

The Journeymen Painters' Movement.

At the time of going to press with the April number of this Journal, the issue between the master and journeymen painters remained unadjusted, with the indications strongly in favor of the workmen. Since then the anticipated concession has been made by the masters, and the journeymen are joyous over their success in securing the advance in wages demanded.

As was stated in a former issue, the resistance on the part of employers was influenced by a virtually criminal wrong existing with so many of those who assume the position of masters, whose regular business practice has been, and is, to swindle and rob owners through contract engagements, and honest bosses by the use of all manner of stuff manipulated into a solution made to resemble, to the unpracticed eye and credulous owners, the appearance of paint. And in fact a paint—for the term paint is defined by Webster's unabridged as, "To cover or smear over with coloring matter." Consequently any mixture that can be applied with a brush, and which gives color, comes under the name of paint, the ingredients used not being defined or expressed by the term. But when the painting of a building is let, either upon the basis of a specification or upon a verbal understanding, the universal presumption is that white lead and pure linseed oil shall constitute the pigments of the color used, and honest painters so understand the matter and govern themselves accordingly in fixing a value for the work to be done; while the "professors" of the adulteration art, destitute of all mechanical pride and principles, resort to the use of base mixtures, fifty to ninety per cent of which cannot be found nor purchased of any reputable house manufacturing or dealing in white lead, pure oils and genuine paint stock.

Consequently the honest men who do use the proper materials, and are faithful to their employers, stand no equal chance when the "professors" are allowed to compete. It is not reasonable to suppose that those who use genuine paint stock, costing, say ten cents per pound more or less, have any comparative standing with those who use slush, costing three to five cents per pound. And it is this unequal grievance that seemed to compel the master painters to resist an advance, while the "professors," knowing their advantages, could, with financial safety, accede to the demand for increased wages on the part of journeymen.

The terms "swindle and rob" have been used in this article; are they warranted? Emphatically, yes. Robberies and swindles are of unlimited kind and varying degrees, and those who, through contract opportunities, obtain money from owners in payment for material used and work performed, differing from, inferior to, and of far less value than that covenanted and agreed to be used, are nothing less than a special class of swindlers and cheats. Yet the class of owners who let their work to such men,

simply upon the ground that the parties offer to do the work at a very low price, without any regard to the standing or reputation of the persons engaged, merit all the bad usage received; while that fact does not lessen nor justify the rascalities of those who abuse and degrade a mechanical pursuit, about and around which clusters so many grand and sublime facts in history, in the arts and sciences, and in the grandeurs of the universe, with its mountains, fields and valleys made beautiful by the Artist of eternity, in the millions of tints, hues and colors spread out over all of earth's surface, each shade being in and of itself pure and unadulterated, proclaiming to the world their origin through the perfect and pure laws of natural growth, as established by Him who organized the perfect system of truth and love, brought forth by each return of seasons, and who added to the sun's golden rays, the soft moonbeams of night, and completed the beauties of the firmament by changing clouds of unspeakable grandeur and the colors and tints of arching rainbows.

But we leave the subject in hand for the present, to be further considered and treated when we shall have gathered and added to our practical knowledge of the matter other information in detail, sustaining and confirming all that has been outlined in this article.

To this end we ask the assistance of all reliable users of pure paint material, whether masters or journeymen, assuring them that authenticated facts alone, without the use of name, will be used in this connection.

THE STRENGTH OF WOOD.—It may seem strange, says the *Midland Industrial Gazette*, that a board one inch in thickness, of any solid wood, requires less force to tear asunder than one of the same thickness composed of a number of layers of wood, the resistance being augmented by crossing the grain. For instance, five samples of lumber, as represented in the following, were carefully adjusted and subjected to tension with these results:—

Walnut, solid		87.4	pounds to tear asunder.
Gum, " "		98.7	" " "
Poplar, " "		71.13	" " "
Cherry, " "		84.07	" " "
Ash, " "		69.91	" " "

One-fifth of an inch of each sample was now placed together, grain all running in one direction, when, after being glued and thoroughly dried, it required a strain of a trifle over 100 pounds to tear apart, and the strangest feature of all was it separated with the wood that showed the greatest resistance when tested solid, hence though the resistance is increased in all, the weaker woods show the greater. Again, the grain was crossed with each layer alternately when the resistance was still further increased 28.5 pounds, and when crossed diagonally we found a better result still, it being about 80 pounds greater than required to split or tear asunder the original wood.

Practical Perspective, \$6.00.

Practical Carpentry, \$1.00.

Nails.

A LARGE dealer in builder's hardware said recently that the demand for clinch or clout nails and for chisel pointed wire nails had largely increased within a year, as compared with that for the ordinary cut nails, and that flooring nails with the wedged-shaped heads were also used in place of the nails with the flat upset heads. His reasons were that better work resulted from the better nails, and there was far less waste. For the coarsest purposes the less first cost of the ordinary cut nails with the flat head induced builders to continue their use; but he believed the improved form and better material of the tough wire and clinch nails would, in time, drive out the inferior material and defective form. The principal advantage of the wedge-shaped head, as in floor nails, is that the head never breaks off in driving, as it is only a gradual enlargement of the body of the nail, instead of an upset across the nail. But the chisel point of the wire nail is its especial merit, as it cuts a clean passage through the fibers of the wood for the following of the body of the nail, instead of "stunting" and mutilating the fibers, as the blunt-pointed nails do.

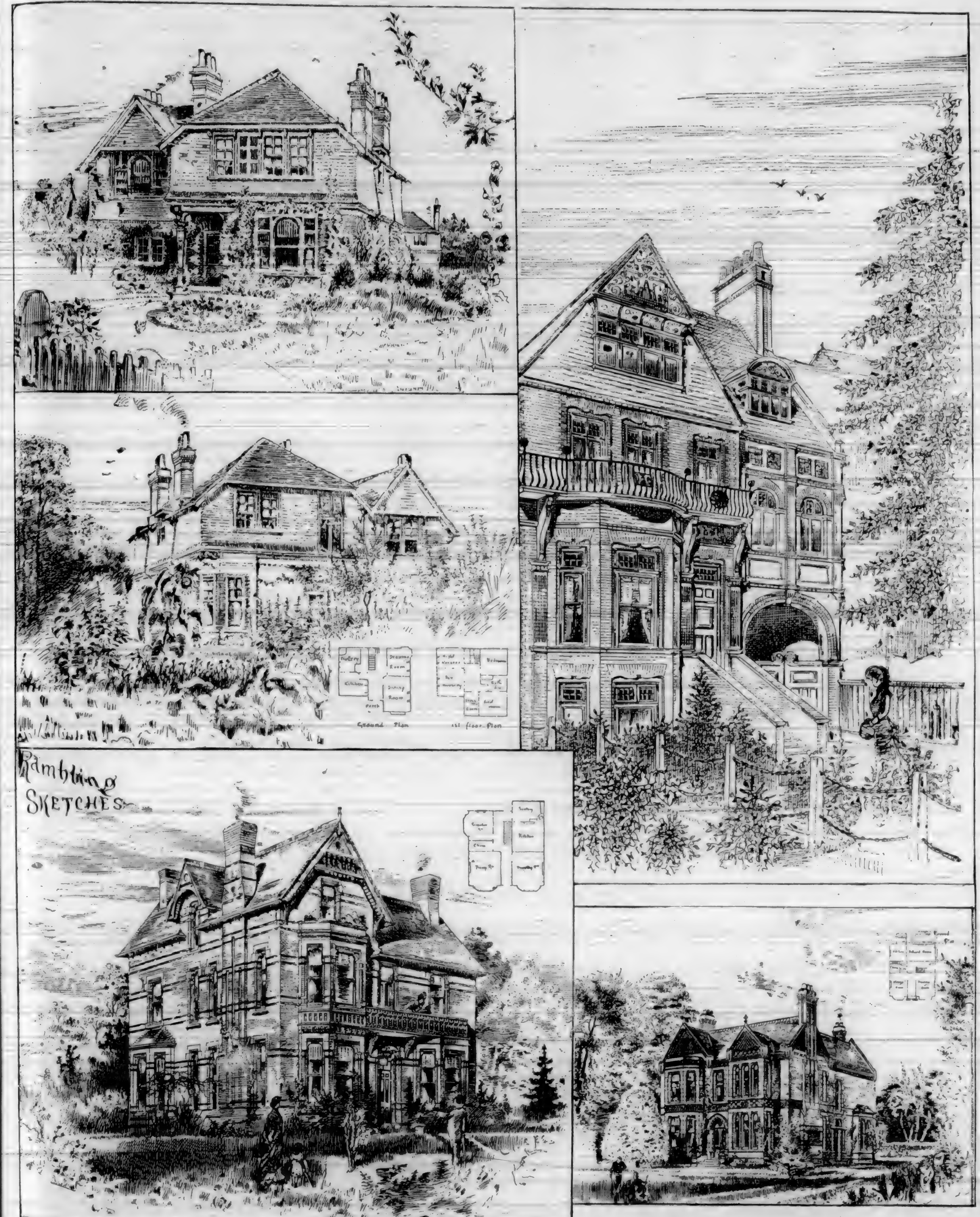
The common cut nails will not usually clinch, even when the clinch is turned in the direction of the grain of the wood; but they may be considerably toughened by heating to a red, and gradual cooling. A hardware establishment was burned a few years ago, and among the stores were nearly a hundred kegs of cut nails of various sizes. The remains from the fire were sold to another dealer, and as soon as the value of the burned nails became known he could sell no others until they were gone.

The Little Shop.

It is time that notice should be taken of the work done, as well as of the place taken, by our small shops. The "big concerns" do not monopolize all the skill and mechanical capability in the country. They may profess to do the best work and produce the best results, because they are furnished with the best tools, but they do not monopolize the mechanical skill, nor collect all the best workmen. Many of the best manipulators, and a very large proportion of the most exact mechanics, are in the little shops, content, may be, to be the foremen, when in a big shop they would be only first-class workmen. The small shop men are valuable in any shop where mechanics, rather than operatives, are required, because they are generally "men at a pinch," "expediency men," and generally excellent workmen.

The proprietor of a large manufacturing establishment, building fine tools of a particular character, claims that his best men come from small shops, where make-shifts and contrivances are the rule. "Such men," he says, "can make the shop hum" by their methods.

It is very convenient to have a shop full of adapted tools, but it is also convenient to have in the shop graduates from "the little shop," who can contrive, as well as tend, a machine. —*Scientific American*.

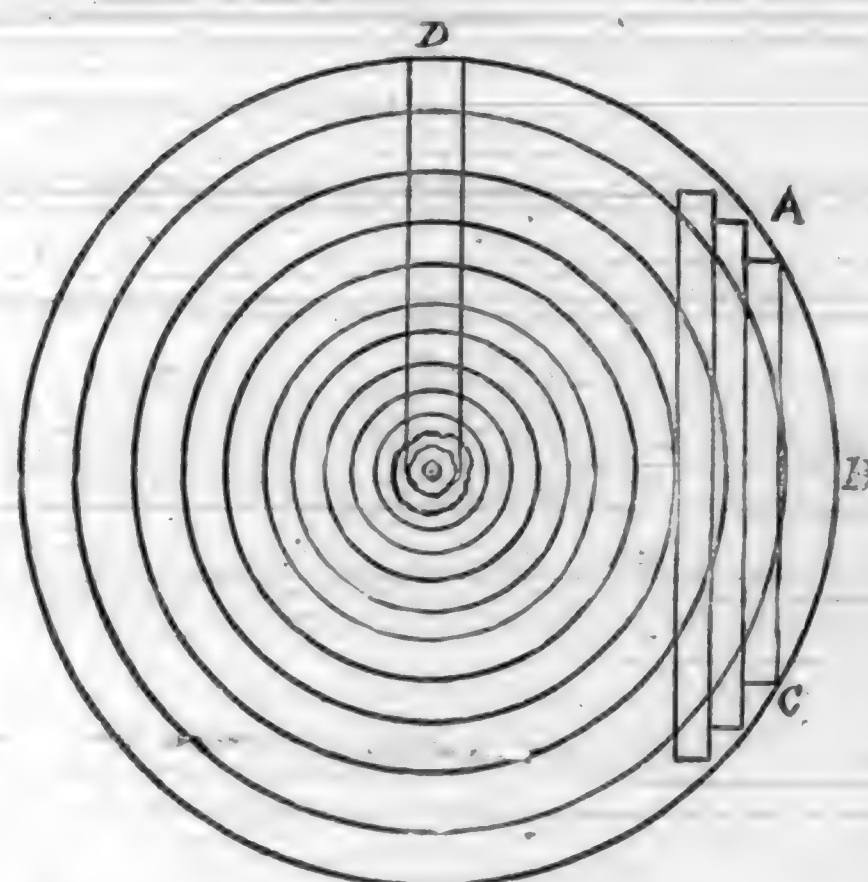


A FEW GENERAL DESIGNS FOR COUNTRY DWELLINGS.

Strength of Wood.

It is a fact well known to builders that the same varieties of wood will bear different weights, when placed in different positions as regards the running of the grain. Again, it has been repeatedly demonstrated that, at certain angles, timber will sustain greater weight than at others. There are certain well defined laws governing this that will be explained further on. To introduce properly a subject of this kind, it is expedient that we define more clearly the changes which wood undergoes from the time the tree is felled until the wood rots. All lumbermen have noticed that wood contracts less in diameter than in circumference. This disposition of inequality will explain why whole timber generally contracts in drying. In consequence of this irregular contraction, a board may be cut from a tree that, by any means known, cannot be made to retain its original shape, especially if subjected to alternate dryness and moisture constantly, as with exposed lumber in this climate.

If we take a log of any timber when cut clean, it will show up something like the following, though the rings will not of necessity present the regularity as represented in FIG. 1, still this plan will illustrate our meaning.



If we cut a couple of boards in different directions relative to their transverse septa, so that the septa crosses the middle of one board at right angles, while on the other they lie nearly parallel, then place these in a warm room under similar circumstances, we will find the board which has been formed by cutting across the transvers septa, as at *a*, FIG. 1, soon changes its form very perceptibly, the one side becoming concave and the other convex, and in seasoning it will contract nearly 14 per cent. in width. The board taken out at *d*, where the septa is nearly parallel with the surface of the board, will retain, with slight variations, the form it assumed on leaving the saw, and will not contract to exceed one-fifth as much as the other in width, but nearly equal the contraction in thickness.

In the softer, gummy and resinous woods, the difference is still greater than in the hard woods. It follows, then, from these experiments, that there is great advantage to be de-

rived by a proper attention in cutting out boards for panels, etc. It will be found that panels cut in such a manner that the septa are nearly parallel to their faces, will appear of a finer and more even grain, requiring less labor to dress, make smooth, and give a good finish if not painted, or to take less oil if painted and grained. To be sure, this making all the boards with the septa in this relative position as regards the surface, is impracticable, inasmuch as the heart of the tree would have to be discarded. To overcome this seeming obstacle is not difficult by any means. When a board seasons, it always becomes concave on the surface nearer the outside of the tree, and *vice versa*; or, in other words, to use a common phrase, the concentric rings seem to be straightening out, hence the board will be hollow where the ring would indicate, simply because the rings of the wood, when cut across, are relieved from tension, and in their endeavor to expand themselves, cause the hollow on the outside and the ridge on the opposite side. So, if the board be ripped down the center and the stuff turned inside out, the wood is reversed, and one contraction counterbalances the other, and the board seasons even, and in this way the most perfect glue joints can be made; and for the manufacture of fine goods, such as furniture and the like, more especially in oil finishes, the effect of this change is indeed beautiful.

There is another kind of contraction in wood while being dried, of great inconvenience and trouble to builders. This is a tendency of some woods to curve in the direction of length. Often this disposition manifests itself after the timbers are framed and in position, causing a repetition of labor, or leaving a crooked job as an enduring monument of poor or slighted work. We often find walls and ceilings out of true, and blame the architect or builder, when the real fault, if such it may be called, is with the elements and physical forces over which man has little or no control. In the long style of framing, for instance, it has often been observed how difficult it is to prevent the stile of a door, hung with centers, from curving, so as to rub against the jamb. To overcome this is not difficult, if we will stop and consider that the interior layers of wood, being older, are more solid and compact than the exterior layers of the same tree; consequently in drying, the latter contract more in length than the former. This unevenness or irregularity of contraction, causes the wood to curve in the direction of the length, and may be avoided by cutting the parts of each piece so that they shall be as nearly the same age as possible. But inasmuch as this would necessitate considerable waste of lumber, it can be overcome by taking pains to always turn the stuff so that the heart of the wood will be outward. Then in framing a door the heart of the wood should always go against the jamb, the sap against the panels.

Architects' Companion, \$2.50.

History of Architecture, \$15.00.

Growing Black Walnut Trees.

BLACK walnut can be grown from the nut, producing a butt fourteen inches in diameter in as many years from the seed, as far north as Massachusetts. No tree valuable for its timber in cabinet uses, unless the black birch be so considered, can attain to that useful growth in that period of time in our northern climate. Maples require twenty years before they become good timber trees; beeches and birches, fifteen years to attain to a diameter large enough to yield nine-inch boards; hickory should have a growth of thirty years, and cherry at least as much.

The cultivation of the black walnut might be made a source of profit, if only as an auxiliary to the ordinary farm products. It requires no particular care, makes an elegant tree, even in its youth, and later offers an agreeable shade.

One hundred acres of land, seeded to walnut trees, if they even reach maturity in fifteen years, would be more remunerative than many of the crops produced by fifteen of incessant toil. Besides, these trees might be planted and would thrive on spots which are really valueless for agricultural purposes, and while in the course of growth would serve as valuable aids to agriculture as wind-breaks, and in other respects.

A Watch Made to Be Pounded.

WHEN a visitor to the office of the American Bank Note Company sat down to talk to Mr. Lee, that gentleman put a piece of white paper under a stamp, pounded on it, and laid the paper aside. When the visitor rose to go away, Mr. Lee put the paper under the stamp again and pounded it once more. "You talked eight minutes," said he; "that wasn't bad." He showed the paper to the caller, who saw upon it two printed clock dials. One showed the hands at four minutes to 4 o'clock, the other showed them at four minutes past 4 o'clock. "We keep that stamp," he said, "so that you sha'n't go away and say you came here at 11 o'clock in the morning, or that you had to wait an hour and a half, or make any other misstatements which can be guarded against."

"No," he added, a moment later; "that stamp is the latest wrinkle in office furniture. It is an ordinary stamp with a clock attachment. The hour hand is simply a raised point upon a movable circle. The minute hand is an arrow on another revolving circle. The usual inked tape passes over these indicators and the outer circle of hour figures. Beside the clock face is a cylinder with several faces, each bearing a word—one is 'approved,' another is 'wired,' another is 'answered,' others are 'delivered,' 'Lee,' 'received.' Thus a business man is able, whenever he sends away a letter, telegram, or package, receives an order, or transacts any business whatever, to record the precise moment at which the thing was done. It costs \$20.00. I did not invent it. I bought it."—N. Y. Sun.

A. A. Bennett.

MR. A. A. BENNETT, to whom this brief biographical sketch refers, was among the earlier arrivals to our golden shores, and a description of his coming will be found full of interest. He, together with thirteen other pioneer spirits from Alabama, banded together and styled themselves "The Montgomery Company," consisting of Mr. Bennett, Dr. A. Gindrott, J. H. Paul, J. H. Skates, J. Yarbrough, S. Cole, P. Bibb, H. Smith, J. B. Davidson, E. Lynn, Col. D. M. Boyd, George Albright, Mr. Klock, and Mr. Lindsey, a Baptist clergyman from Mobile, sailed from New Orleans in the steamer *Galveston*, early in 1849, and when in the Carri-

bean Sea, on Washington's birthday, February 22d, she broke her piston-rod and was obliged to rely solely on the limited quantity of canvas she spread to carry her into port, so the Captain made for British Honduras, arriving there safely. Here, part of the passengers, Mr. Bennett among them, chartered the British brig *Thetis*, which conveyed them to Chagres, the steamer being afterwards towed to New York. The company went up the Chagres River in small boats to Gorgonia, and from there Mr. Bennett tramped to Panama in one day, carrying his rifle on his back and hiring natives to carry his baggage. On their arrival at Panama, they found the people panic-stricken from dread of cholera, which was then epidemic there. After remaining there two months the company embarked, with 365 passengers, on the old ship *Alexander Von Humboldt*; were 102 days reaching the Golden Gate, stopping a short time, for supplies, at Acapulco. At last the old ship, after being tossed by wind and wave, landed her human cargo at San Francisco, the landing taking place on the 30th of August, 1849, the boats touching ground where the old Montgomery Block Building now stands, at the corner of Montgomery and Washington Streets. Although very short of rations and almost losing hope of ever reaching the golden land, it was not destined that she should go astray, as she bore many a name on her list of passengers that was to be felt in moulding the history of that wonderful State—yet unborn—California.

Aside from the subject of this sketch, there was Dr. Morse, whose name and services are dear to every Odd Fellow both here and in Europe; James Anthony, of the Sacramento Union; Jonathan Kittredge, and Capt. John Clark, whose name has long been familiar to

land-owners and students of Spanish archives. All of these have passed to their long rest, but there are yet among the living many more who have been prominent in civil or commercial circles, none more so, perhaps, than C. P. Huntington, to whom we owe our railroad system and whose fame is known throughout the civilized world. In commercial circles we find the name of Isaac E. Davis, of Davis & Cowell, James Irvine, B. A. Hendricksen, A. M. and L. M. Starr, and James E. Gordon, of the Gordon Hardware Co., the latter gentleman being Secretary of the Humboldt Association, composed of the surviving passengers of the old ship above referred to.

Having been closely identified with the growth and architectural advancement of our



CAL. ELECT. ENG. C.

A. A. BENNETT.

State, this brief biographical sketch of his life will be interesting to the readers of our Journal. Born in Schoharie County, New York, July 26, 1825, of parents whose lineage is traced back to the earlier settlers of New York, he has those sterling qualities that lead to giving exact justice to all, and a steadiness of purpose that no obstacle can daunt or throw aside. Both parents were Quakers in their religious faith and practice.

His father, Dr. Joseph Bennett, wished him to study his profession, but from boyhood he evinced a strong desire to become an architect, and as a primary study in that direction, engaged himself at the early age of sixteen to his brother William, at Stamford, to work as a

carpenter and joiner in Delaware County, remaining there two years. From there he returned to his native town, and, under the tutelage of his brother-in-law, Orson Phelps, commenced the study of architecture and carpentry, remaining with him nearly three years. In 1846 he went south, to Montgomery, Alabama, and was there engaged in building the State Capitol. In 1848 he designed and built the Orion Academy, at Orion, Alabama, the Grand Master of Alabama coming from Mobile to assist in laying the corner-stone, the edifice being one of the most imposing structures of its day. From Alabama he came, as before mentioned, to California, arriving here August, 1849, and at once engaged in architecture, contracting and building. In the spring of 1850 he removed to Sacramento, where he remained until he again took up his residence in San Francisco in December, 1876, where he has resided ever since.

In Sacramento he constructed some of the finest buildings of the capital city, among the number being the Odd Fellows Temple, Golden Eagle Hotel, Arcade, County Hospital, and other places of note. He was the State Architect under the administration of Governors Haight and Irwin, at which time he was engaged on the State Capitol, Governor's mansion, prison and work-shops at San Quentin, and also revised and completed the branch State prison, at Folsom. Among the prominent buildings of which he was architect, are the Mechanics' Art College, at Berkeley; the Court Houses of Yolo, Stanislaus, Merced, Tulare, and Kern Counties.

In February, 1883, he associated himself with J. M. Curtis, present Architect of the new City Hall, since which time the firm plans have been adopted for the Court Houses at Santa Rosa, Sonoma County, now in course of construction, at a cost of \$80,000, and one at Eureka, Humboldt County, to cost \$100,000; also the building of Red Men's Hall, in this city.

Paint Adulterations.

We have repeatedly been asked to give the form of adulterations used in paint mixtures. This we cannot do, as there are by far too many already familiar with the nefarious art, and we do not propose to give information which will either help them by additional points, or which will tend to lead into erring paths those who have not as yet been able to master a knowledge of how to injure themselves and their trade by the use of illegitimate material. Better to keep the standard as pure as possible.

The Frieze.

BY R. H. PRATT.

THE frieze is, undoubtedly, the part of the wall decoration best adapted to ornamentation; it bears the same relation to the wall that a cornice does to a house, or a capital to a column. A frieze should give dignity to the room, and should, therefore, be sufficiently wide to admit of ornament that will not seem cramped or insignificant when seen from the floor. Some friezes look well when a few feet from and on a level with the eye, but when placed at the top of a wall of very ordinary height, their design is lost and the result disappointing. The relative proportion of wall and frieze is a matter of taste; the tendency seems, however, to be toward having them too narrow rather than too wide. It is often said that unless narrow borders are used, the ceiling will be made to appear low. It should be known that a too narrow border or frieze will have the same objectional effect.

Most often the apparent lowering of the ceiling is caused, not by the width of the frieze, but by its color or design being inappropriate to the paper below, or to the furnishing or use of the apartment.

Correct proportion is very important in decoration, and experience has taught that, provided the design and colors be suitable, a wall of 9 feet in height should have a frieze of about 8 or 9 inches in width; if the wall be 10 feet 6 inches or 11 feet, the frieze should be 15 or 18 inches wide. These proportions will be pleasing if the colors are appropriate in the papers and in the friezes. Sometimes there are friezes made that match the wall papers, having the same design and colors; this plan is of rather questionable propriety. The most satisfactory are to be found where the paper and frieze do not match so exactly in color, the frieze being much richer and more pronounced than the paper, and at the same time, there should be the proper harmony or feeling between them.

The mistake is often made of using paper and frieze together that have not the slightest relation to each other; for instance, sometimes a frieze of conventional design above a wall paper whose pattern is naturalistic or flowered or *vice versa*, or some other incongruous arrangement that is anything but decorative.

Where the paper is dark, it is better to have the ground of the frieze lighter than the paper and the colors brighter; in fact, it is very doubtful whether dark colors should ever be used in friezes; it seems proper to use dark and heavy colors for dados, but it seems most appropriate to use light colors or gold for frieze backgrounds.

When the walls are over 10 feet in height, the effect can be much improved by using a narrow band of plain colored paper immediately below the lower edge of the frieze, and let this band be separated from the wall paper below by the picture moulding or other narrow

wooden moulding having not much projection. This band of plain paper should be of a tone that is in harmony with the general effect of the paper and frieze, and of about the same intensity of tint as the wall paper.

In most rooms the windows are of such height that their casings project beyond the lower edge of a wide frieze; in cases of this kind when the effect is unsightly, there are two methods of overcoming the difficulty. One plan is to have a narrow shelf placed over each window, either resting on the casing or a little above it, if the space be sufficient; upon this shelf small plaques or vases may be displayed, thus distracting the attention from the frieze, or the curtain pole or valance may be placed nearer the ceiling, and if the window casing show below the pole it may be covered by a valance.

Like other paper hangings, the tendency in many friezes is toward over-crowding, and too much elaboration, which is apt to render them ineffective and feeble. Friezes whose ornament is vertical, or if floral appears to grow toward the ceiling, are well adapted to rooms whose ceilings are not very lofty, for the reason that all ornament or decoration having an upward tendency, adds to the apparent height. Such friezes should be so arranged that the upper part nearest the ceiling should be more open and less crowded than the lower edge.

Avoid growing or vertical friezes whose upper margin or finish is heavy; the upper edge should be like a sky or atmosphere. If, however, the pattern of the frieze be of the scroll or running vine description, the finish on the top and bottom may be equal in width. This kind of frieze is best for large and lofty rooms.

As the frieze has generally as much to do with the appearance of the room as the paper, great care should be used in selecting; recollect that the frieze is not exposed to so bright a light as the wall paper, and, consequently, should be brighter in its color; the ground may be of gold, or of a lighter tint than that of the wall paper. When the paper on the wall is very light and delicate, and it is impossible to have lighter colors in the frieze, let it be on the same ground, but with more pronounced colors, but do not let the colors of your frieze be so prominent as to kill the effect of your wall paper. Do not have the difference so great as to be unpleasant, nor so nearly alike that it is difficult to determine when the frieze begins; it appears as though the paper extended to the cornice or ceiling. If gold be used in the frieze, it is best as a ground and not as a figure. A gold frieze may be used above a paper that is without gold with good effect.—*The Decorator and Furnisher.*

REMOVAL.

Notice the removal of Dunham, Carrigan & Co. to their new quarters, 17 and 19 Beale, and 18, 20, 22 and 24 Main Street. They carry the largest stock of Builders' Hardware of any firm in the City.

Why Work is Scamped.

THERE are said to be tricks in all trades, and the rule apparently holds good in the house-painter's craft. He has, it appears, two ways of complying with a contract. If the owner of a house personally employs him to put on so many coats of oil and lead color, he will carry out the order exactly without stinting materials; but if the owner entrusts an agent with the business, the house-painter knows that his intermediary will expect a handsome commission, and this must be obtained at the expense of some other person. If the painter pays it out of his own pocket, all his profit will vanish; were he to put the matter to the owner, an *expose* would be certain, with the result that no more business would ever come from that agent. In this dilemma the sorely-driven painter saves himself by doing his work in the cheapest possible way, without giving heed to the terms of the specification. At all events, this was the confession frankly made to us the other day by one of the craft. The man stated specifically that if an owner ordered two coats of oil and lead color to be put on a house, he would faithfully comply; but if the commission came through an agent, one coat of size and one coat of oil and lead would be made to serve the purpose. The agent, of course, would not say anything for fear of having his black mail cut down.

