States ports they will land either in a British Columbian or Mexican port, from whence they can cross the line into the United States. Such evasion of the law can hardly be accomplished however, for three reasons: first, because neither the British Columbian nor Mexican authorities will permit the wholesale landing of the Chinese on their shores. Their presence is no more desired in either of those countries than it is here; and second, even if the Chinese could land in that way, and without opposition steal across the line, the cost of their reaching almost any point in California from the foreign point they were launched at, would of itself be a prohibition to their entrance. The Pacific States should at once adopt the same rule as that adopted in Australia. That rule makes it incumbent on any Chinaman who has been in the country before the passage of the excluding act, to have a certificate stating that fact, which he is required to exhibit at all times on demand of a designated city or county official. If it is found that he is an interloper, he can be confined and kept at work until an opportunity occurs to remit him to his own country. No one seems to think that the Australians have done anything very savage or uncivilized in passing thic law; but when a similar law is proposed on the Pacific coast, the majority of the Eastern people and papers cry aloud that it would be uncivilized and barbarous, and is proposed solely to satisfy the hoodlum element of the Pacific Coast. The fact that the voters of the State have once, by an overwhelming majority, decided against Chinese immigracion, seems to count for nothing with the Atlantic people and papers.—*Real Estate Circular.*

The Trials of an Architect.

Another example of the trials which afflict architects is furnished us by one of the profession. This gentleman, with his partner, was commissioned to build a small structure for a certain town, and the appointment was announced in the local journals. Soon after, one of the town council which appointed the architects in question was approached by the city engineer of a neighboring community, who desired him to lay before the next meeting of the council a sketch-plan, which he would furnish without charge, for the chance of having it preferred to those already accepted. The councilor reminded him that the architects of the building had been already appointed, to which he replied that he knew it, but thought he could design a building which would be cheaper than any that Messrs. A and B would draw, and his charges for his services would moreover be less than those of the actual appointees. Even this combination of merits failed to satisfy the councilor, who declined to act as the surveyor's messenger in the case. Our correspondent suggests that an engineer employed and paid at the public expense might be expected to occupy his leisure moments in perfecting himself in his own profession, for his own and his employers' good, rather than in attempts to thrust himself, uninvited, into business which belonged to other people.

To this we can only reply that the restrictions laid upon professional men acting under public employment differ greatly, so that there may be no reason why the city surveyor of X should be forcibly prevented from engaging in any employment which suits him during his spare hours, and if he feels an irresistible attraction toward the practice of architecture, that may be enough to justify him in neglecting his opportunities for advancement in his own profession. Moreover, tastes, as well as men, vary in the selection of modes for securing business as well as in other things, and such a method of solicitation as that said to have been adopted by the individual in question, while it would seem intolerably contemptible and humilating to some delicately organized persons, is regarded by others as a praiseworthy manifestation of business talent and "push." Whatever may be the merits of this particular case, the rule that the better class of achitects will occasionally have to struggle for their commissions with the cheap and hungry ones who hang about the flanks of building committees and public bodies is not likely to be soon changed. There will always be in architecture, as in all other professions, men who for one reason or another can afford to work at a lower price than their fellows, and it is likely that their will also always be clients who will consider it an economy to employ them, and it usually happens that the latter get about what they pay for, while the former have no reason to be dissatisfied.—*The American Architect.*

Workmen in an Employer's Shop.

Every man in a workshop ought to constitute himself the guardian of his employer's property, and not only should he avoid waste himself, but as far as practicable he should discourage it in others. If this were done, millions of dollars would be saved to the country; a much larger percentage of profits would go into the pockets of the employer; manufacturers would be enriched, and, in the end, the workmen would be proportionately benefited. Strange that these simple facts should have so little weight; but so it is. Waste by another is cruel to the man who has to pay, it does not, cannot benefit the the person guilty of it, and it is a dead loss to the nation. And every scrap of material so destroyed makes the product more costly, and consequently dearer. In the interest of workmen, it is important that these facts should be borne in mind. Wages bear a relative proportion to cost of raw materials, and both combined determine the price of commodities; the cheapness of the latter augments their sale, increases their production, enhances the demand for labor, and tends to keep up wages; the reverse is equally true. If, therefore, an obvious duty is neglected or carelessly performed, the men mainly responsible ultimately suffer, and that suffering will be in an exact ratio to that which produced it.

One great remedy for the losses incurred by waste is a closer supervision of every detail of the undertaking, whatever it may be. This, however, involves extra expense. If the men can contribute to a saving in this respect, they will indirectly reap the advantage. To overlook this fact shows a lamentable ignorance of the internal economy of a workshop, and of the forces and influences always at work for the purpose of bringing about a given result. And the men who complain of strict supervision are just those who need it most, and who, without it, would render large contracts next to impossible, for the simple reason that they would not pay, and could not therefore be executed. Many a builder and contractor has been ruined by the wastefulness of his employees and negligence of his foreman. A careful man is a jewel in a workshop.—*Builder and Wood Worker.*

Heating Buildings.

In spite of the professions of our heating and ventilating engineers, the warming of public buildings is a thing which is not properly understood. It is an easy matter to set up fire-places or radiators or coils of steam pipes, in a number of rooms, and to fancy that by so doing a building is efficiently warmed. In nine cases out of ten such proceedings only cause greater complaints than before; not of cold but of draughts, the reason being that as soon as the door of any one of these rooms is opened a current of cold air from the colder passage flows into the room, creating a draught which is worse than any degree of steady cold. A very little reflection should show authorities on these matters that unless the passages, halls, and corridors of buildings are warmed as well as the rooms there must be a continued inequality of temperature which nature strives to remedy through the agency of draughts. If a large building is to be warmed by any of the means indicated, it must be warmed all through, for it is just as important to apply heating arrangements outside the rooms as inside.—*Industrial World.*

The wire cable is now doing regular work on State street, Chicago, and the horseless cars are ceasing to create sensation on their regular trips. The cable has been laid on the length from Twenty-first to Thirty-ninth street, and is about in actual operation. The grip car drivers succeed in running without trouble from one cable to another where breaks occur, and on the straight track everything seems a success. The cable has been laid around the Madison street corner, and so round the corner to complete the circuit, but cars are not yet running on this length—the problematical one of the service. To grip the the cable to traverse a sharp curve successfully is the only serious question as yet in wire cable traction, and while the authorities are quite sanguine, it is a question whether the present operation will not prove more tentative than otherwise. Since the above writing, a grip car is reported to have been successfully run round the corner, stopped, and started at frequent intervals to show that there were no fortuitous circumstances at work, and the jumps made between the cables to get on the main line again. It will probably be some days before traffic is carried around the curves, as there are a few minor changes to be made. Horses are therefore used at this point for the present.—*The American Engineer.*

An interesting discovery is reported from Pola, the chief naval station of the Austrian empire, and formerly a station of the Roman fleet. Near the huge amphitheater, only second to the Coliseum in size and massiveness of construction, some workmen were lately engaged in digging an ice cellar for the use of the squadron and the naval arsenal, when, at about a yard's depth from the surface, they came upon a statue nine feet three inches in hight, representing a Roman emperor, and in a state of almost perfect preservation. This effigy, executed in Grecian marble of the finest quality, is stated to be the most beautiful and highly finished effigy of its kind in existence. It has not as yet been recognized as the potrait of any particular emperor, but would appear to be rather an ideal or typical presentment of the Roman Cæsar. It is supposed that this noble statue originally adorned one of the niches of the vestibule belonging to the theater built by Augustus Cæsar in honor of his daughter, Julia, and bearing her name.—*The Tradesman.*

☞ **Subscription price of this journal is $2.00 in advance.**

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.]

BUSINESS MANAGER OF ARCHITECT: In reading works on architecture, I find that mortar as prepared by the ancients was much more durable than that in use at the present time. How was mortar made in early times? Can you give me a list of "*the lost arts*"? L. R., Berkeley.

ANS.—"The ancient masons were so very scrupulous in the process of mixing their mortar, that it is said the Greeks kept ten men constantly employed for a long space of time to each basin; this rendered their mortar of such prodigious hardness, that, Vetruvius tells us, the pieces of plaster falling off from old walls served to make tables.

It was a maxim among the old masons to their laborers that they should dilute the mortar with the sweat of their brows; that is, labor a long time, instead of drowning it with water to have it done the sooner.

The weakness of modern mortar, compared to the ancient, is a common subject of regret; and many ingenious men take it for granted that the process used by the Roman architects in preparing their mortar is one of those arts which are now lost, and have employed themselves in making experiments for its recovery.

But the characteristic of all modern artists, builders among the rest, seems to be to spare their time and labor as much as possible, and to increase the quantity of the article they produce, without much regard to goodness; and perhaps there is no manufacture in which it is so remarkably exemplified as in the preparation of common mortar."

We will answer the second question in a future issue.

We received a communication from W. M. B., of River View, in regard to chimneys. It is too long for publication. He takes the stand that the throat of a chimney should be smaller than the number of inches contained in a horizontal section of the flue. We think our correspondent is at fault in this regard, as the frequent rushes of cold air into the chimney from the opening of doors, etc., sends a gush of smoke into the room, by obstructing the upward current of rarified air. We will condense the article and publish it in a future issue.

BUSINESS MANAGER OF ARCHITECT: A claims that a brick wall laid with the *Flemish bond* is stronger and therefore more preferable than the *English bond*. B claims that it is the appearance alone of the former that gives it the preference. Which opinion is the more correct?

C. C. Sacramento.

ANS.—The *Flemish bond* presents the neater appearance; the *English bond* being the stronger. The former was introduced into England in the time of William and Mary, and from its neat appearance was so generally introduced that today it is very seldom that the old English bond is to be seen.

(The disposition of bricks in a wall, of which every alternate course consists of headers, and of which every course between every two nearest courses of headers consists of stretchers, constitutes *English bond*.

The dispositions of bricks in a wall (except at the quoins) of which every alternate brick in the same course is a header, and of which every brick between every two nearest headers is a stretcher, constitutes *Flemish bond*.)

GLASS ROOFING.—In a paper published in Germany by the Hanover Society of Engineers and Architects, the comparative advantages and disadvantages of glass roofing are thoroughly considered. Hail, it appears, is not so damaging to such structures as is commonly supposed. It is seldom destructive of glass an eighth of an inch thick, and a thickness of a quarter of an inch is almost absolutely safe. The use of glass more than half an inch thick, however, has proved objectionable for roofing purposes, as it is said to be liable to spontaneous fracture.

