She Wanted a Bracket.

TO BEGIN with she had two vases and a clock. There was no room for them on the bureau, and the table was full. So it happened she wanted a shelf whereon the vases and the clock could be disposed. There was just the place for a shelf between the windows. She measured the space and gave the carpenter an order for a board twelve inches wide, four feet long, and three-fourths of an inch thick. The carpenter offered to put it up with nice iron brackets costing fifty cents a pair, but she said him nay. Such cast iron horrors were inartistic. She would have it all of wood. Had she not a scroll saw? Was she not mistress of hammer and screw-driver? She would make her own bracket for sweet economy's dear sake and her own delight.

Straightway she drew upon paper a design for a sweet thing in brackets. Procuring a piece of clear pine, half inch stuff, she cut out the design upon it with her scroll saw. It was, indeed, a lovely bracket, and she at once made another, polished and sand-papered the pair, and gave them a coat of shellac just for color's sake. She then put a screw through each into the wall and laid the shelf upon them. This is the result: Fig. 1.

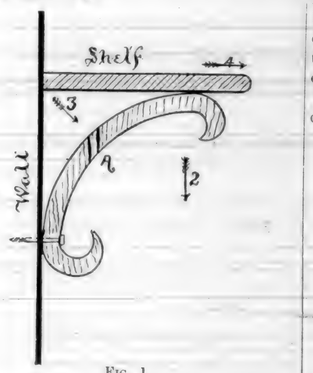


FIG. 1.

The bracket showed a sense of beauty without knowledge. Common sense suggested the placing of the screw at the point shown, near the end of the bracket. Experiment proved that the whole thing was unlovely and inartistic because not founded on the nature of things. The bracket had the beauty of form in a certain bookish way. It was just like the things in the drawing books. It had, also, the inherent beauty of color, because the natural color of the wood had been preserved, yet these things were of no value because the bracket was useless.

She laid the shelf on the brackets, and it at once tipped up, having no support next the wall. She thought this could be remedied by placing a strip of wood under the shelf against the wall. This worked very well, though it did not look quite right. Then she piled a quantity of books on the shelf to see if its factor of safety was within the probable weight of the clock and vases. Both brackets broke off at the point A, and the whole thing was ruined.

At once she went out-of-doors, found a good tree, and sat down to consider the branches thereof. And this is the sum of her consideration: If any one had laid a beam of wood from the main stem of the tree to the branch, say for the purpose of making a support for a swing or for a ladder to gather the fruit, the branch would be essentially a bracket. The beam, like the shelf, would be a lever with the fulcrum at one end. The branch would resist the downward thrust of the lever at the point where it was most needed. So would the bracket—with this difference—the branch resists the thrust in line of its greatest strength or along the grain; the bracket met the thrust in the direction of its weakest point, across the grain. It was also another lever tending to transform the thrust into a transverse strain.

Referring to the bracket, she saw in her mind's eye three strains. First, the tendency of the upper part of the bracket to move outward in the direction of arrow 1. Then there was the thrust downward, arrow 2, due to the weight of the shelf, and lastly there were the two combined that made the breaking strain, shown by arrow 3, in the diagram. Moreover the carved ends of the bracket did not in any way help to support the shelf; they were liable to be broken off, and consequently were inartistic and valueless.

The result of her considerations was a new design for a bracket. Fig. 2.

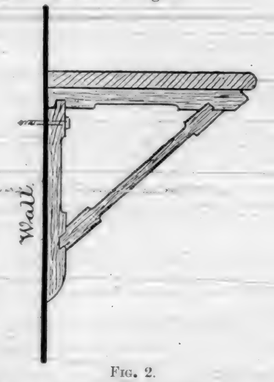


FIG. 2.

At first it appeared painfully stiff and plain. However it worked, so to speak; it could hold up the shelf with ten times the load that would ever be put upon it. Its factor of safety was as ten is to one. Besides this there was only one screw in the wall, and placed where it would be out of sight.

The bracket was composed of three parts, and each, like the branch of the tree, cut out in the line of its greatest strength, or along the grain. The first, or wall piece, was placed upright and had a tenon at the top and a mortise in front near the bottom. This was held to the wall by one screw placed near the top. Why? For two reasons. The tendency of the bracket is to fall under the weight of its load. There is also the tendency to fall outward, because the shelf acts as a lever. If the screw had been put at the lower end of the stick, it would form a pivot on which the bracket would tend to fall outward. By placing the screw at the top it resisted both the downward thrust and the tendency to fall outward.

These things refreshed her mind. It seemed as if she were dealing with the everlasting verities of constructive art. The two remaining members of the bracket had equally important parts to play. The horizontal piece at the top supported the shelf, and, being anchored to the wall-piece by the mortise and tenon, it served as a stay to prevent the bracket from falling outward. It was a tie and resisted the pull of the shelf outward. It was also mortised to the end of the third member, that served to transfer the weight of the end of the shelf to the wall-piece. In this last member the duty is to resist a thrust and to support the shelf by transferring its weight to the wall. This member was also mortised into the wall-piece.

The brackets were a success. Severe in their outline, they still had undeniable beauty. With her knife she cut away the edges in places and made incised ornaments here and there. This took away the square-edge appearance of the work and added a measure of ornament—not much, to be sure, because the whole thing was merely a bracket. It suggested the tree form, the stem and branch. It was fitted to its work and performed it well, because properly designed.

Straightway she placed the vases and the clock on the shelf, and some books and a lamp and other things, and even the baby, when, one day, the nurse upset the bath-tub. Baby sat there for five minutes in mingled comfort and safety, and the bracket did not show signs of distress. Then she considered the thing in a deeper sense.

The bracket was strong, simple, and well designed, and, as a result, artistic. It was truthful, and did not pretend to be what it was not. It might have been turned in a lathe or covered with ornaments, and so long as it preserved the underlying ideas expressed in its present simple form, it would be correct. The moment it departed from these principles it would be inartistic, however ornate, or whatever its material.—*Charles Barnard, in Decorator and Furnisher.*

Safest Way to Use Whisky.

PROCURE any certain quantity of whisky. Into a wide-mouth demijohn, place a quantity of glue; pour the whisky into the demijohn, and put the vessel away for about five days; See that the cork fits tightly. After the expiration of the above time, you will have a superior article of liquid glue, with which broken furniture, etc., can be mended.