Paste for Paper-Hanging.

BEAT up four pounds of good, white, wheaten flour in cold water—enough to form a stiff batter—sifting the flour first, and beat it well to take out all the lumps. Then add about two ounces of well-powdered alum. Have a quantity of boiling water ready at hand, take it boiling from the fire and pour it gently and quickly over the batter, stirring it rapidly at the same time; and when it is observed to swell and lose the white color of the flour, it is ready for use. The quantities here indicated should make about three-fourths of a pail of solid paste. It is recommended not to use it while hot, as when cool it adheres better and goes further.

A little cold water poured over the top of the mass will prevent the formation of a skin from the drying out of the paste. When about to use, a small additional quantity of cold water should be added, so that the paste will spread easily and quickly under the brush. In warm weather this paste must be used quickly, as it cannot be kept for many days without fermenting and souring, when it becomes thin, watery, and useless. If it be desired to avoid this, the addition of a few drops of carbolic acid to the mass when it is prepared will enable it to be kept almost indefinitely.

STEEL SINKS.

Send to Richards & Snow, 406, 408 Market Street, for a circular containing a full description of these necessary adjuncts to a cleanly kitchen.

A NEW AND VALUABLE BOOK.

"How to Build, Furnish and Decorate."

THIS is the title of a book recently published by a co-operative building plan association, of New York, and which deserves more than a passing notice from the hands of those who appreciate the need of a higher order of architecture, and greater harmony in the furnishing and decoration of a home. It contains the astonishing number of one hundred and twenty-six different plans for buildings, the majority of which are for cheap but tasteful dwellings, such as cottages, villas, and the like, of all conceivable styles of architecture and construction. Many of the views are shown in perspective, enabling one to see just how the building will look. The series of plans occupy only one-half the book. There are about forty pages devoted to furniture and decoration, liberally and handsomely illustrated, following which are over a hundred other designs, embracing barns and other out-buildings, dairy houses, cheese factories, piggeries, aviaries, corn-cribs, poultry sheds and houses, ice houses, summer houses, with a great variety of rustic designs for arbors, lawn baskets, vases, etc.

Landscape gardening is also touched upon, plans being furnished for laying out garden and fruit grounds, making artificial rock-work for fountains, and the construction of hot-beds and green-houses. How to build a cistern is fully described and illustrated. In short, it is probably the most comprehensive work of the kind that has been issued in this country, and its publication must have involved an enormous sum of money.

A supplement to the latest edition contains full and complete blank forms for the most approved form of specification to be used in building, together with blank forms of contract and builder's bond. In connection with the latter, is a blank form for a "bill of quantities," which provides for everything that can enter into the construction of a building, and is divided into "Mason's Estimate," "Carpenter's Work," including materials, "Slater's Work," "Tinner's Work," "Plumber's Work," "Painting," and "Miscellaneous Expenses."

The price of this remarkable work is only \$5.00, and it would be cheap at three times the figure. The publishers of this paper are agents for its sale, and will send it to any address in the United States on receipt of the price.

To Render India-Ink Waterproof.

AS THE ink is prepared with a certain proportion of gelatine, the addition of a little bichromate of potassa, followed by exposure to sunlight, has been recommended for rendering the ink so insoluble in water, that it will not run or spread when water colors are used for shading the sides of the lines.

Cottages and Villas..... \$ 6.00
Plasterer's Manual, enlarged..... .75
Modern Perspective..... 6.00



PATENTS AND INVENTIONS.

List of U. S. Patents for Pacific Coast Inventors.

*From the official list of U. S. Patents in DEWEY & CO'S SCIENTIFIC PRESS PATENT AGENCY, 252 Market St., S. F.

FOR WEEK ENDING MAY 27, 1884.

299,098.—FAN BLOWER—F. C. Anderton, S. F.
299,330.—PILOT OR WHEEL GUARD—Bennett & Fitch, S. F.
299,331.—WELL PIPE CUTTER—A. W. Benson, San Bernardino, Cal.
299,195.—PLOW—J. A. Bilz, Pleasanton, Cal.
299,208.—LAYING AND SECURING RAILS IN ROAD BEDS OF RAILWAYS.—J. Denechaud, Sr, S. F.
299,211.—DRY SEPARATOR—H. Earhart, Santa Maria, Cal.
299,368.—SEWING MACHINE.—Fisher & Hart, S. F.
299,470.—SELF ADJUSTING PULLEY—W. A. Grondahl, Portland, Or.
299,383.—TAILORS MEASURING DEVICE—J. S. Hand, S. F.

299,226.—DRY CLOSET—T. W. Jackson, S. F.
299,234.—SAFETY GUARD FOR CARS—F. P. H. Loftis, S. F.
299,409.—AMALGAMATING PAN—Geo. H. Malter, S. F.
299,237.—FARM GATE—Chas. W. Mann, Haywards, Cal.
299,238.—WAGON TONGUE SUPPORT—W. P. Martin, Chico, Cal.
299,259.—AMALGAMATOR—Edward Pike, Salt Lake City, U. T.
299,496.—METAL BORING AND SLOTTING MACHINE—J. Richards, S. F.
299,271.—BUCKLE AND RING—Jas. B. Sayre, Sacramento, Cal.
299,186.—WATER JACKET FOR ROTARY PUMPS—A. W. Von Schmidt, S. F.

NOTE.—Copies of U. S. and Foreign Patents furnished by DEWEY & CO., in the shortest time possible (by telegraph or otherwise,) at the lowest rates. All patent business for Pacific coast inventors transacted with perfect security and in the shortest possible time.

Apprentices' Column.

IN reply to a request made last month, by an apprentice, regarding the finding of bevels and cuts for hoppers and lay-back seats, the following is submitted. It is old, but correct and simple. Let Fig. 1 represent a box or hopper whose sides splay; or it may form a bread-tray, or the back and two ends of a wagon or sleigh seat, if we take off one side and cut it off

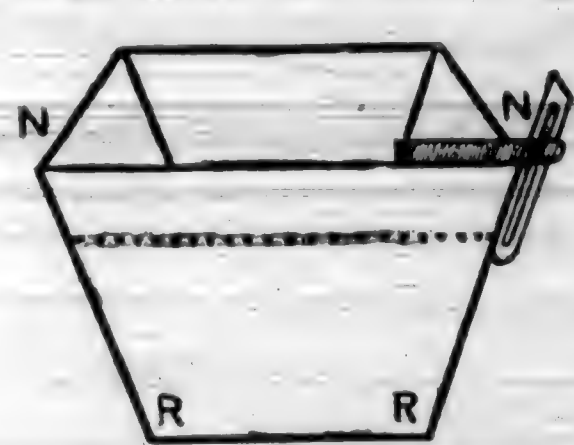


Fig. 1.



Fig. 2.

at the dotted line, where a seat would be required. The lines *NR* show the bevel or splay of the box. Take this bevel and transfer it to the end of one piece of the stuff you intend using, as shown at *P*, Fig. 2. Then take the distance *SO*, on the marking gauge, and run a line on the board from *O* to *K*, Fig. 3. Now make the line *AB* the same bevel as the hopper, or, the bevel as now set, may be applied with the stock resting on the edge *R*; then the blade will represent the line *AB*. Square up from *M*, cutting *AR* at *P*, then square over

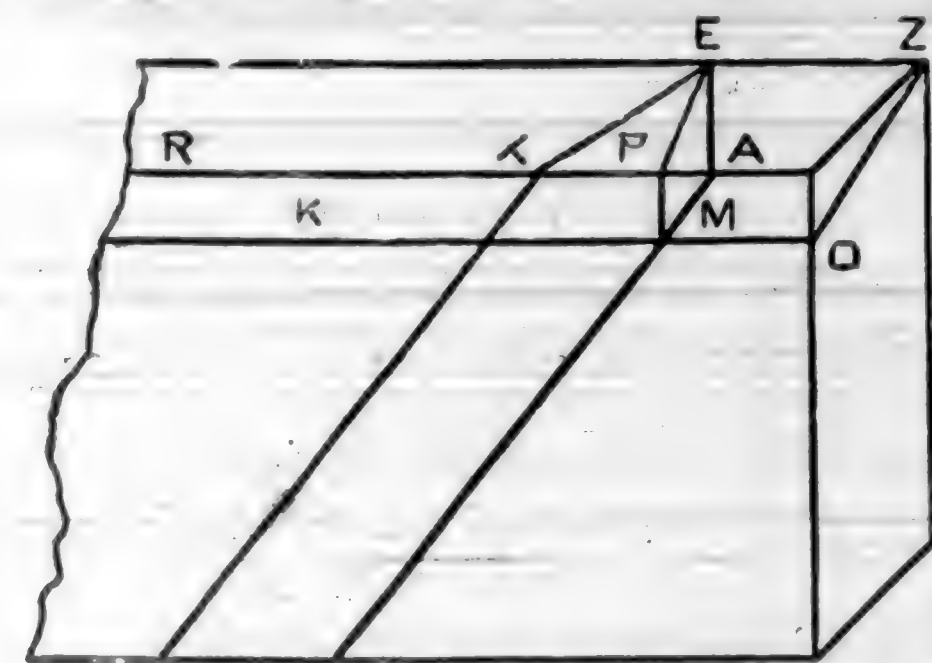


Fig. 3.

on the edge the line *PE*. Then connect *AE*, which will be the angle required for a butt-joint, the inside corner being the longest. If it is required to miter the joint, set off the thickness of the stuff as measured at *ZO*, from *A* to *X*, then the line *XE* will be the bevel sought.—*The Builder and Woodworker.*

A Preacher on Hot Boxes.

WE heard a preacher in a fashionable up-town church, last Sunday, expounding the advantages to mankind of keeping the Sabbath. As an illustration of how all nature, inanimate as well as animate, required cessation from labor, he said: "Even in traveling with railroad trains, we find that stops have to be made at certain distances to let the axle-boxes get time to cool. The labor of running makes these boxes get hot, and, if their necessity for rest was ignored, they would get red-hot and burn up the train. But the train-men understand the case, and the train is stopped for a time, and, while passengers go out and refresh themselves, the boxes are getting refreshed by rest. They cool down in a few minutes, and then the train can proceed in safety."—*American Machinist.*

Competitive Contracts.

THE old saying that "competition is the life of trade," like many old sayings, is a very one-sided expression of truth. It frequently degrades, and sometimes destroys, legitimate trade, instead of promoting it. It implies more or less directly a considerable amount of dishonesty or incompetence lying around, otherwise there would be no occasion for it. Undoubtedly these troublesome defects abound in human nature, and we cannot safely ignore them, but that all our business management should be based upon these sandy foundations is most unfortunate. Competitive examination, tests, and endeavor in many directions, are indispensable, but there are certain points and considerations that should be kept faithfully in view, or competition is but another name for boasting and deceit.

The first essential in an honorable competition, one in which an honorable man would be willing to take part, is that the thing to be done should be clearly understood, not merely by the participants, but by those to whom the results are to be submitted for decision. To ask estimates upon work, the real quality and value of which is not clearly and uniformly understood, is simply absurd. It is random guessing at an unknown quantity. The practice of issuing a general invitation for estimates in open competition is, in most cases, a pernicious one, if not actually dishonorable. By way of safeguard it is customary in such cases to reserve the right to "reject any and all bids." This means, in plain English, that those who are to decide the letting of the contract will not be held as under any obligations to the competitors on account of the amounts presented, and the lowest bidder has no advantage unless his reputation for skill and honesty renders it advisable to give him the contract. As it usually happens that the most reliable builders do not present the lowest figures, the work for which such competitive estimates are made is usually given to the contractor to whom, taking all things into account, those having the matter in charge prefer to intrust it. This comes back very nearly to the same ground that would have been taken if the same contractor had been asked, without further ado, to name the lowest price at which he would be willing to undertake the work.

To ask a man to estimate upon a contract when it is determined beforehand that, by reason of his incompetence or lack of integrity, the work will not be assigned to him, is surely an insult to him and to the other competitors. Yet this appears to be done, and not infrequently, with the sinister purpose of reducing the estimates of those who are esteemed reliable. Especially does the feeling prevail that in all public works everybody should have an opportunity to make proposals, as though public works were a sort of bonanza in which all should have a share. Of course this is nonsense; the right management of public matters being precisely the same as that which a wise, just and far-seeing business man would apply in the conduct of his own.

While there is much that is disheartening to good builders in the usual way of managing contract work, a well-earned reputation for integrity and ability gives far better chances than the smartness that tries to secure an "inside" track by questionable means and the pretense of doing cheap work, which, in the end, is sure to prove the most expensive.—*The Builder.*

Painting is no Expense.

IT must be admitted that the Germans, the world over, are celebrated for their industrious habits, thrift and general economy, and they have a maxim that "painting is no expense." This theory, regarded in a comprehensive view, is undoubtedly correct. An occasional coat of paint on the outside of buildings greatly prolongs their durability, and upon a metallic surface prevents corrosion. It is a matter of doubt, however, whether board fences, on account of being exposed on both sides to the wind, and rain and sun, remain in a sound condition longer by receiving an occasional coat of paint. We have seen them not protected by any substance, standing after an existence of fifty years; and in one instance, the board fence—behind which a company of riflemen sought protection when it suddenly fired upon the Hessians engaged in burying the dead, after the close of the battle of Germantown, in the graveyard attached to the present Concord school house, this fence, which was on the ground of the late Peter Keyser, maintained its position, though very thin, with bullet holes worn to four times their original dimensions, seventy-two years after the battle, never having had, we learned, any paint upon it, as in fact, it was of rough cedar boards. How much longer it stood we are not informed.

Frame houses and barns are often painted dark colors, which are preferable to white in this latitude, as they have a tendency to absorb caloric and render the structures warmer than they would be if daubed with a light or white shade. The whitewashing of walls, fences and buildings produces a tone of neatness, but after a heavy rain or two the original faultless color is decidedly marred. Paint is more durable in its nature, and when applied to either buildings or farming utensils well repays the expense, and when they are refreshed by an occasional retouching of paint, it is a very decided benefit in appearance and wear, and we commend, therefore, with confidence, the advantages of painting, agreeing with the Germans that "it is no expense."—*Ex.*

MALLEABLE IRON CRESTINGS AND FENCES.

The Phoenix Iron Works of this City are agents for the celebrated Malleable Iron Crestings and Fences. The designs are perfectly original and are very beautiful. Send for circular.

Modern Architectural Designs. \$10.00.

A Formula for Calculating Architects' Charges.

THAT the present five-per-cent rule is inadequate, I think, evident. The problem is to find a rule which is more flexible, and, therefore, more easily adhered to and more just.

Other things being equal, the value of an architect's services should vary in some direct ratio with the amount of work in the building. Whether this consists of more elaborate decoration, or of more difficult construction, the comparative amount of work in buildings, apart from their size, is more or less closely determined by their cost per cubic foot.

Our first element, then, is this cost, denoted by *R*.

Experiment shows that to determine the ratio we may take the square root of the cost per cubic foot, as follows:—

Cost per cubic foot.	Square root.	Corresponding Building.
10 cents.	3.1 per cent.	Cottage.
15 "	3.9 "	Country House.
25 "	5 "	Apartment House.
35 "	5.9 "	Town House.
50 "	7.1 "	Public Building.

The column headed "corresponding building" is intended to give a very rough idea only of the class of building that costs about so much.

Putting *C* for the architect's charge, the formula now stands:—

$$C = \sqrt{R}.$$

There is another important factor, however, which must not be lost sight of. The larger the building the less it is worth to do the architectural work. That this is naturally and properly so is obvious. So that besides the direct ratio spoken of we have an inverse ratio with the size of the building.

Experimenting as before—the whole thing is purely empirical—we find that the cube root of the cubic contents of a building gives a proper proportion in which to reduce the charge with the size.

Cubic feet.	Cube root.	Inverse Proportional per cent.
50,000	36	5.4
100,000	46	4.2
500,000	80	2.5
1,000,000	100	2

Introducing this factor of size into the formula, denoting it by *S*, we have:—

$$C = A \frac{\sqrt{R}}{\sqrt[3]{S}}.$$

As a constant which must be arbitrarily determined, perhaps 50 is a fair value for it:—

$$C = \frac{50 \sqrt{R}}{\sqrt[3]{S}}.$$

That is, fifty times the square root of the cost per cubic foot in cents divided by the cube root of the cubic contents will give the proper architect's charge for full service—*C* being obtained as a percentage on the cost as at present.

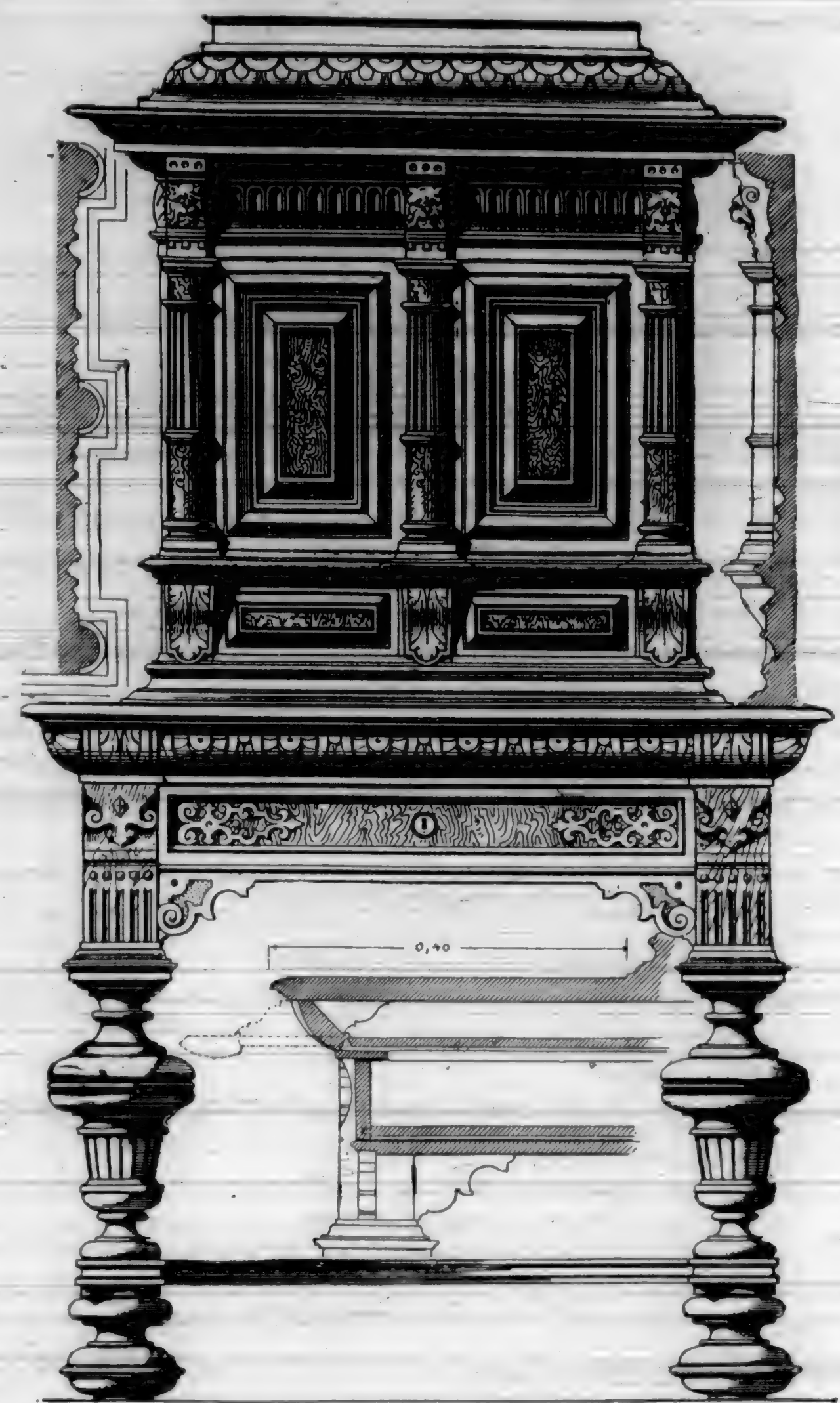
EXAMPLES.

I. Country house, 40 x 30 x 40 = 48,000 cubic feet; cost, \$8,000 = 16.7 cents per cubic foot.

$$C = 50 \frac{\sqrt{16.7}}{\sqrt[3]{48000}} = 50 \frac{4.08}{36} = 5.66 \text{ per cent.}$$

II. Country house, 40 x 60 x 40 = 96,000 cubic feet; cost, \$16,000 = 16.7 cents per cubic foot.

$$C = 50 \frac{\sqrt{16.7}}{\sqrt[3]{96000}} = 50 \frac{4.08}{46} = 4.43 \text{ per cent.}$$



III. Country house, 40 x 30 x 40 = 48,000 cubic feet; cost, \$16,000 = 33.4 cents per cubic foot.

$$C = 50 \frac{\sqrt{33.4}}{\sqrt[3]{48000}} = 50 \frac{5.78}{36} = 8 \text{ per cent.}$$

IV. Town house, 25 x 70 x 60 = 105,000 cubic feet; cost, \$35,000 = 33.3 cents per cubic foot.

$$C = 50 \frac{\sqrt{33.3}}{\sqrt[3]{105000}} = 50 \frac{5.77}{48} = 6 \text{ per cent.}$$

V. Public Building, 100 x 100 x 100 = 1,000,000 cubic feet; cost, \$500,000 = 50 cents per cubic foot.

$$C = 50 \frac{\sqrt{50}}{\sqrt[3]{1000000}} = 50 \frac{7.1}{100} = 3.5 \text{ per cent.}$$

JOHN BEVERLY ROBINSON.

N. B.—The cost per foot is intended to include all interior decorations that the architect has nothing to do with, the separate ten per cent. on such work being abolished.—*American Architect and Building News.*

Architectural Drawing, \$2.50.

Science of Carpentry, \$5.00.

Detail Cottage Architecture, \$10.00.

Builders' Guide, \$2.00.

Drawing and Shading, \$1.25.

MANY plunger-closets now in use, the *American Architect* remarks, are so constructed as to discharge suddenly into the soil-pipe at each use as much as four and one-half gallons of water. Under certain simple conditions, often met with in practice, such a discharge, even with the soil-pipe properly ventilated at head and foot, will produce an exceedingly powerful draught on the traps of fixture below. It will siphon out a 3½-in. pot-trap in thirteen discharges, or a 4-in. pot-trap in sixteen discharges. It will destroy the seal of a 1½ in. S trap, 1½ inches deep, and having a vent opening at the crown ¼ of an inch in diameter, in seven discharges. If a rubber tube, 9 feet long and three-fourths of an inch inside diameter, is attached to the vent opening, a single discharge will completely empty the trap. An S trap with a 1¼-in. vent opening, to which is attached 16 feet of new 1¼-in. (inside measure) lead pipe, will lose its seal under this test in four discharges.

American House Carpenter, \$5.00.

Modern Perspective, \$6.00.

Mechanic's Geometry, \$5.00.



External Architectural Decoration.

BY A. C. BOND.

THE art public has always had a voice in architectural matters. The influences operating to bring about a change from accepted styles, and the decorations bound up with these, are especially active in periods of transition, finally exerting their force in securing a general concurrence in some special order of development. The new taste created must be gratified, and architects, catching the spirit of the day, move with it. A study of the early architectural works in the clay plains of northern Italy led to the introduction of the *Renaissance* style, with its converging tendencies, and free appropriation of classic forms, with reference to picturesque effect.

We have had a succession of styles—Greek, Roman, Gothic, Louis XIV., Louis XVI., Elizabethan and Queen Anne. The latter two, which largely drew from classic models, often incongruously applied, and with a mannerism of their own, seemed to prepare the way for the *Renaissance*, which, without excluding classic orders, bears evidence of long continuance. Beyond any other style it lends itself to ornament.

Concerning ourselves, with the characteristic features of business structures, we first turn to porticos. As inlets to a building, they are of prime importance. A portico which appears as a mere attachment to a structure, not fairly incorporated with it either as to material, styles or mouldings, is very unsatisfying; still more so if it appropriates rich decorative features of which the *façade* is devoid. We naturally look for imposing porticos of great area and height, and with *façades* richly dressed. They are at once becoming and consistent, but instances exist in which, though

exteriorly mostly of the structures they adorn, the value of their decorative features is reduced by arch or lintel, not to speak of pediments, reaching far above the ceiling of a hall, possibly enclosing the windows of a principal apartment; they excite expectations of loftiness in the vestibule which are not realized, deceiving the eye as to inner construction, and to this extent are veritable shams. There is no architectural beauty in want of consistency or in announced inappropriateness. As well-considered porticos we may point to the Welles building, above the Bowling Green, the Williamsburgh City Insurance Co., the United Banks, the Boreel, and Iron and Coal Exchange buildings. The imposing appearance of the majestic portico of the Mutual Life, on the site of the old Post-office, on Nassau Street, and which is of two stories, is due in part to its vast proportions and classic design, and for the rest, to contrast of material and surface, as between polished blocks of granite, hewn granite, and rough stones. Large pieces of granite, with alternate blocks polished and fluted, and two polished granite columns with capitals of modeled leaf-work in Italian marble, support a frieze; the ceiling of this first story of the portico being paneled with richly moulded squares enclosing foliated rosettes. The piers of the second story are of limestone, contrasting well with the granite of the first story, and these are paneled and enriched with elaborate carvings; with these piers are ranged two granite columns, that support an arch with a vaulted paneled ceiling. The capitals of the flanking piers contain heads symbolic of Europe, Asia, Africa, and America.

Our architects, on the whole, use skillfully the freedom afforded by the *Renaissance* style in the treatment of the capitals of columns and pilasters. With greater variety we are getting more expression. In leaf designs they prefer a few stems boldly outlined, a few leaves with serrated edges, and projection of the bell to heighten the effect of the deeply cut moulding, free from unmeaning details.

It has at last been discovered that some of the commonest species of forms are not to be surpassed for elegance and refinement of form. A favorite ornamentation to shafts are bases of foliage, where the effect is obtained by mere contrast of convex and hollow leaves, and these are repeated in many instances on the cornices. There is a vast difference between the mere crowding of leaves on stone, and a style which preserves their most beautiful characteristics. Overwrought decoration is destructive of grandeur. Much is made of boldly projecting stems and concave lobes that yet preserve the form of the leaf.

Scroll work, leaf and foliage in bas-relief on panels, entablatures and friezes, do not alone content our architectural designers, who vary their ornamentation with allegorical monsters, grotesque and flattened visages and heads of animals, entangling also birds in foliage, and suffering reptiles to creep among the leaves of capitals. A monstrous griffin, projected from

the angles of what is known in financial circles as "The Fortress," guards the Broadway entrance of Wall Street. All these are, whatever the taste involved, at least welcome variations from monotonous renderings of more generally accepted forms. Included in *façade* mouldings, are medallion heads of individuals in some way identified with the building or its trade purposes; and corporate bodies, raising new structures, are availing themselves of the decoration afforded by corporate seals. Again, artistically designed monograms, in terra cotta or stone carvings, are coming into extensive use to enrich archivaults, architraves, entablatures, or door panels. These monograms are set frequently in floriated tracery, or on a geometric ground with which they unite in mazy, flowing lines, or the lettering is caught up in the tails of foliage or scroll work, or only half revealed.

External expression should be the apt exponent of the purposes of a structure. External as well as internal effect has been considered in all great developments of art. The Washington building, at the foot of Broadway, is typical of the large composite structures that are being erected, of brick, stone, iron, and terra cotta. Lofty pilasters, with projected leaf capitals, rise from above basement story to frieze in reposeful dignity, bearing carved mouldings, in terra cotta, in line with the principal longitudinal bands of terra cotta enrichments that mark off leading divisions of stories. These carvings, running under the tiers of windows, serve directly to ornament them and to emphasize the well-designed chamfers, whilst arches, in recessed brick, surmount them above the line of the capitals. The semi-circular windows, that, resting on corbels, project at the two southern extremities of the structure, are picturesque in the highest degree. The main entrance is a massive iron gate, composed of bars twisted into curved forms, with tapering extremities and apparently forge wrought. What a contrast does such a building offer to the old-style business house, with dingy and coarse brick front, or stone veneered *façade*, stereotyped form of Grecian porch, with windows that were merely apertures, or had only fillets, cap moulds, and possibly keystone panels—the building surmounted with an unpretentious cornice, and a parapet obscured roof.

The Morse building is a prominent example of the capabilities of brick work itself on ornamentation. The simple means by which decorative effects are brought out, whether in the disposition of the bricks or contrast of the simple colors, black and red, is a source of pleasure and gives character to the carefully elaborated design. Any terra cotta decoration is of the least obtrusive character, and has to be searched out. The dressings present, at every point, novel decorative features.

In the building of the National and Manhattan Bank, of New York, the contrast of surface as between the polished granite pilasters of the *façade* and the chiseled surface of oolitic stones, besides pleasing in itself, brings the pilasters out in fuller relief. This is one of



the most costly, as well as one of the most ornate, of recent erections, and compels admiration for the converging tendency of the design, the eye being carried up to the loftily-placed range of pilasters above the main cornice, repeating, in closer rank and in miniature, the forms of those below, and crowned by a pediment.