Although the wealth of Great Britain is nearly double that of the United States, this country leads in production, while the value of manufactures is about equal in the two countries.

The process of whitening sugar was discovered in a curious way. A hen that had gone through a clay puddle meandered thence into a sugar-house. She left her tracks on a pile of sugar. It was noticed that wherever her tracks were the sugar was whitened. Experiments were instituted, and the result was that wet clay came to be used in refining sugar.

A writer mentions a peculiarity of newly tempered circular saws, which, when laid down to cool, commence to hum, and if not quickly replaced in the furnace will crack. The humming begins in a low musical key, and rises in tone until it ends in a snap. The saw does not always crack through from the eye to the perimeter, and it never does so if it is got into the furnace while humming in a low tone. If the crack proceeds but a part of the way, it is from the bottom of a tooth or space and toward the eye. Saw makers do not seem to be able to explain this singular and costly phenomenon.

There is constantly great danger of fire in the use of close cooking-ranges on the large scale now so common in eating-houses, great warehouses, and other places. These stoves give out an enormous heat, and are usually connected with old flues, having only four inches of brickwork round them. The walls surrounding the ranges, or furnaces as they might be called, become so heated that it is in many cases impossible to bear the hand on them, and all the adjoining woodwork becomes in course of time converted into a species of tinder, which blazes up to an enormous extent on the application of a spark.

The yield of California coal oil is increasing to such an extent that exports are likely, shortly, to take place to China, Japan, Australia, and Mexico.

TO RESTORE SPOTTED VARNISH.—If the varnish has been blistered by heat or corroded by strong acids, the only remedy is to scrape or sand-paper the article, and revarnish. Spots may often be removed by the following process: Make a mixture of equal parts of linseed oil, alcohol, and turpentine, slightly moisten a rag with it, and rub the spots until they disappear. Then polish the spot with ordinary blotting-paper. Varnish injured by heat can hardly be restored in any other way than by removing it and applying a fresh coat.

In a paper on "The White Pine and the Lumber Industry of Michigan," says the *Quebec Chronicle*, "the writer shows that the quantity of pine timber in that state has decreased from 135,000,000,000 ft. on 20,000,000 acres of land to 35,000,000,000 ft. on 10,571,000 acres. Some 5,000,000,000 ft. are now annually taken away, so that in seven years the supply will be exhausted. It almost seems a despairing task to hope ever to raise forests for another such an enormous production, and science will have to devise other materials as a substitute for wood."

The *North-western Lumberman* gives some colossal figures covering the product of shingles. It works out the problem that 800,000,000 to 1,000,000,000 ft. of logs are yearly made into shingles; and, allowing 5,000 shingles for each 1,000 ft. of logs, the output for eight years ending 1880 was exactly 21,229,391,485 shingles *not a fraction of a shingle more or less!*

TO BORE HOLES IN PORCELAIN.—It is sometimes necessary to bore one or more holes in porcelain, but the usual way of doing this is not easy. If, however, an ordinary drill be hardened, and kept moist with the oil of turpentine, it will easily penetrate the porcelain. The drill commonly employed in connection with scroll-cutting machines answers very well.

TO MAKE STENCIL INK.—A good and cheap stencil ink in cakes is said to be obtained by mixing lamp-black with fine clay, a little gum arabic or dextrin, and enough water to bring the whole to a satisfactory consistency.

Georgia pine is fast taking the lead as a finishing wood for office furniture, book-cases, and other useful purposes.

Our Illustrations.

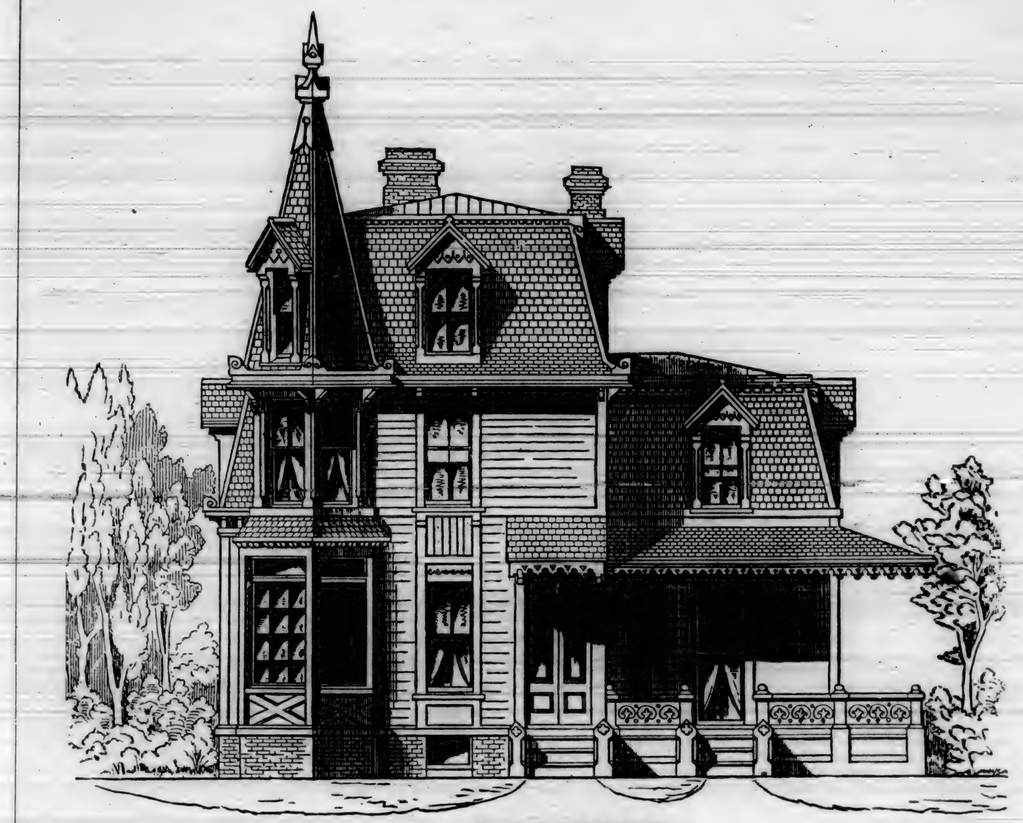
Plate 1 is taken from Lakey's Village and Country Homes. It is a neat design for a suburban house, and can be built for about $5,000 to $7,000, according to finish.

Plates 2 and 3 show the elevation and interior view of a church recently built in this city. Messrs. Wright & Sanders are the architects.

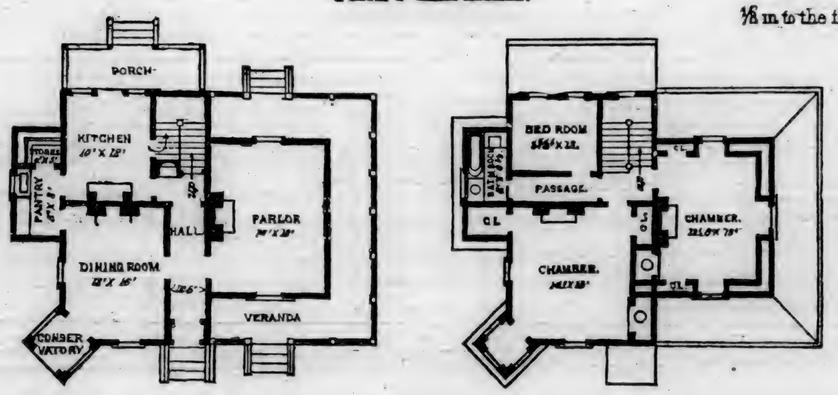
Poison in Houses.

The ideas contained in the following remarks by Dr. Willard Parker of New York, are in such perfect accord with those always advanced by this *Journal*, that it is with pleasure we present them them to our readers.

"We are living in the wrong kind of buildings, and everything is wrong. Previous to the introduction of Croton water in this city, I don't remember a single case of diptheria. There were numerous cases of croup, and some which resembled diptheria, now and then. It is a disease which depends on malaria or bad air. It attacks families and goes through all the members. I had a friend, a physician, who depended on his cellar for all the air for his furnace. His six children were all stricken with the disease, and all of them died. And there are cases of that description everywhere. I say that if we have diptheria there is something wrong about our sewers. *If I were to build a house I would not have it connected in any way with a sewer.* I should construct a sort of annex, where I should have all the sewers, closets and all the pipes of the house. I suppose most of you would object to having a vault filled with dead bodies a few yards from your house, and connected with it by a pipe. Yet this is practically what we do with our sewers. Water is no protection from them—from the germs of poison which generate and live in the foul air. This matter demands our most earnest attention, for we are in a very critical and unhealthy condition."



FRONT ELEVATION.



1/8 in to the foot.

PLATE 1.—COUNTRY RESIDENCE.—See "Our Illustrations."