Bound Volumes of this Journal Now Ready. Price, Post-paid, $2.50.

Mechanics in Education.

SEEING and feeling are two senses which are more important in aiding to a knowledge of our surroundings than any others, and yet their education is generally neglected until the possessor begins to learn something of mechanics. By mechanics in this connection is intended any attempt to contrive, put together, manufacture or change by manipulation, so that a woman who contrives and fashions a dress out of the unformed and plain material, may be a mechanic. The use of mechanical tools cannot be begun too early in life, whether the pupil is to be a practical mechanic or to follow some other calling—there are few vocations that do not demand for success some practical knowledge of mechanics. "The whittling Yankees" possibly owe much of their undisputed position as inventors and good mechanics to the habit of using a pocket knife. A very prominent inventor and superior mechanic recently remarked that the bent of his taste as a mechanic was undoubtedly given by his schoolmaster, who was a carpenter and joiner, and who worked at his trade in summer and taught the district school in winter. If a boy did not possess a foot rule he made one for him from a shingle or constructed an inch scale. The foot rule and a pocket knife he considered necessary to a schoolboy's outfit, and he encouraged his pupils to estimate dimensions by the eye and then verify them by measurement. Wind mills and water wheels were parts of the pedagogue's training, and the click-clack of one or the other could be heard all about the school-house and on the borders of the brook in an adjoining field. Vanes cut from pine boards, toy ships, bird houses, bows and arrows, pudding sticks, and most of the toys used by boys forty years ago were made by the schoolmaster's boys under his direction. To-day, beside the prolific inventor named, there are one superintendent of a railroad company, one bridge builder, one superintendent of a large manufactory, and two Architects to be counted from memory, who probably received their bent for mechanics from the carpenter schoolmaster.

All these lead lives of usefulness—they are producers, adding to the wealth and comfort of the country and the people; and nothing in their observation education makes them less valuable as members of society. One of the most distinguished orators was a blacksmith, and many men who are noted for their eminence in literature, divinity, law, medicine, and as educators, have had a mechanical training.—*Builder and Wood-Worker.*

Otis Elevators.

SPECIAL attention is called to this elevator now being successfully introduced into general use in this State. The cardinal principle of this elevator is different from that of any other in use, combining strength with simplicity, and more than the usual safeguards against accidents. They are manufactured by John Hammond, 42 Beale Street. Descriptive circulars sent on application.

Not from the Center of the Street.

PREVIOUS to October 1, 1884, it had been the custom with the gas companies to charge consumers for the cost of the service pipe, connecting the mains with the meter, counting the number of feet of such service pipe from the middle of the street. This rule we regard as just and equitable.

Since the above date, however, the companies—now consolidated, to all intents and purposes, into one—have agreed to charge for the actual number of feet of pipe laid, and the rate is made to cover cost of pipe, and an agreed upon cost of labor per foot of pipe laid.

This rule works a hardship upon property owners whose possessions lie on the side farthest away from the main. Take a street 60 feet wide; owners on one side have to pay for 18 feet, and those on the unlucky opposite, 42 feet. At 30 cents a foot, for 1¼ inch pipe, the figures will be $5.40 and $12.60. On wide streets, like Market and Van Ness Avenue, the disparity becomes even more marked.

The gas company claims that the rule now in force is more just to owners, because in the middle-of-the-street rule, they charged a much higher rate than they do under the present system. We do not know by what process of reasoning they arrive at this conclusion, but we do know that there is not a gas fitter in town but who would consider that he had struck a bonanza of the largest proportions if he could get numerous jobs where he could charge 30 cents a foot for 1¼ inch pipe, with as little trouble and expense as the connection of the mains with a meter.

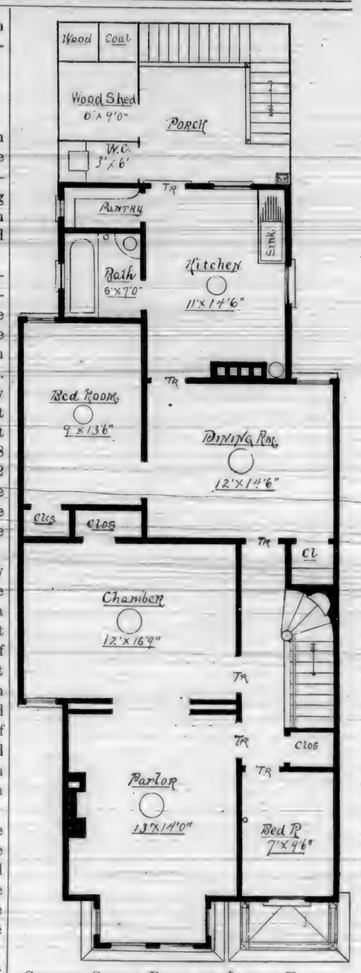
A just rule for the company to observe would be for them to furnish free to the edge of the sidewalk, the pipe and work connected therewith, and then let the owners of the property connect at that point, applying the same stringent test for its security that the law compels to the work inside the house.

When it is taken into consideration, the income derived by the gas company from the consumers of its manufacture, we consider that it should be their aim to reduce the first cost of connection with the mains to a minimum figure. If this policy were carried out, there would be less fault-finding, especially from those who own property on the opposite side of the street from the mains.

Putty.

DON'T you know that if a fire-place fails to draw, it is because your masons filled up the flue; that if the house settles, it's because you failed to use good cement in the foundations; and not because the Architect designed them too small? Don't you know that if sulphate of lime or magnesia blooms out on the face of pressed bricks, it's because your masons failed to do something or other—I don't know just what? And as for the rest of you, take the putty out of your own cracks and own up like men. Don't you plumbers know that scarlet fever and diphtheria were unknown till you and the doctors formed an alliance with the undertakers? Whether your carpenters confess it or not, we Architects know that the only way to keep wood-work from shrinking all to pieces is to catch and kiln-dry the carpenter—poor shrinking thing.

Of course you all do this mischief. Where would we Architects be if you didn't? Why, Architects would have their clients coming into their offices and holding them responsible for defects in their buildings, and then whom would the distressed Architect kick? Thus we discover another use for your putty—to support in the framework of your misdeeds the transparent purity of the flawless Architect.—*Architect John W. Root.*



SECOND STORY PLAN OF $4,500 FLATS.