Occasionally we meet with an excess of ornament in a *façade*, in the form of panels, architrave, string-courses and heads of windows—an excess interfering with that repose which is so essential a condition for gratification. The *façade* of the Park Bank is one mass of ornamentation, unbalanced by sufficient wall space; the upper portion of Union Building is confusing and repelling, ignoring the main constructive lines, being hid by pretentious mouldings. Ornamentation, at the best, is but a subordinate feature.

The arrangement of decorated wall spaces is a great point in securing a good *façade*, such as will present enrichments to best advantage. In certain late erections may be seen two upper intermediate stories, almost wholly bare of mouldings, in order to heighten the effect of entablatures, cornices, capitals, and other ornamentations above and below. In a number of elaborated *façades*, the pilasters space off the height of two stories, which make leading deviations through a springing arch, ordinarily moulded between pilasters or piers, thus crowning the groups of windows enclosed.

In the Lincoln Safe Deposit building, the first story of stone is comparatively plain, whilst the second, containing the offices, has particularly rich mouldings. A mezzanine story answers the effect of a balcony, such as is seen in an Italian structure. From the balcony, the stories above the arches are more elaborate than the lower ones. Not only are longitudinal bands of enrichment made to differ, but a different form is frequently given to the separatetiers of windows, with excellent results.

With the loftier buildings now erected, the old dictum, that the ornament of a *façade* should increase with its ascent, loses its force; for elaborate ornaments to be fully effective, must be seen. The terra cotta entablature

of the Produce Exchange, with its floriated enrichments, distributed between the spans of the arches of the principal tiers of windows, including the arms of States, would have been a confused medley if elevated toward the principal frieze.

It might be well if architects, who indulge their proclivities for tower-like elevations, sometimes as in the case of Temple Court, crowning thereby pointed roofs, would bethink themselves of enlivening the sky-line with gilded weather-vanes, which have always a life-like aspect, and would appropriately constitute an aerial vanishing point. Chaucer, mindful of their appropriateness, wrote:—

"The towers his full playante shal ye finde,
With fanes fresh tuned turning with every winde."

WHAT IS DUE THE ARCHITECT.—*Building*, of New York, has in its May number an article on the relations of architects to the owner of property to be improved. The article upholds the right of the architects to just compensation for all services rendered, and deprecates placing him on the same plane as the contractor or material man. It says: "The true view of the relation that should exist between the architect, owner, contractor and the men who furnish material, can be set forth in a few words. An architect is the agent of the owner—his confidential agent. It is his duty to stand between the owner and the contractors and the material men. In every natural contest with the builder (a contest that is inevitable while human nature remains as it is), the architect should naturally be found on the side of the owner, whose interests he is engaged to protect. Owners should reflect that if they go to architects who work for low commissions, they do not save anything in the end. The chances are that heavy discounts, which should accrue to them, go to help swell the low commission, in addition to which the contractor very likely has levied a commission on the work that he pays to the architect. What a contractor pays an architect, aside from the *morale* of the latter's receiving it, is bad for the owner because it must come from the work itself."

THE DOOMED CHESTNUT.—A Scientific authority claims that the chestnut tree, which is disappearing so rapidly, has a fixed period of evolution. This tree, like all others of the spongy inferior fibre, cannot flourish before the close-fibred trees, such as the oak. In ancient times a rank, quick growth covered the earth, which yielded, as the ages went, to the stouter trees. Thus it is the chestnut is doomed in the operation of the same law.

Wheeler's Patent Wood Filler.

WE notice in recently issued copies of specifications prepared by various architects, that the above Filler is called for in the proper place, thus assuring the general public that it has become a standard preparation. We can indorse this Filler as one of the very best yet brought to our notice. It is kept by every dealer in paints and oils throughout the Pacific Coast.

Nineteenth Industrial Exhibition of the Mechanics' Institute.

WE have received the preliminary announcement of the Fair to be held under the auspices of the above named institution. From the circular received we glean the following facts:—

The Fair will be held in the building owned by the Institute on the block bounded by Hayes, Grove, Larkin and Polk.

It will open August 5th, and close September 6th. Premiums of Gold, Silver and Bronze Medals, as well as cash, will be offered as set forth in the Premium List.

Seven thousand five hundred feet of additional space will be added to the main floor for the display of machinery. It is intended to make this department one of the distinct attractions.

A grand fountain and cascade of original design thirty feet in height, will be erected in the center of the main nave.

Art galleries are to be remodeled and improved in regard to natural light, and it is intended that the display of home and foreign artists will far exceed anything ever before seen in this city.

Each afternoon and evening a grand instrumental concert will be given by the best musical talent on the coast.

Ample steam and water-power will be furnished free.

It will be seen from the above that the managers are determined to do all in their power to make the present Fair the most successful that has, as yet, been held by the Institute.

We would especially call the attention of manufacturers, inventors, artists, farmers, merchants, producers and dealers in goods, wares and merchandise of every description, to the advantages offered by this opportunity to display their various articles, so that they will be seen by a larger number of people than they could possibly be by any other arrangement.

To all exhibitors we would say, HAVE YOUR SPACES FILLED AND FULLY ARRANGED ON THE OPENING NIGHT. Any information will be cheerfully given by the Secretary, J. H. Culver, 31 Post Street, S. F.

"Manual for Furniture Men."

A NEW WORK.

THIS book contains hints and practical information for cabinet makers, upholsterers, and furniture men generally. Also a description of all kinds of furnishing with full directions therefor; varnishes, polishes, stains for woods, dyes for woods, gilding for silvering, receipts for the factory, lacquers, pictures, engravings, etc.

This work will be found to be of great help to the class mentioned, and its price has been kept down to such a point as will not be beyond the means of the average workingman.

Sent post-paid to any address upon receipt of ONE DOLLAR.



Building Contract.

S sued B for \$492.60, the balance due him for building a two-story brick house, and B made a counter claim for defective material thrown out, and money expended in repairing the unskillful work of S. The contract price was \$2,535, and the plaintiff had been paid \$2,042.40; the counter claim was \$1,985, which the defendant got a judgment for. The defense to the counter claim was a most novel one: That the plaintiff had "no experience in laying foundations, as the defendant knew." The case—*Sherman vs. Bates*—was carried to the Supreme Court of Nebraska, where the judgment was affirmed. Judge Maxwell, in the opinion, said: "A party entering into a contract to construct a building thereby agrees that all parts of the structure shall be put up according to the agreement. As a defense to inferior workmanship he cannot say, 'I am not a mason, or a carpenter, or a tinsmith; therefore I am not liable for defects caused by unskillful or careless workmen.' The question is not one of skill on the part of the contractor, but of compliance with the contract. If a contractor agreed to erect a building in a certain manner, he must comply with the agreement, and no plea of a lack of skill of himself or any of his workmen or sub-contractors will constitute a defense for a failure to comply with the contract."

BUILDING SUPERINTENDENCE.

A NEW WORK AT A NEW PRICE.

This work has been quoted in our columns at \$4.00. The price should have been \$3.00. All the books kept on hand by us are marked at Publishers Prices. Those who have paid us \$4.00 for a copy of this new work can have the extra \$1.00 returned by sending us their address. A copy will be sent to any address upon receipt of **THREE DOLLARS.**

Drawing for Carpenters, \$1.75.
Building Superintendence, \$4.00.

How to Boil Linseed Oil.

THE *Carriage Monthly* gives the following directions, which may be of service to some of our readers: First, be sure that you have the pure linseed oil. There is much sold as such manufactured out of peanuts. The test is simple. Nut oil has a sharp, acid taste, smells just like sour peanuts, is darker and thicker than the other oil, has a clinging tendency when rubbed on the finger, dries with a gloss even in priming coats, and is very much given to gumming up when sanded. Pure linseed oil has a bright amber color, runs freely, sparkles when flowing from the can, tastes smooth and mild, and has the smell of a flaxseed poultice. When you are satisfied that you have the genuine oil, and wish to boil it thoroughly, first take, say, about $\frac{1}{2}$ pound of red lead and the same quantity of sugar of lead; put into 5 gallons of the oil, and place over a slow fire, so as to boil evenly. Do not let your fire get either too hot or too low; keep an even temperature if possible; coke or charcoal is preferable to either hard or soft stonecoal. Avoid a wood fire, as, after the oil gets to boiling heat, a sudden flame shooting up might ignite the entire lot. Let it boil seven hours full; the red lead and sugar of lead will then become dark brown. Stir all the time while boiling slowly, and only one way; do not change the direction of the stroke or you will burn the oil, just as you would starch. After you have taken it from the fire, cover it up and let it stand to cool off, say, over night. The sediment will settle; pour out the oil and strain; your oil is boiled, and a better article you could not have, as all the fatty substances are destroyed. This is the English method, used in all the carriage factories in the United Kingdom.

Sawdust in Plastering.

TWO WESTERN inventors have recently obtained patents for the use of sawdust, instead of sand, in plastering compositions, and this, it is conceived, may be a matter of considerable importance to the owners of saw-mills in the principal lumbering towns. One of the patents is for the use of nearly equal parts of plaster-of-Paris, or cement, and sawdust, with the ordinary amount of plastering hair and water; the other calls for the use of about $4\frac{1}{2}$ pounds each of slaked lime and sawdust to one pound of plaster-of-Paris, a quarter of a pound of glue, and a sixteenth of a pound of glycerine, with plasterer's hair. Whether or not either of these described plasters would be cheaper than those made in the ordinary way, they would certainly be lighter, and it is believed that they would better adhere to the walls, and not be so liable to chip, scale, and crack. Sifted sawdust has before been used to some extent, by experienced workmen, for mixing with mortar for plastering external walls, exposed to the alternate action of water and frost, as a preventive of scaling. Certainly the experiment of introducing sawdust in place of sand in mortar is worth trying, for in many places, sharp sand, suitable for the purpose, is difficult to obtain.

Superiority of Country Workmen.

THE *Scientific American* calls attention in a recent number to the superiority of the workmen trained in small machine shops and factories over those bred in larger establishments, where the division of labor, and limitation of the responsibility of individuals, prevent the development of that self-reliance and ingenuity in overcoming difficulties which those compelled to make the most of imperfect tools and to turn their hands to a variety of work, are constantly obliged to exercise. For this reason, the mechanic who has learned his trade in a shop where only two or three men were employed is generally very welcome in the larger ones. Although the costly machine-tools of the great establishments are new to him, and some time may pass before he learns to use them properly, he generally succeeds at last in understanding them far more thoroughly than those who have not been accustomed, by the invention of homely make-shifts, and contrivances for using common tools in unusual ways, to acquaint themselves with the properties and capabilities of the parts which they find combined in a new form. Most architects have probably had occasion to make the same remark in regard to builders' men. The man from the small shop, particularly in the country, is commonly quick, ingenious and reliable. He may in some instances be less skillful with his tools than the city workman, who is not obliged, like him, to turn to other employment during a large part of the year; but he more than makes up for that in his better mental development, which enables him to enter into the ideas of the architect, and to seize opportunities for advancing or improving the work, which his plodding brother from the great shops would not see or care for.

Burning Sewer Gas.

THE *Chicago Tribune* contains an account of what it considers to be a novel method of disposing of sewer gas—namely, the burning it in the furnace of the steam-boilers of a factory. The reporter states that he saw the natural sewer gas burn at the end of the pipe connected with the sewer for nearly ten minutes without a flicker. The Chicago Gas Company, which has pipes in that vicinity, had better have them examined.

This method of disposing of offensive gases from sewers is one that has been many times suggested and in a few cases tried. In exceptional cases it may serve to dispose of a local nuisance, but it is not generally applicable, as is well known to all who are acquainted with the experiments made in London on this subject by competent engineers.

Where there is a leaky gas-pipe in the vicinity of a sewer, the air of that sewer may contain combustible elements, but in this case there is usually an explosive mixture formed; and this is the true explanation of the majority of the explosions which are said to be due to sewer gas.—*The Sanitary Engineer.*

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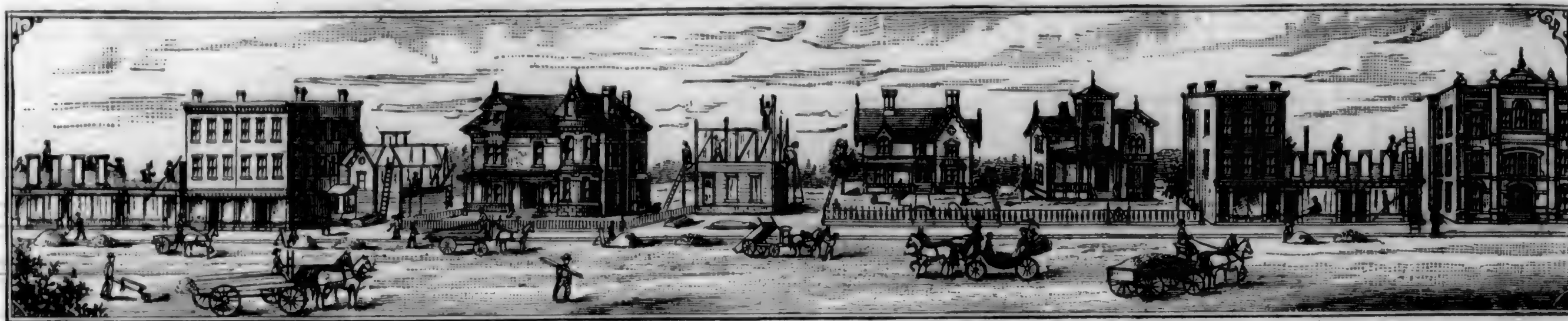
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Oakland—Jefferson. Fourteenth. Two-story frame. O. W. Blotte; A. W. P. Moore; C. W. G. Reese; \$2,500. Sixteenth, cor. Grove. Two-story frame. O. D. Alvin; A. W. Kirk; C. Nolan & Govney; \$3,000. Castro cor. Nineteenth. One-story frame. O. M. Heney; \$1,500. Brush, cor. Nineteenth. One-story frame. O. C. W. Blackman; day's work; \$1,800. Market, nr. Sixteenth. Two-story frame. O. J. S. Beardslee; C. Knight & Littlefield; \$2,500. Fifteenth, nr. Market. Alterations. O. D. Coakley; C. Markell & Griffith; \$1,500. Filbert, nr. Sixteenth. Two cottages. O. Capt. Wrinkleman; A. C. Mau; C. W. Dahl; \$3,000. Chestnut, nr. Fourteenth. One-story frame. O. F. Kellogg; A. W. Kirk; C. W. Brophy; \$1,800. Magnolia, nr. Tenth. Two-story frame. O. G. M. Fisher; C. Knight & Littlefield; \$4,400. Thirteenth, cor. West. One-story frame. O. A. Bassett; A. C. Mau; C. W. Dahl; \$2,500. Tenth, nr. Franklin. Two-story frame. O. W. Collins; A. C. Mau; C. R. Smith; \$3,000. Thirteenth, cor. Clay. Two-story frame. O. Dr. Tisdale; A. C. Mau; C. Ingerson & Gore; \$15,000. Union, nr. Fourteenth. Two-story frame. O. Mrs. Davidson; A. S. and J. C. Newsom; \$3,500. Repairs to public schools. A. S. and J. C. Newsom; \$5,000.

San Mateo—Two-story frame. O. Isabel Jordan; A. W. G. Copeland; C. R. Wisnom; \$3,000.

San Jose—Two-story brick building on north side Santa Clara St., nr. San Pedro. O. John W. Lyndon, of Los Gatos; A. Theo. Lenzen; C. Kenny & Leddy for brick work and E. A. Van Dolsen for carpenter work; \$23,060. The building heretofore reported for Chas. Lefranc has been enlarged to a three-story and basement brick; A. Theo. Lenzen; cost complete, \$34,000. NW cor. San Fernando and Third. Two-story brick. O. Joseph Balloli; A. Theo. Lenzen; C. brick work, L. C. W. Otto; \$3,000. Additions. O. Mrs. Krakenburg; A. Theo. Lenzen; C. C. Curdis; \$1,000.

Alameda—Alameda Avenue, cor. Oak. Alterations. O. J. Maistaney; A. C. Mau; C. Foster; \$3,000. Two-story frame. O. P. Otis; A. Wright & Sanders; C. Martin; \$6,000.

Watsonville—Country home. O. G. R. Ford; A. Townsend & Wynekin; C. C. Mills; \$3,000.

Centerville—Two-story frame. O. C. A. Plummer; A. S. and J. C. Newsom; C. F. A. Larabee; \$5,000.

Stockton—Two-story frame. O. W. Sweat; A. S. and J. C. Newsom; day's work; \$3,500.

Eureka—Two-story and basement frame. O. W. Carson; A. S. and J. C. Newsom. Day's work; \$25,000.

Oakland—Railroad Avenue, cor. Peralta. Two-story frame. O. E. Flynn; A. T. J. Welsh; C. M. Berger; \$3,000.

Woodland—Two-story Opera House. O. Woodland Opera House Association; A. T. J. Welsh; \$25,000.

Alameda—Railroad Avenue. Two-story frame. O. C. Montgomery; A. Schmidt & Havens; C. T. Adams; \$10,000.

The California Architect and Building News.

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NUMBER 7.

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Advertisements alone inserted that refer to materials used in the construction and furnishing of houses, and to matters and trades belonging to the building interest.

NO OTHERS RECEIVED.

Advertisements inserted for three months or less are payable in advance; payable quarterly when inserted for a longer period.

When money is sent for subscriptions, the receipt of a copy of this journal is an acknowledgment that it has been received. Unless requested we do not send receipts.

A Fine Showing for June.

JUNE is generally regarded as a quiet month in building activities, but from the summary of our building intelligence, the month just past has been an exceptionally active one in regard to the number and value of contracts let. We find during the month

EIGHTY-SEVEN BUILDINGS OF THE VALUE OF \$663,909.

Have been commenced. This amount does not include several upon which work has been started, the most notable exception being the Murphy Building on corner of Market and Jones Streets. As only a portion of the contracts have been let, we refrain from quoting the same until we can give definite cost. From present appearances, the value of building improvements for 1884, will exceed any year of which records have been kept.

Our Illustrations.

THE fine four-page engraving presents an accurate illustration of the New Odd Fellows' Hall. Its cost will be about \$300,000. Wright & Sanders, architects.

The elevation and plans for a country residence recommend themselves to those who want a neat, but yet attractive, country residence.

In our next issue we will present the first of our competition plans, the plates of which were not ready for this issue.

San Francisco Chapter, American Institute of Architects.

THE regular meeting of the Chapter was held on Friday evening, July 11th. President John Wright in the Chair.

The following amendment to the By-laws was proposed: In Article XI, Sec. 1, the word "three" be changed so as to read "five," the object being to have five Trustees instead of three.

(This change is necessary on account of the State Law requiring the number of Trustees in an incorporated body to be not less than five. ED.)

Mr. A. A. Bennett was unanimously elected a member as a Fellow.

F. Marion Wells was proposed as an honorary member of the Chapter. Referred to Messrs. Pissis, Curlett & Whittemore as a committee to report at next meeting.

Various bills were ordered to be paid.

Adjourned.

SPECIAL NOTICE TO MEMBERS OF THE CHAPTER.

At the next regular meeting of the Chapter, to be held on Friday evening, August 1,

NOMINATION OF OFFICERS

For the ensuing year will be in order. It is earnestly hoped that all members will so regulate their affairs, that they can be present at the August meeting.

Carmel Mission Church.

THE attention of our readers is directed to the *Editorial Correspondence*—as given below—in which will be found a statement concerning the *virtual destruction* of a very large proportion of the *primitive ideas* of architecture and construction as practiced by the Pilgrim Fathers to the Pacific Coast, in the erection in the valley of Carmelo, near the shores of the bay bearing that name, of the church edifice, which, in its primitive periods, stood alone in that vast wilderness—at that time scarcely known even to the best informed of civilized people, where the untutored and semi-savage tribes of Indians and herdsmen alone entered its portals as devotees—until by the events of time and nature, those who there first chanted the praises of the Most High, and their successors in the order of their existence, together with the humble worshipers who assembled within the sacred walls of the old sanctuary, have passed away, and the sacred edifice itself yielded to the waste and wear of the elements, until its ruins only remained as a relic of what was once the temple of worship.

The many interesting facts surrounding the history of this old mission church and the devoted men who laid its foundations, and whose earthly remains lie entombed within its walls, has made it one of very extended and general interest; and anything that may be done, which in any unnecessary manner is calculated to mar or destroy the original, will be looked upon with sorrow and regret by all those who venerate the monuments of history.

Editorial Correspondence.

SAN JOSE, Cal., July 8, 1884.

DURING our fourteen days' ramble through parts of Monterey, Santa Cruz, and Santa Clara Counties, we have met with nothing of more than ordinary interest.

AT HOTEL DEL MONTE, our stay was pleasant, and the usual conditions of comfort, elegance and high prices prevailed. There was a goodly number of guests present, but nothing approximating a crowded condition of things during the month of June, although a large increase is anticipated for July.

AT THE TOWN OF MONTEREY, the spirit of non-progression, apathy, and lack of enterprise,

which for so many years has held that place at a stand-still, was clearly manifest on every hand, and seems to satisfy the people of that ancient burgh. Nothing of a "public-spirited" nature is to be seen, calculated to improve general conditions or make the place inviting to strangers, nor of a character to induce investment by outsiders who might be willing to enter, invest, and occupy almost anywhere, where appearances indicate a disposition on the part of the earlier settlers, to make the most of the place itself, and the regions around and about the place of their settlement.

In the matter of building improvements, but little is to be seen. Two one-story stone erections on the principal thoroughfare is all that we noticed within the town proper, and nothing in the way of constructions was discernable anywhere in the adjacencies. In our survey of the surroundings, we summed up the probabilities to be, that twenty mechanics—all classes included—carpenters, masons, painters, plasterers, etc., would be a sufficient force for all the mechanical requirements in the building line the year through. It is singular how permanently and effectually, even business men may lose sight of their best interests, and permit advantages to flit by unimproved, or wither under the influence of inaction. Yet it is a thing of common occurrence, and Monterey is a striking illustration; while at the same time this one thing is certain, that in the hands of active, enterprising men, Monterey might be made a beautiful, thriving, and prosperous place, and the number of its inhabitants increased five-fold.

Since penning the above, we have sought further information in reference to the causes which produce the state of things existing in immediate proximity to the spot where to-day stands the white cross, on which is inscribed "June 3, 1770," commemorative of the landing of the pioneer missionaries on the shores of Monterey Bay, more than one hundred and fourteen years ago, and find it to be the same that has, in times gone by, so disastrously affected and hindered the prosperity of almost every town and city in the State of California, to wit: Spanish or Mexican Grants, and imperfect titles, and ownership of valuable pieces and blocks, by one or more, and in some cases, by whole families of indolent, stupid, ignorant Mexicans, who do not, and cannot be made to understand that their retirement from ownership would be a public benefit and a blessing to Monterey.

At PACIFIC GROVE RETREAT we spent four pleasant, quiet days. The quiet of this—capable of being made—beautiful retreat, is most enjoyable, shutting out, as it does, all the noise, bustle, and turmoil of busy life; but the religious restrictions and restraints enforced are calculated to greatly lessen the number of visitors, and restrict patronage to those only of very moral, or decidedly reverential turn of mind. Very wisely, the sale of spirituous liquors, gambling, and all immoral practices are prohibited, but with these, all other means of harmless, social amusements are proscribed

such as a properly conducted billiard room, in which mothers and children, as well as fathers and brothers, might engage in the pastime of innocent amusement with the balls and cue—and many other means of enjoyment, which, if permitted and introduced, would greatly multiply the pleasures of visitors, without violation of any reasonably high standard of morals, and approaching sufficiently near to a religious state for all practical purposes.

The closing down of the gates upon all business affairs on Sundays would be consistent with the general character of the place, were it absolute and complete. But its partial enforcement, closing the butcher shop, grocery store, etc., and beaching or tying up of boats, yachts, etc., and shutting off all manner of worldly pleasures, other than as each for himself may improvise, while the business office of the concern is kept open, coaches and teams owned by the management run all Sabbath day for the conveyance of visitors to and from the cars and grove, and in and out, to and from town, for the pleasure of guests, and other things done, yielding profit and pay, at least suggests a degree of inconsistency, which is not removed by the claim that "these things are necessary."

Within the past two years there have been some improvements made, noticeably the restaurant which is well conducted, clean and well lighted and ventilated, although the innovation upon common custom in city life, of dinner at noon, and supper the evening meal, with but a plain, moderate bill of fare throughout, instead of luncheon at noon, followed by dinner at evening, is an arrangement subject to the likes and dislikes of patrons, to please all of whom would be an impossibility.

The thousand and one great possibilities within the surroundings of Pacific Grove, will, some day, when the present management shall have ceased, and the interest passed to the control of others of broader and more practical and progressive views, become one of the most desirable sea-side resorts upon the shores of the Pacific Ocean.

CARMEL MISSION CHURCH. This old historical, by many, venerated, relic of the first works of the devoted men who landed upon the shores of Carmelo Bay, more than a century ago, is passing through changes at the hands of a gang of mechanics, but little less than sacrilegious. The judgment displayed in the restoration of the building is exceedingly bad in many particulars, especially and most condemnably so in the new roof, which obliterates all vestiges and semblance of the original, and substitutes a very steep pitched, pointed modern style of roof, as seen in Catholic, Episcopalian, and other Gothic chapels of the present day; and so in contrast with the style and character of the primitive roof and building, as to change the feeling of awe and veneration which pervaded the minds of those who visited the sacred edifice, to that of disappointment and displeasure at the mongrel attempt to resuscitate and restore the relics of past ages, by the

use of the latest inventions of the present day. The sharpening of the pitch of the new roof necessarily raised the apex some eight feet or more above the old, thus giving the front a pointed, modernized air, altogether at variance with the antiquity of the edifice, and so far changing general effect, both in outside and inside appearances, that no one who has formed their ideas from photographic views, nor those who have heretofore visited the sacred place in its primitive ruins, would recognize it as Carmel Mission Church, as far as the roof exterior and interior is concerned. Other obliterations of original features are being unwisely and unpardonably practiced, and the alterations generally shaped to conform much more to present notions of things, than to retain that which was of greater interest—the features incorporated and established by the fathers who laid the foundation, and completed the edifice long before present generations had an existence.

The work being done is of a very cheap and inexpensive character, the total cost of which should not reach \$10,000, as far as the restoration work is concerned; and whatever greater amount of money is raised in answer to the efforts being made by citizens to collect funds, its appropriation must extend to other purposes than that of reconstructing the old Carmel Mission Church.

SANTA CRUZ, to us, one of the garden spots of California, with its splendid sea beach, its magnificent drives over well-graded roads, through scenery of surpassing grandeur, its far-stretching landscapes of valleys, hills, and mountains, together with its numerous other tributary features of interest, is a place where one may dwell for a season at least, in contentment and pleasure.

The whole aspect of affairs present the appearance of general prosperity. A fair degree of building activity exists, in the erection of dwellings and business places. The style of architecture adopted is neat, without any pretensions to great elaboration. From information gathered from various intelligent sources, we are warranted in saying that Santa Cruz and its surrounding country assumes an enviable position among the most favored places outside of San Francisco.

AT SAN JOSE, which we reached on the 4th inst., all was life and excitement, with signs of prosperity on every hand, both in and out of town. For notwithstanding the damaging late rains of the season, the losses in hay, cherries, and other things supposed to be badly injured, appear to be so far compensated by gains and advantages in other regards that orchardists and farmers feel confident that the results of the season's gatherings and returns will be satisfactory.

In building operations, a moderate degree of activities prevail. During the earlier part of the present season, a comparatively large number of buildings were commenced, which gave employment to all classes of mechanics, but with the approach of harvest time, which necessarily attracted the interest and means of both farmers and merchants, the building improvements have received less attention, and a moderate condition of things is likely to continue until the field, orchard, and vineyard interests are in and cared for.

Compiled Items of Interest for Mechanics.

How to Imitate French Walnut.

Mix and coat up the work to be grained the same as for black walnut, using Chromo yellow for coloring. When the background is perfectly dry, take a tablespoonful of lamp-black, mix this in a dish that is free from grease, using beer to mix it with; mix so it is as thick as molasses; saturate a small piece of sponge with this; also mix some dry burnt senna in another dish the same, and saturate another piece of sponge with it; also saturate a larger piece of sponge with beer alone; squeeze this out as dry as you can with your hands; now, give the work a coat of Vandyke brown, mixed with beer; while this is wet, take your beer sponge and dab it over the work until it appears dappled; now, take your lamp-black sponge, and in places make little knots or burls, also the same with your red sponge; do not get too much of the red and black on, as it will make the work appear daub; now, with your badger hair blender, blend the work softly until dry, blending one way across the panel; when dry go over the work with oil and Japan dryer; while this is green you can throw in the little veins that are found in the natural wood, by using the black walnut graining color and a flat brush; when dry, varnish.

Changeable Signs.

MAKE a wooden sign in the usual manner, and have a projecting moulding around it that projects one inch out from the face of the sign; now cut thin grooves into the moulding, one inch apart, allowing each cut to reach to the surface of the sign; in each of these grooves insert strips of tin, one inch wide, and long enough to reach across the sign board; when so arranged take out the strips of tin, and place them edge to edge on a level surface; paint any desired words on their united surface; when dry reverse them and paint other words on the other side; now finish your lettering as usual on the sign board; now put the thin strips in correct order in the grooves; this will complete a sign that will read three different ways.