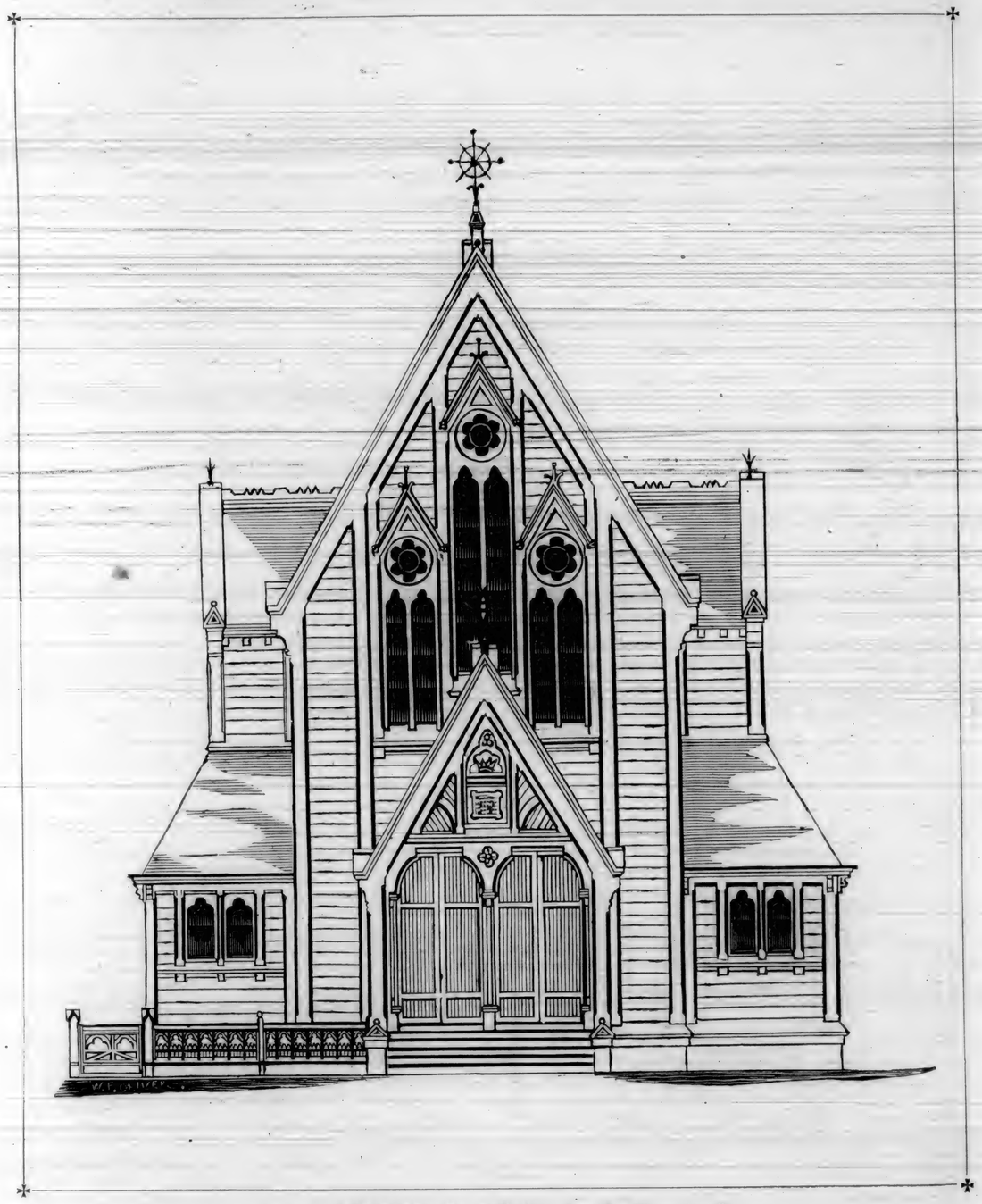


PLATE 2.—ELEVATION OF CHURCH.—See "Our Illustrations."

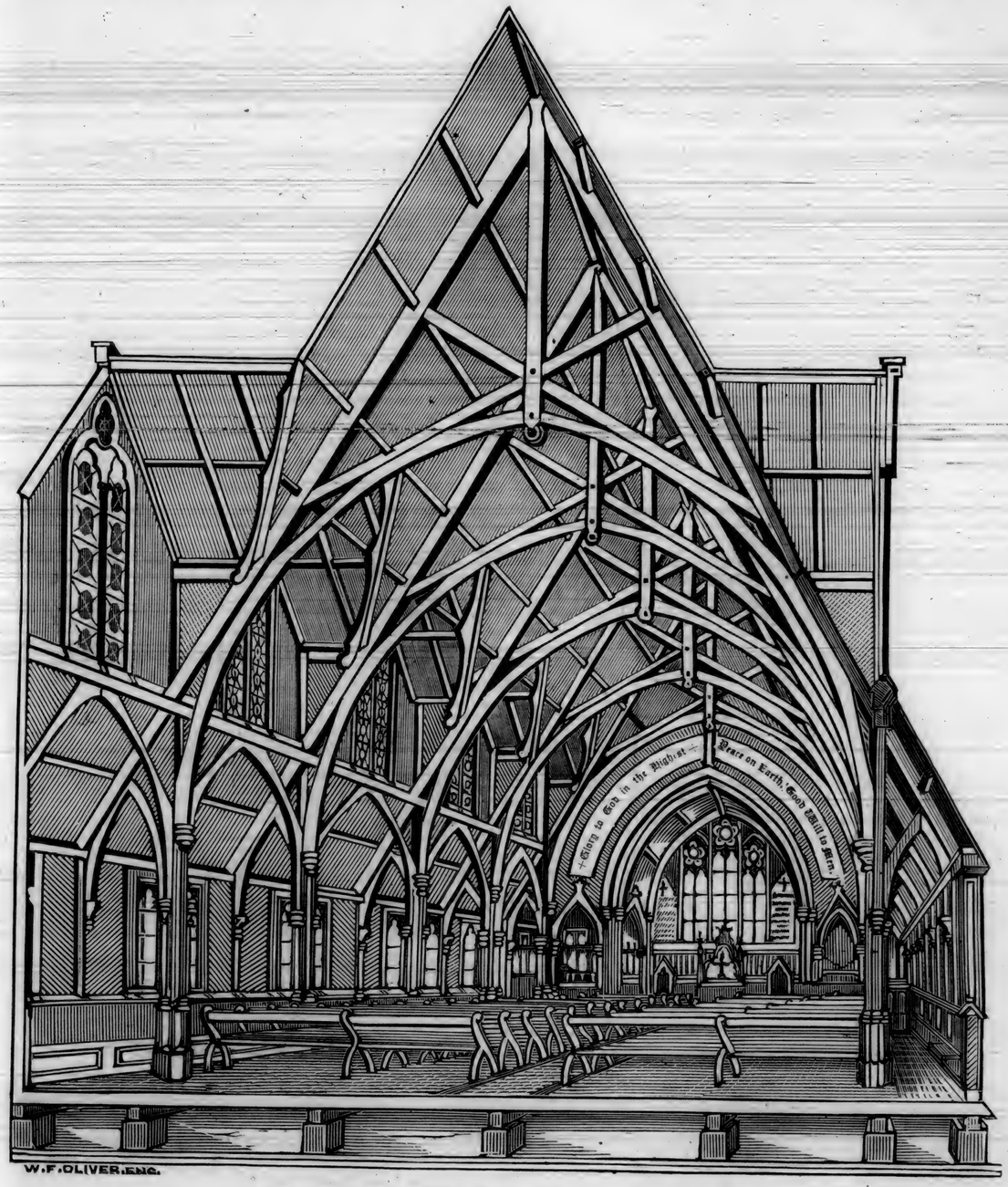


PLATE 3.—INTERIOR VIEW OF CHURCH.—See "Our Illustrations."

THE FRANKLIN GIRDER.

THE MOST ECONOMICAL CONSTRUCTION

—OF ANY MODE AND AT A—

PRICE OF ABOUT ONE-HALF

OF THOSE IN COMMON USE

OF SAME LENGTHS,

—AND TO SUSTAIN—

EQUAL SAFE LOADS.

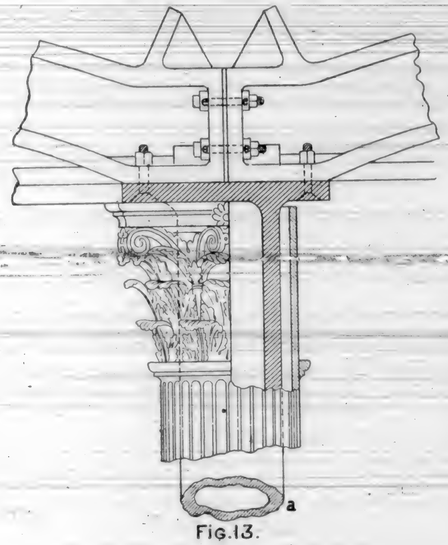


Fig. 13.

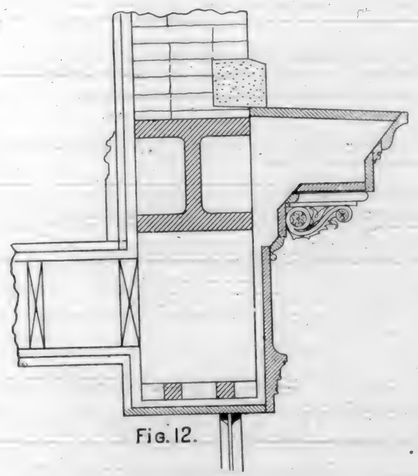


Fig. 12.

Employing Cast Iron compressively in every part, without taxing in the least its comparatively feeble tensile resistance,

AN OBJECT NEVER BEFORE ATTAINED.

Cast Iron possesses the enormous compressive resistance of 93,000 pounds to every square inch of cross section. The great objection to cast iron, caused by contraction of the parts in cooling, the heavier parts controlling and drawing away from the lighter parts, producing inherent weakness in tensile strain—does not in the least impair its strength when compressively employed. The Value of this Invention has been most favorably commented on by the scientific press of this country, London, Paris, and Germany. It has also been received with much favor by the Professors of Civil Engineering of many of the Colleges of this country, as well as Engineers engaged in Railroad and Bridge Construction.

These Girders for Architectural use are made of any length, and to sustain any required load—the safe to the breaking load being in the ratio as one is to three—and at a price of one-half of those in common use in this city.

A TWENTY-FIVE-FOOT GIRDER, with Brick work on it, is now in front of Premises, No. 231 First Street. Suitable to sustain 100 tons. Price, $200. Wrought Iron Girders to sustain same load and of same length, will cost double that Amount.

FIGURE 13

Represents the ends of two long Girders spanning the entire fronts, bolted together, and bolted to a Patent Fire-Proof Column—a Substantial Construction to resist Fire and Earthquake disturbance.

FIGURE 12

Shows the Girder encased with the Cornice, Frieze, and Soffit.

Prices given for any Length of Girder, and to Sustain any Weight.

P. H. JACKSON & CO.

2 CALIFORNIA ST., and 231 FIRST ST., SAN FRANCISCO.

To Property Owners, Architects, Builders, Iron Founders

—AND THE—

SETTERS OF ROUCH PLATE CLASS,

AND OTHERS.

It is the intention of the undersigned to maintain the rights vested in him, both by being the sole licensee, and by power of attorney for this coast by the owner of Thaddeus Hyatt's patent, granted August 27th, 1867, for illuminated basements, basement extensions, sidewalks, and roofs, which was reissued on September 27th, 1881, embracing sixteen claims; and all those who are in interest in whole or in part, in past and future infringements, are alike responsible for such acts. The manufacturer of the iron frames or castings for the lights and the furnisher and setter of the glass each of them are alike responsible for such violations. Hyatt made application for his patent in 1856, and it was granted in 1867, and his patent for novelty dates from the state of the art in 1856, and the exclusive right from August, 1867. The state of the art at the time of his first invention was: The basement of the buildings stopped at the face-line of the building, the same as the story above it, and like it, was closed between the piers by doors and windows, the area being an open space. The space underneath the sidewalk was used as a coal vault, and these vaults, at the building side, were bounded by the area wall, the area wall being curbed on three sides. By Hyatt's construction, this opening over the area way was covered by an illuminating roof, which was also a pavement to walk on, and becomes a bond or bridge to unite the basement and the space under the sidewalk, and lighting them by both vertical and angular rays of light, making by such construction an illuminating roof suitable to be walked upon, extending over the extended basement apartment.