THE SQUARE AS A FACTOR IN ARCHITECTURE AND GEOMETRY.

Paper Read before the San Francisco Chapter, A. I. A., by John Gash.

MR. PRESIDENT AND GENTLEMEN: I have taken for my papers to read before you this evening, the "Square as a Factor in Architecture and Geometry." That the square with the triangle and circle, form, as it were, the basis from which almost all other geometrical figures are formed, we are all of us aware, nor is it to be wondered at that the circle and triangle should form the basis from which the early architects should draw their outlines and figures as nature set the example, the earth, the sun, with the trees of the forest, all having the circle for their bases. The starry firmament have the triangle, but nowhere do we find the square except in the human form, where a man's arms, extended from tip to tip of his fingers, are equal to his height. The birds have taken the circle for the universal form of their houses, and the bee has adopted the hexagon. To man, then, alone, do we look for the square in his designs for buildings. Why it should be remains so far to the world a mystery.

While the ruthless hand of time has destroyed all chains of past ages to show that mankind in different countries had a sort of affiliation with one another, nothing is left to establish this fact but architecture. How happy should those feel who do their part to continue that chain that was first forged by Tubal Cain, and ever since continued to the present day, despite war, famine, pestilence, and the ever-changing destinies of nation—to you, my brothers, is this handed down. I trust you will pass it along, so that when you are laid in the silent dust, and perchance no mention made of your name, the architects of future generations may look with pride at those who lived in the nineteenth century. History fails to tell us that Greece, Rome, Egypt, Persia, India, China, Babylon, Mexico, the Aztec nation, England, Italy, Peru, were all at some remote period known to one another. The architecture of those countries alone establishes the fact, and the most particular part of that which each of the above countries have adopted, is the square. I will briefly refer to a few of the buildings to be found in those countries which I refer to, that have taken it for a basis. The Jewish people of Palestine, and the Druids of England, have given us the square and circle as the basis of their architecture in the buildings erected to their form of worship, the temple of Jerusalem erected by King Solomon, and the house of the forest of Lebanon by the former, and the stone henge by the latter.

Beginning with Greece we find that, as a rule, her temples were built in the form of a double square, the length being equal to twice the breadth.

The temple of Juno, erected at Samos about 540 B. C., the Temple of Jupitor at Selinus, the Temple of Jupiter Olympus in Sicily, and the Parthenon of Athens are each and all built on the principle of the double square.

Leaving Greece and entering her rival sister, Rome, we find her religious and public buildings partaking of the quadrangular shape, nor is this to be wondered at, as many of them were erected under Grecian Architects, who found Rome a more remunerative field for their labor, more especially after Greece became a Roman province, about 145 years before the Christian era.

The square is most noticeably used in the Roman pantheon, its entire height being equal to its width, and, though being circular in plan in the details of the interior, the *square* is very much used, more especially in the paneling of its vaulted ceiling. In the Temple of Peace, also the Temple of Concord, the Roman Forum, the Temple of Jupitor Stator, the Palace of Diocleccan, at Spalatro, all have the square for a basis, and somewhat singular in the Temple of the Sibyl at Tivoli, which is of circular form, with, perhaps, the best example of the Corinthian columns to be found in any Roman temple of its time. The opening for doors and windows are two squares, their height being twice their width, a system adopted long afterward by the immortal Angelo, but somewhat slightly discarded in the nineteenth century. The Temple of Balbac, erected by the worshipers of the sun, being, perhaps, one of the most stupendous pieces of architecture ever erected to the "god of the day," assembled within its walls to hail that majestic circular orb, as he rose in his majesty above the eastern horizon, adopted the square for the outline of the shrine in which they should hail his first appearance and gaze on him as he traversed the vaulted canopy of heaven. Why this should be can only be conjectured because of the close relation that exists between that circular orb and the square.

The first traveler who describes this temple with accuracy is Maundrell, in his journey from Alepo to Jerusalem in 1697. The principal building, the temple, is of a rectangular form, being 3,600 feet long by 350 wide, with a portico 200 feet long by 100 wide, being *two* squares in length to one in breadth.

Perhaps, before referring to the architecture of Greece and Rome, I should have referred to that of Egypt, as this country, which may justly claim to be the *parent* of geometry, the fundamental principles of architecture, uniformity of plan characterizing all their work, never deviated from the right line and square. Their pyramids became the history of an age long past, telling of those wonderful structures referred to by Herodotus, Strabo, Plutarch and others. From these we learn that the great pyramids of Chrops were 800 feet square, running to a height of some 852 feet.

It would, indeed, be doing an injustice to attempt to give you any description of those pyramids in these papers, as that would make a complete subject in itself, which, I trust, some of you may read papers on at some future meeting. But my object was to show how the square was used as a factor in early architecture, and how, especially so, in the pyramids—nor was it less so in her temples, as we may see in those near Thebes, Carnac, and Luxor. The tomb of Osymandy, as we find, according to Diodorus, was a peristyleum 400 feet square, supported by animals 16 cubits high, each in one stone. As Egypt was, without a doubt, the parent of geometry, and the square, a natural outgrowth of the circle, in fact a reasonable consequence resulting from inclosing the circle by four lines, as well as *three*, the outgrowth of the triangle, which was held as a sacred figure by the Egyptians, it may reasonably be supposed that it would be adopted as a basis for their temples and tombs, and hence may be adopted by people who may have emigrated to other parts. Hence, we find in Persia, more especially in Persipolus, the same style and details in architecture as is to be found in Egypt. In the city of Ispahan, when visited by Chardin, in 1666, he describes their houses as being built with large square courts, surrounded with rooms of various dimensions, the sides of the area being planted with flowers and refreshed with fountains similar to the buildings to be found in Mexico at the present day.

Traveling into India we find history lost in trying to discover whence she derived her architecture; until within a late period it was supposed it was from Egypt. Sir William Jones, whose opinion seems to have been that the Indian temples and edifices are not of the highest antiquity, says that they prove an early antiquity, between India and Africa; that the structures of the early temples were pyramidal and partook of the form of a square, may be seen at Duogur and near Tanpore. There is also a pagoda of great antiquity near Posto Novo, on the Carromandel Coast, having within it a square court with a temple and pescina, to which is given the name of the Stream of Eternal Joy. There is also a temple of extraordinary size on the small Island of Scringham; it is composed of seven square inclosures, one within the other, the walls of which are 25 feet high and 4 feet thick. These inclosures are 350 feet distant from one another, making the outer walls nearly four miles in length, when we trace the square in general design of those Indian temples, whose antiquity history fails to describe. Leaving India we pass into China, whose history is buried as deep as that of India or Egypt. We find her architecture has certain features that make, as it were, a connection between her and those other countries I refer to, perhaps the most noticeable being the square.