Paints for School Blackboards.

COMMON glue, four oz., flour of emery, three oz., and lampblack enough to give an inky color to the preparation. Dissolve the glue in $\frac{1}{4}$ of a quart of warm water; put in the lamp-black and emery; stir until there are no lumps; then apply to the board with a woolen rag, smoothly rolled; three coats are sufficient.

The Painter's Foreman.

THE above three articles are from a new work just issued, entitled the "Painter's Foreman." It is the only work published that explains fully and clearly the different secrets of the painting art. PRICE, \$2.00.

A consignment of this work is now on the way, and we will be able to furnish any one desiring the same at regular publisher's price, viz.: \$2.00.

Cummings' Architectural Details.

VARNISHING MARELE PAPER ON CEILING.—Before commencing to varnish a paper you must give the same one or two coats of weak size, made from glue, being careful to touch every part, or it will show greasy. When dry it is ready for varnish. If a white paper, the glue must be clear, or it will tint the paper. All paper will not varnish.

Cottages and Villas.

PAINTING ON ZINC.—This is facilitated by employing a mordant of one quart of chloride of copper, one of nitrate of copper, and one of sal ammoniac, dissolved in sixty-four parts of water. To this mixture add one part of commercial hydrochloric acid. This is brushed over the zinc and dries a dull gray color in twelve to twenty-four hours; paint adhering perfectly to the surface thus formed.

Church Architecture.

TIMBER can be toughened in seasoning by thoroughly impregnating the same with creosote or coal tar.

Street, Store and Bank Fronts, \$4.00
Universal Assistant, \$2.50
Practical Carpentry, \$1.00

SPONGES can be bleached to a very pure white by immersing them, after being thoroughly cleaned of sand and dirt, in a solution of one part of permanganate of potash in 100 parts of water, then washing them in water, squeezing them dry, and afterward steeping them fifteen minutes in a solution made by dissolving eight ounces of hyposulphite of sodium and one ounce oxalic acid in a gallon of water. On being washed clean they will be found to be white.

Wooden and Brick Buildings, \$18.00
Modern Perspective, \$6.00

Bancroft's Histories.

THIS magnificent work embraces a complete history of the Pacific States. The territory covered is the western half of North America, from Panama to Alaska, including all of Central America and Mexico, and is equivalent in area to one-twelfth of the earth's surface.

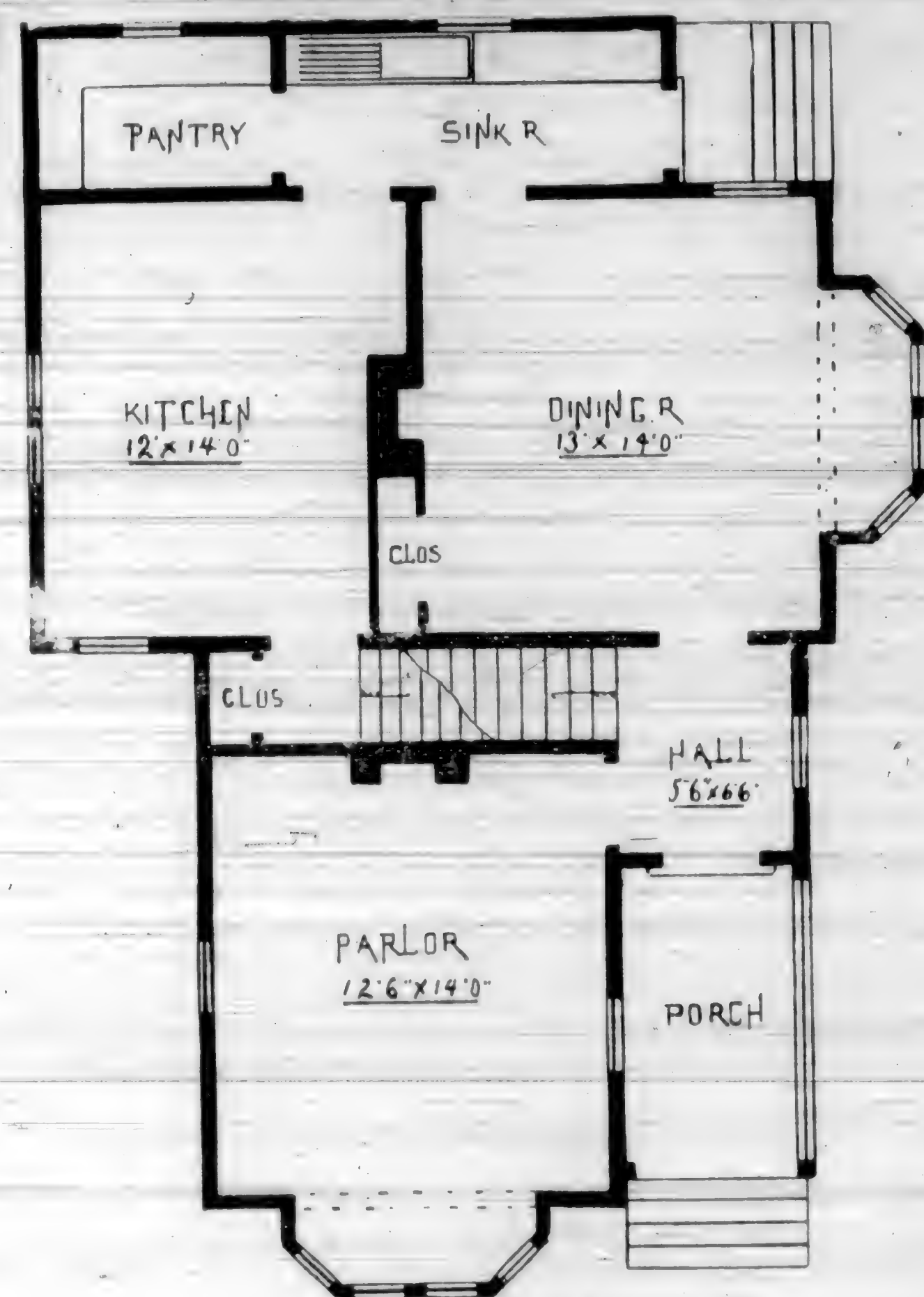
There are to be thirty-nine octavo volumes, with maps and illustrations, fifteen of which are now ready. They will be well printed on good paper neatly and substantially bound, uniform in style, and will average over 700 pages each. Three or four new volumes per annum will appear until the entire series is completed. Subscribers will not be obliged to take the work unless it corresponds with the description in every particular.

Per Volume.
Bound in Extra, English Cloth, neat and attractive style, \$4.50
Bound in fine leather, Library Style, 5.50
Bound in half calf, half Russia, or half Morocco, 8.00
Bound in Russia Leather or Tree Calf, 10.00

Any information in regard to the above will be given by addressing the office of this Journal.

Builder's Guide.

MECHANICS should remember that it is for their interest to forward items of general interest to the publishers of this Journal, as, by so doing, they reap much benefit from an interchange of ideas. If engravings are necessary to explain your ideas, send a rough sketch of the same and we will put them in a presentable form.



FIRST STORY PLAN OF COUNTRY RESIDENCE.

Wood Pulp.

It seems that this monopoly has had sufficient rest, and the subject should be discussed at greater length, as in our last article we merely gave a few hints concerning the transformation of wood into paper. Since then, however, we have made an extended visit—a professional one—to one of the largest concerns of this kind in the world, and, though not feeling disposed to mention names, for fear of the article being termed a write up, we will mention what we saw, and view the process from a technical standpoint.

First of all, the wood is cleverly deprived of its epidermis—here we detected a waste which is to be utilized in the future—and, though poplar is the principal timber used, we can find considerable bass-wood and a few sticks of soft maple in nearly every pile. The operation of transforming wood into paper can, with propriety, be divided into three processes, the first of which is purely a mechanical one of making the wood fine. Some mills do this by means of cutters acting on the principle of a planer, but the larger establishments are supplied with grinders which operate across the grain of the stick, reducing it to a pulpy like mass. This is much the better process, though the old way of chipping has many champions. After the wood is reduced to the required degree of fineness, the chips, or pulp, is put in the digesters, which consists of upright boilers, from six to ten feet in height, according to the depth of the first story of the building in which the operation is carried on. Under these large boilers, or "digesters," are the furnaces, while above and behind them are situated the alkali vessels,

made of iron, which contains strong caustic soda. Each of these alkali tanks is supplied with the proper fixtures for regulating the flow of the liquor, in which the wood is subsequently boiled, or "digested."

When one of these digesters is ready for its charge, the top is removed, the faucet in the alkali pipe opened, allowing the alkali to flow in the digester and become thoroughly mixed with the wood as it is being put in. When the digester is filled in this manner, the faucet is turned to stop the flow of alkali, the top of the digester is replaced and firmly fastened by stirrups. Fire being applied, the entire mass is soon boiling vigorously, but the steam pressure is allowed to reach 100 pounds only. In this manner the wood is reduced to a pulp as soft as the finest jelly, every observable trace of its original appearance having disappeared. When this process has been carried to sufficient length, the contents are blown off into strong iron tanks with a capacity of withstanding with safety the pressure of the digester's steam. Then the pulp cars, which are simply large vats, receive the mass. These are supplied with perforated bottoms, and mounted on wheels, each car having a capacity equalling that of the tank adjoining. The surplus liquor is strained off into receiving tanks, and the pulp is treated to clear water, which is allowed to flow through it until all traces of the soda are removed. Every particle of soda is reclaimed and re-used in another batch. These pulp cars or tanks are now run out on turn-tables, from which they are taken to the tanks to be thoroughly mixed with clear water, which is done in a properly constructed mixing box. From here it is run into pulp dressers,

where every bit of undigested wood is separated from the rest by filters. From the dressers it comes in the form of large sheets, and is immediately torn up and thrown into the bleaching engines, where, through the action of chlorine—in one factory made from the smoke—it is freed from every particle of coloring matter, and left creamy white.

At another establishment, nearly all these conveyances are dispensed with, the mass being pumped through pipe lines from one place to another as needed, one factory transporting in this way from one building to another, some of which are over three miles from the rest.

At this stage the process is virtually complete. From the bleaching engine the pulp is run into the drainers—large reservoirs in the basement, where all traces of chlorine are washed out. Thrown out with these, the pulp is once more mixed up with clear water, and after passing through a second set of pulp-dressers is run through an eighty-four-inch cylinder machine, and over nineteen driers, which convert it into a strong, thin sheet, resembling blotting paper, except the surface is harder and smoother. From the driers it is wound on a long reel, and from the latter it passes between knives that divide it longitudinally into three strips, each of which is wound on a cylinder into a roll of about 118 pounds weight. This roll is now done up in heavy wrapping paper, and in this manner is shipped to the dealers or consumers. Some of our larger dailies buy direct from the factory, one mill in northern New York being kept running constantly to supply the editions of the *Times* of the American metropolis.

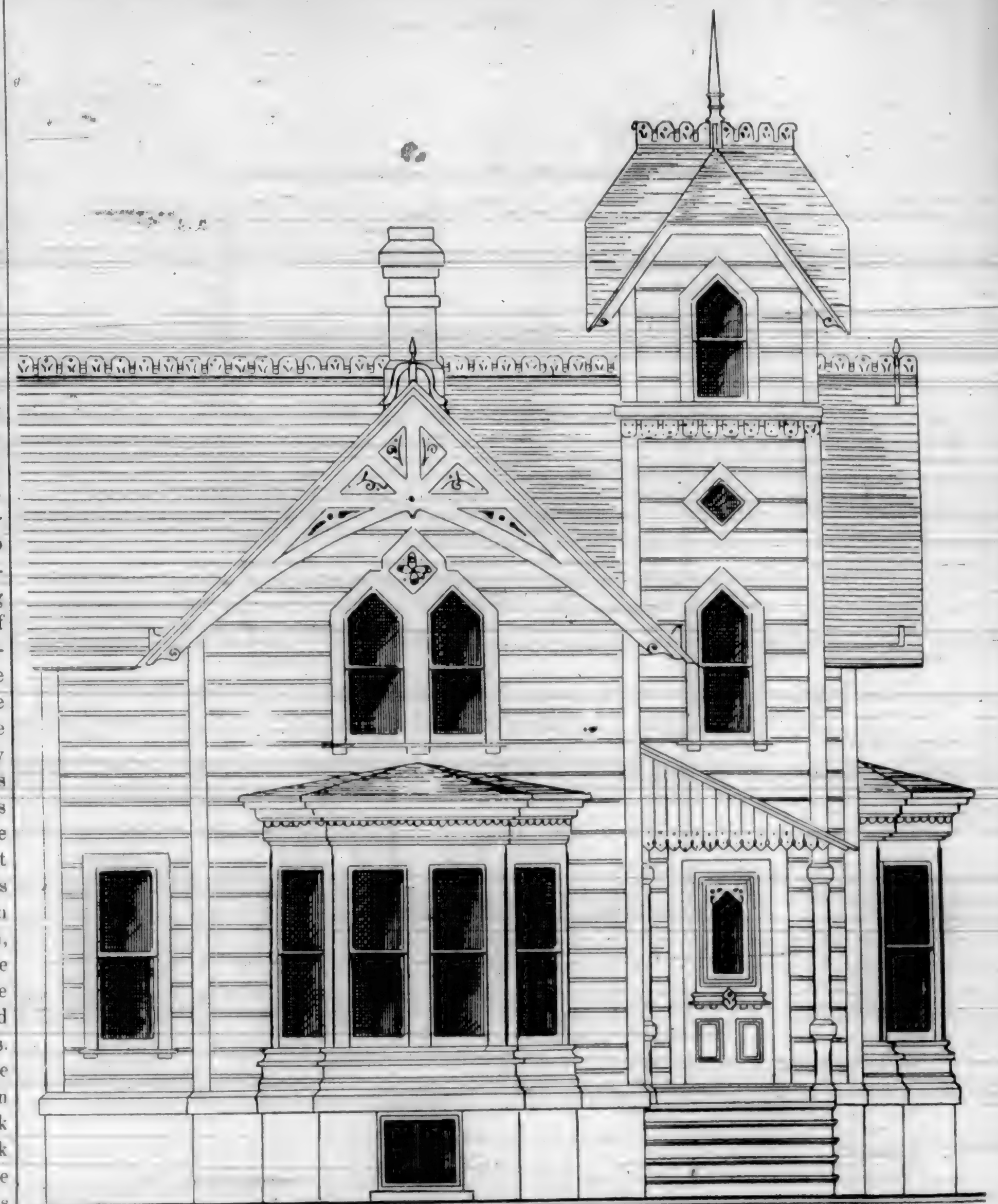
As this industry grew in importance, competition sprung up, and, of course, the cost of making the paper had to be reduced, and the process of reclaiming the chemicals was investigated, and now is a very interesting operation, as also the making of caustic soda.

When the pulp has been reduced in the digesters and drawn off into the pulp cars, as before stated, the liquor is drained off, and clear water allowed to percolate all through the mass, thoroughly washing out all traces of soda. This liquor that drains off is the original caustic soda mixed with coloring matters and other elements in small proportions, boiled out of the wood. The after washings are also impregnated with the same elements, but weaker. All this matter is pumped into the evaporating rooms, in which are four furnaces, fitted up with a large evaporating pan, so adjusted that the flames pass near them on their way to the chimney. The hot gases are still further utilized before escaping by passing over another set of pans higher up. The liquor is pumped into these upper pans first, where some of the water is evaporated. It is then allowed to run into the furnace pans where the balance of the water is evaporated and the remaining vegetable fiber burned out. There is now left nothing but the black soda ashes, which is now dumped on the ground to dry.

In the alkali house are tanks, into which are put water, the black ash, and a small portion of lime and white ash. Steam is applied, and the mixture thoroughly boiled until converted into caustic soda, which is simply the hydrate of soda, or, in other words, soda held in solution by water. It is now run off into vats, and left standing twelve hours, or long enough to clarify. A residuum sinks to the bottom, which consists of lime and the coloring matter of the black ash. The clear liquor is drawn off, and is ready for re-use in the digesters. The precipitate is thrown into other vats, and water run into it to absorb any remaining soda, a process now repeated many more times than previously.

The Art of Graining.

THE imitation of wood is now, more than ever, a very important study, as in nature, so we find it in art, there are many diversities in effects. There is great beauty in the natural woods, when selected for any given work, but their cost being large, forbids the general use in dwelling houses. In art we have every opportunity for variations, and this can be done without very great outlay of money to procure them. The embellishment given in first-class graining to new dwellings, is far more cheerful than we find in native woods. The reason it is so, is because the woods generally selected are too strait in the grain, and do not offer much variety to please the taste. And then when old work is to be renewed, a different style of woods may be substituted for the old, and thus add new work, cheerful to the observer, for all are pleased with a change. So we find it in our private and public buildings, in all household furniture. It is not long since the latter was made of lighter shade of woods, but now we live in the *black-walnut-age*, for the taste for dark woods has become the "ne plus ultra," and nothing can please but walnut woods of every shade. On the Pacific Coast there has been a little variety thrown in by the use of laurel panels, veneers here and there of this beautiful wood, and has in a measure softened the general effect of the mournful aspect. For the coming student painters, there is an art study of the various woods and their proper imitation. There is in walnut wood many characteristics of its own, and these are the studies which must fit the student for his profession. He must note the sap growth of the wood in its sweeps and curves, along with the knots and their shades. The heart growth, for specialties should be carefully studied, as their true representation is one of the best effects in the art. In oak likewise there is a great diversity of the work of delineation in the heart growth, from the nucleus or knots to the spreading wavelets, as they reach out to panel ends or the length of rails to stiles. The roots and branches claim a large share of the student's time. The former are now more generally used in panel decoration, for they offer an endless variety in design of every fantastic shape. They are whirling pools of color scattered amid rocks and foam in lights and shadow in a perfect sinuous sea of mottled masses. The branches of either walnut or oak are very pretty in form, showing curving feather-like lights, with sweeping outward, over-grain in fine lines blended in the same direction, which enriches the work on the dark back-ground of color. The oak lights form a fine study, for there is a beauty in the scattered forms, irregular in size but in marshaled ranks, forming hollow squares, platoons or files still all marching on. The stave lights, when chamfered on panel, offer fine effect, making light and effective graining. Then the heart growth shows the pores or checks of oak and walnut. In the oak the checks are stippled in after the heart work is

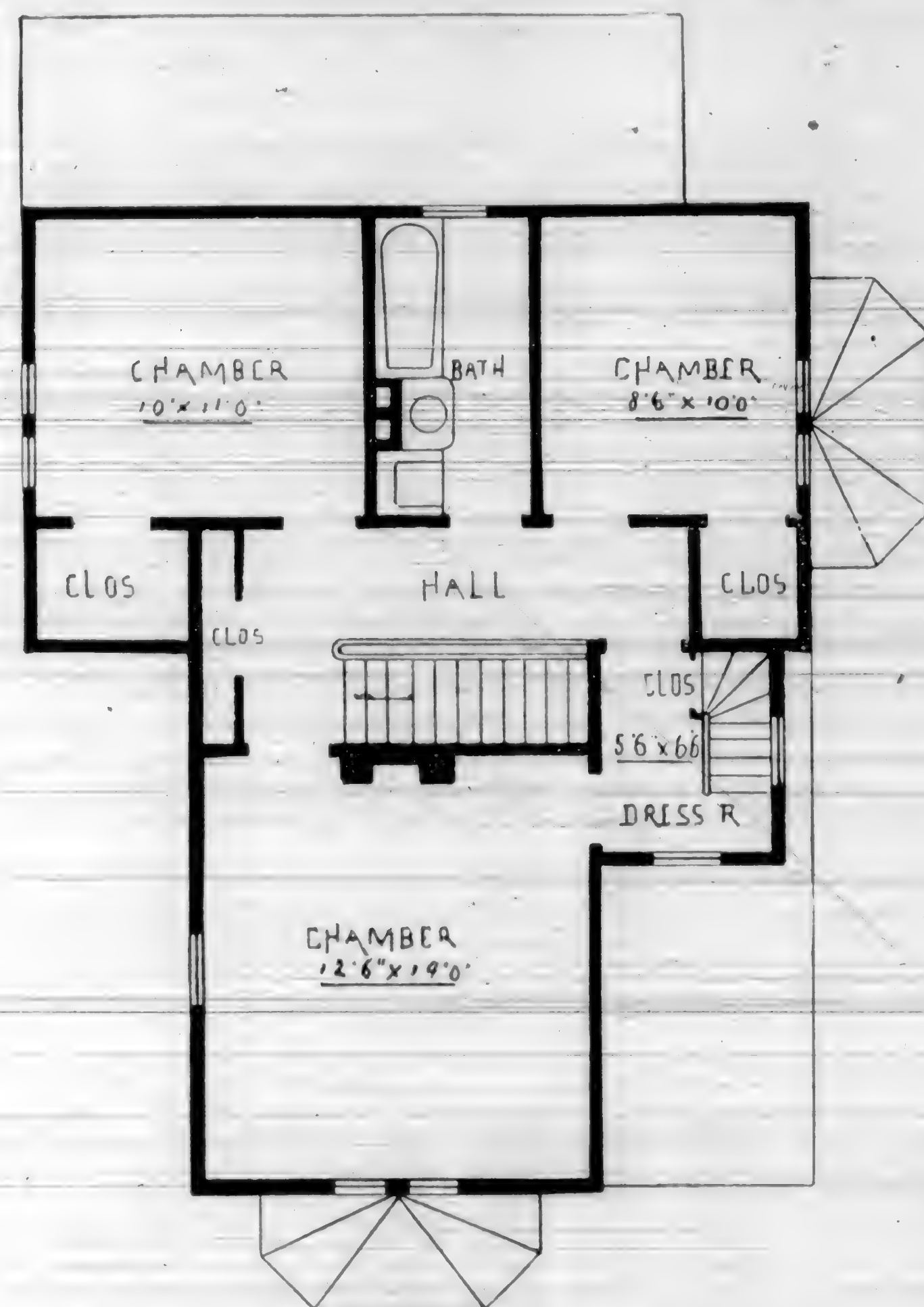


FRONT ELEVATION OF A \$3,750 COUNTRY RESIDENCE.

done, while the pores in walnut are laid in distemper flogging, and when the oil work is done over it, the stipple shows itself plainly in the heart-growth flashes of light, where the walnut pores are so commonly seen. These are some of the studies which fit the learner to do artistic work, for he must know all the characteristics of a wood, before he is competent to undertake a job of work. Should the pupil find an opportunity to learn of a practical grainer the rudiments of the art, he will save much time and secure these aids to further perfect himself in this beautiful art. In learning the modes of others, he must not forget that nature is the style he must copy and aim to represent it in all its technicalities. Some grainers have a style of their own, copied partly from others with ingenious additions of their imperfect studies, which serves only to make show work. Graining, when done for the

trade, is none of this class, imitation not being the rule, but rather color in marketable shape. To grain in imitation of any given wood, skill and labor of long experience are required to properly represent them. *Time-work* is more proper for the best execution of good graining, and for that reason all work of this nature should be done by the day. In order to encourage the study of the art, I propose to treat the subject in a practical way in a future article, in which the rudiments and color mixing, will be discussed. J. E. W. C.

An improvement has been effected in wooden block flooring. The common manner of laying the block flooring often results in disappointment, because the blocks soon become loose. The improvement consists in the blocks being keyed to a cement flooring, firmly fastening them, and the cement obviates both dampness and dry rot.



SECOND STORY PLAN OF COUNTRY RESIDENCE.

Building Skyward.

A BILL introduced in the Assembly by Mr. Howe provides that no dwelling-house hereafter to be erected in this city, shall be more than 70 feet high, if the street or avenue on which it stands is not more than 60 feet wide, and that the height shall not exceed 80 feet on any street or avenue of greater width.

The lofty apartment houses and office buildings in which millions of dollars have been invested on this island within a few years are among the curiosities of New York. The city can grow freely in only one direction. For this reason building sites below Central Park, in the building district and along Broadway and the central avenues, have become so costly that those who own them have been led to build skyward in order to secure the greatest possible rent from every square foot of ground. They have not been restricted by laws like those which have been enacted in cities of the Old World, but the day will come when such laws will be needed here to insure the protection of life and the preservation of health. The natural limits of expansion have thus far tended to give builders more freedom than is allowed in cities that can grow outward in

all directions from a center. If Berlin were growing from one end of a long and narrow island toward the other, the authorities of that city might have postponed the adoption of a regulation forbidding the erection of houses more than 79 feet high. If Paris could expand in only one direction, the height of its buildings might not be limited to 65 feet, with exceptions in certain cases. Admitting, however, that freedom in this respect is more desirable here than in those cities, it is, nevertheless, true that the time has come for the enforcement in New York of some law like that proposed by Mr. Howe. The subject is receiving attention in Chicago, where the erection of a few lofty buildings has led an association of citizens to ask for the enactment of an ordinance providing that all buildings more than 90 feet high shall be made throughout of incombustible material.

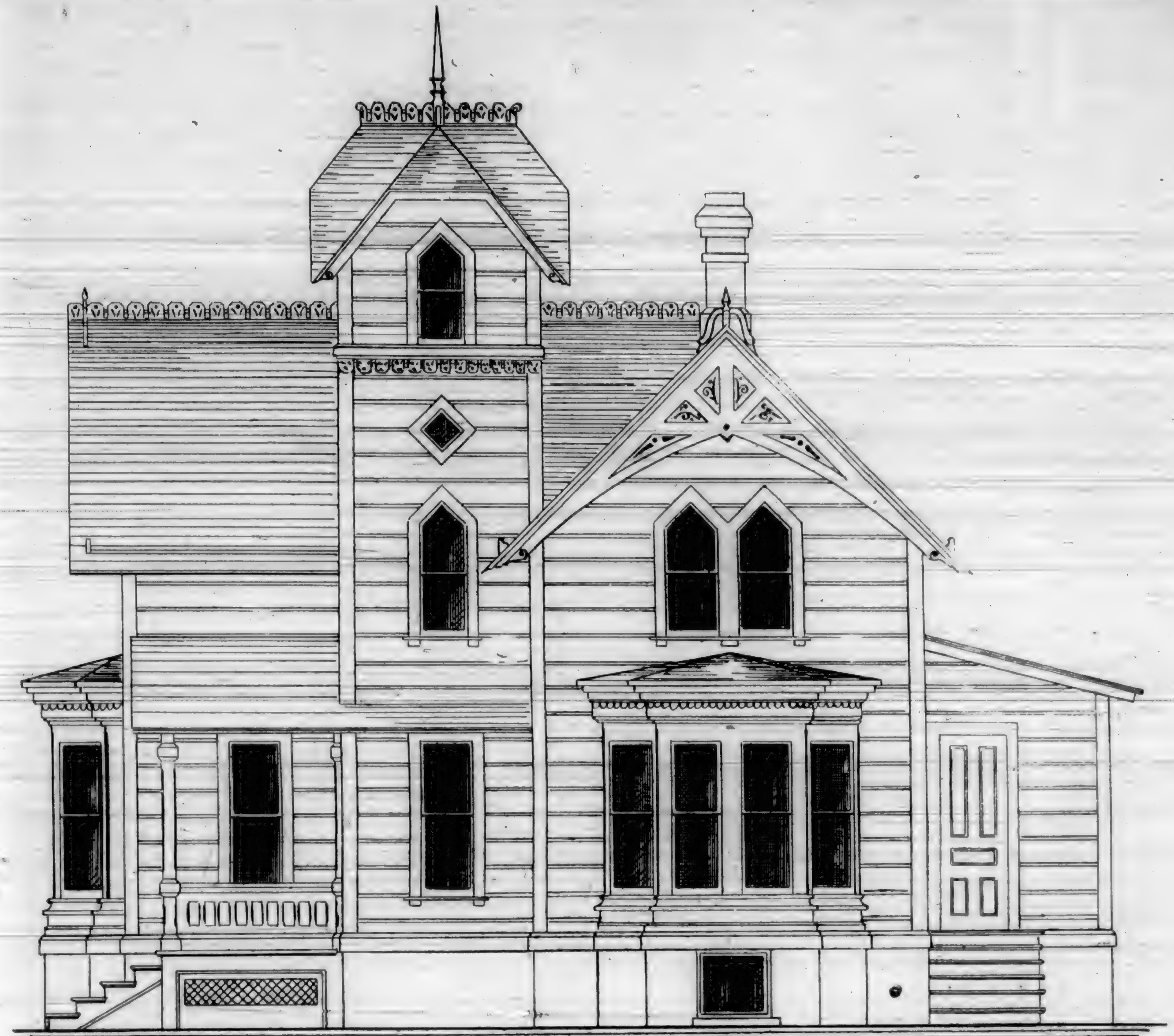
The builders of our most lofty structures—apartment houses and down-town office buildings—have in most cases been led by a consideration of their own best interests to make them fire-proof. A law that would prohibit the erection of such buildings as half a dozen that might be named, recently constructed below the City Hall, could not be defended by

many arguments, nor could the erection of lofty fire-proof apartment houses, like those that now attract sight-seers near the lower end of the Park, be reasonably forbidden upon the sole ground that fire in them might endanger life and surrounding property. The buildings which we have in mind seem to be practically fire-proof, but the erection of buildings eight, ten, twelve, and even fourteen stories high that are not fire-proof should be forbidden by a rigid law. If a builder desires to increase his profits by erecting sky parlors, he should be at least, compelled to make his sky parlors safe.