Hyatt, in his patent specifications, says that the only actual basement extension which he found that assimilated to his new device, was where the area way alone was taken into the basement, and not the vault beyond it; and this areaway was covered with a skylight which was above and not on a level of the street, and it was set on an incline against the building. Then the sky-light was cut off from the sidewalk by an iron railing. A sky-light is a shield against the weather, a covering to an opening in a roof. The iron railing to the sky-light shows the weak and dangerous character of such structures. Besides, the iron railing was a barricade to the doorways of the building. The following claims on Hyatt's late reissued patent will best explain who are infringers.

THE BASEMENT EXTENSION IS COVERED BY HYATT'S PATENT AS FOLLOWS:

CLAIM 9. Buildings in which the basement is enlarged by union of the vault or coal-hole space, as an open chamber, and uniting or combining the two with the basement, substantially as and for the purpose herein described.

BUILDINGS IN WHICH THE AREA SPACE IS MADE TO BECOME A PORTION OF THE BASEMENT AS FOLLOWS, IS COVERED BY THIS PATENT:

CLAIM 8. Buildings in which the area space is made to become a portion of the basement by means of a water-tight roof of iron and glass, constructed as a platform or stoop to be walked over, substantially as and for the purposes herein set forth and illustrated.

CLAIM 7. Buildings in which the approaches over the areaway to its doorways from the sidewalk or traveled footway of the public street are formed by means of a solid water-tight translucent bridging of iron and glass, which serves the double purpose of stoop and roof, substantially as and for the purposes set forth and illustrated.

CLAIM 6. Improved buildings made by combining illuminating roofs and roof pavements as build appliances, with the main structure of the building as integral portions thereof, substantially as and for the purposes herein set forth and illustrated.

CLAIM 5. Illuminating roofs and roof pavements as building appliances, formed by combining perfected vault-covers or illuminating-tiles as a new building material, substantially as and for the purposes herein set forth and illustrated.

CLAIM 4. An illuminating-tile as a new building material, constructed substantially as and for the purposes herein set forth and illustrated.

CLAIM 11. Buildings in which the sunk areas are covered or roofed with iron and glass in stoop or platform shape for being walked over, where the metallic portions are formed, joined, and made water-tight by means of rising lips or water-backs, and by means of nosings made with an overlap or drip, substantially as and for the purposes herein set forth and illustrated.

CLAIM 14, Buildings in which the sunk areas are roofed over with iron and glass in stoop or platform manner for being walked over, where the areal light-space is enlarged by the employment of an iron girder, beam, or supports laid parallel with the face of the building, in lieu of an area wall and coping, substantially as and for the purposes herein set forth and illustrated.

CLAIM 15. An illuminating-roof of metal and glass, where the metal surface or plate that carries the glasses, and in which they are fixed and made water-tight, forms the general strength as well as roof-surface, in combination with the rafters, supports, or framing, the construction being such as to secure the two-fold object of equalizing and distributing the the strength of the iron while equalizing and distributing the light of the glasses, substantially as herein set forth and illustrated.

CLAIM 16. All illuminating step-roof composed of glass and metal—that is to say, where the metal and glass are composed into illuminating-sills and illuminating-risers, and these are again combined to form an illuminating-roof—substantially as and for the purposes herein set forth and illustrated.

THADDEUS HYATT.

Witnesses:
JUSTUS BRAUER,
T. C. BRECHT.

It will be seen that these claims embrace, first, the incorporating the area space, also the space under the sidewalk, as being Hyatt's invention and secured by his patent.

It will also be seen that the use of rough plate-glass, no matter what size or shape, used over the basement extension as described, is entirely covered by the patent, and the maker of the iron frames for these tiles, also the furnisher and setter of the glass, and every party in interest, including owner and architect, are equally liable for the violation of the rights secured to Mr. Hyatt, and it is the purpose of the undersigned to maintain, by suit at law, parties in such interest, both in the past and in future infringements.

P. H. JACKSON,

Sole licensee for the manufacture on the Pacific coast, and attorney for the owner of the patent.

HYATT'S PATENT FIRE-AND-BURGLAR-PROOF SKY-LIGHTS.

The public are requested to examine the large sky-lights now being erected on the rears of Mr. McCreary's building, corner Pine and Davis streets, also Senator Fair's building, corner Sansome and Pine streets. By the use of these heavy sky-lights, which are both fire and burglar proof, *no extra charge in rates is made by the insurance companies than if no sky-lights were used,* as they are not destroyed by fire as the wood and sheet-iron sky-lights in common use. Besides, the occupant of the premises may feel his goods are safe from robbers during the time the building may be closed.

There are many deep stores in this city that are much in need of light, and by an addition of these sky-lights all light can be obtained, besides security against theives is maintained.

The appearance of the sky-light, as seen from the front of the store when the sun is on it, glistens with the thousands of hexagon lens. The Cosmopolitan building, as altered, has these sky-lights on the rear of the deep stores.

P. H. JACKSON & CO.

Sole Licensees and Manufacturers for the Pacific Coast of Hyatt's Patents.

2 California St., and 231 First St.

SAN FRANCISCO.

Fire Escapes.

Since the recent fire in New York, by which several lives were lost, a great deal of energy has been expended in devising means of escaping from burning buildings. According to various individual views the fire service should be converted into a brigade for carrying portable fire escapes; buildings should be provided with fire escapes of all forms and devices, and they should be carried around as the personal property of the individual. Inventors are setting up fire escapes and inviting the interested public to witness what a simple matter it is to escape when there is no fire, and in process of time—not a very long time—the business of the patent office will feel the effect of the present agitation, and—what then? Unless all previous experience goes for nothing, things will settle down quietly until a repetition of the recent disaster shall bring about recurring activity and succeeding quiet.

There is nothing phenomenal in the present activity in this direction. It is simply a repetition of what has occurred in every instance of the kind during the past fifteen years, and will undoubtedly end in exactly the same way; that is, in adding to the record in the patent office by which the date of this fire, as of others in which human life was sacrificed that have preceded it, can be fixed with reasonable accuracy.

At best, fire escapes afford an unnatural means of leaving a burning building. The inmates are not accustomed to their use, and it is usually demonstrated that they are out of order when wanted, and often but little less dangerous—especially to women and children—than the fire itself. This is of course without saying that they have not in some instances been of value, but that, generally speaking, they have not been a success. To such an extent is this true that it would seem time attention was turned in some other direction for safety, particularly so since, notwithstanding the progress of the past twenty-five years, it seems to be a fact that the prospect of the inmates getting off with their lives, in the event of a fire in the average city building, is less to-day than ever before.

It does not matter how nearly or how entirely fire-proof the outside of a building may be, since fires by which lives are sacrificed, as a rule, originate in the interior.

The fact that in broad daylight the burning of a building from which all the occupants could have quietly walked in a few minutes, should result in the loss of several lives—how many may never be known—is evidence of something wrong with the interior construction.

Sometimes the industry carried on in a building calls for the accumulation of considerable quantities of combustible material, but this was not the case to any extent in the instance noted; the trouble being that in this building, as in hundreds of others, the whole interior seems to have been constructed with special reference to rapid combustion.

It may be—probably is—difficult, if not practically impossible, to make the interior of a building fire proof, but it has been demonstrated, if it ever needed demonstration, that floors and partitions can be constructed so as to check the progress of a fire for a considerable time. It has even been proved, and is constantly being shown, that wood work can be rendered nearly incombustible, yet this knowledge seems to serve but little useful purpose so far as the security of human life is concerned. If more attention was paid, in ways that are well known, to rendering the spreading of a fire throughout the entire building not impossible, but a question of a little time, and less to the devising of fire escapes that are never used, it is probable that, in the event of a fire, people would walk quietly out of the building in an ordinary way.

With reference to fire escapes, the passage by the way of the stairs in common use is the most natural one, and, if properly constructed, this part of the building should be the last to yield to a fire instead of the first, as is too often the case. The location of the stairs is known to all in the building, and in a panic every one turns to them instinctively as a means of egress. At least this part of a structure, together with the halls and approaches, could be made so nearly fire proof, and so little dependent on the other parts for stability, as to provide a fire escape always in place, and in condition to be approached and used, at least as long as any part of the building was tenable.

The rendering of the loss of life in the instance of a fire in our high city buildings improbable, is not so much the matter of new inventions as the putting in practice of common-sense ideas well known. It resolves itself into a mere matter of dollars and cents, versus human life.—*American Machinist.*

Linseed Oils.