The imitation of the tent is the true origin of their building, so that, from the accounts of travelers, a Chinese city looks like a large permanent encampment, as well in respect to its roof as its extent.

Yet while these are mostly of a circular form, the palaces and temples are built quadrangular, like the palace at Pekin, measuring

3,600 feet from east to west, by 3,000 feet from north to south. There is the pagoda, or Temple Ho-nany, measuring 590 feet long by 250 wide, and having with it buildings at its angles 30 feet square, and three pavilions 33 feet square; but perhaps the Great Wall of China is one of its most remarkable monuments, having towers on it at intervals of 200 paces measuring 40 feet square at the base, diminishing to 30 feet square at the top.

Leaving the Orient, feeling satisfied that the square, as a factor, was most usually adopted as the basis of their architectural monuments, we would take a passing glance at an equally ancient country, whose buildings are as great a mystery as those of Asia or Africa. While Prescott, in his history of Mexico, tries to describe its people, yet the antiquity of its architecture is lost in the sands of time, and its fundamental principles can only be traced in the use of the square in the general plan of its temples.

The edifices erected by the first inhabitants of Mexico for religious purposes were solid masses of earth of a pyramidal shape partly faced with stone. The great Pyramid of Cholula, the largest and most sacred temple in Mexico, appears at a distance like a natural conical hill wooded and crowned with a small church. Humboldt compares it to a square whose base is four times that of the place Vendome, in Paris, covered with brick to a height of twice that of the Louvre, the length of each side of its square base being 1,423 feet, and the height 177 feet.

In the northern part of Vera Cruz is found a pyramid of great antiquity measuring 80 feet square at the base, and nearly 60 feet high. The Tombs of Mitla are three edifices placed symmetrically in a very romantic situation. The number of separate buildings was originally five, and they were disposed with great regularity, having within them a court measuring 150 feet square. In Sonora, in the Gulf of California, on the banks of the Rio Gila, are some remarkable ruins known by the name of the Casa Grande, showing the remains of an ancient Aztec city, having many distinctive Egyptian architectural features, being quadrangular, with their sides facing the four cardinal points. From these we must conclude that the people had no means of modeling their ideas through study of the existing monuments of other nations, nor of preserving any traces of the style of building practiced by the race from which they originated.

It must be reasonably supposed that the vicinity of the continents of Asia and America is such that the arts and improvements must have been carried from one continent to the other. Having shown from a cursorary glance through the countries which I have above referred to, how the square formed a sort of connecting link in the several temples and monuments erected by each, though widely separated by time and distance, I will now occupy your time a little while in showing how it became a factor after the dawn of the Christian era in Europe. The cross, the emblem of Christianity, being taken as a basis for temples of worship erected to the founder of the Christian dispensation, buildings were erected after the style of the Latin and Greek cross, the former being six squares, the sides of a cube, giving one for the sanctuary, one for each transept, and three for the body or nave of the church, the Greek cross being five squares, one for each arm and one for the body of the building, both of these forming the basis of the several European cathedrals of the thirteenth, fourteenth, and fifteenth centuries, being lengthened in the nave more especially, as in the Cathedrals of Worms, the Church of Santa Maria Del Fiora vi Florence and several others.

Perhaps the best specimen of a church after the Greek cross is the church of St. Geneviere, in Paris, or, as it has since been called, the Pantheon, erected by Louis XV. But in all these the square has been uniformly followed by their Architects, not only in the general plan, but in their interior details, in their doors and windows, most conspicuously the quarter-foil, which, with the trefoil, was a characteristic feature of the early English style in church architecture, as also in the domestic architecture of Louis XIV. of France.

I have thus far shown you what a factor the square has been in architecture to form as if a continuous link in the great chain of our profession from the remotest period; while the work of the historian, the theologian, the scientist, has been lost in the sands of time, to the Architect alone has it been given the talisman that tells how past ages and nations must have intermingled with each other before the railroad, the telegraph, or telephone were even thought of.

In geometry it has of itself stood equally as conspicuous and alone as in architecture, never affiliating with its sister figures, the circle and triangle, save that, in the case of the circle, it condescends to admit of its four sides becoming a tangent to the circle when inscribed within it, and touching the circumference at its four angles when circumscribed round it. No nearer has any mathematician thus far been able to show what relationship one has to the other in point of area, though both may have the same diameter. The squaring of the circle has been an unsolved problem thus far, nor was any relationship in point of area found between itself and the triangle until Pythagoras found that a square described on its diagonal (which cut into two triangles) was equal to the sum of the square described on its other two sides.

It admits of being subdivided in itself without the aid of any other figure in geometry, and even then cuts up some funny pranks that were equally as mysterious as itself; thus, for instance, cutting a side into two equal parts the square of the whole line is four times the square of its half; cutting it into two uneven parts, the square of the whole line is equal to the sum of the square of the two parts and double the products of the parts. Again, dividing the side of a square into two uneven parts, the difference between the square of the two parts is equal to the product of the sum and difference of the parts. Thus you see the square is a mystery in itself; perhaps this is more especially the reason why man is said to act on the square with his fellow-man, being separate from all other beings or figures, and a mystery with himself; however this may be to us, as a Chapter of Architects, it has been transmitted, with its sides equal and angles true. Trusting we may so transmit it to future generations in our works and lives, I thank you for the attention you have given me on the square.

An experienced foreman, who has an eye for philosophy, says that tools apparently partake of the temper of those who use them. A short-grained man has nicked bits; the impetuous man, broken ones; the lazy man, dull ones; the careless man, badly dressed ones; the man with one idea, one dress for all kinds of work; the soft man can rarely keep the edge of a tool from turning, while the good-natured and even-tempered man has the best tools in the shop, and is pestered continually by ill-tempered workmen who come to borrow from him whenever they have a particular piece of work to do. It is quite interesting to note the similarity in the temper of workmen and their tools.