On the ground of health, however, it is urged that the erection of all lofty buildings—even those that are fire-proof—should be forbidden in a crowded city. This objection may not be potent with reference to office buildings, but with reference to apartment houses it demands serious consideration. Nearly all of the great up-town flat houses now stand apart from each other. Where two or more of them are grouped the lower floors are almost sunless, and in the course of time the multiplication of these houses will convert the lower stories into gloomy caverns which the sun's rays cannot reach. They will keep the surface of the streets in almost perpetual shadow, and deprive the unfortunate occupants of adjoining small houses of sunlight, which is so powerful an agent for the preservation of health.—*New York Times.*

To Saw Rough Timber.

ALL tough timber, when the logs are being sawed into lumber of any kind, whether scantling, boards, or planks, will spring badly when a log is sawed in the usual manner, by commencing on one side and working toward the other. In order to avoid this it is only necessary to saw off a slab or plank, alternately from each side, finishing in the middle of the log. We will suppose, for example, that a log of tough timber is to be sawed into scantling, of a uniform size. Let the sawing be done by working from one side of the log toward the other, and the ends of the scantling will all be of the desired size, while at the middle some of them will measure one inch broader than at the ends. After the log has been spotted, saw off a slab from one side; then move the log over and cut a similar slab from the opposite side. Let calculations be made by measuring before the second is cut off, so that there will be just so many cuts, no more and no less, allowing for the kerf of every cut. If the log is to be cut into three-inch scantling, for example, saw a three-inch plank from each side, until there is a piece six and a quarter inches thick left at the middle. The kerf of the saw will remove about one-fourth of an inch. When a timber log is sawed in this way, the cuts will be of a uniform thickness from end to end. Now turn the log down and saw the cuts the other way in the same manner, and the scantling will not only be straight, but of a uniform size from one end to the other, if the saw be started correctly.—*Sel.*



SIDE ELEVATION OF \$3,750 COUNTRY RESIDENCE

Running Locomotives.

"Lots of chaps think it would be fun to run an engine," said the driver, as he stuck his head, a flaming torch and a long-necked oil can in under his machine, "but if the most of 'em would try it they wouldn't like it quite so well. 'Taint everybody can run a locomotive either, though I s'pose it's like running a daily newspaper, which I've heard tell everybody can do. Now, a nervous man has no business in a cab; no more has a careless one or a stupid cuss. To run an engine a man must feel his responsibility, and keep his head level. I don't believe half the people know what it is to run an engine. Now, there's the machine; that is the first thing, and it has to be in good order, and stay so. A locomotive has to stand wear and tear and weather that'd knock a stationary engine into smithereens. And no

matter what emergency rises—freezing of pipes or starting of flues, a loosening of packing or heating of journals—we've got to know just what to do, and do it right quick, too. Then when we're running there's the time-cards, and pretty often a new one. And the train orders—they are life and death and reputation to us, and to read 'em correct and to live up to 'em gives us no end of anxiety. Bet I've read a train order over a dozen times an hour—I am always so afraid of making a mistake or forgetting. You know the consequence of even a little mistake sometimes.

"Then there's signals to watch, the conductor's go'ng overhead, steam to keep up, time to make, whistle-posts and crossings to look out for, bad spots in the road to be careful on, and along with all this, there's the track ahead of ye which your eyes mustn't leave for more'n five seconds. There's the brakes, too—one is al-

ways worrying about them. I don't s'pose everybody knows, either, that we have to be mighty careful when we come to the top of a grade. You see in going up she labors hard, and so as soon as she begins to descend she makes a rush, and there's the danger of breaking your train when the rear cars are still dragging on the up grade. This danger is especially great on freights, but no good engineer fails to shut off some of his steam when his engine reaches the summit. It isn't every fool that can run a locomotive."—*Sel.*

Science of Carpentry Made Easy.

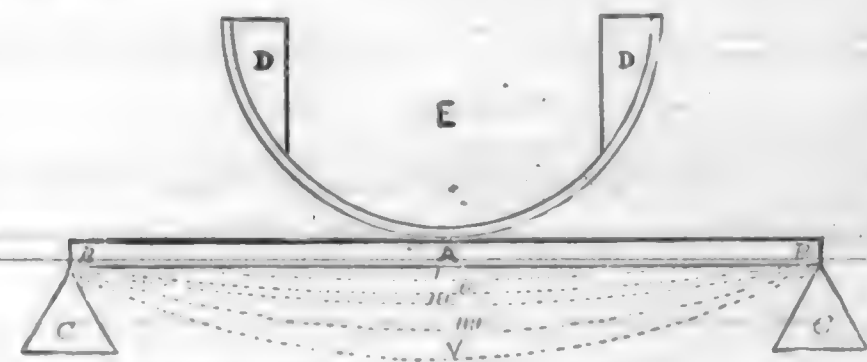
A WORK that should be in the possession of every mechanic, as its pages are full of practical, instructive matter pertaining to carpentry, bridge building, etc. Price, \$5.00.

Native California Woods.

[A series of articles written expressly for this Journal, in which special attention will be given to the principal characteristics of Redwood.]

THE editors of this paper have requested us to tell all that can be demonstrated regarding the woods found in the Golden State, especially as regards that which is indigenous to the Pacific Slope. In view of this they forward samples of the redwood, for physical as well as chemical investigation, both or either of which, to tell all that is demonstrable by the aid of these two sciences alone, would require a volume the size of this page and many, many leaves; but we will endeavor, commensurate with succinctness, to dwell in as brief manner as possible on the technical minutiae, making all, or the majority, of the tests for the purpose of giving accurate information regarding the timber from the standpoint of the architect and builder.

First, its elasticity. For this test the basis is made for a stick precisely one foot square, and thirty feet between the rests, as shown in Fig. 1.



a—timber; b b—points 30 feet apart; c c—rests; d d—appliance to balance without weight; E—weights or applied pressure susceptible of being weighed; I, II, III, and IV, are represented by the timber when subjected to pressure at E's space; ffff—arcs.

With this crude drawing, we will place 1,210,239 pounds pressure, and find the stick has reached the first line, or I, from which it readily springs back to its original position; but if another ounce or gram weight be added, its pliance is forever destroyed; hence this 1,210 pounds and a fraction represent its actual elasticity, something remarkable when we take into consideration the natural brittle texture of the wood. Now, by adding 400,7520 pounds more pressure, the timber bends down to the line marked III, and when again freed rebounds back to I, but would not if another atom of pressure was applied; hence its second tension strength is represented by a trifle over four hundred pounds.

We have now represented, by the two pressures, 1610,991 pounds, and the stick, permanently bent, to all intents and purposes, out of true to the extent represented by the arc in the cut. To bend down to III, requires 300,2711 pounds, when the timber goes back, after the weight or pressure is removed, to IIII; and it will be noticed with the slight addition of 300 pounds and a fraction, the timber made quite a depression, and we will call this the third tension, the best tension, really, of any timber, as will be shown from another series of tests farther on, inasmuch as the wider the space between these lower arcs and the timber, going back to the limit of previous tests, indicates less liability to break beneath first load, if left with inadequate supports.

We have now 1,911,2621 pounds pressure, the timber still whole, unfractured, as proven by its power of rebounding back to IIII and remaining. The fourth tension required an additional pressure of 501,3113 pounds to crowd down to III, when it rebounded promptly to IIII, showing a readiness to bear a greater load and come back to its original shape when the load was removed. We have now applied 2,412 pounds and over, and the timber's formative fabric uninjured, surified by attaining the lower limit of previous test, by the addition of 118,112582 pounds, the timber settled to II, rebounding to IIII and 16.5 pounds more brought it down to I, when it refused to go any better and respond or make any effort to reach its original position. Below this, so far as this test is concerned, the less said concerning it the better. Right here begin the tests to determine other strengths, which we will refer to again at another time.

It may be stated authoritatively, then, that the various tensions to which the wood has been subjected, are represented in the aggregate by 2,547,084882 pounds, before the formative fabric has been disturbed. But the timber is not used up yet by any means; for if the bearing weight of a timber falls short when placed horizontally, it may possibly be placed at certain angles, when it will outstrip all competitors for another test. But to return to our subject. It will be noticed that the point where we applied the weights, or pressure, to determine these tensions of itself, is an arc. It is necessary to have represented the entire length of the timber, so far as bent, with a pressure applied by touching the surface of the timber precisely as represented by each arc below, illustrating the various tensions, otherwise, even if it were possible to bring hydrostatic pressure—the means we employ in laboratory practice—the results would not be accurate, inasmuch as besides an insurmountable difficulty of applying to the center of the timber, it would not press alike along the line of the depression. We wish to explain these various steps as we pass along, for there will something grow out of these that every architect and builder in the entire country should fully understand.

It has been stated that the timber referred to rebounds after further pressure. We will now examine into its structure and try to ascertain why this is so. If we count the grains in the stick, we find it to contain 158, about; these are held in place by the constituent elements of the wood itself, there being no mechanical action, whatever, where one of these circles is separated in sawing, or any division. These do act slightly mechanically, as was stated in a previous article, by their straightening out. This, too, we may have reason to refer to again.

These chemical elements of which we speak, consist of cellulose, gum, starch, gluten, and the like, but we have not submitted the wood to chemical analysis yet, neither can we, until the other tests are farther along, for apparent

reasons, but will in due time. If any force is brought to bear having a tendency to displace the molecules constituting these elements, the end of the timber, which was previously perfectly square and smooth, will be notched and jagged precisely in proportion to the accuracy of the previous tests, and when these were completed in this case, careful counting revealed just as many of these steps on the end as could be counted grains in the timber, hence the test must be accurate, for the substance situated between each two of these grains, had been absolved or set free from the grains, hence each one of them contained just sufficient elasticity, and no more, to sustain its individual weight, and of course could not spring back.

IN Germany a very singular custom is in vogue, under which the architect himself sometimes undertakes to erect, for a lump sum, the building which he has designed. Although this is rather shocking to our notions, it can hardly be said that there is anything really objectionable in such a custom. On the contrary, under it the owner, if he has made the architect understand his wishes, can be absolutely certain of having them carried out for the price agreed upon, without extras, since the architect cannot plead that he did not understand the plans, or that something was omitted from the specifications, as an excuse for making an additional charge; and the architect himself, if he has been careless about his plans, will be taught a useful lesson by having to pay out of his own pocket the cost of making good the defects, while, if he has shown care and skill, he will be rewarded by securing the builder's profit, in addition to his own commission, without any diminution. Even in this country engineers often carry out their own designs in this way, and an architect who happens occasionally to be asked to follow their example, should not, we think, be too hasty in refusing, although no one would wish to see the custom become general. One of the considerations mentioned by Mr. Cate's German correspondent against the practice of contracting with a single mechanic, is worthy of note, as suggesting a strong argument in favor of confiding the entire responsibility of buildings of the more decorative class to the architect. In replying to the question whether single or divided contracts are most in favor in Germany, this correspondent, Herr Ende, of Berlin, says that the former are not unusual "for simple and ordinary structures," but are rare in the case of elaborate and ornamental ones, unless the contractor is himself the architect; for the reason that, according to the ideas prevailing in Germany, "an artistic building can never be completely finished from the first design and the first estimate, but the chief and best portion of the work must be designed and worked out during its construction." "There is, however," he goes on to say, "an end to this when a contractor undertakes the building. Alterations can then be made only under stringent and costly conditions, which give occasion for all kinds of disputes."—*The American Architect and Building News.*

THE CALIFORNIA ARCHITECT AND BUILDING

The New Odd Fellows' Hall,

[Market corner Seventh Street.]

THE business centres in all large cities are constantly changing. Especially is this fact verified in San Francisco. The building of the Occidental Hotel caused a revolution in the character of the surrounding buildings. The erection of the Harpending Block on Market Street was regarded by many as a very weak experiment, but the owner, by securing responsible firms and offering them special inducements to occupy the stores, helped to make that section of Market Street what it is to-day. The building of Dunham, Carrigan & Co's splendid hardware edifice has more particularly drawn the attention of our large importers to that section of the city, and it is but the question of a little time when the space now occupied by the foundries, etc., must give way to commercial business buildings.

Probably no one single building has caused such a change of surroundings in its neighborhood as that destined to be made by the new Odd Fellows' Hall on the corner of Market and Seventh Streets, and of which we present a fine four page engraving. We confidently predict that inside of five years this section will be within the retail business centre of the city. Property owners are earnestly considering the best means to obtain this end and are making advantageous offers to business men for the purpose of inducing them to locate in the quarter referred to, good buildings and low rents for a few years being the particular inducements.

The new I. O. O. F. Building is located at the southwest corner of Seventh and Market Streets. The lot occupies a space of 150 ft. on Market Street by 140 ft. on Seventh, with an ell section of 25x75 running through to Stevenson Street. It was the intention of those having charge of the improvements to buy, if possible, the lot at the northwest corner of Stevenson and Seventh Streets and have the new hall cover that entire section of the block; but the rapacious greed of the owner of the lot referred to prevented any such arrangement being made. The total area covered by the new building is 22,875 feet.

In the early part of April, contracts were awarded for all the different portions of the work, it being deemed best to let each distinctive part separately, instead of lumping them all together. The principal contractors are as follows: Brick work, J. G. Liebert; car-

penter work, Ed. Farrell; cast iron, R. Llewellyn; wrought iron, Phoenix Iron Works; roofing, Cronan & Dunbar; plumbing, Geo. Milne; plastering, A. C. Corbett; painting, E. M. Gallagher; granite, Geo. Griffith; cement, Davis & Cowell. The entire work is under the immediate supervision of Messrs. Wright & Sanders, architects.

The front will be an exemplification of the style of architecture known as the Modern Gothic. This style was selected by the architects, because it enabled them to express in architectural form the purpose of the structure. Although at first glance but four stories are seen, yet practically the building will be five stories in height, exclusive of the basement.

The first story will be eighteen feet high. Owing to the grade in Market and Seventh Streets, this figure will be changed so as to conform to the grade in the two streets; the height of the story on the lower easterly end of the building will be nineteen feet, and on southerly end in Market Street sixteen feet.

As shown on engraving, the first floor will be occupied by stores; an entrance way is also provided on each main street.

The second story is intended principally for offices. Those in the Market Street front are for renting purposes, the rest being used by the Grand Secretary, library, reading-room, etc. The library room will be situated in the extreme easterly end of the Seventh Street front, in size 40x80 feet.

The third and fourth floors will be devoted to the uses of the order. On the former will be four lodge rooms and one for the Rebecca Degree Lodge. Quite a novelty will be introduced in the shape of the Encampment Room, which will be situated in the upper floor. Its size will be 40x40 feet, and in the centre thirty feet in height and will be made in the shape of a tent.

The basement will contain the dining hall, kitchens, pantries, etc. The former to be 62x107 feet in size and will accommodate about 1,500 people. Extra provisions have been made for large, well ventilated hat and cloak rooms. No bar room has been provided for, as it is one of the most excellent maxims of the great order of Odd Fellows "to abhor vice in all its forms," and so this, one of the most objectionable features commonly found in all places where public entertainments are held, will, in the magnificent temple under consideration, be found wholly wanting.

One of the main attractions of the building will be its magnificent public hall, to occupy the rear of the building towards the Stevenson

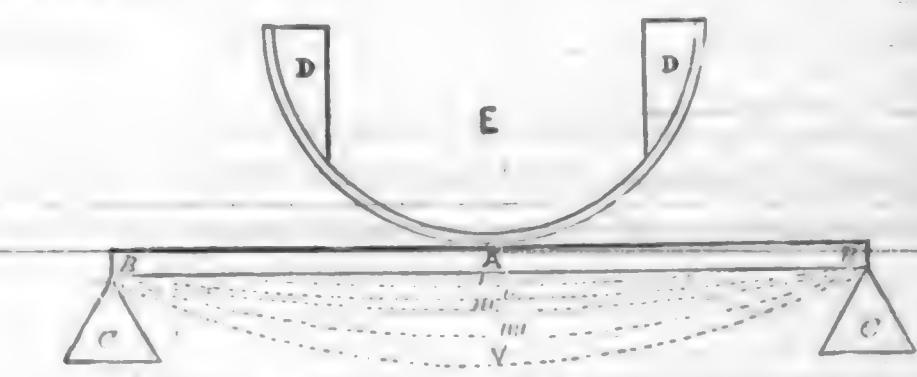
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It has been stated that the timber referred to rebounds after further pressure. We will now examine into its structure and try to ascertain why this is so. If we count the grains in the stick, we find it to contain 158, about; these are held in place by the constituent elements of the wood itself, there being no mechanical action, whatever, where one of these circles is separated in sawing, or any division. These do act slightly mechanically, as was stated in a previous article, by their straightening out. This, too, we may have reason to refer to again.

These chemical elements of which we speak, consist of cellulose, gum, starch, gluten, and the like, but we have not submitted the wood to chemical analysis yet, neither can we, until the other tests are farther along, for apparent

reasons, but will in due time. If any force is brought to bear having a tendency to displace the molecules constituting these elements, the end of the timber, which was previously perfectly square and smooth, will be notched and jagged precisely in proportion to the accuracy of the previous tests, and when these were completed in this case, careful counting revealed just as many of these steps on the end as could be counted grains in the timber, hence the test must be accurate, for the substance situated between each two of these grains, had been absolved or set free from the grains, hence each one of them contained just sufficient elasticity, and no more, to sustain its individual weight, and of course could not spring back.

IN Germany a very singular custom is in vogue, under which the architect himself sometimes undertakes to erect, for a lump sum, the building which he has designed. Although this is rather shocking to our notions, it can hardly be said that there is anything really objectionable in such a custom. On the contrary, under it the owner, if he has made the architect understand his wishes, can be absolutely certain of having them carried out for the price agreed upon, without extras, since the architect cannot plead that he did not understand the plans, or that something was omitted from the specifications, as an excuse for making an additional charge; and the architect himself, if he has been careless about his plans, will be taught a useful lesson by having to pay out of his own pocket the cost of making good the defects, while, if he has shown care and skill, he will be rewarded by securing the builder's profit, in addition to his own commission, without any diminution. Even in this country engineers often carry out their own designs in this way, and an architect who happens occasionally to be asked to follow their example should not, we think, be too hasty in refusing, although no one would wish to see the custom become general. One of the considerations mentioned by Mr. Cate's German correspondent against the practice of contracting with a single mechanic, is worthy of note, as suggesting a strong argument in favor of confiding the entire responsibility of buildings of the more decorative class to the architect. In replying to the question whether single or divided contracts are most in favor in Germany, this correspondent, Herr Ende, of Berlin, says that the former are not unusual "for simple and ordinary structures," but are rare in the case of elaborate and ornamental ones, unless the contractor is himself the architect; for the reason that, according to the ideas prevailing in Germany, "an artistic building can never be completely finished from the first design and the first estimate, but the chief and best portion of the work must be designed and worked out during its construction." "There is, however," he goes on to say, "an end to this when a contractor undertakes the building. Alterations can then be made only under stringent and costly conditions, which give occasion for all kinds of disputes."—*The American Architect and Building News.*

The New Odd Fellows' Hall,

[Market corner Seventh Street.]

THE business centres in all large cities are constantly changing. Especially is this fact verified in San Francisco. The building of the Occidental Hotel caused a revolution in the character of the surrounding buildings. The erection of the Harpending Block on Market Street was regarded by many as a very weak experiment, but the owner, by securing responsible firms and offering them special inducements to occupy the stores, helped to make that section of Market Street what it is to-day. The building of Dunham, Carrigan & Co's splendid hardware edifice has more particularly drawn the attention of our large importers to that section of the city, and it is but the question of a little time when the space now occupied by the foundries, etc., must give way to commercial business buildings.

Probably no one single building has caused such a change of surroundings in its neighborhood as that destined to be made by the new Odd Fellows' Hall on the corner of Market and Seventh Streets, and of which we present a fine four page engraving. We confidently predict that inside of five years this section will be within the retail business centre of the city. Property owners are earnestly considering the best means to obtain this end and are making advantageous offers to business men for the purpose of inducing them to locate in the quarter referred to, good buildings and low rents for a few years being the particular inducements.

The new I. O. O. F. Building is located at the southwest corner of Seventh and Market Streets. The lot occupies a space of 150 ft. on Market Street by 140 ft. on Seventh, with an ell section of 25x75 running through to Stevenson Street. It was the intention of those having charge of the improvements to buy, if possible, the lot at the northwest corner of Stevenson and Seventh Streets and have the new hall cover that entire section of the block; but the rapacious greed of the owner of the lot referred to prevented any such arrangement being made. The total area covered by the new building is 22,875 feet.

In the early part of April, contracts were awarded for all the different portions of the work, it being deemed best to let each distinctive part separately, instead of lumping them all together. The principal contractors are as follows: Brick work, J. G. Liebert; car-

penter work, Ed. Farrell; cast iron, R. Llewellyn; wrought iron, Phoenix Iron Works; roofing, Cronan & Dunbar; plumbing, Geo. Milne; plastering, A. C. Corbett; painting, E. M. Gallagher; granite, Geo. Griffith; cement, Davis & Cowell. The entire work is under the immediate supervision of Messrs. Wright & Sanders, architects.

The front will be an exemplification of the style of architecture known as the Modern Gothic. This style was selected by the architects, because it enabled them to express in architectural form the purpose of the structure. Although at first glance but four stories are seen, yet practically the building will be five stories in height, exclusive of the basement.

The first story will be eighteen feet high. Owing to the grade in Market and Seventh Streets, this figure will be changed so as to conform to the grade in the two streets; the height of the story on the lower easterly end of the building will be nineteen feet, and on southerly end in Market Street sixteen feet. As shown on engraving, the first floor will be occupied by stores; an entrance way is also provided on each main street.

The second story is intended principally for offices. Those in the Market Street front are for renting purposes, the rest being used by the Grand Secretary, library, reading-room, etc. The library room will be situated in the extreme easterly end of the Seventh Street front, in size 40x80 feet.

The third and fourth floors will be devoted to the uses of the order. On the former will be four lodge rooms and one for the Rebecca Degree Lodge. Quite a novelty will be introduced in the shape of the Encampment Room, which will be situated in the upper floor. Its size will be 40x40 feet, and in the centre thirty feet in height and will be made in the shape of a tent.

The basement will contain the dining hall, kitchens, pantries, etc. The former to be 62x107 feet in size and will accommodate about 1,500 people. Extra provisions have been made for large, well ventilated hat and cloak rooms. No bar room has been provided for, as it is one of the most excellent maxims of the great order of Odd Fellows "to abhor vice in all its forms," and so this, one of the most objectionable features commonly found in all places where public entertainments are held, will, in the magnificent temple under consideration, be found wholly wanting.

One of the main attractions of the building will be its magnificent public hall, to occupy the rear of the building towards the Stevenson

Street front. The main floor will be 84x63 feet, stage 34x18 feet, four and one half feet from floor; height of ceiling 42 feet. In addition to the Market and Seventh Street entrances there will be rear exits on Stevenson Street, so in case of a fire or panic the hall can be emptied in a very short space of time.

The largest lodge room, 40x60 feet, will be situated over the Seventh Street entrance. The other lodge rooms vary in size, the smallest however being 32½x52 feet.

On account of the unusual character of the soil, more than ordinary attention is paid to the foundations. The best hard brick and Portland cement are used. The footings are eight feet wide, and up to the first floor the walls will be three feet thick. The first and second story walls will be two feet, and the third and fourth stories twenty one inches in thickness.

As shown, the first story front will be iron; above that pressed brick with stone trimmings. The roof will be of slate.

Steel girders will be used throughout the building, wherever it is necessary to use the same. They cost about the same as iron, excelling the latter however in strength, besides being more easily handled on account of the weight being considerably less than iron girders of equal strength.

The tower shown rises to a height of 165 feet from the sidewalk. The main cornice being eighty feet from same place.

It is the intention to have the building as near fire-proof as possible. The elevator shaft will be constructed of brick and be surrounded by a stone stairway extending to the roof.

The cost of the building when finished will be in the neighborhood of \$300,000.

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THE NEW ODD FELLOWS HALL OF SAN FRANCISCO. Wright & Sanders, Architects.

*Wright & Sanders
Architects
111 California St. S. F.*

Interior Decoration of Business Structures.

A. C. BOND.

THE decoration of business structures necessarily possesses in many points its own special characteristics. Where carried out on an imposing scale, as in the principal apartments of banks, insurance, and commercial corporations and exchanges, it is rendered characteristically distinct from that of private residences by the more pronounced and more varied interior, constructive, and ornamental features of the building itself, multiplying forms and contributing lights and shades in carved and moulded work that allows of the most varied effects in color. Pillars and pilasters, paneled ceilings, even iron girders and brick arches—these latter presenting the combination of straight and curvilinear forms, projecting galleries, recessed apertures and stairways, loftiness and extent of area, contribute important aid to decorative effects. Richness of decoration in these offices is recognized as consistent with the commercial wealth and importance of the companies, and as indeed only doing justice to buildings, the façades, vestibules, and corridors of which command adornment corresponding to their palatial appearance within. There are private offices that, under favoring architectural conditions, but on a far lesser scale, may be said to vie with these, especially in instances where the firms are also owners of the buildings, and so have not only the pick of offices, but are assured of permanency. The constant change of tenancies, the fact that the commercial mind is not exacting as respects features of decoration, has restricted the freedom given to architects of professional decorators in this line. Yet the effect of growing taste is resulting in the introduction of more ornamental features in offices than have hitherto prevailed; light, soft tints are taking the place of glaring whiteness in walls and ceilings; wood panelings, almost essential as an accessory to decoration, is carried out through whole suites of offices; friezes and ceiling borders in oil colors, distemper, or fresco, contribute their aid, and marquetry on a moderate scale, is being carried out.

Tenants, position, and means more than ever, especially in the new and gigantic class of business buildings that have arisen, countenance well designed architectural woodwork, in which screens make such a conspicuous figure. The taste for the elegantly furnished private mansion extends to the office which it is felt should be in keeping with commanding and frequently highly decorated approaches. The decoration of offices is encouraged by the opportunities offered for distinctive individual taste, and may be said to possess a certain commercial value. That architects are seeking closer relations with decorators is an encouraging sign. It is interesting to note how closely convenience allies itself to decorative art in the internal planning of office fixtures. The offices of the new building of Mutual Life im-

press one with the richness of the mouldings that form the deep frieze and also the surface of the beams that divide the ceiling. Between the spandrels of the arches appear emblematic figures, always welcome in decoration where appropriate. The saffron-colored pillars, of gigantic size, ranged longitudinally along the center of the room and crowned with gilded Corinthian columns, these flanked by pilasters of similar design and material constitute imposing objects. The pillars and pilasters, together with the pillars dividing the corridor from the rooms beyond in conjunction with the mahogany balustrades of the gallery, surmounted by a handsome brass rail, afford, together with the mahogany furnishing, fine contrasting effects in color with the white mouldings, which are susceptible of much greater effect were they tinted. In comparing this interior with the equally ambitious one of the Equitable, we note the advantage of abundance of light in the former. The offices of a well-known commercial firm in Broad Street may be referred to for their rich and judicious ornamentation. Nothing can be finer in its way than the constructive appearance of a cedar wood screen, paneled in its upper portion with ground glass, each panel having a fire gilt brass gate. It is finished with a high cornice of brass, the post panels at each extremity having figures in the same metal. The several departments are enclosed on three sides with open woven screens of brass, offering a most lightsome appearance, practically avoiding the "cutting up" so often destructive of the scenic effect of well decorated offices. The office of Henry Clews & Co., in Broad Street, may be cited for its display of carefully elaborated ornamental details. The constructive forms and carvings of the counters and screens are in renaissance style, executed in San Domingo mahogany and cherry, the screens having a capping of finely designed brass work, the supports ornamented with medieval figures. The principal portions of the screens are in small panels. For brilliancy in the display of color in wall and ceiling, brightened by contrast with lofty paneling of the wall to half its height in walnut, the main office in the Williamsburgh City Insurance Building is conspicuous. The ante or small pilasters above the paneled dado are enriched with gilt and color in harmony with the moulded work. The darkness of the paneling beneath justifies the glow, in diversified tints, of the upper surface to prevent a gloom settling on the interior. The ground of the bronzed mouldings, as well as the surface of the ceiling, is of light olive. Even the front of the walnut counter consisting of two tiers of boldly carved walnut wood, deeply recessed, has central tiles to each upper compartment in blue figured designs on a white ground, and again by the tessellated floor.

It is well known that architects, as a body, do not favor strongly pronounced colors for wall decoration but incline to mild neutral tints, and even to fading hues in stencilled

designs; for all this there are numerous decided successes in bringing brilliant but soft tones of cheery aspect, into accord with architectural woodwork. It is to be remembered that a room is viewed under very different conditions from an oil painting. No atmospheric effects have to be compassed. Wall and ceiling continually catch the eye, and they should be rendered at least attractive. An important aid to the use of bright positive colors is found in the use of gold, often, indeed, brought in as an afterthought. It has the virtue of rendering certain hues more retiring, and by attracting attention through reflection of the light which other surfaces absorb, allows of the introduction of stronger tints than would otherwise be permissible.