The linseed oils of the market are manufactured from linseed (*Linum usitissmum*), and are obtained by a cold or heated pressure of the seeds, and an oil of great purity results from the former, while the latter process gives a much larger production. The specific gravity of the commercial article is 0.9347, and it stands at the highest point of gravity of all the unctuous oils except that of castor oil, which is 0.9611. Fictitious oils are those which have been manipulated by experts, for greater revenue in its traffic, and is sold as *pure* boiled oil. The pure linseed oil is the best for painting and for the manufacture of varnishes. This oil, whether boiled or raw, unites with all pigments, and forms a smooth, compact mass, and when diluted spreads evenly and uniformly over all surfaces. There are more or less of the adulterated oils constantly on sale, and a few hints as to tests may be mentioned here. M. Heidenreich has found the application of a few drops of sulphuric acid, upon a glass plate on which a little of the suspected oil is placed, will detect its purity or show the colored fraud. A piece of crystal sheet glass laid over a sheet of white paper, then put a drop of the acid on ten drops of the oil to be tested; when whale or cod oil is present a peculiar centrifugal motion is seen, then a red color, increasing in intensity, and then afterwards becomes violet on the edges. When rape or turnip-seed oil, a greenish blue ring is gradually formed at a certain distance from the acid, and some yellowish brown bands proceed from the center. Of tallow or oleine, a brown color. Linseed oil has a brown magna, turning to a black. Oil of poppies and sweet almonds turns to a canary color, or yellow, passing to an opaque yellow. A common method of testing oils is to heat them sufficiently to odorize them, when the tell-tale senses are made aware of the double. The presence of fish oil in a vegetable oil is readily ascertained by agitation with a little chlorine gas, which blackens the fish oil, but has little or no effect on a seed oil. There is still another mode, and that is by its density. M. Laurot, a Parisian chemist, finds the use of his oleometer is a test for oils by measuring them when heated. The oleometer is put into a cylinder filled with oil, and this into another containing boiling water. The meter is graded so as to lower to zero in pure colza oil so heated, and he finds that it stops at 210 deg. in linseed oil, at 124 deg. in poppy seed oil, and at 83 deg. in fish oil, all having the same temperature; and any variation from the foregoing, changing the density of the oils, he can easily infer the amount of adulteration. The pure linseed oil from the crusher's tank is what is wanted by painters, as well as the public generally, and in some instances it is given; but no patent improvements can better it. It is a *fixed oil* by nature, and is in no need of further *fixing* by dealers to enhance their profits. The crushers of oil can sometimes improve the seed by properly cleansing it before sending it to press; and then after passing through that process to store it in large tanks of sufficient capacity to settle the oil, to free it from foots before it is drawn into casks for the market. This oil is naturally a siccative or drying oil, and never becomes rancid. To protect itself from exposure, a thin film hardens on the surface, and will keep good a long time; but eventually becomes fatty, when it may be used as a gilders' size. Linseed oil, when combined with pure white lead, in the form of paint, and applied to the sunny sides of a building, is one of the best combinations for whiteness and body known to painters. Its durability in such heated exposures is three or four years, when it becomes "chalky," and subsequently deteriorates rapidly from the action of the elements. The causes of decay in such mixtures is partly due to the carbonate of lead, and the constituent gases which compose the oil. Linseed oil is composed of carbon, hydrogen, and oxygen, and when applied as above, in thin coatings to exterior places, the oil in drying absorbs oxygen from the air, and the paint becomes hard and firm to the touch. But this tendency to imbibe oxygen is fatal to the solidity of the paint, though the oil becomes a solid. There is no evaporation, as in volatile oils; but instead, it takes from the atmosphere large volumes of oxygen, and by it disengages the carbon and hydrogen, leaving a disintegrated mass of lead, resin, and color in a state of impalpable powder. This is my theory of the chalking of white-lead paints as applied by the trade; and as beauty is only skin deep, we must submit to the chemistry which reveals it.

The tendency of seed oils to absorb oxygen accounts for the spontaneous combustion of various substances when besmeared with these oils. Linseed oil combines with more durable solidity with oxide of zinc and a large proportion of the sulphate of barytes, or some lead with the bulk composed of the carbonate of lime, or common whitening. There is less of opaqueness or body to paints of this class, and they do not work so freely under the brush, or give as bright tone to colors, as when pure lead is used. In drying, the zinc and barytes form a hard, solid surface; the oxygen is not so rapid in forming a part of it, and the oil retains the other component gases for a longer period, thus making the mixture a more durable covering as a paint for exposed outside work. The humid acids floating in the air do not attack the paints so readily; and for this reason they retain their brilliancy much longer than the carbonates of lead. There are many chemical paints, claiming to be a superior to pure white lead in covering qualities, are so successful in foisting their compounds on the market, by reference to their only redeeming feature, namely, durability.

J. E. W. C.

Mutual Antagonism in Woods.

It is interesting, and it may be instructive to some, to learn that certain kinds of wood, although of great durability in themselves, act upon each other in such a way as to produce mutual destruction. Experiments with cypress and walnut, and cypress and cedar, prove that they will rot each other while joined together, but on separation the rot will cease, and the timbers remain perfectly sound for a long period.—*Manufacturers' Gazette.*

The Chemistry and Potency of Sewer-Gas.

Dr. Letheby of London found, by analysis, that the elements of sewer-gas are sulphureted hydrogen, sulphide of ammonium, carbureted hydrogen, oxygen, nitrogen, and carbonic acid gas. It contains, also, organic matter. The constituents are not always the same, nor do they always exist in the same proportion. The noxious effects of the gas are due to the sulphureted hydrogen, sulphide of ammonium, and the organic matter. These are always found in sewer-gas, in varying quantities, and it is an important fact for every one to know that the two gases named are among the most dangerous known to chemistry, at least of those about which anything is popularly known. Even when greatly diluted, the first is deadly poisonous to man and animals. Air, otherwise pure, containing one part in two thousand of sulphureted hydrogen will instantly kill birds. Air one two-hundredth part of which is sulphureted hydrogen will kill dogs; and a mixture of one part in two hundred and fifty will end the life of a horse. Although it has never been practically tested, it is believed that air containing one per cent. of this dangerous gas will cause the immediate death of man. The danger which it brings to man's life, in the company of those other elements with which it forms sewer-gas, is apparent.

Advantage was taken of the destructive power of sulphureted hydrogen, some years ago, to rid the garden of the Luxembourg, in Paris, of the crows which infested it. These annoying birds had become so numerous that they were actually a terror, and were driving people from the garden. It was not safe to attempt to shoot them, since there was a possibility of doing injury to the people themselves. The device was adopted of placing in the hands of the gardeners a small bag containing sulphereted hydrogen, to which was attached a tube that could be thrust into the foliage of a tree, and into the midst of a flock of the birds, without disturbing them. The gas was then allowed to escape, when the crows immediately fell to the ground lifeless. The proceeding was so noiseless a one, that it was easily carried on till all were killed and the garden freed.

This extremely poisonous gas may be produced by acid-liquids turned into drains. It frequently seems to become concentrated, and causes death quite unexpectedly. Men have dropped dead while at work in the sewers of London, apparently from breathing it, and in some instances it has found its way into bedrooms through waste-pipes, not sufficiently diluted, and has caused instant death. If in a comparatively pure state, its effects are so exceedingly dangerous, in small quantities, it must, under other circumstances, be considered capable of doing much harm. Its known effects are, when present in air which is breathed, headache, vomiting, drowsiness, etc. This is observable in the rooms of the chemist, where, for experiment or otherwise, the noxious gas is generated. A simple trace of it in the air will often produce a debilitated condition resembling typhoid fever. In chemical analysis the operator and those around him suffer frequently from chronic poisoning of the blood by it; it is, also, the cause of typhoid or malarial fevers.

The effects of sulphide of ammonium on the system are similar to those of the first-named gas. A good many experiments have been made to determine the manner in which sulphureted hydrogen and sulphide of ammonium produce their noxious influence. The results have been interesting, and throw much light on sewer-gas poisoning. It is a well-known fact that the red corpuscles of the blood are its most important constituents. Their chief office is to take up oxygen in the lungs, and convey it to all parts of the body. The most important function of the body, probably, is the carrying power of these corpuscles. The body will do without food or drink for a number of days; but if this function is interfered with, even for a few minutes, death ensues. This is illustrated in suffocation by drowning or otherwise. No person is in a condition of health unless the red corpuscles perform their duty properly and efficiently. Chemical research has shown that the active principle of the red corpuscles is a very interesting compound, to which the name of hemoglobin has been given. In plainer terms, this compound is a portion of the substance of the red corpuscles, and upon this the oxygen-carrying power of the corpuscles depends. Hence, anything which interferes with this hemoglobin interferes with the oxygenation of the system.

Experiments on the blood of animals have shown that sulphureted hydrogen and sulphide of ammonium have a very destructive influence on the hemoglobin of the red corpuscles. Whenever they are brought into contact with these corpuscles each is robbed of its oxygen, and if the action continues the gases will utterly destroy the hemoglobin, and reduce the corpuscles to a condition which renders them worse than worthless. The hemoglobin is not only deprived of its oxygen-carrying power, but it is deadened, and becomes extraneous and *effete* matter in the blood. The result is apparent. The body cannot live for an instant without oxygen. It is the stimulus which supports vitality. Shut off the oxygen, and death follows at once; cut off a portion of the supply, and some derangement, even though not immediately fatal, must ensue. The condition of the blood of animals which have been poisoned by these gases shows the action to be that given above. The blood is black and thick, like the dead blood which has flowed from a wound.

From this destructive influence upon the red corpuscles, it may be easily understood what the nature of the danger is which persons who are exposed to sewer-gas must encounter, and how they may be injured by it. The peculiar, marked anemia, or blood-poisoning, of those who have suffered from sewer-gas poisoning, is explained by these facts. There still seems to be an influence in sewer-gas, derived from the organic constituents, which, also, not infrequently modifies the action of the other two gases. There is no doubt that the organic elements are as poisonous, or deleterious as the decaying particles of animal or vegetable matter wherever found, for that is all that they are.

In many diseases the poison of the malady seems to be eliminated largely by the bowels, and the fecal discharges evolve gases which are capable of propagating disease. This is particularly true of typhoid fever, and does not fail in the case of cholera, and possibly of cholera morbus, which is held by many to be cholera in an incipent stage, though there is reason to doubt it. Many leading scientists discredit the germ theory of the spread of disease. They believe that chemical gases generated by disease in one organism may produce a ferment, so to speak, in another, and the result is the reproduction of the same disease. It is known that strychnine produces a certain effect on the blood, as the woorara used by the South American Indians in poisoning their arrows does, and which results in death. There are no germs of disease in either case. There are no specific disease germs in the decomposing flesh of a corpse, and yet a few particles of the putrid flesh introduced by accident into the blood, as a student works in the dissecting-room, will poison the system, and may produce death. So the poisonous particles which are given off by a diseased person may float through the sewer, and on the wings of its gas be transmitted to the living and sleeping apartments of any family whose house has defective drainage, and when in contact with blood already deteriorated by sewer-gas, cause a ferment, or disease, in the system, the whole action being precisely analogous to that of yeast. Small-pox may be transmitted in this manner from the discharge of the pustules. Yellow fever may be propagated by fecal, vomital, and urinal discharges; but in this case it seems that the poison itself must come in direct contact with the person. The noxious gases of the sewer may be oxydized, and consequently destroyed. All that is necessary is to give them the benefit of plenty of pure air.

To summarize: The poisonous elements of sewer-gas are sulphureted hydrogen, sulphide of ammonium, and organic matter. The first is a deadly poison, and in a sufficient quantity its fatal effects are immediate. In small quantities it weakens the vitality of the system, by counteracting the oxygen-carrying power of the blood. It is always present in sewer-gas, and a very small amount will produce, or pave the way to, disease. The noxious gases which by fermentation reproduce the disease from which they originated, are borne hither and thither by sewer-gas through defective drains, and into houses in distant parts of a city.—*Sewer-Gas, and its Dangers.*

"The Murderous Sewers."