C. H. M. asks why a person will take cold quicker lying down on a bed than if sitting up—yet when they get into or go to bed, they are warmer than while sitting up.

Answer—If you are correct in your statement, it is probably because more vital energy is put forth by people who are not lying down, and in bed one is generally protected by additional clothing.

A Band saw for cutting marble is described in *Le Genie Civil*, which certainly merits mention. Every one knows that the saws ordinarily used for cutting marble or hard stone, which consist of plain steel blades, fed with sand, lose much of their efficiency by the filling of the cut with a paste of finely ground sand and stone, so there is a certain advantage in working with a vertical saw which does not accumulate pulverized stone beneath it. The difficulty in employing a toothed saw-blade lies, however, in the rapid wearing of the teeth, by which the blade is soon reduced to a smooth ribbon of steel. To prevent this, the new saw is provided with an accessory in the shape of a grooved wheel of hardened steel, which is set at right angles with the saw-blade, and engages with the teeth of the saw. This grooved wh el is made to press so firmly against the blade as to notch it, thereby reviving the teeth as fast as they are worn down. The teeth are of course rather rudely formed, and are left with a large "burr," but this seems to help the cutting action, by making more room for the blade in the cut. In practice this saw is operated at a very high velocity; and although we have no statement of its efficiency, it seems quite possible that it will be useful.

The New Mechanics' Lien Law, Approved March 18, 1885.

THE new law in regard to the enforcement of mechanics' liens, having received the signature of the Governor, is now in operation. It should be carefully read by every owner, Architect, and contractor, as its provisions are essentially different from the law as it formerly stood upon the statutes. We give the law in full as we receive it direct from the authorities at Sacramento:—

CHAPTER CLII.

An Act to amend sections eleven hundred and eighty-three, eleven hundred and eighty-four, eleven hundred and ninety-one, eleven hundred and ninety-four, and eleven hundred and ninety-five of an Act of the Legislature of the State of California entitled "An Act to establish a Code of Civil Procedure," approved March 11, 1872, and to add four new sections thereto, to be known, numbered, and designated as sections twelve hundred, twelve hundred and one twelve hundred and two, and twelve hundred and three, all relating to liens of mechanics and others upon real property, and to carry out the mandate of section fifteen of article twenty, of the Constitution.

[Approved March 18, 1885.]

The People of the State of California, represented in Senate and Assembly, do enact as follows.

SECTION 1. Section one thousand one hundred and eighty-three of the Code of Civil Procedure is hereby amended so as to read as follows:—

1183. Mechanics, material men, contractors, sub-contractors, artisans, Architects, machinists, builders, miners, and all persons and laborers of every class, performing labor upon or furnishing materials to be used in the construction, alteration, or repair, either in whole or in part, of any building, wharf, bridge, ditch, flume, aqueduct, tunnel, fence, machinery, railroad, wagon road, or other structure, shall have a lien upon the property upon which they have bestowed labor or furnished materials, for the value of such labor done, and materials furnished, whether at the instance of the owner, or of any other person acting by his authority, or under him, as contractor or otherwise; and any person who performs labor in any mining claim or claims, has a lien upon the same, and the works owned and used by the owners for reducing the ores from such mining claim or claims, for the work or labor done, or materials furnished by each respectively, whether done or furnished at the instance of the owner of the building, or other improvement, or his agent; and every contractor, sub-contractor, Architect, builder, or other person having charge of any mining, or of the construction, alteration, or repair, either in whole or in part, of any building or other improvement as aforesaid, shall be held to be the agent of the owner, for purposes of this chapter. In case of a contract for the work, between the owner and his contractor, the lien shall extend to the entire contract price, and such contract shall operate as a lien in favor of all persons, except the contractor, to the extent of the whole contract price; and after all such liens are satisfied, then as a lien for any balance of the contract price in favor of the contractor. All such contracts shall be in writing when the amount agreed to be paid thereunder exceeds one thousand dollars, and shall be subscribed by the parties thereto, and shall, before the work is commenced, be filed in the office of the County Recorder of the county, or city and county, where the property is situated, who shall receive one dollar for such filing, otherwise they shall be wholly void, and no recovery shall be had thereon by either party thereto; and in such case, the labor done and materials furnished by all persons aforesaid, except the contractor, shall be deemed to have been done and furnished at the personal instance of the owner, and they shall have a lien for the value thereof.

SEC. 2. Section one thousand one hundred and eighty-four of the Code of Civil Procedure is hereby amended so as to read as follows:—

1184. No part of the contract price shall, by the terms of any such contract, be made payable, nor shall the same, or any part thereof, be paid in advance of the commencement of the work; but the contract price shall, by the terms of the contract, be made payable in installments, at specified times, after the commencement of the work, or on the completion of specified portions of the work, or on the completion of the whole work; *provided*, that at least twenty-five per cent. of the whole contract price shall be made payable at least thirty-five days after the final completion of the work and contract. No payment made prior to the time when the same is due under the terms and conditions of the contract, shall be valid for the purpose of defeating, diminishing, or discharging any lien in favor of any person, except the contractor, but as to such liens, such payment shall be deemed as if not made, and shall be applicable to such liens, notwithstanding the contractor to whom it was paid may thereafter abandon his contract, or be or become indebted to the owner in any amount, for damages or otherwise, for non-performance of his contract or otherwise. As to all liens, except that of the contractor, the whole contract price shall be payable in money, and shall not be diminished by any prior or subsequent indebtedness, offset, or counter-claim in favor of the owner and against the contractor; no alteration of any such contract shall effect any lien acquired under the provisions of this chapter. All such contract and alterations thereof as do not conform substantially to the provisions of this section, shall be wholly void, and no recovery shall be had thereon by either party thereto; and in such case the labor done and materials furnished by all persons, except the contractor, shall be deemed to have been done and furnished at the personal instance of the owner, and they shall have a lien for the value thereof. Any of the persons mentioned in section eleven hundred and eighty-three, except the contractor, may, at any time, give to the owner a written notice that they have performed labor or furnished materials, or both, to the contractor, or other person acting by authority of the owner, or that they have agreed to do so, stating in general terms the kind of labor and materials, and the name of the person to or for whom the same was done or furnished, or both, and the amount in value as near as may be, of that already done or furnished, or both, and of the whole agreed to be done or furnished, or both. Such notice may be given by delivering the same to the owner personally, or by leaving it at his residence or place of business, with some person in charge; or by delivering it to his architects, or by leaving it at their residence or place of business, with some person in charge; or by posting it in a conspicuous place upon the mining claim, building, wharf, bridge, ditch, flume, aqueduct, tunnel, fence, machinery, railroad, wagon road, or other structure. No such notice shall be invalid by reason of any defect of form; *provided*, it is sufficient to inform the owner of the substantial matters herein provided for. Upon such notice being given, it shall be the duty of the owner to and he shall withhold from his contractor, or from any other person acting under such owner, and to whom by said notice the said labor or materials, or both, have been furnished or agreed to be furnished, all money due or that may become due to such contractor, or other person, or sufficient of such money to answer such claim and any lien that may be filed therefor, for record, under this chapter, including costs and counsel fees provided for in this chapter, until such notice is by writing withdrawn; and all money paid thereafter by the owner to the contractor, or such other person, while such notice is in force, shall, for the purposes of all leins of all persons, except that of the contractor, be deemed a payment prior to the time the same was due within the meaning of and subject to the provisions of this section.