In some conspicuous instances the vestibule is made an important accessory to the decoration of the interior. In that of the Mill Building, a central stairway, with huge metallic lamp stands upheld by griffins, leads to an intermediate landing, along the front of which the balustrade is continued; pillars and arches further partitioning the space, and beyond a bright effect is produced by an iron curvilinear roof with a sparkling galaxy of small beveled glass insertions. With the surrounding paneling in rich hardwood and mural enrichments, the *coup d'œil* is admirable. The entrance to the inner court, on each side of the doorway, is separated by arches and pillars. Dados of variegated marbles, polished slate of cloudy hue, are being very freely used for bases of wainscoting or as dados for vestibules and passage ways. The basement vestibule of the United Bank Building has not only its walls of marble, but the same material coats the iron girders, the only contrast to its pure hue being the buff bricks of the fire-proof arches.

The opportunity for scenic display in the open court of large business structures has been turned to excellent account by architects and decorators. The upward view presents successive tiers of galleries, the front tops of the landings formed into enriched cornices, the light ironwork of the balustrade portions in colors and often picked out with gold, the rails of polished mahogany, the variegated marble bases to paneled woodwork, or the polished surfaces of dados in rich woods of the walls facing on the galleries, the soft, subdued tints of their upper surfaces, the trimmings and mouldings of office doors with panels of embossed ground glass, the iron and glass roof, with curvilinear sides, the glass in colors or inserted in small, round, or angular cut forms, having as a counterpart the decorated tile flooring, of the landings, and the area beneath presents a *coup d'œil* that conveys impressions not hitherto realized in interior architecture, to which the apparent aerial lightness of the whole largely contributes.

Stained glass, so ornamental when judiciously disposed, finds its use within rather than in the outside windows of business structures, particularly in the small apertures of screens. Reference has already been made

to its employment in the roofing of open courts. A most striking application of stained glass to ceilings is in the "call room" of the Produce Exchange. The light falling on this ceiling of leaded panels of glass, is softened and diffused by having first to pass through a pitched roof of thick rolled glass.

The increased extent to which metal is applied to interior decorative purposes is very noticeable, particularly iron and brass. Pillars are no longer of plain, rounded, or square shafts; used in balustrades, it is made a prominent ornamentation. Brass is coming into more general use for guard rails and cappings as well as in builder's hardware, its brightness affording good contrasts; also for standards and suspended chandeliers of light design, and in antique style befitting the forms of decoration proper to the renaissance order.

WOODS FOR OFFICE DECORATION.

The number of hardwoods available for architectural woodwork is a decided advantage for the artistic designer. Honduras mahogany and cherry take the lead. Our own native oak, stained to resemble mahogany, is largely used, and white ash stained has come into request for offices. The woods in general use for best finish are cherry, mahogany, maple, oak, rosewood, satinwood, sandalwood, chestnut, cedar, ash, walnut, ebony, white mahogany, and oak. Some of our decorators use largely white oak stained to imitate Honduras mahogany. Cherry has got into high favor of late years, recommended not only by its grain and color but the large surfaces that can be obtained. Some choice foreign woods are imported to be used for inlaying, as, amaranth, amboyna, and telira wood. For bonizing, the woods most in request are: pear, holly, beech, chestnut, sycamore, and plane. For enlaying, the woods used are: box, palm, bird's-eye maple, sandal and satinwood, beech and holly.

About Bricks.

AN average day's work for a bricklayer is 1,500 bricks on outside and inside walls; on facings and angles, and finishing around wood or stone work, not more than half of this number can be laid. To find the number of bricks in a wall, first determine the number of square feet of surface, and then multiply by 7 for a 4-inch wall, by 14 for an 8-inch wall, by 21 for a 12-inch wall, and by 28 for a 16-inch wall. For staining bricks red, melt one ounce of glue in one gallon of water; add a piece of alum the size of an egg, then one-half pound of Venetian red and one pound of Spanish brown. Try the color on the bricks before using, and change to light or dark with the red or brown, using a yellow mineral for buff. For coloring black, heat asphaltum to a fluid state, and moderately heat true surface bricks and dip them. Or, make a hot mixture of linseed oil and asphalt, heat the bricks and dip them. Tar and asphalt are also used for the same purpose. It is important that the bricks be sufficiently hot, and be held in the mixture to absorb the color to the depth of one-sixteenth of an inch.

Why Can't any Man Put up a Stove?

IN your last issue my attention was called to an article in which the above question was asked. Is it possible that there are men who will admit that they cannot put up a stove as good as any one? Now, this is certainly strange. Why, it is one of the easiest things in the world, save that of running a newspaper. Anybody can do it.

The only objection to the business is, that it is inclined to produce profanity. I actually have seen ministers tackle a stove for the sole purpose of giving vent to their wrath, simply because a mule had kicked them, or that contributions were light the day before. And in order to make a protracted effort they commence by undertaking to insert a 6-inch joint of pipe into the small end of a 5-inch joint.

My opinion is that every man who intends to live a pious life should employ a tinner to put up his stove. Not but what he could do it just as well himself, but his future prospects would be brighter, and he would stand a much better chance of entering the realms above, where all is peace and happiness (the future home of the tinner and plumber, and other saints of less note).

It is an undisputed fact that ninety-nine fools out of a hundred, who have not mechanical ingenuity enough to lift a latch on a gate, think they can set up a stove. And because two large ends, or two small ends of the pipe will not go together, they abuse the tinner who made it, or the fraternity in general.

I have been at the business a long time, and have worked in a number of the States, from east to west, and never had any great trouble in fitting pipe. I think the size is very uniform, under the circumstances, as a great variety of weights of iron is used, and even the same number of iron varies in thickness. If all weights are cut over the same pattern, the heavy iron will undoubtedly make the pipe a little larger, and *vice versa*. Where a crimping machine is used in ordinary pipe, one-eighth of an inch smaller at the small end, is plenty, while one-fourth inch is necessary where pipe is drawn in with mallet.

Again, where pipe is seamed, it is impossible to have every joint just the same, although the joints do not vary enough to bother a tinner in putting them together. If the people of this country would have mechanics do their work in proper shape, they would be much better off, at least, in the opinion of

JOSH KINS THE TINKER.

—Tinner and House Furnisher.

THE Boston *Watchman* says that within the last nine years nearly 800 churches have been burned in America, mostly through defective heating apparatus.

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Hanging Doors.

WHERE no architect's services are rendered in connection with a building, the doors are generally hung according to the sweet will of the carpenter, but there are two ways to hang a door, one, so as to expose the room, and another so as to screen its contents and those who may happen to be there when the door is open. The first way may be very good for public rooms, but, in regard to bed rooms, the doors must swing so that, when partly open, they will shield the apartment from view. Architects themselves are often bothered in this connection with the views of the owners. Closet doors should be hung so that the closet may receive light from the nearest windows. Doors are sometimes made to swing out on stair landings or halls, and who has not seen two doors so placed that they strike each other when opened. It is hardly necessary to add that these methods should not be adopted.

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Overwork.

A LARGE amount of sentimental rot gets into print about men killing themselves by overwork. In nine out of ten cases of this kind, the true cause of death will be found to be something besides overwork. We all know professional and business men who work harder than they ought, and yet by taking good care of themselves in the way of diet, exercise, etc., manage to enjoy good health and wear a cheerful, hearty look. Those who die from "overwork" generally use liquors and tobacco without moderation, keep late hours, and indulge in hazardous speculations outside of their legitimate business. Late hours, liquor and tobacco engender weak nerves and upset the functions of the body, while anxiety over speculative schemes acts upon the brain. With these evil agencies working against a man, some slight exposure brings on an attack of illness, and the whole body being weakened, gives way in a very short time. The sudden illness and speedy demise baffle medical skill. The stricken family and shocked friends are told that overwork was the cause of death, and the press deplores the tendency of our civilization to kill people by overwork, when the real cause of nine-tenths of these deaths is as outlined above.—*The Manufacturer and Builder*.

To remove iron taste from new kettles, boil a handful of hay in them, and repeat the process if necessary. Hay water is a great sweetener of tin, wooden and iron ware. In Irish dairies everything used for milk is scalded with hay water.

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IRREGULAR PAGINATION

stumps, and all uncleanness. This back yard iniquity is an evil under the sun as old, at least, as the Valley of Hinnon, behind Jerusalem. Perhaps the architects and builders began it by treating the rear of the house as if it had no rights that white folks were bound to respect; and assuming that since it is to be seen by no one but the owner and his family, it may be as bald, bare, uninteresting and poverty stricken in appearance as possible. Indeed, the more bald, disjointed and penurious the back side, the more gorgeous and extravagant may be the front. We find, now and then, an isolated dwelling occupying such a position that the need of a pleasant appear-

are concerned; for any street in a city or village, crowded with residences and without sewer and aqueduct, is a barbarous street, not fit for the abode of civilized human beings. Its general influence upon society at large is towards heathenism. Streets in villages or cities may properly be called "crowded" with residences unless the lot belonging to each house is of sufficient size to contain a well and a cesspool at least 200 feet apart, and from every other well and cesspool, with enough arable land to consume all the sewage of the house and barn, and to supply the fruit and vegetables for the family, hay and grass enough for the cow and horse. With only less magnificent distances than these between neighbors, wholesome living is not possible without the aid of aqueducts and sewers, and of scavengers as patient and skillful as those employed by Nature herself. Is it a place to which the sweepings of floors may be consigned? These should be sent up into the sky by way of the kitchen stove and the kitchen chimney. Or for the crumbs that fall from rich men's tables, still more from the tables of poor men? These ask but a simple covered bucket to become not merely inoffensive, but a source of profit. The same is true of ashes that fall from grates.

There is in fact no earthly excuse for the conventional back yard. Beyond a doubt it is an expensive luxury, costing those who indulge in it more actual labor—not to mention discomfort, disorder and disease—than would be required to keep the entire circuit of the house beautiful and clean.

But their chief ugliness,—the reason why I give them so conspicuous a place in our out-of-door surroundings,—is the impossibility of escaping from them, whatever we may do, upon our own premises. Whether we like it or not we must, in sheer self-defense, be our brothers' keepers. Owing for a lodge in some vast wilderness will not answer, we must own it, and live in it, or we can have no assurance that our nearest neighbor will not build his stable, plant his onions, empty his drains and feed his chickens under our dining-room windows.

We may polish up the handle of our own front door, keep our own little patch of lawn and the narrow borders along the sidewalk across our twenty-five feet of frontage in perfect order, but if the next lot happens to be a sand bank or a mud hole waiting for a purchaser to improve it, and, in the present condition of the real estate market, likely to wait till we leave our earthly tabernacles, how miserably ineffectual are the results of our own labor. Not wholly lost—indeed, nothing good is ever lost—but enormously discounted,—marred, as a strain of music is marred by the harsh, discordant note out of time and out of tune.—The Builder.

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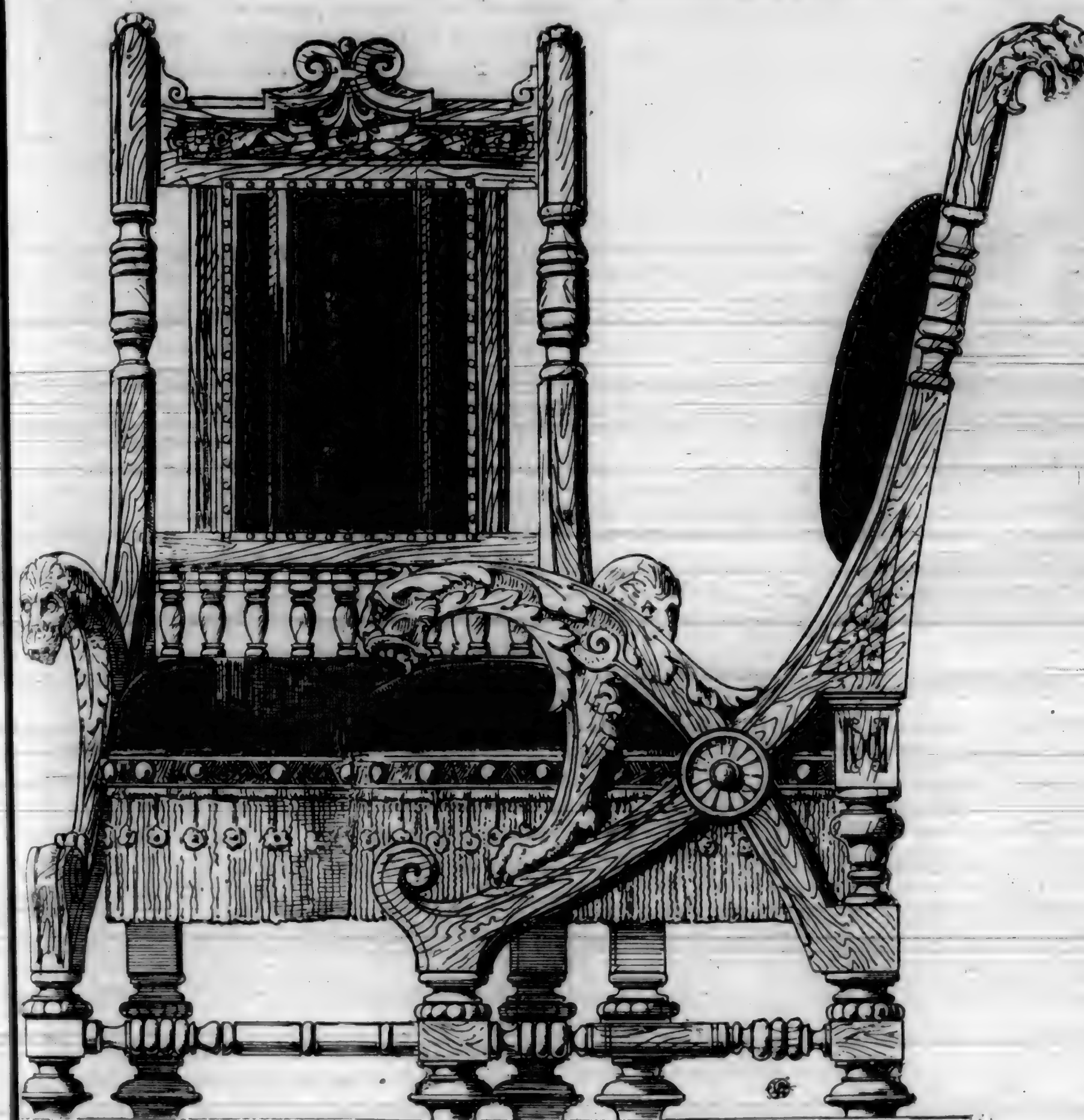
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Back Yards.

[From a lecture by E. C. Gardner.]

NATURE does not ask her visitors to shut their eyes and stop their ears until they stand before her front door. From whichever side we approach she is always gracious and cordial. We put on a bold front of paint, varnish, plate glass, marble steps, gilded bird cages, scarlet geraniums, peg-top evergreens standing on their heads, and rectangular patches of shaven lawn; while our back yards, supposed to be hidden from the public gaze, are full of dead men's bones, empty fruit cans, broken bottles, old board fences, sink drains, waste paper, worn-out overshoes, cabbage stumps, and all uncleanness. This back yard iniquity is an evil under the sun as old, at least, as the Valley of Hinnon, behind Jerusalem. Perhaps the architects and builders began it by treating the rear of the house as if it had no rights that white folks were bound to respect; and assuming that since it is to be seen by no one but the owner and his family, it may be as bald, bare, uninteresting and poverty stricken in appearance as possible. Indeed, the more bald, disjointed and penurious the back side, the more gorgeous and extravagant may be the front. We find, now and then, an isolated dwelling occupying such a position that the need of a pleasant appearance from all points of the compass has evidently been admitted. But, as a matter of fact, houses that are entirely surrounded by others, whatever their relative position may be, are the very ones that have no right to the abomination of desolation known as a back yard.

There is no more groundless delusion than this: that such a skeleton closet is a necessary attachment to a well-organized household. Is it a garden to walk in, in the cool of the day? This needs no concealment other than simple shrubbery, and vine-covered arbors will supply. A croquet ground? This surely is not to be hidden. A "clothes yard?" The weekly display of white linen, with occasional gleams of scarlet, indigo and saffron, is not unsightly among green trees and above green turf.

What then, a treeless, turfless corner, crouching behind a high board fence, where empty barrels and boxes, old hen coops, coal sifters, last year's bean poles, broken wheelbarrows, worn-out perambulators, can be stored? These things are only valuable for kindling wood, and belong in the basement, the fuel room or the barn. Is it a place to empty the wash tub, and throw the tea and coffee grounds? The sewer is the place for that. If the street has no sewer or drain, the people who control it are heathen, civically speaking, and those who live on it might as well live in the Feejee Islands, so far as certain essential means of grace

are concerned; for any street in a city or village, crowded with residences and without sewer and aqueduct, is a barbarous street, not fit for the abode of civilized human beings. Its general influence upon society at large is towards heathenism. Streets in villages or cities may properly be called "crowded" with residences unless the lot belonging to each house is of sufficient size to contain a well and a cesspool at least 200 feet apart, and from every other well and cesspool, with enough arable land to consume all the sewage of the house and barn, and to supply the fruit and vegetables for the family, hay and grass enough for the cow and horse. With only less magnificent distances than these between neighbors, wholesome living is not possible without the aid of aqueducts and sewers, and of scavengers as patient and skillful as those employed by Nature herself. Is it a place to which the sweepings of floors may be consigned? These should be sent up into the sky by way of the kitchen stove and the kitchen chimney. Or for the crumbs that fall from rich men's tables, still more from the tables of poor men? These ask but a simple covered bucket to become not merely inoffensive, but a source of profit. The same is true of ashes that fall from grates.

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Hot Water Circulation.

HEAT is diffused through water in a very different manner to what it is through solid substances. When the heat is applied to the bottom of a boiler or other vessel containing water, the first effect is to expand the nearest layer of water to the fire. The first, by reason of its heat, makes this layer of water specifically lighter than the colder water which may be by the sides, and especially that above, and these layers being lighter than the cold above, it allows the colder water to descend, when the hot water naturally rises or floats upon the molecules of the colder or denser water which surrounds the hot; then the cold water from above, by reason of its extra density, immediately sinks to the bottom of the boiler, when it again becomes heated and again lighter in its turn. These succeeding fresh layers of heated water will continually carry the heat from the bottom of the boiler to the highest point of the circulating-tank, which heat, if the pipes and tanks be not too large, is finally and gradually diffused through the whole of the water within such pipes and tanks.

It would appear (from the preceding facts) plain that the colder the water the heavier it will be, while the lighter and warmer particles will rise to the surface; but even in this there is a limit, which can only go down to 40° F., and from this point down to 32° F., when the molecules of water undergo a very remarkable change. Between the above degrees there is no contraction or expansion; therefore it, bulk for bulk, does not become heavier or lighter; but we are surprised to find its bulk increase when the degree of heat is below 32° F., when it crystallizes into ice, and this expansion goes on in strict accordance to each degree of cold below the 32°; hence the reason why leaden and other pipes burst in times of frost. Of course my readers have seen ice floating on the surface of water, which will prove the above assertions in the most conclusive manner.

From the above it is plain that the circulation of hot water is brought about owing to the difference in the weight of the water at different points, caused simply by the expansion and contraction of the water itself; therefore, if the source of heat be permanent, the particles are rapidly brought into action, and the particles in a vertical tube soon become heated, and by their expansion must exert a pressure on all parts of the pipes, the branches included. Now this, together with the levity of the water in the boiler, establishes a current, when the cold water from the coils, branches, etc., commences to flow in the direction of the boiler, and thus supplying the heavy or colder water continually, which, of course, takes the place of the lighter particles, known as hot water. To find the force with which the colder water runs toward the boiler, you must know the specific gravities of the water in the flow and return pipes, the flow being the ascending and the return the descending; the difference between them will be the motive power or the effective pressure. You can arrive at this point by ascertaining the temperature of the water in the return-pipe and boiler, or flow-pipe. If the difference in heat is only a few degrees, of course the difference in the speed of circulation of the water will be accordingly; say it is only 4° or 5°, which is very small, but quite sufficient in a well-arranged system to maintain constant circulation. Let us assume that we have 8° of heat in our boiler, the return-pipe is standing at 180° and the flow to be 188°. Let the top of the flow-pipe be, say 18° above the top of return; the difference in weight will be about $\frac{1}{8}$ ounce on the square inch, and this will be the amount of motive power obtained for the circulation, no matter what may be the length of pipes attached to the apparatus; and should there be, say 50 yards of 4-inch pipes, which will contain 80 gallons of water, with a 15-gallon boiler, you will then have 95 gallons, or 950 pounds weight, kept in continual motion by the 8° of heat, or $\frac{1}{8}$ ounce pressure. Of

course the size of pipes will make a wide difference in the motive power, which increases with the size of the pipes; thus, in a 4-inch pipe you will get four times as much as in a 2-inch, and so on; but, as the resistance increases equally with the power, the actual working effect is precisely the same in all sized pipes.

Again, the motive power can be increased by allowing the water to cool down before it gets back to the boiler, either by increasing the height of the flow and return pipes, or by doubling the difference of the temperature between flow and return; or, of course, an extra power can be obtained by doubling the difference of the temperature between the return and flow pipes, when the same increase of power is obtained as by the doubling of the vertical heights; or by trebling the vertical height of the flow and return pipes, the same effect is produced as by trebling the difference in the temperature of the water.

A difference in the motive power is also made by diminishing the diameter of the pipe in such a manner that a longer amount of surface will be exposed, and in proportion to the amount of water within, this, of course, allows more cooling surface, and consequently the return-pipes can give off more heat in a given time, thus making the return-water denser, and consequently quicker in action. Of course, when you do this you have more friction, which will be readily understood from the following:—

It is certain that the sides of the pipe greatly retard the flow of water; therefore a considerable deduction must be made, in some cases to the enormous extent of 80 per cent. In small pipes there is a greater amount of friction than in larger ones, owing to the relative amount of surfaces; beside this, small pipes cool quicker than larger ones, and thus the velocity is increased, as also is the friction, so that, supposing that we have a 4-inch pipe, the amount of friction is, say one; in a 2-inch pipe there is twice as much, and in a 1-inch four times as much as in a 4-inch; and you should also know that by increasing the velocity, so in proportion will be the friction, nearly as the square of the velocity. It should also be known that in all hot-water apparatus the speed of circulation varies according to circumstances; therefore it is difficult to calculate. One thing is certain—that the velocity in all hot water is quickest in their centers.—*Sel.*

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N. D. Goodell.

SACRAMENTO'S PIONEER ARCHITECT.

MR. GOODELL was born on the eighteenth day of April, 1814, in the little town of Belchertown, Mass.; was brought up on a farm as a farmer till he was 19 years old, at which time he went to an adjoining town (Amherst) to learn the carpenter and joiner's trade with a Mr. Howland, where he served for one year, for \$35.00 and board. After the expiration of his time he went to Springfield, where he worked another year for a contractor by the name of Wright, after which he went into business for himself in Belchertown, his native place, and met with fair success, erecting some of the best buildings in the place, one of which being the town hall. About this time Mr. Goodell took unto himself a wife. Soon after he was married he built for himself one of the finest residences in the town, after which he had many calls not only in town, but from the adjoining towns to erect buildings and draw plans, more particularly from Ware Village. At this time it became necessary not only to work, but to study the art of building; consequently he purchased a number of architectural works and drawing instruments, and by working daytime at his trade, and studying architecture and draughting every evening, he was soon enabled to make his own drawings, also those for other parties who needed them. He had a number of calls from Ware Village; in fact he had so many from that place, he finally moved there, where he built many of the best residences in the place. Before he had been there two years, the agent of the largest cotton manufacturing establishments in that part of the State came to Mr. Goodell to inquire his price by the year to be the general manager, architect and superintendent of all their buildings, which would consist of two or three new factories, and one or two hundred new houses, etc.; the bargain was soon made, and the young man remained with the company about five years. At this time the California gold fever broke out, when Mr. Goodell made up his mind to go to California. He formed a company of twelve young men and had the honor of being elected their president. They left New York on the 29th of March, 1849, in the brig *Everet* for Panama, arriving at that place on the 14th of April, where they stayed nearly a month; finally they secured passage on a small brig by the name of *Copiapo* for San Francisco, Cal., where they

arrived on the 14th of August, 1849. They went ashore and landed at the foot of Jackson on Montgomery Street. At that time there was scarcely a house in San Francisco, except a few adobes. The next day the party went up the river in a little schooner to Sacramento, and they camped in that place under large trees between the river and where the railroad depot now stands (the ground at that point at that time was some twenty feet lower than at present, 1884). There was not a single wooden building in the town at that time, there being no lumber to build with; the consequence was the people set up poles or sticks and tacked any kind of cloth to them. As usual with all the first comers to this coast,

ness; but at last an opportunity came (in 1861 or '62), when he could practice at his former profession of architecture. Mr. H. Wachhorst, desiring to erect a building and finish the interior for a jewelry store, selected Mr. Goodell as his architect. Upon the completion of the building, such was the satisfaction given by Mr. Goodell's design, that numerous orders were given to him to prepare plans for buildings, the first being James Carrolan (10 and H.) then John Carroll, Frank Ebner, Theodore Millican, General Redington, Albert Gallatin and Charles Scudder, all of which gave instructions for plans of houses, prices varying from \$14,000 to \$40,000; then plans were prepared for the grammar school building, Sixteenth and J Streets, which cost \$60,000. Mr. Goodell was also the architect of the Sacramento County Hospital, one of the finest hospitals in the State; his plan was adopted as being the best of ten, which the supervisors had to select from. Under the direction and superintendence of Mr. Goodell, the pioneer architect of Sacramento, some two hundred of the best dwellings in the city of Sacramento, besides hundreds of smaller and cheaper ones, have been built. In the last year he has been the architect of four of the best stores and business places in the city, viz.: Waterhouse & Lester's Warehouse, J Street between Seventh and Eighth, the Grangers' hall at Tenth and K Streets, Mrs. M. E. Gregory's building on Second Street between I and J, at a cost of \$20,000 each; also Green & Trainor's Warehouse on Second Street between I and J, at a cost of \$12,000, besides some thirty other buildings of different kinds.



N. D. GOODELL.

Lime in Bricks.

MANY bricks become spoiled when they are made from clay

which contains lime in such quantity, that, after burning, the lime becomes hydrated sooner or later, and thus renders the brick useless. This may be prevented by placing the bricks, as soon as they are removed from the oven, when they are still warm, in a hole or tank, piled on each other, and throwing water over them, so as to cover them entirely with water. A few hours afterwards, when bubbles no longer come to the surface, the bricks can be taken out of the water. By this operation the slaking of the lime, which takes place in bricks not thus treated, by the slow absorption of the humidity of the air is entirely prevented, as the lime is greatly modified by the said operation.—*Clay.*

The Upper Story.

"Let him that is on the house top not come down," and let him that is groping in the dampness and the gloom of basements, back alleys, narrow, shaded streets and courts, dismal second story fronts that look out upon the blank, brown stone walls across the way, the more dreary rear parlors that overhang the back yards of the adjoining streets, or, drearier of all, the small rooms that cluster around the air shaft, let him climb or be carried to the vantage ground of the roof. If he lives in a crowded city, if it is summer time, and if he is wise he will stay there as long as his engagements will permit.

The marked tendency to build skyward in our large cities is easily accounted for by the extremely high value of floor room, whether it is twenty feet under ground or one hundred feet above the surface, but the throwing away of the uppermost floor of all, and in many cases the most delightful of all, is one of the peculiar extravagances of modern civilization for which no rational excuse can be given.

The actual cost of preparing a roof that should serve its purpose as a roof perfectly, and at the same time be permanently available as a floor, would be trifling as compared to its value in places where the close crowding of buildings implies great value to horizontal space. There are a variety of uses that could be made of such an open plateau, its chief value in cold climates being, of course, in the summer, but then it would be invaluable both in the residence and in the business portions of large cities. The hanging gardens of Babylon were not a circumstance to what the roofs of New York might be made if they were treated with the skill and economy that ought to characterize a center of modern civilization. Not that it would be expedient to make them actual gardens for fruit, flowers and trees of all sizes, but they could be made very beautiful, and far more pleasant and comfortable out-of-door resorts than the small, close yards and enclosed areas upon the ground. It would not be necessary that such roofs should be made of iron and masonry. A wooden structure properly protected by asphaltum would be secure from decay even if covered by a sufficient depth of soil to sustain a substantial turf—provided that were desirable. Still further advantage and wider opportunities could be secured by the co-operation of adjacent owners. Even in the country where ground room is of little value the advantage of the upper level would almost justify the architectural deformity of a flat roof, provided it were supplied with all the modern conveniences, so guarded that the children could not fall off if they tried, and timid people need not be afraid of jumping overboard. A place where the boys could "camp out" on warm summer nights, and where a hammock swung beneath an awning would be the breeziest and coolest of lounging places. The hot, slippery, rattling, shining, tin roof and the impassable gravel commonly found on flat roofs

give no intimation of the pleasant possibilities of the situation. If the "deck" of "French roofed" houses were devoted to such purposes of use and enjoyment there would be a reasonable apology for the usual ugliness. The climbing of stairs would keep the invalid and the indolent from improving these elevated privileges, but where elevators are in use there is no excuse for the desertion of the house top. —*The Builder.*

For Painters.

EXPERIENCE shows that the work in the paint shop is much better handled by working the men in teams as much as possible. It pushes the work along faster, with better results than when the workman is left to himself with his own individual piece of work.