Such was the term recently used by a city contemporary, in referring to the sewerages in San Francisco. But sewers are murderous only so far as the *agencies* of death exist in them. They neither "lie in wait" nor seek the opportunity to destroy human life, but perpetuate their operations according to organic laws and conditions; and the murderous aspect of the case lies with those who employ, and those who execute the wretched work so often done by *miserable incompetents*, who understand no more of sanitary and sewer sciences than an untamed ape would be able to comprehend the philosophies of the ancients.

Murderous they are, so far as they are made the instruments of death to TENS OF THOUSANDS; but the responsibilities in issue rest not upon the sewers, but upon the *soulless many* who assume to understand, and are employed by owners to do the sewer work of buildings. Any human being possessed of two hands, with the physical power to use them, can dig a sewer trench and place pipe in it, to *look like* a system of sewerage; but this is the least material feature of the case, and requires no more than physical effort. But beyond this there is something which demands intelligence and mechanical skill, combined with a proper knowledge and appreciation of the principles and necessities involved.

If our contemporary had made his application to "murderous" *sewer layers*, it would have been more nearly correct; for it is feasable in argument, that the man who inserts sewers connecting with buildings in which people live or labor, in which there is a single imperfect joint, or any possibility for the escape of sewer gases, is *in effect* a murderer. For whether a man, woman, or child is deprived of life through the agencies of deadly drugs, the pistol, knife, or *badly constructed sewers*, the effect is the same upon the death-stricken individual; and the fact is too well established to admit of question, that sewer gases are deadly in their effects, and that multitudes have found early and untimely repose in death by being compelled to breathe atmosphere impregnated with sewer gas.

The strangest feature of the case is, that with all the well-known facts, so little practical interest is taken in the matter. The subject is talked over and discussed in print, but beyond the personal interest sometimes put in practice by individuals, the evil is increasing with the extending and multiplication of sewers, as nine-tenths of the sewer work done in this city is faulty and imperfect.

Shortness of Life Among Architects.

It is only a short time ago, remarks the *Saturday Review*, that any one conversant with the artistic politics of the day would, if asked to name the architects who had in the course of the competitions, official or unofficial, which were at that time in higher favor than they have since become, taken the foremost position as competitors, if not as combatants, have undoubtedly put in the front line Digby Wyatt, Scott, Edward Barry, Burges, Street, to name them in their order of departure. Now all of these are dead—Scott only, just an old man, and the rest in middle age. Every one of the men, in fact, over whom any real battle at that time raged has, with the exception of Mr. Waterhouse, left the scene. The *Times* attempted to sketch, with a keener eye to faults than merits, the difference between the old and the new taste in architecture by pairing off Mr. Street with Mr. Decimus Burton, who had died a few days before, aged eighty-one. The comparison might have been more telling if it had included a third architect, who died on the very day before Mr. Street, and who was, although a year older than Mr. Burton, rather the first of the new than the last of the old school. More than forty years ago, when prominent men of the Gothic school who have since been famous and died were still unheard of, Anthony Salvin seemed destined to lead the revived school of mediæval art. But he was rather torpid in the important matter of ecclesiastical architecture, and so, while making proof of his mastery of castellated construction at the Tower, at Windsor, at Alnwick, and in his own modern castle of Peckforton, as well as of considerable taste in country houses, he practically became an outsider in the animated conflict of styles which has filled up the intermediate years.

There is never an effect without some cause, and it is better to seek what explanation can be given for the remarkable shortness of life among conspicuous architects, than idly to lament the losses. No doubt, as the phrase goes, it is the pace which kills; but there is something more than the mere speed to account for the dangers and the casualties of the architectural race. The nature of the broken country which has to be crossed tells against safety as much as the mere speed. Some men kill themselves by over-devotion to an art, and others by an over-devotion to a profession; but it is the hard and peculiar fate of an architect to be following both an art and a profession. His education in composition matches with that of a painter in painting. His education in construction matches with that of an engineer in engineering. Once he is in practice, the thought needful to marry beauty with utility in his designs is only the beginning of troubles. He has to settle his accounts with employers, who may be stingy and overreaching, exacting and capricious, ignorant and prejudiced, vain and half instructed; with contractors too often incompetent, dishonest, or insolvent; with workmen too stupid to understand and too obstinate to obey. Add to this the wear and tear of railways, the severities of weather, and it will be seen that the career of a successful architect is one which tells with unusual severity on the human frame. Yet there is no remedy which could be thought of which would not be worse than the disease. To separate the profession of artistic and of constructive architect would be to extend and perpetuate a system which has already, in the hands of speculative builders, worked so much woful mischief to the national taste.—*British Architect.*

What Next?—Evolutions in Styles of Architecture.

Public taste in matters architectural, both as regards the erection of buildings, their exterior delineations and decorations, and the interior finishes, appointments, and furniture, have of late years become matters of constant change. To meet the wants of the present generation, it is necessary that architects should be as versatile in their conceptions as the artist whose perpetual thinking is to find some new idea, some hitherto untouched or newly embellished subject, differing from, if not surpassing, those which have preceded. In former periods, the classic orders were, to a certain extent, revered for their grandeur and semi-sacredness, and those who dared to innovate did so with cautious hand, seeking to invest the new with grandeurs and beauties co-equal with the old.

But as time rolled on, a spirit of recklessness and disregard for former things largely controlled; and while many beautiful results followed, thousands of architectural abnormities have also from time to time appeared, sometimes gaining a temporary prominence, but soon passing away among the host of other unmeritorious and no longer accepted conceptions.

In harmony with this, an exchange says: "The Eastlake is no longer popular (in the Eastern States). The so-called Queen Anne style is said to be dead and laid upon the shelf. What is to follow is a matter of some concern to those who cater to fashion." (The term *fashion* is well applied, for a considerable portion of that which is passed off as architecture is a mere *fashion*—a whim, a caprice of the imagination without *order* or *style*.—Ed.) "The public is capricious and will always be swayed by fashion. Fashion has decreed a change in household furnishings. What is it going to be?"

Another exchange adds: "That the present direction of public taste is plainly toward the French art. The public has tired of the straight lines, the sharp angles, and the formal decorations derived from English models, and is turning again to the more graceful, if less serviceable, productions of the French. The change so far is manifested principally in ornamental details. The strong lines, and solid, serviceable, construction, which have come to us from England, are retained; but they are refined, and, to many tastes, rendered more pleasing by the graceful and flowing ornamental lines of which the French make such frequent use. * * * The general tendency is in the direction of catholicity, and more pleasing variety than has heretofore prevailed, rather than toward the adoption of any one school, to the exclusion of all others."

The *Deutsche Bauzeitung* of December 14th contains a plan and section of the ill-fated Ring-Theater in Vienna, together with a very intelligent description of the fire which destroyed it. The walls of the building were unusually thick, particularly the one separating the stage from the auditorium, and other precautions were taken in the construction to avoid danger from fire. The roof was of iron, and an ample system of water-pipes was provided, arranged especially with reference to a possible conflagration on the stage, and a wire-gauze curtain hung behind the proscenium arch. The gas-lights were carefully arranged, and due watchfulness insisted upon; and, as the *Bauzeitung* says, the danger of fire was no greater than in a hundred other theaters. The real fault of the building—one which cost nearly a thousand lives—was in the planning of the staircases and entrances. Although five flights of stairs led from the upper portion of the auditorium to the ground floor, and one more led to the royal box, and two served the stage end of the theater, every one of them had the fatal fault of being inclosed in a room by itself, opening only by a door into the vestibules or passages. One side of the building adjoined the neighboring houses, but the other side and the front and rear bordered on open streets. Unfortunately, it had been found desirable to give the portion facing the principal side street to restaurants, so that there was no public entrance to the theater except in the middle of the front. Of the two gallery staircases, which were inclosed by other rooms on the lower floor, one was accessible only by a tunnel under the parquet floor, and the other opened into a crooked passageway leading to the front entrance. The grand staircases themselves, situated on either side of the main vestibule, were not only awkwardly winding, but reversed in direction, so that the persons descending them were directed against the wall which inclosed the auditorium, at a distance of only a few feet, and in such a manner as to meet face to face the crowd from the parquet pouring out of a door in the same wall. The two streams mingling were obliged to turn at a right angle to reach the main vestibule, which they again entered face to face with the multitude descending the stairs on the other side, and a second turn was necessary to direct them toward the entrance doors. According to the information gathered by the *Bauzeitung*, the fire began by the accidental wafting of a "border," painted on jute canvas, into the gas-lights close by. A moment later the curtain caught, and was drawn blazing by the current of air into the auditorium, kindling the papier-mâché decorations in all directions. Apparently no effort whatever was made to put in operation the various protective devices which existed. A turn of the hand would have thrown streams of water in every direction over the building, but the valve was left untouched; the wire curtain might have been dropped in a few seconds, but it was neglected; the doors of special exit, which would have saved multitudes, were not unlocked; the oil-lamps provided to illuminate the passages in case of failure of other means were not lighted, and the gas being turned off at the first alarm by an unreflecting official, the terror-stricken fugitives were left to grope their way in darkness through passages which were notoriously difficult to follow, even in clear light.—*American Architect.*

Among the many fillers in use for porous hard wood, this is recommended as one of the best: Stir boiled oil and corn starch into a very thick paste, add a little japan, and reduce with turpentine, but add no color for light ash. For dark ash and chestnut use a little raw sienna; for walnut, burnt umber and a slight amount of Venetian red; for bay wood, burnt sienna. In no case use more color than is required to overcome the white appearance of the starch, unless it is wished to stain the wood. The filler is worked with brush and rags, in the usual manner. Let it dry forty-eight hours, or until it is in condition to rub down with No. 0 sand-paper, without much gumming up, and if an extra fine finish is desired, fill again with the same materials, using less oil, but more of japan and turpentine.—*American Inventor.*

A story is told of a farmer who built a stone wall four feet high and six feet thick, so that when it should fall over it would be higher than before. We don't suppose that our friends, Munn & Co., publishers of the *Scientific American*, contemplated any sudden upsetting in their old offices in the "World" building, 37 Park Row, but certain it is that being burned out completely and hastily about noon January 31st, before night they were installed in more desirable offices in a much better building at 261 Broadway, with new furniture and fixtures. Their books and papers were preserved, and the *Scientific American* and the *Scientific American Supplement*, and their extensive patent business, go right along, as if nothing unusual had happened.