SEC. 3. Section one thousand one hundred and ninety-one of the Code of Civil Procedure is hereby amended so as to read as follows:—

1191. Any person who, at the request of the owner of any lot in any incorporated city or town, grades, fills in, or otherwise improves the same, or the street or sidewalk in front of or adjoining the same, has a lien upon such lot for his work done and materials furnished.

SEC. 4. Section eleven hundred and ninety-four of the Code of Civil Procedure is hereby amended to read as follows:—

1194. In every case in which different liens are asserted against any property, the Court in the judgment must declare the rank of each lien, or class of liens, which shall be in the following order, viz.:—

1. All persons performing manual labor in, on, or about the same.
2. Persons furnishing materials.
3. Sub-contractors.
4. Original contractors.

And the proceeds of the sale of the property must be applied to each lien or class of liens in the order of its rank; and whenever, in the sale of the property subject to the lien, there is a deficiency of proceeds, judgment may be docketed for the deficiency in like manner and with like effect as in actions for the foreclosure of mortgages.

SEC. 5. Section one thousand one hundred and ninety-five of the Code of Civil Procedure is hereby amended so as to read as follows:—

1195. Any number of persons claiming liens may join in the same action, and when separate actions are commenced, the Court may consolidate them. The Court must also allow, as a part of the costs, the money paid for filing and recording the lien, and reasonable attorney's fees in the Superior and Supreme Courts, such costs and attorney's fees to be allowed to each lien claimant whose lien is established, whether he be plaintiff or defendant, or whether they all join in one action or separate actions are consolidated.

SEC. 6. Another section is added to the Code of Civil Procedure, numbered one thousand two hundred, and reads as follows:—

1200. In case the contractor shall fail to perform his contract in full, or shall abandon the same before completion, the portion of the contract price applicable to the liens of other persons than the contractor, shall be fixed as follows: From the value of the work and materials already done and furnished at the time of such failure or abandonment, including materials then actually delivered or on the ground, which shall thereupon belong to the owner, estimated as near as may be by the standard of the whole contract price, shall be deducted the payments then due and actually paid, according to the terms of the contract and the provisions of sections one thousand one hundred and eighty-three, and one thousand one hundred and eighty-four, and the remainder shall be deemed the portion of the contract price applicable to such liens.

SEC. 7. Another section is added to the Code of Civil Procedure, numbered one thousand two hundred and one, and reads as follows:—

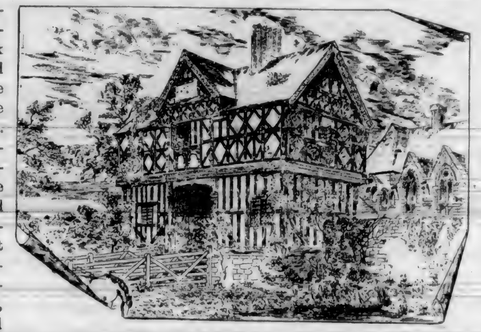
1201. It shall not be competent for the owner and contractor, or either of them, by any term of their contract, or otherwise, to waive, affect, or impair the claims and liens of other persons, whether with or without notice, except by their written consent, and any term of the contract to that effect shall be null and void.

SEC. 8. Another section is added to the Code of Civil Procedure, numbered one thousand two hundred and two, and reads as follows:—

1202. Any person who shall wilfully give a false notice of his claim to the owner under the provisions of section one thousand one hundred and eighty-four, shall forfeit his lien. Any person who shall wilfully include in his claim filed under section one thousand one hundred and eighty-seven, work or materials not performed upon or furnished for the property described in the claim, shall forfeit his lien. If the owner and his contractor shall directly or indirectly conspire to, or agree that, the written contract filed shall appear to show the contract price to be less than it really is, and it shall accordingly so show, then such contract shall be wholly void, and no recovery shall be had thereon by either party thereto, and in such case the labor done and materials furnished by all persons, except the contractor, shall be deemed to have been done and furnished at the personal instance of the owner, and they shall have a lien for the value thereof.

SEC. 9. Another section is added to the Code of Civil Procedure, numbered one thousand two hundred and three, and reads as follows:—

1203. Any bond which may be given by the contractor to the owner, for the faithful performance of his contract, shall be filed, with the contract, in the Recorder's office, or be void; and whatever may be its terms, shall inure to any person who performs labor for, or furnishes materials to, the contractor; and any such person shall have an action to recover upon said bond against the principal and sureties, or any or either of them, for the value of such labor and materials, not to exceed the amount of the bond; but such action shall not affect his liens, nor any action to foreclose it, except that there shall be but one satisfaction of his claim, with costs and counsel fees. Nothing in this section contained shall affect or impair the rights of the owner under the bond. Nor shall any alteration in the contract, or deviation in the work or in the payments, release the sureties on said bond from their liability, except to the owner.



NOTICE.

We have printed the above Lien Law on fine card-board suitable for hanging in offices. We will mail a copy to any address upon receipt of fifty cents.

Wood Turning.