Care must be taken in selecting men for teams, that there must be harmony with each other and a mutual desire to see the work go through right. The selection of partners should never be left to the men themselves, or put-up jobs may be the result, sooner or later. It is quite necessary that one man on each team should be a pusher; this method will bring out to full play the working force of each. If the right men are thus brought together, there will be a willingness on the part of each to draw the others' attention to any fault in the work, and work when finished will be more free from defects. The best workmen never fail to see something that if seen sooner might have been made better. —*Painters Journal.*

Sunlit Rooms.

NO ARTICLES of furniture should be put in a room that will not stand sunlight, for every room in a dwelling should have the windows so arranged that some time during the day a flood of sunlight will force itself into the apartment. The importance of admitting the light of the sun freely to all parts of our dwellings cannot be too highly estimated. Indeed, perfect health is nearly as much dependent on pure sunlight as it is on pure air. Sunlight should never be excluded except when so bright as to be uncomfortable to the eyes. And daily walks should be taken in bright sunshine. A sun-bath is of more importance in preserving a healthful condition of the body than is generally understood. A sun-bath costs nothing, and that is a misfortune, for people are deluded with the idea that only those things which cost money can be good or useful. But remember that pure water, fresh air, and sunlit homes kept free from dampness, will secure you from many heavy bills of doctors, and give you health and vigor which no money can procure. It is a well-established fact that the people who live much in the sun are usually stronger and more healthy than those whose occupation deprive them of sunlight. And certainly there is nothing strange in the result, since the same law applies with equal force to nearly every animate thing in nature. It is quite easy to arrange an isolated dwelling so that every room may be filled with sunlight some time in the day, and it is possible that many town houses could be so built as to admit more light than they now receive. —*Carpentry and Building.*

New Stone Saw.

A NEW sort of saw for cutting stone is described in *La Semaine des Constructeurs*, which seems to have advantages over those commonly in use, and is easily and cheaply made and operated. In place of the ordinary long steel blades, supplied with sand to enable them to grind their way into the stone, the new machine presents only a slender endless cord, composed of three steel wires twisted together, which is stretched over pulleys in such a way as to bring the lower portion horizontally over the stone to be cut. The frame carrying the pulleys is movable, so that the cord can be brought into contact with the stone, or lifted away from it, at pleasure, and the whole is kept in rapid motion, while water falling in drops from a reservoir above serves to moisten the stone. The three wires which form the saw differ from the ordinary kind in being square in section, and by twisting into a cord they are so turned as to present a succession of oblique cutting edges, which act, when set in motion, in nearly the same way as so many small chisels, while the rapidity with which the blows follow each other probably adds to the effect.

Utilizing Ashes.

A PATENT has lately been granted for the use of ashes in making mortar. It has been found that the fine portion of domestic ashes is capable of being converted with a small proportion of lime, into a mortar having, when a month old, a tensile strength of from four to five times that of common sand and lime mortar, or about 80 pounds per square inch. Sand-mortar a month old has a tensile strength of 20 pounds. Ashes and lime, mixed as beton, gives a tensile strength of 140 pounds and a crushing strength of over 1100 pounds per square inch. It will thus be seen that, by utilizing the ashes for mortar, a large part of the expense of removal could be saved, together with the whole cost of procuring sand for the purpose, and, at the same time, a very superior article of mortar be produced. In consequence of the small quantity of lime required (10 per cent.), it would be necessary to mix the mortar by machinery at a mill and deliver it ready for use. This practice prevails to a great extent in European cities on account of the superiority of milled over hand-made mortar. Ash-mortar has the additional advantages of resisting the action of water as soon as it has set (in from two to three days), and also the combined action of fire and water, the quantity of lime being so small, and the chemical union with the ash so complete that the application of heat does not produce free oxide of lime, as in the case of sand-mortar, and consequently does not swell when water is applied to the heated mortar. The ash-mortar forms when set, a silicate of lime and alumina, and hardens uniformly throughout, like cement; while sand-mortar, when set, is but an imperfect carbonate of lime, the sand furnishing the nucleus around which the carbonate forms. —*Carpenter and Builder.*

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Kitchen Cesspools are Dangerous Nuisances.

A CESSPOOL is in old English a "soospool"—that is, a "soakpool"—a place into which liquid slops and offscourings may be run, and from which, as usually constructed, it is hoped that the liquid portion will soak or drain away, thus sparing the proprietor the trouble of emptying it. The term is most generally applied, at present, to receptacles or cisterns constructed underground in the vicinity of the house, to receive the kitchen-slops and sink wastes, as distinguished from privy-vaults or receptacles intended only, or chiefly, for the reception of excreta, but it is also used by some writers as including the latter, and, as a matter of fact, a large number of cesspools receive both kinds of waste. The cesspools to which we especially refer at present are those into which excreta are not allowed to enter, but which are devoted chiefly, if not exclusively, to the reception of kitchen-waste. From time to time inquiries are received by *The Sanitary Engineer* which indicate that the writers suppose that the only dangers in house-drainage are connected with the disposal of excreta, with privy-vaults or water-closet wastes; and that if these are properly arranged the sink-slops need little attention. This is a mistaken opinion, and it is time that people learned to recognize it as such. No doubt it is true that water-closet waste is more dangerous to health than kitchen-slops; it is more likely to contain specific contagia, and is more offensive, but considered merely as furnishing material in which may be developed dangerous organisms, as decaying organic matter or filth, there is not so much difference between these two forms of waste products after all, nor is a cesspool less offensive than a privy-vault. Neither of them are satisfactory appendages to a house, but where their employment becomes a necessity the same precautions as to location, construction, etc., should be applied to one as to the other. The essential points are to prevent leakage by making them water-tight, to provide a free outlet for the gases which will be generated in them, and to locate this outlet at such a height that there shall be no danger that the gases escaping from it shall blow into the house. Such cesspools should be small, and emptied regularly and frequently.

The most unwise disposition which can be made of a cesspool is to connect the upper part of it with a sewer. When a street is sewered, the cesspools on that street should be cleaned out and filled up with fresh, clean earth and the house-drainage be connected directly with the sewer. To retain the cesspool under such circumstances is to insure that all the house-waste shall be in a putrefying condition before it enters the sewer, and hence make it impossible to keep the air in the sewer inoffensive.—*The Sanitary Engineer.*

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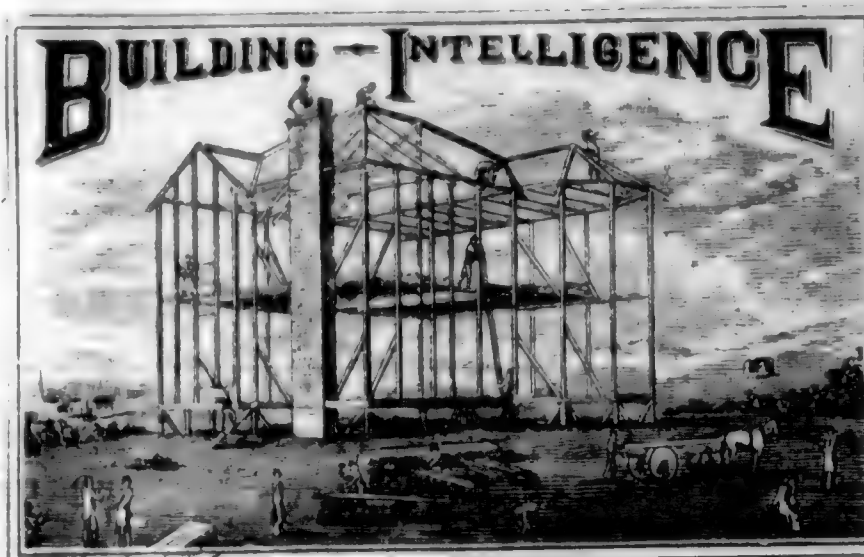
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Van Ness Avenue, cor. Grove. Five two-story frames. O. C. G. Hooker. A. Schmidt & Havens. C. R. Smilie. \$92,500.

McAllister, nr. Franklin. Three-story frame and brick basement. O. T. Clark. A. Schmidt & Havens. C. R. Smilie. \$9,000.

Sacramento, nr. Van Ness Ave. Additions. O. T. H. Backos. A. J. C. Pelton. C. F. W. Kern. \$900.

Laguna, nr. Green. Two-story frame. O. Mrs. Ladlay. A. W. F. Smith. C. F. W. Kern. \$4,500.

Post, nr. Larkin. Two-story frame. O. Mrs. Langdon. A. E. A. Hatherton. C. F. W. Kern. \$6,000.

California, cor. Devisadero. Two-story frame. O. J. F. Bruns. A. Townsend & Wyneken. Day's work. \$4,000.

Sutter, nr. Baker. Two-story frame. O. P. Connelly. C. D. F. McGraw. \$3,600.

Mission, nr. Eighth. Two-story frame. O. S. W. Dick. A. McDougall & Son. C. F. Fitzpatrick. \$3,000.

Jessie, nr. Willow Ave. Additions. O. J. Dougherty. Day's work. \$1,200.

Valencia, nr. Twenty-fifth. Two-story frame. O. C. M. Welsh. Day's work. \$8,000.

Sanchez, nr. Thirty-first. One-story frame. O. E. Batchelor. Day's work. \$8,000.

Thirtieth, nr. Church. One-story frame. O. J. Patterson. Day's work. \$1,000.

Thirtieth, nr. Church. One-story frame. O. Mr. Garnaue. C. G. Pellson. \$1,600.

Duncan, nr. Dolores. Two-story frame. O. Mr. Sheehan. C. J. M. Commerford. \$2,500.

Twenty-sixth, cor. San Jose Ave. Two-story frame. O. F. Nilson. C. J. Nilson. \$2,500.

Church, nr. Twenty-third. Additions. O. B. Duffey. Day's work. \$1,000.

Church, nr. Sixteenth. Three one-story frames. O. L. Altschul. Day's work. \$2,500.

Bush, nr. Gough. Two-story frame and basement. O. M. Clayburg. A. Schmidt & Havens. C. W. M. Fletcher. \$12,000.

Ridley, nr. Guerrero. Two-story frame. O. T. E. Smith. C. R. Warren. C. L. Larabee. \$4,100.

Grove, nr. Baker. One-story frame. O. Mrs. H. L. Sedstrom. A. B. E. Henriksen. C. G. Lundgren. \$2,500.

MARKET REPORTS.

LUMBER—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 "	" 25 50
" 71 to 80 "	" 26 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, " 4 " and under, and 1 1/4 x 4 and 1 1/4 x 6	33 50
Flushing and Stepping	40 00
Rough Clear for Flooring, \$1 less than above rates	
Second Quality Flooring and Stepping	28 50
Ship Plank, Rough	28 50
" Planed 1 side	32 50
" 2 sides	35 00
Deck Plank, Rough	37 50
Dressed	37 50
Laths	per M 3 75
Wool Slats	" 10 00
Shakes	" 12 00
Redwood Posts	per piece 17 50
Redwoods	
Rough Merchantable	per M feet \$22 50
Refuse	" 18 50
Surface No. 1	" 40 00
1x6	" 37 50
No. 2	" 37 50
Rustle, No. 1, 1x10	" 40 00
" No. 2	" 35 00
" Under 10 feet	" 35 00
T. & G., 1 1/4 x 4 and 1 1/4 x 6	" 40 00
" 6 in. 12 ft. and over	" 37 50
" 7 to 11 feet	" 30 00
" under 7 feet	" 30 00
" No. 2	" 30 00
T. & G., Beaded, 12 feet and over	" 40 00
" 7 to 11 feet	" 32 50
" under 7 feet	" 30 00
Half-inch Surface	" 30 00
Pickets, fancy	" 20 00
" Square	" 17 50
Siding, 1/2 inch	" 27 50
Shingles	per M 2 15
Battens, 1/2 inch, lineal feet	1c
NAILS	
10 d to 60 d	\$3.25
8 d cut ore Extra per keg (over standard)	.25
6 d " " " "	.50
4 d and 5 d " " " "	.75
8 d " " " "	1.50
10 d to 20 d Brad, h'd	" 1.50
8 d " " " "	" 1.50
6 d " " " "	" 1.50
4 d and 5 d " " " "	1.75

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When money is sent for subscriptions, the receipt of a copy of this journal is an acknowledgment that it has been received. Unless requested we do not send receipts.

A Healthful State of Building Activities.

NOTWITHSTANDING the slight falling off in the number and value of contracts for buildings reported this month, over the preceding months of the year, they are larger in number and amount than for the corresponding months of 1883, thus showing that the tide of substantial prosperity is still on the flow in San Francisco. Our list of improvements, as given in *Building Intelligence*, embraces in number

83 BUILDINGS OF THE VALUE OF \$635,411.

The movements in real estate, as reported in the daily journals, that sales are light, would indicate a falling off in property interests. But when the high prices asked for real estate, the almost boom in building during the past three years, the damaging rains late in the season, the disturbance in financial circles by failures, shrinkages of values, etc., are considered, the present looks well, and the future encouraging.

The considerable decline in cost of lumber, bricks, nails, and other building materials, should, and we believe will, stimulate to enlarge activities during the remaining months of the year.

San Francisco Chapter American Institute of Architects.

THE regular monthly meeting was held on Friday evening, August 1, 1884.

President John Wright in the chair. F. Marion Wells was unanimously elected an honorary member of the Chapter.

A lengthy communication, signed by nearly all the members of the craft residing in San Francisco, was received from the Metal Roofers. In it, they called attention to the fact that metal roofing is a distinctive branch of trade, and should not be done in shops in which the proprietor conducts the various industries of plumbing; gas fitting and tinning, combined with metal roofing. The petition represented that the parties referred to do not have enough work at any one branch of business, and so have to keep on men who can do a little at anything, and from necessity they must be inferior workmen. The remedy proposed in the document, is to recognize metal roofing as a distinct branch of the trade, and to allow only metal roofers to figure on their branch of work.

Communications were also received from the Master Plumbers and Painters' Association, calling the attention of the Chapter to a clause in their by-laws, by which their members are prohibited from doing work for other than

owners when the amount exceeds \$100 in value.

Also communication received from J. Browell in reference to patent chimneys. All the above were ordered placed on file.

The amendment to the by-laws was unanimously adopted, by which the number of Trustees was increased from three to five.

The following preamble and resolution was offered by J. E. Wolfe, who explained that its intent was to set at rest any doubts that may be entertained upon the subject.

WHEREAS, Some diversity of views and opinions are entertained by members of this Chapter in reference to the eligibility to membership of one member of a firm of architects, unless the other member of said firm seek membership, therefore be it

RESOLVED, as the sense of this Chapter, that individual members of co-partnership firms of architects, upon election to membership in this Chapter shall be entitled to affiliation without regard to the wishes or action of the other member or members of said firm in the same direction.

After a short debate, the resolution was unanimously adopted.

Nomination of officers for the ensuing term being in order, the following named gentlemen were proposed.

President: Augustus Laver, William Curlett.

Vice-President: T. J. Welsh, A. Pissis, and H. C. Macy.

Secretary: B. E. Henriksen, G. H. Wolfe.

Treasurer: J. M. Curtis.

Trustees: J. E. Wolfe, A. A. Bennett, B. E. Henriksen, W. Curlett, W. G. Matthews, G. H. Sanders, T. J. Welsh, A. Laver.

The resignation of W. G. Copeland was read and accepted.

The following resolution was offered:—

That a committee of five be appointed to take into consideration the Fire Ordinances of San Francisco, and report at next meeting.

A long debate ensued, which was participated in by nearly every member present. The subject was dropped until a report was received from the Committee.

The president appointed the following named gentlemen to act as such committee: Messrs. J. E. Wolfe, J. M. Curtis, Wm. Curlett, T. J. Welsh, B. E. Henriksen. Meeting adjourned.

IMPORTANT NOTICE.

The next meeting of the Chapter will be held on Friday evening, September 5, 1884. It is earnestly hoped that every member will be present, as business of more than usual importance will be brought before the meeting.

The Fire Ordinances of the City of San Francisco.

MUNICIPAL laws and regulations should in themselves be as nearly perfect, fair, and equitable as human intelligence, experience, and judgment can make them; and being so, should be cheerfully accepted and followed by those whose interests are covered or affected by them; and in all cases of violation, their enforcement should be positive, equal, and without favor or partiality in any direction, or to any person or persons whomsoever. But neither of these propositions apply in the case of the present and more recently passed code of fire ordinances in San Francisco. Although in their provisions they are very similar, and in some respects the same, as those of Chicago and other Eastern cities, they do not provide a code of regulations so nearly right and applicable for San Francisco as to meet with a reasonable degree of favor from those who are required to be governed by them; and the fact that *very many* of their requirements are so far unnecessary and impracticable that they are *never* observed by architects, nor sought to be enforced by the authorities—while in some regards, the limits and restrictions are unreasonable, unnecessary, and disproportionate, and the privileges enjoyed by some, more than is permitted to other owners and architects, naturally give rise to loud complainings, and suggest at least the wisdom and necessity of revision.

In view of the facts hinted at, the San Francisco Chapter of Architects have appointed a committee of five, consisting of James E. Wolfe, J. M. Curtis, Wm. Curlett, T. J. Welsh, and B. E. Henriksen to consider the ordinances as affecting and relating to the erection and safety of buildings, and report thereon to the Chapter, the object of which is simply to review and discuss all matters in issue and interest, and submit to the proper authorities, for their consideration and action, such recommendations as may be finally agreed upon and advised by the Chapter.

The Chapter and its committee recognize the fact that the present code of fire ordinances is the result of much perplexing attention, study, and personal, mental, and physical labors; and no reflection is deserved by those originating and recommending the present laws, as whatever defects there may be have been innocently incorporated.

In behalf of the Committee and Chapter, we are authorized to state that *all architects*, whether members of the Chapter or not, are earnestly requested to forward to either member of the committee, such pertinent points of information, facts, and suggestions as will aid the committee in perfecting their work. And as the object of the Chapter in the appointment of the committee is to secure the best possible results, *all members of the profession*, together with the fire wardens and representatives of the Board of Underwriters, will be invited to take part in the final action upon the report of the committee.

Not Degenerating—Times Have Changed.

EDITOR *Building Trade Journal*: "Ransom," in his communication in your last issue, asks the question, "Is carpenter work degenerating?" and then to some extent answers it himself, but fails to state the cause for the facts he alleges. He also objects to "the saw and hatchet brigade who lack the knowledge of good mechanics." The truth is that in the present day it is quicker and cheaper to get mill work in a city of any considerable size than to make the same work by hand as in old times. No carpenter in a city now thinks of lugging about a two or three hundred pound chest of tools, consisting only of moulding, sash, and match planes, as many in the country did in former years, in addition to the ordinary chest of tools which came into everyday use. Nowadays fine office and store fixtures and much other work comes from the mill in such shape that a couple of ordinarily clever workmen with only a shoulder box full of tools between them will put it up more rapidly and fully as well as did the thoroughly trained carpenters of old times after making the fixtures by hand. The proportionate number of carpenters who are "good wherever you put them," is decreasing from this and the fact that when a man finds himself particularly fast and good at any particular branch of the business, he follows that in preference to any other and finds it more profitable to do so. A saw and hatchet brigade with very little experience and a natural aptitude for handling these useful articles can lay as much flooring in a day as the same number of skilled carpenters who have served an apprenticeship of years, and if the skilled workmen have grown gray in the service they will probably find the others outworking them. A builder who pays a skilled workman \$3.00 a day for such work cannot compete with another who gets as much or more work from each man and employs men who know nothing but this at \$2.25 to \$2.75 per day. It is true that in this case the last-mentioned builder must keep a few skillful men to do the finer work, but in a city where the buildings are mostly brick or stone, the work on them, such as laying joists and flooring, is hardly deserving of the name of carpenter work. The builders do not want to remedy, as "Ransom" expresses it, "this great trouble," nor have they any object in keeping one or two apprentices about their shops when at any time they want them an advertisement will bring them a hundred men. When the supply of carpenters so greatly exceeds the demand that the wages of good workmen are actually less than those of hod carriers, I cannot see the advantages of apprenticing a boy to the trade. It seems to me that "Ransom's" idea is that, for the advantage of builders, apprentices should work for years to acquire the necessary skill, accumulate several hundred dollars' worth of tools and then hunt for work a considerable part of the time without finding it. Many of the things they learned during their apprenticeship, within

five years, would be entirely useless, from the fact that improved machinery would do better and cheaper work than they could. Builders and carpenters know this, and the carpenters who have apprentices, too often have to put them to making ironing boards and shining boxes during dull seasons. What is more necessary than more apprentices, is that men claiming to be skilled workmen spend less time in talking of how twenty years ago they worked for three months getting out the sash for Col. Jones' house in Bungtown, "all made by hand, sir," and apply their leisure to learning to use advantageously tools and appliances unknown when Col. Jones' house was put up in Bungtown. H. G. C.

DON'T DELAY REPAIRS.—We once worked in a shop where a specialty was made of builders' finish, brackets, mouldings, fancy finish, etc. About eight hands were employed in the room we worked in. The machinery consisted of railroad combination, band and jig saws, panel and buzz planer, a boring machine and a two-spindle moulder. The two planers and the jig saw had loose pulleys which were so badly worn as to necessitate throwing off the belts from the main shaft to the counter every time each machine was used. In that shop each man took an order from the order book, got out his stock, and finished the job, using whichever machines were needed. When it was necessary to use the panel planer we had to climb up on the jig saw table and throw on the belt; when the buzz was needed, the planer must be used to stand on, in order to get at the requisite belt. If the planer was running it must be stopped, thus delaying the man who was running it. One day after getting thoroughly disgusted we "went for" the boss and asked him if he was going to have those pulleys bushed this year. He said he was going to "just as soon as he got time," but he let them run in this way for two whole months. One day we noted the number of times we had to throw on and off those belts. We used the planer 15 times, the buzz 10 and the jig saw 16 times, making 41 times in all. It took about a minute to put on, and another one to throw off a belt, thus taking in all 82 minutes in one day. There were eight of us who had to do the same thing, so it took 656 minutes or about 11 hours to handle those belts—more than one man's time every day. Running this way for 9 weeks would amount at the rate of 40 cents per hour to \$212, and our boss could not find time to have the pulleys fixed. We showed the figures to him one day. He scratched his head, took them into the office, and ten minutes afterwards came out, shut down the shop instantly and sent those counters and pulleys to the machine shop. A loose pulley that rattles has not been seen nor heard in that shop since. You may go into every shop in the land and six out of ten will have one or more of these "hand shippers" in operation. How is it in your shop? If the coat fits put it on.—*Cabinetmaker.*

California Redwood; Will it "Shrink," "Warp," and "Crack"?

REDWOOD being a lumber product special to this State, it is gratifying to read favorable notices in Eastern and foreign journals as to its good qualities, when such notices are fairly, if not strictly within the range of exact facts; but when they go beyond this, and state more than is warranted by the actualities of the case, they become misleading and creative of wrong notions and conclusions, and in the long run work an injury not compensated by any temporary good effect produced by overstatements calculated to stimulate a demand on the part of manufacturers in distant places for a wood of the very superior and exceptional character ascribed to the redwoods of the Pacific Coast.

We refer to this matter, owing to the fact that the following statement has been freely circulated in the journals of this country and of Europe, to wit: . . . "The fact that redwood neither WARPS, SHRINKS, nor CRACKS, should lead the attention of furniture manufacturers to practically examine into its merits, and if found satisfactory, the distinct branch of business referred to would receive a valuable addition from the forests of California."

The foregoing is only qualifiedly correct. If redwood in real fact possesses all the qualities accredited to it by our contemporaries, it would certainly be entitled to most favorable consideration; for, as yet, there has never been a wood found entirely free from the defect of shrinkage, nor can that quality be claimed for the redwood of California, in an absolute degree.

As the result of thirty-three years' practical, personal experience in the use of redwood in connection with house and other constructions, and close observation and practical experiment in furniture and many other things calculated to develop the specialties of redwood, we give the following, which may be relied upon as correct for all practical purposes.

It should be first stated that like all other woods, the product of all trees of the same species is not of equal grain and quality, the great bulk of redwood being from good to excellent, with occasional trees yielding brash, hard, springy boards and cuts. Consequently much of that used for general purposes, in the way of scantling, posts, fence boards, for the erection of wood bulk heads, etc., is devoid of all the credits expressed in the extract under notice.

As to "shrinkage," there is a quality of redwood, which, when properly seasoned—water seasoning being decidedly advantageous—and thoroughly dried after such seasoning, will equal, if not excel any other lumber known, in the matter of non-shrinkage, while the redwood lumber generally used in house construction will shrink, both in width and length. It is a very common thing to see the butt joints in rustic and wall boarding on frame buildings, the sheathing on inside walls, ceilings, etc., shrink open before the completion of

the structure, in boards of twelve, fourteen and sixteen feet lengths, all the way from small open joints up to one quarter, and in some cases half an inch. So that all unqualified statements made that redwood lumber will not shrink are erroneous. But at the same time we wish it understood that picked redwood lumber, properly treated, has no superiors in a shrinkage point of view.

Will it "crack"? That depends upon the quality, the condition of the lumber, and the position in which it is placed. It being a rather soft, light material, it is far more liable to fracture lengthwise than the generally known lumber used for building purposes in this and other States. But its liability to "crack" is not such as to lessen its value as a building material, both for outside and inside finishes.

As to its "warping," with the exception of a specially hard, brash kind, pieces of which are to be found in almost all promiscuous lots, it is specially free from this defect; and when nailed in place, as on fences, etc., it "stays where it is put."

As a "finishing" lumber, its use has been and is almost universal in California, both for inside and outside work, as it is the cheapest in cost, and more easily worked than any other, and answers all the usual purpose for architraves, wainscoting, and trims and finish generally, and for door panels; but owing to its greater brittleness, seldom used for the stiles and rails of doors. In the better class of buildings, "hard" and more expensive woods are sometimes used, but seldom to the entire exclusion of redwood.

As a "furniture" material, it has its special qualities. Root and snarly redwood veneers, and some of the wavy, curly pieces will bear comparison for beauty with most of the highest cost hard woods. Much of the very handsome and costly furniture manufactured in this State, have some of the parts of selected California redwood. There is perhaps no wood on earth that will hold glue better. In the manufacture of veneered and other glued joint work, it is recognized as incomparable for its tenacity for holding. It is susceptible of any degree of high polish, and owing to its porous character receives and holds paints well. But while it is good for numerous tender uses, it is a poor material for floors and other purposes, where subjected to friction or hard wear and tear.

A NEW process for drying lumber is just now attracting attention. It is said to be the most effectual and economical method ever practised. No kiln is necessary, although where a shop has one it can be utilized to advantage. The process has the great advantage of keeping the surface of the lumber moist during the drying; this holds the pores open, obviates all tendency to cracking and leaves the albumen free to perform its natural functions. In ordinary kiln drying the albumen is injured or destroyed, and the surface dries first, thus sealing the juice inside,

to escape eventually through cracks caused by the uneven expansion of the wood. The statements in circulation as to the remarkable cheapness, simplicity and thoroughness of this new method seem to merit the attention of every builder and wood worker, for it is described as being equally well adapted to large and small shops. Some readers may perhaps be surprised to learn that the process consists in surrounding the wood to be dried with common salt; but those who are acquainted with the peculiar power for extracting moisture which salt possesses will not be at all astonished at this novel and ingenious utilization of this power.

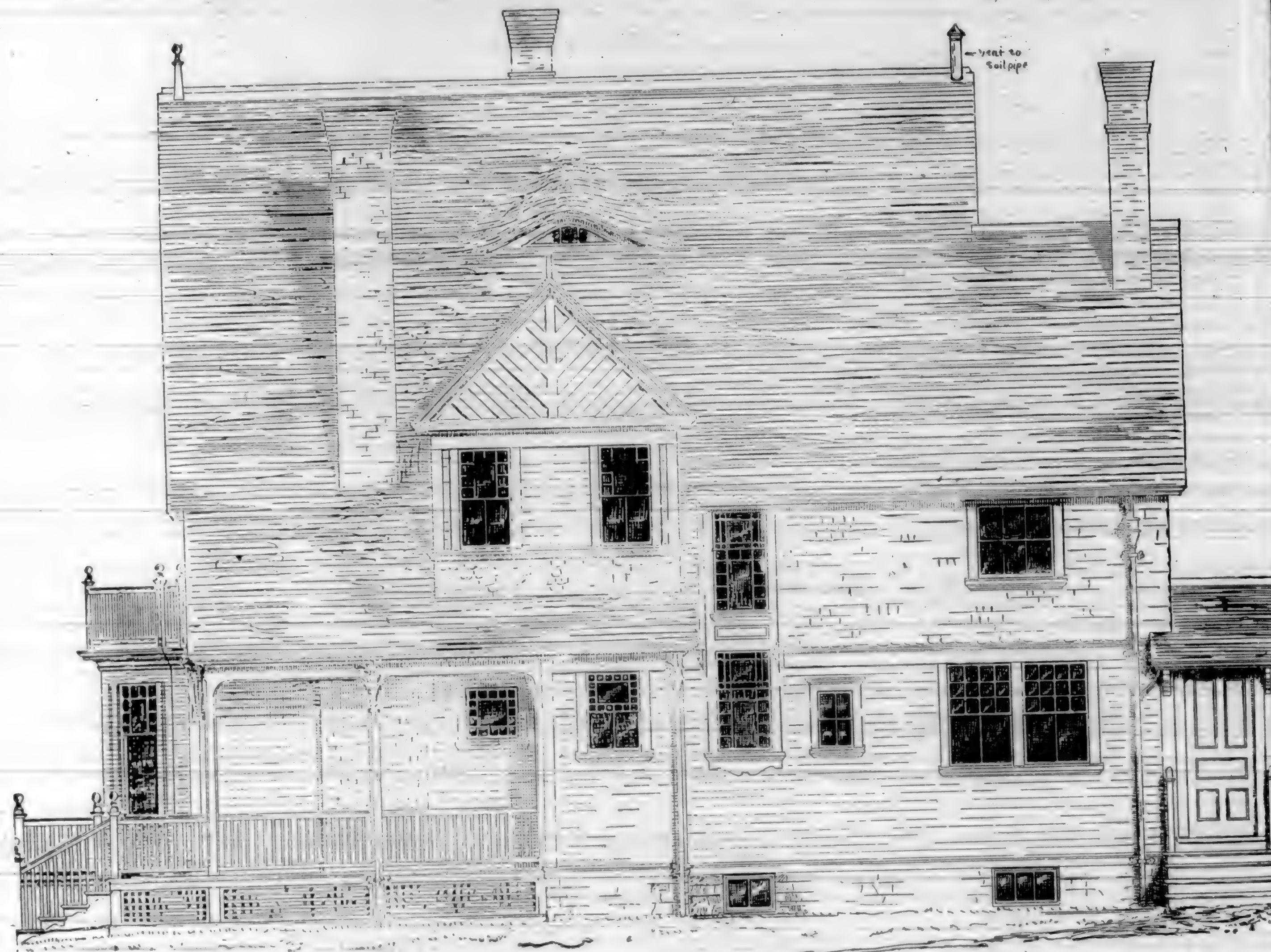
Hand and Machine-made Putty.