Competitive Designs.—No. 7.

In the consideration of any subject involving diversified and conflicting interests, there must naturally be disagreements as to conclusions set up by the respective interests; particularly so at the present, when each individual presumes competency in his own judgment to decide all questions submitted. This is all right and proper when judgment is called in exercise upon matters of familiar import, in connection with which daily contact and experiences have trained and qualified the mind to grasp and understand correctly the underlying principles involved in the matter upon which judgment is to be passed. But men may, and often do, gather up false ideas, and theorize themselves into beliefs from superficial understandings, which may be, and often are, egregiously erroneous, and greatly at variance with the essential facts involved; and when by force or privilege of circumstance it becomes possible to vitalize such errors, and by any means improve them upon others, a wrong is inevitable. It is a well-known fact that men of great learning and culture often form absurd and unsustainable conclusions in reference to matters not within the *direct compass* of their special lines of thought and experiences. The human mind is not so constructed as to be able to comprehend and understand in detail every principle of right. A heresy or fashion may be theorized into a fact or virtue from certain standpoints, which, when assailed and scrutinized by the light of truth, betrays the uncertainty of human yearnings, and the possibility of mistakes; consequently it can but occasionally happen that the basis of competitions are correct. Those who handle them seldom enjoy better than a vague idea of the involvements; and this imperfect knowledge renders exact fairness next to impossible. And if the parties controlling happen to be of that class which invariably survey facts and reach conclusions from a selfish standpoint, injustice is an assured certainty.

It is all very well for committees and commissioners to meet and determine upon propositions, and submit them with restrictions for the acceptance of others; but neither the submittal on the one hand, nor acceptance on the other, removes or modifies the inherent injustice. And it is fair to claim that men who set up or dictate that which is *in itself unfair and unjust*, whether through design or ignorance, are not entitled to the credit of rightful action. To render a proposition or act fair and just, all interests must be considered, and a correct balance of equitable rights conceded to all parties; and every encroachmont upon this rule becomes a positive wrong.

Those who claim for themselves integrity of purposes very naturally and constantly, from their standpoint, repudiate all imputations of designed injustice; but all lines and measures of right, drawn or set up upon error, are false and unsound. Exact justice is that code of moral and business reasoning, determination, and action which accords as much as it claims; and those who ask or practice more or less than this depart from the lines and rules of right. But in the matter of competitions, this theory is but seldom practiced; the prevailing disposition being to gain large advantage with as little cost as possible to those seeking them, and but limited consideration for those whose services are sought to be obtained. And this condition of things being well understood by architects, it has invoked the practice of means and measures which should never be known with favor in an honorable profession, one which gives to artful and calculating men decided advantages over those who are too honest or modest to attempt the advancement of their personal interest by any means not strictly honorable and unimpeachable. Competitions naturally incite a species of direct humbuggery, and not a few of the successful resort to this as a means of winning success. "Commissions" and "committees," by inviting general or even restricted competitions, create the necessity for all the deception that can be worked in, even by those who produce meritorious designs. For the man who presumes that the superiority of his drawings will outweigh the personal influences which surround forty-five fiftieths of the competition cases, simply accepts a delusion as a fact. If not more than three or five were permitted to engage in any competition, and each and all of them receive fair pay for the services rendered, the evil would be only measurably modified, but not wholly remedied. For even then, in nine out of ten cases, the sharpest manipulator of influences, with remarkable merit in his plans, would secure the first award.

The line of argument presented may lead some of our readers to conclude that architects must be a peculiar, if not an untrustworthy, set of men. But this does not follow. It may be safely claimed that, as a class, they are as pure as any like number of men in any profession, and the questionable things stated come not from personal or professional baseness, but from the necessities which grow out of the nature of things known to surround competitions generally. In the preparation of a set of drawings for competitions much labor and expense becomes necessary, and those who engage in the work know full well that unless the plans made by them receive one of the awards offered, all the time, labor, and coin expended must be to them a entire loss. And but few men live who would not use every possible means available to avoid such a result; and but few men could be found so pure and generous as to permit defeat, when by a little "wire-pulling," or other not flagrantly improper means, they could secure decision in their favor.

But in addition to the financial issues involved, there is the other, and to many greater, consideration of ambition and reputations—considerations which are calculated to inspire every energy of the mind and physical nature to the utmost extent. Defeat in anything attempted is painful, with increased mortification when brought about by comparisons. And ambitious men, rather than tamely submit to defeat, would suffer and endure anything within the bounds of reason. When subjected to such tests, the pressure becomes severe, and that which under other circumstances might be recognized as wrong and unfair assumes a virtue when such assumption may be used to advantage. This rule prevails in all relationships, and neither senators, legislators, governors, ministers, judges, lawyers, nor the "purest business men" are free from the reflection of wrong acts and decisions through force of pressures brought to bear upon them. And when a full and perfect understanding of the whole subject, considered in all of its bearings, is not possessed, the liability to err becomes greater. But we are met with the statement, that those who prepare and present plans in competition simply submit *samples* of their work, subject to the contingencies surrounding the submittal. But the *sample* idea is another strained and unfair proposition. Plans made by special direction, to fit a certain lot, and for certain defined uses and purposes, are special and not sample in character. Samples of goods, wares, and merchandise are legitimate submittals in contests for trade, because whether accepted or rejected they retain their market and merchantable value, and the merchant loses nothing but the opportunity to reap the profits of success as a bidder. But not so with competitive plans. Being made for a specific purpose, they possess no value outside of that purpose, and their author must lose, not only the opportunities of after profits in the way of commissions, etc., but his whole stock in trade, as far as his plans are concerned, become an absolute and entire loss, having no value whatever. And as before stated, this hard fact provokes a vast amount of wrong-doing, and "committees" and "commissions" are often "played" by shrewd competitors, in their skillful efforts to avoid such absolute loss, for which there is no relief or remedy in the event of a rejection.

American vs. French Landlords.

A daily paper expresses great delight over a heavy jury verdict against a property owner whose area being open caused serious damage to a careless passer-by. This is one of the perils of householding which property owners in this country must face, and which tends to keep up rents. A careless servant fails to properly cover the coal-hole, and the man or woman who is injured thereby gets heavy damages from the innocent owner of the house. Juries in America look upon railroad companies and landlords as enemies of the human race, and always punish them severely when they get a chance for owning houses and accommodating the public on transportation lines. People here who rent furnished houses must charge a high rent, for there is no recompense for furniture ill-used or destroyed. The petty courts afford no protection to the property of the owners of the apartments or the furniture. In regard to such matters as these, Paris is very different from New York. The traveler finds, to his astonishment, that in France the law favors the owner of property. They are not liable for damages when an accident occurs to a passer-by. In the eye of the French law it is the police who are to blame if coal-holes are left open and areas unguarded. Then careless and wasteful Americans, who rent suites of rooms furnished, are very much astonished when they leave their apartments to find that they are responsible for the damage done to the furniture. Every sou is charged up against them. If the carpets are permanently ruined, or the furniture broken, or the walls scratched, the tenants who were privy to the mischief have to pay roundly for their carelessness. We all know how different it is in New York. Here the tenant is tempted in every way to be careless, for the landlord knows that the court is not his friend but his enemy, and that there is no redress for the destruction of his property. Any drunkard here can bring an action for damages if he slips and is injured in front of a house. The only remedy the householder has is to get all he can for his property in the way of rent, and insure himself against all possible losses. Certainly eleven out of every twelve jurors belong to the house-renting class, and cannot be depended upon to do justice to the owners of the property to which they pay tribute. If we want rentals to assimilate to those of Paris and London, we must treat property holders with more justice.—*N. Y. Real Estate Record.*

A Good Point.

Considering the haste prevailing in building operations at the present day, and the granting of the certificates for new houses immediately upon their completion—a certificate, by the bye, rarely refused, and even then in a most ineffectual manner—we may fearlessly express it as our opinion, that if a proper examination of the degree of dryness of walls, and the rooms which they inclose, were made, nearly every new dwelling, as it is now handed over to the public for habitation, is injurious to health. Why, houses are begun in the spring, and receive their tenants in August! And this is not only the case with private dwellings: even in the case of municipal buildings—schools, for instance, where the greatest care ought to be exercised—the same practice very frequently prevails. No one will affirm that such buildings could be sufficiently dry under such circumstances, unless it is his intention to deceive himself.

Market Reports.

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

Receipts since January 1st, 1882:

Lumber	28,098,050
Shingles	6,185,500
Laths	3,673,000

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	35 00
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, ½ inch	25 00
Shingles, per M	2 50
Battens, ½ inch, lineal feet	1c

NAILS.—Remain the same as last month. Since Janury 1st, 1882, we have imported 49,170 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.—A new company has made its appearance, introducing the OMAHA WHITE LEAD. With the large demand that is confidently expected this year, the agents should be able to control a fair amount of patronage.

The PIONEER brand has been successfully introduced into every town and hamlet on the Pacific coast, and has given universal satisfaction. We quote price at 8¾ cts. per lb.

Building Intelligence.

There is but little to report this month. The letters received from our numerous correspondents give assurance that many buildings will be erected in the different counties. We are still of the opinion that labor will be both scarce and high. Even now the ranks of the unemployed have become exceedingly thin. The demand for skilled labor in several of the different trades is fully equal to the supply.

To those contemplating building, we would say that *now* is the time to carry out their projects, as, judging from the number of plans that are being prepared in the different architects' offices, we can say, almost to a certainty, that everything in the building line will not be less in value than at present, with chances decidedly in favor of prices advancing.

Should the new Odd Fellows' Hall be built this year, and the buildings be erected in its vicinity that are talked of consequent upon its erection, masons and carpenters will be in such demand that wages will be up to a higher price than has ruled for many years.

SAN FRANCISCO.

Two-story and attic frame dwelling with brick basement on corner of Post and Gough streets. Owner, Jacob Levi, Sr.; architects, Wolfe & Son; contractor, Moore Bros.; brick work, Byron Bros.; total cost, about $18,000.

One-story brick building with basement on Beale street, between Market and Mission. Owner, W. W. Montague & Co.; contractors (brick work) W. E. Stevens, (carpenter work) Chas. Kinsman; cost, $8,000.