IT seems like a very simple matter to come the free-hand act in paring down a piece of work in the turning lathe and bringing it up to a shining finish, if the careless manner in which the tools are held and the rate the cuttings fly, are anything to go by. The workman seizes a piece of stock, places it between centers while the lathe is still in motion, and the work starts off almost in its very central line of rotation, stirring up quite a breeze from the four corners of the square piece of stock, and just clears the rest from which the tools are to operate. The gouge sets in first and pares down toward the center, setting back each stroke for the length of chip, till the work is roughed out, when, with a few sweeps, the surface is left smooth and cylindrical. The parting tool reaches the lowest place in each hollow of any bead that is to be made to make room for the clearage of the cutting, and the gouge once more passes right and left from the brink of each bead, with a few delicate sweeps in the hollows, and the work is ready for the next piece, unless it is to be smoothed up with sandpaper held on the work while it is backed up with shavings to keep the hand from burning. This is where a business is made of the free-hand tool in wood turning, and there is no solid rest to work from. The tools rest as much on the work as on the bed of the lathe, and the stock is not torn to pieces by scraping with a chisel. There is a principle for every mishap that is to be found in any part of the process; if the gouge is being drawn forward with a lot of clearance beneath the cutting edge while the tool rests on the opposite side, an increasing spiral convoluted pitch may be attained contrary to expectations, though the principles of this action are as definite as the principles of falling bodies. If the squaring up is to be done with a chisel, where the bevel is on one side, there is every condition that is needed to strike out for parts unknown as soon as the cut leaves the extreme point in the cutting edge. Turning, like any other work, where we must cut across the grain, must have some means for the chips to leave, or they will cling to thrash on the rest, or to break into the finish of the work. It requires but a small effort to hold a tool in turning when it is held properly, but it will need the assistance of a tool post if the cutting edge is running in another direction, if a shearing cut is what is wanted. It will be well for those more acquainted in other departments to resort to scraping when in need of a mallet or a few handles for tools.—*Ex.*

Pine logs, taking the good, bad and indifferent together, will weigh on an average 8,000 pounds per thousand feet.

Questions and Answers for the Consideration of Students in Sanitary Science.

1. WHAT is the object of a trap?—To prevent sewer-gas from entering a house.

2. How is it effected?—By a water-seal, made by confining water in the bend of the trap.

3. Is this an effectual remedy?—Alone, no; because pressure will sometimes force air through the water.

4. Will the water in a trap absorb gas and emit it again?—Yes.

5. How is this difficulty overcome?—By leaving the end of soil-pipe open and making it easier for gas to ascend than to go through water.

6. Where should the open end of a pipe be situated, and how is the pipe usually terminated?—At the highest point of building, and finished with a bend.

7. What is the object of a trap where the soil-pipe enters the house?—To prevent, if possible, the entrance of sewer-gas to the house.

8. Is there any other theory on this point?—Yes: gas should not be confined to the sewers, but allowed to escape through numerous outlets.

9. What is the theory of the New York City Board of Health in regard to this?—That sewers should not contain gas, but as usually built they do.

10. What causes a pressure from the sewers on the main trap?—Difference in temperature between sewer and house, snow on openings and manholes, and tides blocking outlets and manholes.

11. Can the difference in temperature between the air in a sewer and in a soil-pipe unseal a trap?—Probably not.

12. Will open fires cause a suction on soil-pipes, and why?—Yes; they draw air from wherever there is the least resistance.

13. What is the best form of a trap at the outlet of a soil-pipe, and of what material should it be?—A running trap, with a manhole to clean it out.

14. Does a large body of water in a trap afford greater resistance to pressure from the sewer?—No.

15. What constitutes the resistance to pressure in a trap?—The depth of water-seal, not the amount of water in trap.

16. How deep should the water-seal be in a running trap?—About two inches.

17. What is meant by depth of water-seal?—The depth of curve or bend.

18. Is there any objection to a deep trap?—If too deep, matter will not be drawn out, but will remain and dissolve.

19. Why is a flap-valve not a good seal for a soil or waste pipe?—Matter lodging in pipe prevents its closing.

20. Why is the momentum of a column of water not likely to carry the water through a running-trap, and leave the trap unsealed?—Some of the water will usually run back, and the velocity is not sufficient to produce a vacuum.

21. What is the effect of a column of water passing through a pipe and completely filling it?—It causes a vacuum.

22. Why will a vacuum suck the air out of pipes?—Because the falling water drives the air before it, and by so doing causes a vacuum as it passes the branches and draws water out of traps.

23. What is the pressure of the atmosphere on a vacuum?—The greatest possible pressure is 15 lbs. on square inch.

24. How is this suction prevented?—By leaving top of soil-pipe open, so the air will follow the water.

25. Can a vacuum be created in a pipe when it is only partly filled with water?—To a certain small extent; generally, no.

26. What is the object of extending a pipe from the outer air to the soil-pipe just inside the trap?—To allow a current of air to pass through the pipe.

27. What difference does it make where this pipe enters a soil-pipe, so long as it is inside the point where the trap is placed?—It should enter near the trap, or the portion of drain between it and trap will form a dead-end.

28. What is the proper size of this ventilating-pipe?—Four inches.

29. Why does the air enter by this pipe, and pass out at the top of the soil-pipe?—The air in pipe being usually warmer than the air outside, causes an upward current.

30. Why does warm air ascend?—It is lighter than cold air.

31. Can a rush of water through the soil-pipe affect this ventilating-pipe, and should any precaution be taken in regard to it?—It should be placed as far as possible from basement windows, but if properly aired it should be free from gas.

32. Is it a good plan to ventilate a soil-pipe in a flue, and why not?—No; because when there is no fire there is often a down draught.

33. Would two traps where the soil-pipe enters the house be useful?—No; they would form an air-lock.

34. What is an air-lock?—Space in pipe where air is confined between two traps.

35. How does it affect the passage of water?—The confined air is like a cushion, and retards or stops the flow of water.

36. What is the objection to the use of a brick or stone box with a division-wall, known as a mason's trap, as a trap for a main soil-pipe?—It makes a small cesspool.

37. If a soil-pipe empties into a stream, or on the surface of the ground, and has no connection with a sewer or cesspool, is a trap useful?—Yes, if vented in the usual manner, because sewer-gas is generated in the pipe, and if the pipe is long it is better to trap it where it enters the house.

38. If a pipe empties into tide-water, what precaution should be taken to guard against air being forced through the trap by the pressure of the tides?—A line of vent-pipe between outlet and trap above the tide-level.