How the two kinds are made, and the difference between them, is related by an old painter to the ubiquitous reporter of an American contemporary as follows:—

The best is made of raw linseed oil and whiting, the latter being simply chalk, ground in a mill like flour. It comes out with a fine flint grit in it. Before making putty of it, a few old-fashioned men who believe in making the best of everything, wash the grit out. The fine flour is then dried. If it is not dried perfectly, it takes up more oil than is desirable or profitable. From 500 to 600 pounds—about 15 per cent. by weight of raw oil to 85 per cent. of whiting—are put in a chaser and thoroughly mixed. The chaser is an annular trough, ten feet in diameter. From a vertical shaft in the center two arms extend, on the ends of which are heavy iron wheels that rest in the trough. When the shaft revolves, the wheels chase each other around the trough. When mixed, it is packed in bladders for convenience in handling. The adulteration of putty is effected by mixing marble dust with whiting. It costs about a quarter of a cent a pound, and whiting costs twice that. Paraffine oils, at from 10d. to 1s. a gallon, are used instead of linseed oil at 1s. 6d. The marble dust makes the putty gritty, and the cheap oil makes it sticky. Cheap putty is decidedly cheap. Putty in bulk, wholesale, is worth 8s. 6d. a hundred pounds. The other window glass cements run from 4s. 6d. to 4s. 9d. They are dear at that. They take longer to put on and longer to dry. Putty is neither imported nor exported. A lot was brought over a long time ago, but that was when oil was very high. The whiting comes from England.

A superior article of putty is made, however, by the further addition of white lead in oil, Japan varnish, and a small quantity of turpentine, which makes a hard cement that does not shrink, and when dry can be rubbed down with pumice stone or dusted with sand paper, so smoothly will it cut. Even in the common sorts of putty it is well to use some white lead if a hard putty is desired.

Every mechanic, property owner, material man, etc., should subscribe for the California Architect and Building News. Terms, \$2.50 per annum.



SIDE ELEVATION OF \$5,000 COUNTRY DWELLING.—FIRST PREMIUM DESIGN.

Our Competitive Designs.

NUMBER ONE.

THE accompanying design and plans on this and other pages of this issue, are those to which was awarded the first premium by this Journal, in the late competition for plans of a country dwelling to cost about \$5,000. The author is Junius H. Morse, of Boston.

The style of architecture presented is essentially different from that generally adopted on this coast. We leave it to our readers to form and express their opinions in regard to the adaptability of the elevations shown, to meet the requirements of different localities.

The plans show very careful study on the part of the author, and credit is due him for the thorough and artistic arrangement of the rooms and the detailing of so many conveniences. In the latter item, the plans excel any which have come under our notice.

It will be noticed that an alternate plan is shown on page 142. By comparing it with

plan on page 143 it will be seen that though presenting the same general arrangement, it is of more practical utility, inasmuch as *direct* communication is established between the dining and sitting-rooms, thus obviating the necessity of entering the dining-room by the way of the main hall.

The plans are so plain, that we do not deem an extended notice necessary. The following specifications by the author will sufficiently explain his ideas:—

BOSTON, April 12, 1884.

A memorandum of the kind of materials to be used, and quality of work to be performed in building and completing a country house after plans furnished by "As you like it."

EXCAVATION.

Excavate the cellar four feet deep under whole of the house, the dirt removed to be used in grading around the house. Stack the loam in a separate pile. Excavate for all drains and cesspool.

FOUNDATION.

Cellar wall eight feet (8) high to be built of sound, large, field or ledge stone, well bonded and laid in one-half ($\frac{1}{2}$) cement mortar. Face wall on the inside and outside above grade, the joints to be neatly struck on the outside. Furnish footing stones for all piers and chimneys, and build a dry drain around the outside of wall.

BRICKWORK.

Build chimneys of good, hard, burned brick selected for exposed parts, all to be laid in one-half cement mortar; tops to be colored with Venetian red. Flues 8x12in. Use Philadelphia face brick for fire-places; glazed tile hearths in first story, unglazed tile hearths in second story.

FRAME.

Regular braced frame of clear sound seasoned spruce, sills 6x7in.; studs, 2x4in.; posts, 4x6in.; girt, 4x6in.; plate, 4x4in.; girders, 6x8in.; first and second story floor joists, 2x10in.; third story floor joists, 2x9in.; all set,



FRONT ELEVATION OF \$5,000 COUNTRY DWELLING.—FIRST PREMIUM DESIGN.

Section

16in. on centres; rafters 2x8in.; set 20in. on centres.

BOARDING.

Use sound seasoned hemlock boards for roof, walls, and under floors. Pine tarred sheathing paper to be put under all shingles, clapboards, and between all floors.

OUTSIDE FINISH.

Outside finish to be first quality seasoned pine. Roof and wall shingles best cedar, sawed fancy cut where shown. Clapboards clear sound spruce, laid four inches to weather. Pine gutters. Zinc conductors with fancy heads. Use lead and zinc flashings around chimneys and exposed places.

GLASS.

Windows glazed with first quality double

thick German glass, single thick for all small lights, bevelled French plate for front door. The upper sash of staircase window to be leaded, stained glass.

WINDOW FRAMES AND SASH.

Pine sash stained, 1 $\frac{1}{4}$ in. thick; 2in. pine sills hard pine pulley stiles, galvanized iron pulleys, iron weights hung with hemp cord. Blinds first quality half roll.

TOP FLOORS.

Hard pine for kitchen, pantry, china closet, and piazza floors. Halls, vestibule, and dining-room, oak borders with spruce centers. Bath-room, cherry. The parlor, sitting-room, chambers, and closets, spruce; all floors to be hand planed after being laid, and no board to be over four inches wide.

MANTELS.

\$125 allowed for four mantels and six shelves.

INSIDE FINISH.

The first story bases 8in. high moulded, architraves reeded 4 $\frac{1}{2}$ in. with back band, turned corner blocks, plinth. Second story 7in., base 4in., moulded architrave with plinth. Second story 7in. base, 4in. moulded architrave with plinth and turned corner blocks. Third story and kitchen 6in. chamfered base, plain 4in. architraves with corner blocks. The parlor, sitting-room, and two principal chambers in pine, one coat shellac, two coats lead and oil selected colors. The hall and dining-room in oak. All other rooms in white wood two coats shellac rubbed down in oil. Hall dado 3ft. 6in. high, dining-room dado 3ft. 6in. high, raised panels with flush mouldings.

DOORS.

Outside doors pine 2in. thick. First story five panels 1½ in. thick, whitewood veneered to match the finish of rooms they stand in. Second and third story 1½ in., five panels; all to be hung on lifting butts.

PLASTER.

Best two coat work on spruce laths, cork floated in hall and vestibule to be painted. A small plaster cornice in parlor, two centres.

PAPERING.

Allow \$150 for wall papers and papering.

PAINTING.

Roof shingles two coats lead and oil Indian red, creosote stain for second story shingles warm sepia. First story clapboards three coats of lead and oil, Pompeian red. Trimmings dark bronze olive green, three coats. The painter to glaze all the windows, finish all hard wood, and do all the interior painting.

FURNACE.

The sum of \$150 is allowed for a furnace.

HARDWARE.

The contractor to furnish all locks, knobs, butts, screws, nails, hinges, sash fasts, pulls, snaps, hooks and catches; furnish the iron brace for front chimney.

BELLS AND TUBES.

Bell from front door to kitchen, one on side door; foot bell from dining room to kitchen. A speaking tube from second story hall to kitchen.

STAIRS.

Front stairs pine risers and treads, oak rail 6in., newel post 4½ in., angle posts 1½ in., balusters fancy turned. Attic and back stairs pine.

PLUMBING.

One bath-tub, seat, and bowl in bath-room, one sink, boiler, and two set tubs in kitchen, a water-closet in cellar; a first-class job in all respects, done according to the Boston building laws.

MISCELLANEOUS.

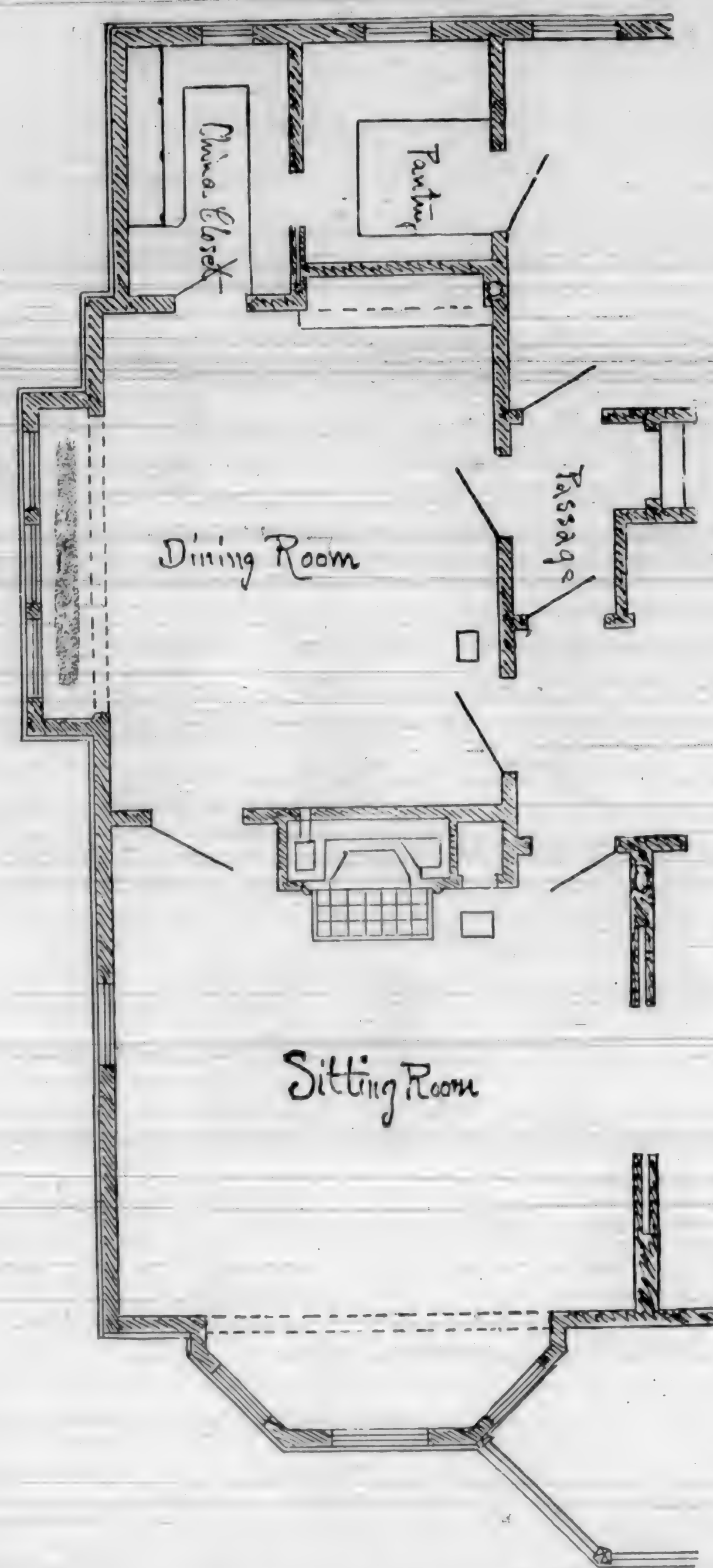
Build coal bins, pipe for gas, put shelves, drawers, and hook strips where directed by owner.

GENERAL CLAUSE.

The work is to be done in a thorough and workmanlike manner, and all breakages and marring of work to be made good by the contractor.

In the accompanying estimate it must be borne in mind, that prices given are those at present ruling in the city of Boston, and are not, by any means, to be taken as those for which the same work could be done on this coast. A decidedly much higher estimate must be allowed for the plan as presented, should any one see fit to adopt the same and erect on this coast a building in conformity to the plans.

It was our intention to prepare a California estimate, so our Eastern subscribers could compare the cost of work and material on the two extreme ends of our country. We found the task rather difficult, without completely changing the looks of the front. The principal difficulty lies in the fact, that here, in houses of the cost given, the stories are seldom, if ever, less in height than 12 feet for first story, and 11 for second; these proportions would be exceeded in houses in which rooms are as large as those shown. By reference to the front elevation, it will be seen that the height of stories is but 8 and 9 feet. It is obvious that



ALTERNATIVE DESIGN SHOWING DIRECT COMMUNICATION BETWEEN SITTING ROOM AND DINING ROOM.

ESTIMATE OF QUANTITIES AND PRICES RULING AT BOSTON, MASS.

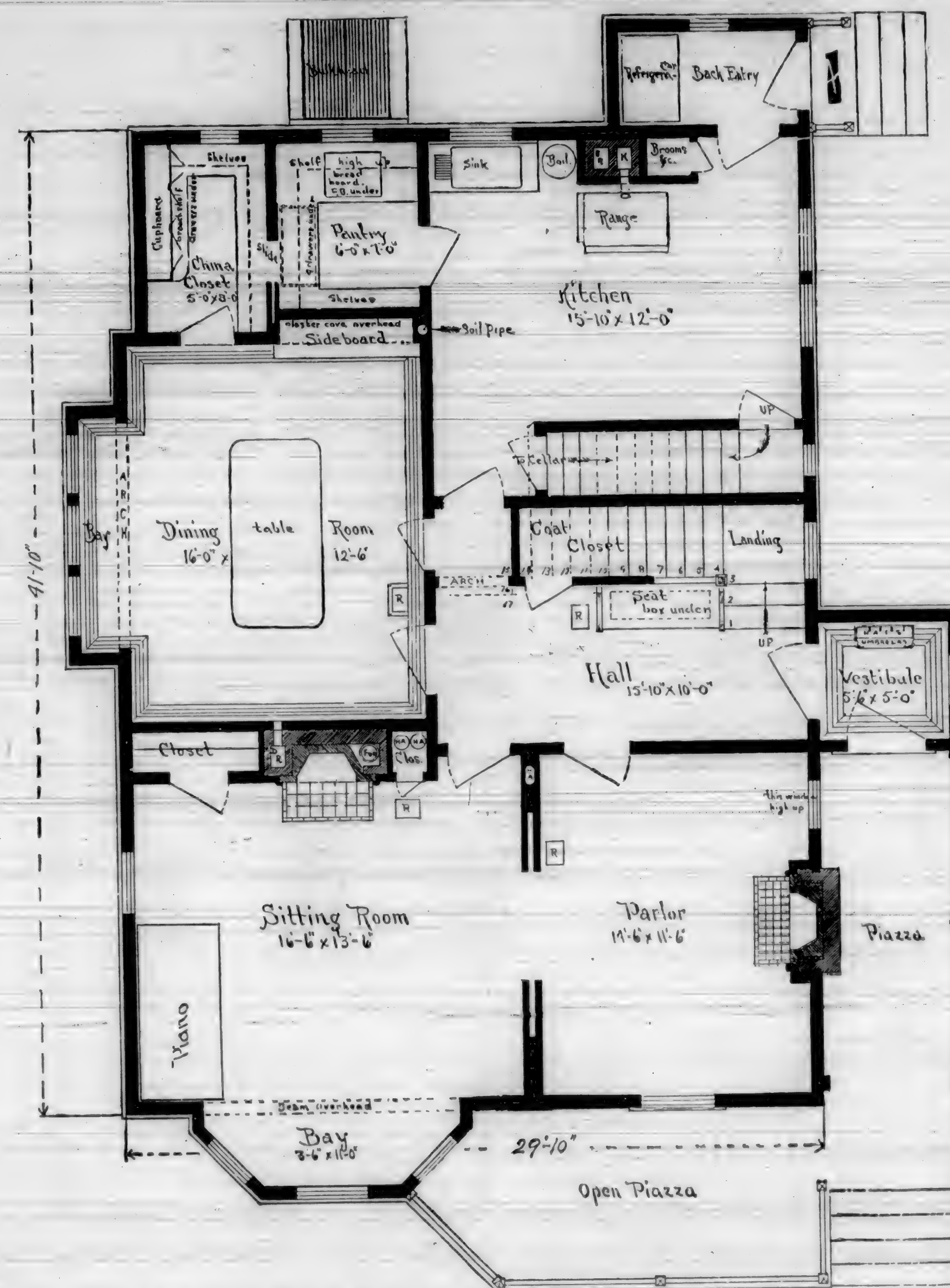
MASON WORK.

250 cu. yds. of excavation @ 25 cents.....	\$ 62 50
*84 perch of stone wall @ \$4.25.....	357 00
13½ M. brick laid including mortar @ \$16.....	216 00
4 fire-places and hearths @ \$25.00.....	100 00
1200 sq. yds. of plastering, laths included @ 25 cents.....	300 00
140 sq. yds. of concrete @ 50 cents.....	70 00
Total.....	\$1,105 50

Perch 16½x14x1-24 cu. ft.

an increase of those measurements to those used here, would materially effect the appearance of the outside, as windows, doors, etc., would all have to be larger than shown.

It will be noticed that the price of rough lumber in estimate, is much lower than that ruling here, while that of finish lumber is higher. Brick work, plastering, plumbing, painting, and mantels, are all considerably lower than the amount for which said work could be done in this city. A careful study of the estimate will enable one to contrast the difference.



FIRST STORY PLAN OF \$5,000 COUNTRY DWELLING.—FIRST PREMIUM DESIGN.

CARPENTER WORK.

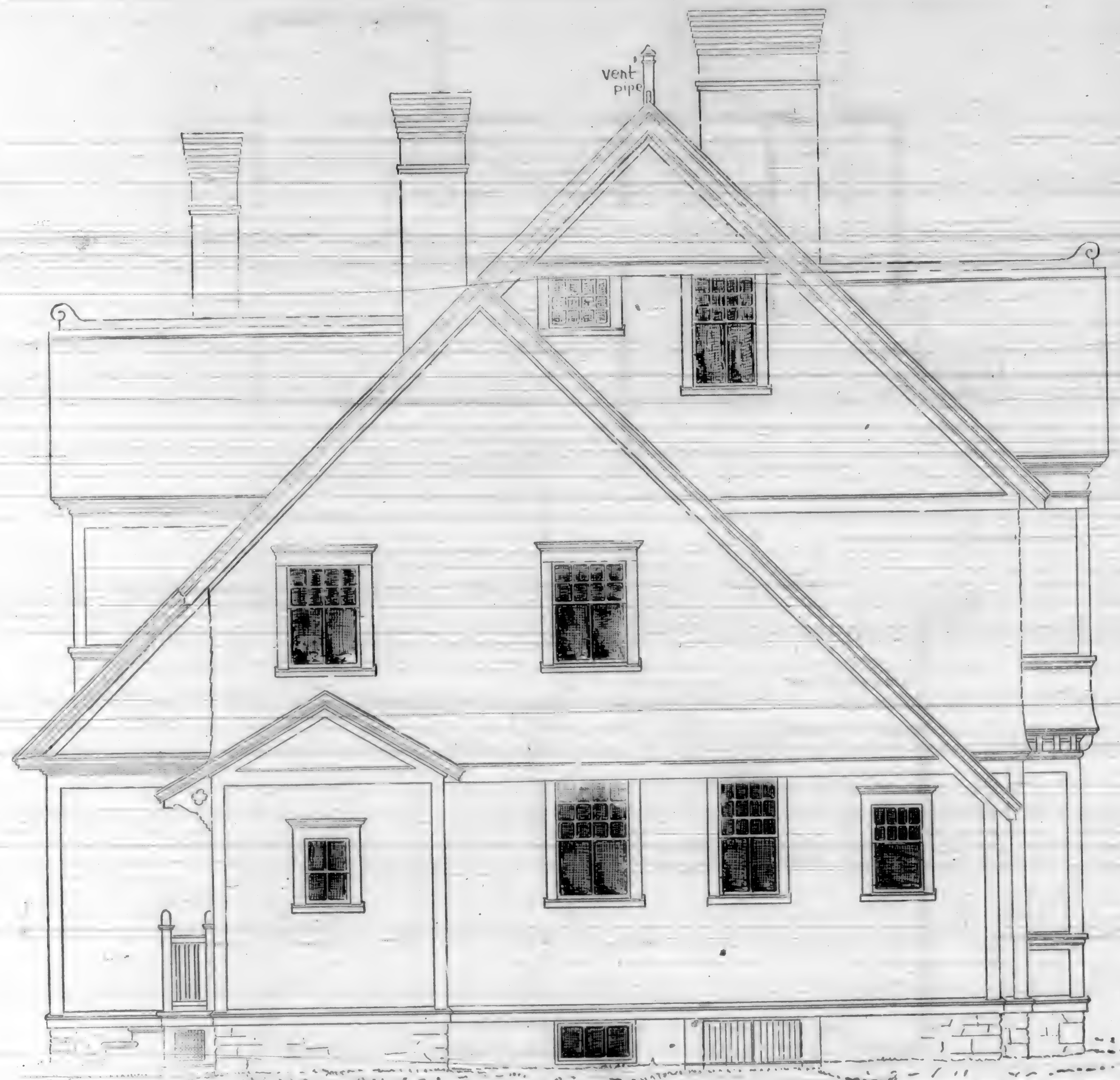
12,000 ft. of spruce framing timber @ \$16 per M.....	\$192 00
3,000 ft. of furring and partition stock @ \$16 per M.....	48 00
9,500 ft. of hemlock roof and floor boards @ \$12 00.....	114 00
30,000 ft. of sawed cedar shingles, wall and roof, @ 4.50.....	135 00
1,200 ft. of spruce clapboards @ \$30 per M.....	36 00
Sheathing paper.....	50 00
2,500 ft. of pine outside finish @ \$60 per M.....	150 00
50 ft of wood gutter @ 12 cents.....	6 00
3,180 ft. of spruce floor boards @ \$25 per M.....	79 50
700 ft. of hard pine rift sawed @ \$50 per M.....	35 00
500 ft. of pine inside finish @ \$60 per M.....	30 00
1,500 ft. of whitewood inside finish @ \$60 per M.....	90 00
100 ft. of panelled dado @ \$1 per running ft.....	100 00
70 ft of zinc conductor @ 15 cents.....	10 50
Windows complete.....	300 00
Doors and frames complete.....	290 00
Hardware and nails.....	250 00
Stairs, rail-posts and balusters complete.....	225 00
Plumbing complete (an actual estimate).....	325 00

Painting complete.....	300 00
Mantels and shelves.....	125 00
Papering.....	150 00
Furnace set ready for use, pipes, etc.....	150 00
Carpenters' labor.....	825 00

Total.....	4,019 60
Mason work.....	\$1,105 50

Total.....	\$5,125 10
Architects' commission not included.	

Respectfully submitted,
"As You Like It."

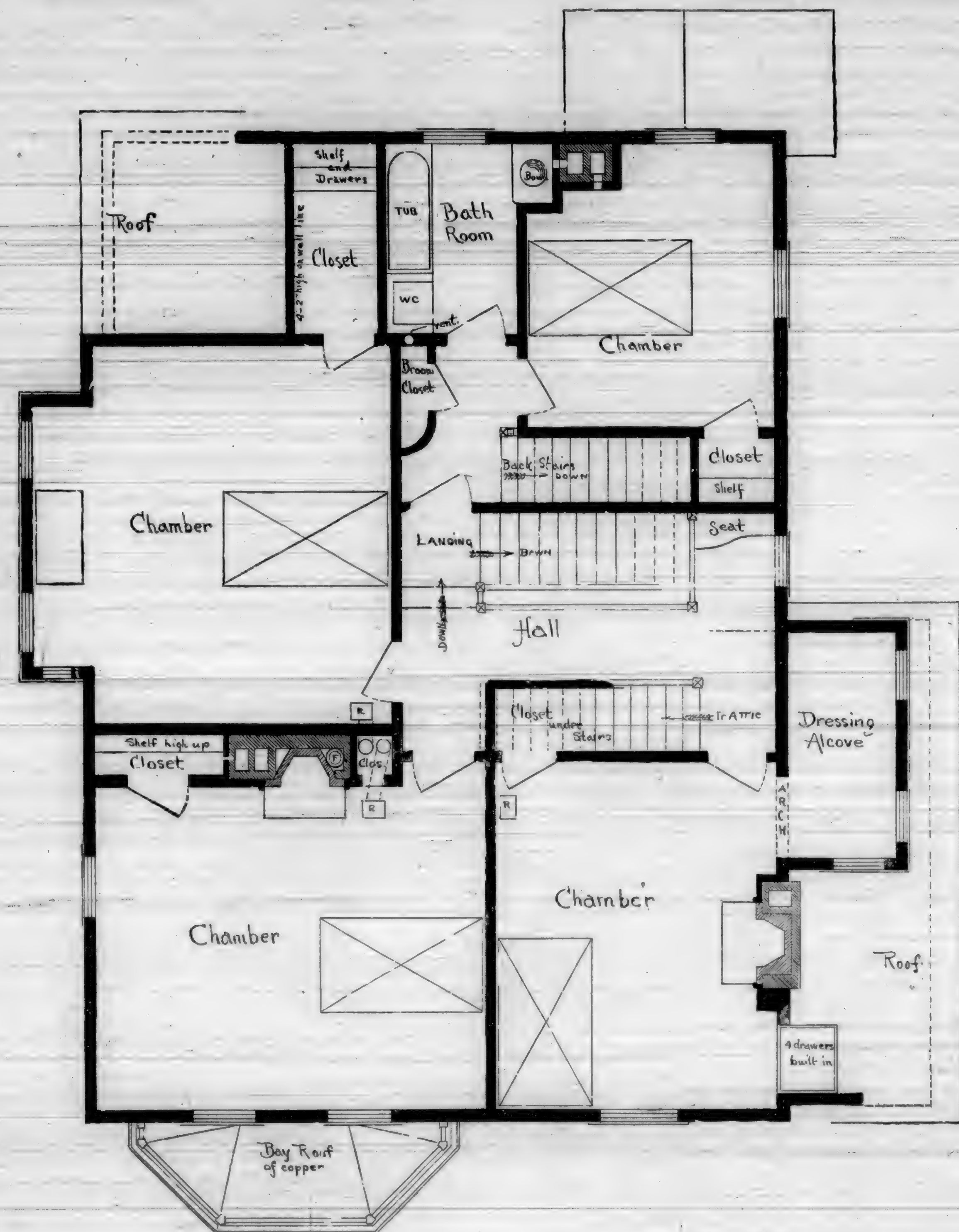


REAR ELEVATION OF \$5,000 COUNTRY DWELLING.—FIRST PREMIUM DESIGN.

Mechanics should remember that it is for their interest to forward items of general interest to the publishers of this Journal as, by so doing, they reap much benefit from an interchange of ideas. If engravings are necessary to explain your ideas, send a rough sketch of the same and we will put them in a presentable form.

AN ORIGINAL RAT TRAP.—This trap consists of a sheet iron pipe with a sort of rim on both ends and a strong two-bushel sack tied firmly around one end. Every hole is stopped in the corn-crib but one, which opens into a feed box on the other side of the partition. Then the pipe is placed in the feed-box and fitted, the open end firmly over the hole, allowing the sack to hang over the edge of the box into the manger. The trap prepared, the door of the crib is left open and the rats permitted to have their own way for an hour or so. Then the door is shut and a noise made to frighten the rats. Having but one means of escape they rush into the pipe and down into the sack, where they are easily caught.

Owing to the great increase in our circulation, causing great demand for advertising space, we have to announce an increase in the rates established January 1, 1884. We are continually receiving letters from parties, in regard to advantages secured by an advertisement in this Journal. Our rates are now \$50.00 PER PAGE FOR SINGLE INSERTION. Proportional rates accordingly for smaller spaces.



SECOND STORY PLAN OF \$5,000 COUNTRY DWELLING.—FIRST PREMIUM DESIGN.

A New Work. How to Build, Furnish and Decorate. Price \$5.00.
Send to This Office.