Repairs and alterations to house on Sutter street, between Laguna and Buchanan. Owner, L. Getz; architect, W. Mooser; contractor, Sanchez; cost, $3,000.

Two-story double tenement house on Hyde street near McAllister. Owner, Etienne Taniere; architect, W. Mooser; contractor, Laherty; cost, $8,000.

Three-story frame building on Sixteenth street, between Folsom and Harrison. Owner, A. Morgenthau; contractor, A. G. Fitzpatrick; cost, about $12,000.

One-story frame building on Clay street, near Baker. Owner, Jas. Brannan; architect, H. T. Bestor; contractor, W. H. Wharff; cost, $1,200.

One-story frame building on corner of Howard and Spear. Owner, Wigmore; contractor, Brotherton; cost, $2,800.

Two two-story frame buildings on corner of Pine and Octavia. Owner, White; architects, Schmidt & Havens; contractor, J. Furness; cost, ——.

One-story and basement frame dwelling on Treat Avenue, near Twenty-fourth.

Two-story and basement frame dwelling on Sutter street, between Franklin and Gough. Owner, Mrs. M. P. Payne; architects, Curlett & Eisen; contractor, Creighton; cost, $16,500.

Two-story frame dwelling on Octavia, between California and Sacramento. Owner, J. G. Severance; architect, Chas. Geddes; contractors, Powell and Cogswell; cost, ——.

One-story frame dwelling on California street, between Broderick and Devisadero. Owner, Adolph Rapp; architect, H. Geilfuss; contractor, Sylvester Grant; cost, $2,150.

Two-story frame dwelling on Pine street, between Buchanan and Webster. Owner, H. Hinkle; cost, about $5,000.

Three-story frame building on Fourth street, between Harrison and Bryant. Owner, C. E. Boman; cost, $3,000.

Additions and alterations to a three-story building on corner of Mission and Mary. Owner, Donahue; contractor, Smith.

Additions and alterations to old church building on corner of Mission and Mary. Owner, C. Wunchie; architect, Schroepfer; contractor, Plums.

Two-story frame building on Seventh street, between Mission and Howard. Owner, Wm. Pullen.

One-story frame building on Tenth street, between Mission and Howard. Owner, G. Hertel; contractor, F. Reinicke; cost, $2,100.

Two-story frame building on corner of Third and Brannan. Owner, E. B. Pierce; architect, Curtis; contractor, G. B. Green; cost, $2,500.

A two-story frame building at foot of Powell street, for the United States. Contractor, Wilcox.

One-story frame building on corner of Montgomery Avenue and Vallejo.

One-story frame building on Valencia, near Twenty-third. Owner, Houston; Contractor, Ferguson.

Frame buildings on corner of McAllister and Buchanan. Owner, L. Junker; contractor, Jerry O'Brien.

SACRAMENTO.

Two-story frame dwelling on corner of Twelfth and M streets. Owner, L. B. Mohr; architects, Babson and Seadler; contractors, Carle & Croly; cost, $8,000.

WOODLAND.

Three-story frame building with brick basement on Lincoln Avenue. Owner, Samuel Hogan; architect, Frank Deestine; contractor, Stephen Blue; cost, $18,000.

FRESNO.

One-story frame building. Owner, J. Donahue; contractor, J. Lee; cost, $1,000.

One-story frame dwelling. Owner, J. M. Brady; contractor, M. R. Madera.

One-story frame dwelling. Owner, Rosseau; contractor, J. Welsh.

One-story frame dwelling. Owner, La Mott; contractor, C. Spano.

SAN JOSE.

Two-story frame dwelling on Lincoln Avenue. Owner, S. Newhall; architect, J. O. McKee; contractor, Jacob Lenzen; cost, $3,800.

RIVERSIDE.

Additions to the Glenwood cottages. Owner, F. A. Miller; contractors, Woodward & Brown; cost, $10,212.

Building for the M. E. Church. Carpenter work, Battles, Fales, and Pulz; masons, Downs and Sheldon; cost, 5,000.

BIGGS.

One-story frame building. Owner, F. F. Carnduff; contractor, J. W. Myers.

On railroad land south of Biggs, frame building for powder-house. Owner, Farmers and Mechanics' Store; contractor, J. N. Myers.

ALAMEDA.

Two-story residence on Railroad Avenue, west of Webster. Owner, A. Hoffman.

One-story cottage on Central Avenue, near Webster. Owner, Mrs. E. Boyd.

New Style of Building.

Several novel features in building have just been introduced in an eight-story business house being erected in New York by Mr. Vernon K. Stevenson. The tide of opinion in the fire department and among insurance companies having lately turned against iron beams, the owner has placed on his floors thick wooden beams one foot from center to center, and filled the interstices with cement, thus forming a solid floor two feet in thickness, which he claims will resist the penetration of fire for several days; whereas, he says, "the iron beams would bend with the heat and fall out, and the building cave in." The stairs are of slate; the walls three feet in thickness. The whole of the building is finished in cherry and California redwood, which has very much the appearance of mahogany. This attempt to utilize native instead of foreign wood seems to have succeeded very well.—*The Tradesman.*

Publication Notices.

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

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. Price, $5.00.

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.

"*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 25, 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.

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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.

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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.

Our New Heading.

In our May number, we will have the pleasure of placing before our readers and the public generally our new heading, lately adopted by the Pacific Coast Association of Architects as one worthy of being presented to the architects and draughtsmen of the East as a sample of talent of their California brethren on this coast. We will also present the design taking the second premium.

Advertisers would do well to secure space early, as most of our room is now taken. Space on the covers outside cannot be had at any price, and as the inside room is very limited, an early application is absolutely necessary.

We recognize in our recovery the tender mercies of an all-wise Providence, who spares and and smites as to him seemeth good, and none may say, Why doest thou? Although our naturally strong and robust constitution might be interposed in plea of recovery, yet neither that nor the strength of vigorous manhood can stay service and execution when the summons is issued calling us from the pursuits of life to the realities which lie beyond the limits of time.

This is fully illustrated in our case; for while we over whose head has rolled more than sixty-one years have been restored to health, another loved one, under the same roof with us, in early manhood, strong and robust in an eminent degreee, from like diseases in part with our own sank away into the arms of death within a few short days, while we were permitted to tarry yet a little longer amidst the scenes of time; and we trust for purposes of good to all who may in any manner come within our influence, either in domestic and social life, in our editorial capacity, and in all business relationships.

Only a few constitutions, however, humanly considered, could have passed through the same ordeal, beginning with pneumonia of very bad type, which was followed within five days with a severe attack of erysipelas in the face and head, and these accompanied by pile troubles of the worst kind.

The management of this journal and its contents for the month of March, and also the present month, has been in the hands of our junior partner; and while we feel pleased at his success, we trust that our patrons have found no fair cause of complaint. We have heard none, and if we may judge from the rapid increase of subscribers during the past thirty days, we may conclude that more than usual satisfaction was given.

From Mr. Charles L. Eastlake.

The following letter from Mr. Eastlake would have appeared in an earlier issue, but for causes already understood by the readers of this journal.

In our issue of October, 1881, we gave expression to our views and opinions in reference to the so-called, misnamed, and much-abused "Eastlake style" of architecture. The article referred to has met with universal approval, and has been copied into scores of technical journals, and many of daily issue in this and other sections of the country.

While some neat and in themselves consistent examples of house construction are to be found under the denomination of "Eastlake," so called because "Eastlake," as a name, has the ring of poetry and romance in it, and serves well in beguiling that class of owners who are ever seeking novelties and peculiar ideas and notions, often accepting monstrous violations as "beautiful," and special features which may be and often are infamous perversions of good taste and correct judgment, architecturally considered, as architecture.

Being satisfied in our own minds that Mr. Eastlake's name was being improperly used throughout the United States, and particularly so in California, by its being applied to any fanciful and by no other name explainable style of houses, we addressed a letter to that gentleman, and received the following reply:

LONDON,
41 Leinster Square, Bayswater, W.,
26th January, 1882.

Sir—I beg to thank you for your letter of the 19th ult., enclosing an extract from the CALIFORNIA ARCHITECT AND BUILDING REVIEW, in which reference is made to my books, and to a style of architectural design in America which I am erroneously supposed to have originated.

As you are good enough to ask for my views on the subject, I can assure you that they entirely accord with the opinion expressed by the writer of the article in question.

For some years past, it has been my fate to see illustrations and hear of objects manufactured in America under the name of "Eastlake furniture," which I not only never designed, but which represent a taste very far removed from, and often directly opposed to, the principles of art-workmanship I have endeavored to advocate.

That I cannot be held responsible for these inventions, may be inferred from the fact that not a single American manufacturer producing such articles as I have mentioned has thought it worth while to consult me on the subject.

I now find, to my amazement, that there exists on the other side of the Atlantic an "Eastlake style" of architecture, which, 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 deduce from the study of ancient examples.

I feel greatly flattered by the popularity which my books have attained in America, but I regret that their author's name should be associated there with a phase of taste in architecture and industrial art with which I can have no real sympathy, and which by all accounts seems to be extravagant and *bizarre*. I am, sir,

Your obedient servant,
CHARLES L. EASTLAKE.

There is a hardship in this state of facts for which, however, there can be no relief to Mr. Eastlake, since the world is full of men ready to *use* and *abuse* whatever may fall in their way, whether it be the reputation, personal rights, or property of others, so that money can be made by so doing. But it is not likely that this—in fact, *no style* of architecture will be of more than exceptional occurrence upon this coast, as the immoderation and extravagance practiced by those who have sought to force the "style" into more general use have simply served to restrict and restrain public appreciation, and hasten the time when the excessively *Eastlakish*—by which we mean those fantastic conceptions which in construction can only stand as nondescripts, unrecognized by any term or title within the range of architectural authorities, and disowned by the gentleman whose name is misused—shall stand as examples of the freaks of folly which at times may exist, even in the practice of architecture.

A Southern States paper gives some facts which show that those who prate continually about the imminent exhaustion of forests leave a most important forest country out of account. The States of Tennessee, Alabama, Arkansas, Florida, Georgia, South Carolina, and West Virginia contain, in the order named, from 58 to 66 per cent. of forest land whereas Maine and Michigan, which now produce one-half of the lumber used, contain only 47 and 40 per cent. of forest land. North Carolina, Louisiana, and Mississippi have an even greater extent of forest land, still untouched, than the States just named. Neither is the world generally aware of the good quality of the timber in the South. All the trouble is that, owing to the absence of snow, the wood is not won so cheaply as in the North.