39. What is meant by the "dead end" of a soil-pipe?—An unventilated end.

40. Why are such ends dangerous?—Sewer-gas forms or collects in them.

41. How would you connect the leaders of a house with the soil-pipe?—By a deep-seal trap, so as to retard the evaporation of the water.

42. How would you connect area and yard drains with soil-pipes?—By suitable traps with house-drain, and always on the inside or house side of trap.

43. When traps are emptied of water to guard against freezing, in an unoccupied house or apartment, what precautions can be taken to shut out sewer-gas?—The traps can be filled with kerosene.

44. Is there any contrivance by which a soil-pipe can be regularly flushed?—Yes; by an automatic flush-tank.

Modern Æsthetic Houses.

"WE have from time to time called attention to the 'Crazy Style' of Architecture adopted by a few of our younger 'would be' architects. One of the principle '*ingredients*' of this style, is to cover the buildings, when finished, with a bountiful supply of paint, using more colors by far than the tailor who designed Joseph's coat, as described in the 'Good Book.' We quote the following remarks from that most excellent authority, *The Painter*, in regard to the style in question:"—

The existing craze for highly-colored houses, consisting almost entirely of chimneys and roof, will probably soon die out. There are symptoms that the public is becoming wearied of red tiling and dormers, and that inmates of "cottages," with every bedroom partly in the roof, and every sitting-room so low that a man standing on tip-toe can almost touch the ceiling, are sighing for lofty parlors and airy bedrooms. In those modern monstrosities which are considered old English because they do not fulfill the requirements of English speaking people of the present day, it is considered a beauty to be ugly. That bilateral symmetry, which is one of the greatest elements of beauty in art and nature, is sacrificed, not to necessity, nor yet to gain some grand effect, but in sheer wantonness. If a hall, by any accident, came in the center of a front, the entrance is placed to one side to produce an out-of-center effect. Mantels are thrown near the corner of a room, and the two sides made unlike, producing an effect like that of a motley clown.

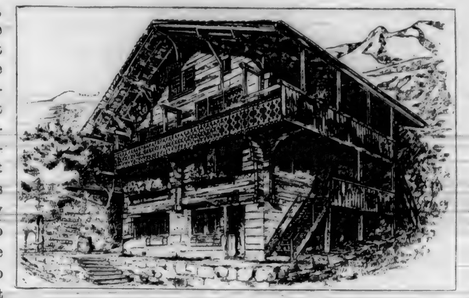
Not even the two halves of a door must be alike, a square panel on one half is balanced by an oblong one on the other. Strange little recesses, capital hiding places for vermin, abound. Glass is cheap, so the windows are cut up into paltry little panes, in base imitation of the times when woodwork was cheaper than glass. Walls are low and roofs are high, but there is no cheapness in the substitution of roofs for walls, for the bedrooms contained in the sloping surface have to be made square by furring, which reduces their size and renders it necessary, in order to reach the fantastic dormer window, to penetrate a deep recess like that which defended a woman's features in the days of the old poke bonnet. With all this there is a ridiculous tendency to divert materials to some purpose for which their fitness is not demonstrated. Shingles and roof tiles, used upon roofs from time immemorial, have crawled down upon the walls. The upper story and all the dormers are covered with them. Fond and foolish persons purchase houses so built. The perversion of shingles has gone further. The walls of rooms are not seldom lined with them, giving a sort of rustic summer-house effect. The straining after novelty or oddity, with total disregard of beauty, is evident in the color that is lavished upon the outside of houses. Red, yellow, chocolate, orange, everything that is loud is in fashion; and the entire exterior is so gay that a Virginia creeper or a Wisteria would be bold, indeed, if it dare set leaf or tendril there. If the upper stories are not of red or buff shingles or tiles, they are parted up into uncouth panels of yellow and brown, while cables and dormers are adorned, not with tasteful and picturesque designs, but with monotonous sunburs's and flaming fans done in loud tints.

It is easy to be odd, easy to be more odd than the oddest thing yet done. Why not at once reverse everything? As the shingles go inside, cover the outside with three-coat plaster, finished in colors; pave the parlors with North River flagstone, stretch the carpets on the porch floors, put the parlors in the roof, with an outside staircase to reach them; place the kitchen next to the front entrance, the bedrooms in the basement, and the furnace, servants' rooms, store-rooms, closets and bath-rooms on the first floor. All this is possible, and the oddity of the arrangement should recommend it to would-be æsthetes.

We find the following plain remarks in a new journal entitled the *Building Budget*, upon a subject that is of much interest to the architectural profession. We have noticed many items in our various exchanges in regard to the same matter, indicating that the custom in the Eastern cities has become a general one. Various remedies have been proposed, but it remains for our new Journal to propose a remedy somewhat bolder than those heretofore suggested.

COMMISSIONS TO ARCHITECTS.

"From time to time, through the columns of architectural journals, there have appeared indignant protests from architects against the dishonorable offers made to them by enterprising, but not over-conscientious, manufacturers and dealers of building material to accept commissions for the consideration of introducing and using their wares. It is but charitable to say that many firms are ignorant of anything dishonorable, since it is a common act of trade to pay commissions to the middle-man.



"But it is not infrequent, even in these days, after there has been so much said against the practice, to hear of some firm who will tender the architect a consideration, or at least suggest it, as an inducement to make use of his material. The honorable architect rejects it and treasures up in his heart a warm and healthy grudge against the man who has considered him vulnerable to a bribe. The dealer who offers it, not viewing the act upon the same moral level, imagines that the cold repulse given his offer betokens the fact that he did not bid high enough, and that some rival firm had raised him out of the sale.

"So long as there is trade and commerce there will be discounts and a sliding scale of prices gauged to the amount of the demand and the source the demand proceeds from. That architects should be able to control discounts is but just and right, but only to the benefit of their clients. If these firms, who are so ready to induce sales by the offers of questionable commissions, would change their tactics so far as to publicly state that sales made through an architect would receive a discount of a certain percentage, a client would understand that his architect's influence extended to that point that he, individually, was not able to reach in the items of cost; and, the quality and finish of goods being equal, the architect could congratulate himself that he was instrumental in producing work for an amount that none but those of his profession could control, while the material man, who has discounts to make could do so through the *proper* channel and to the legitimate party to receive it.

"In one of George Eliot's letters, as recently published, we find the following: 'When one sees a house stuck on the side of a great hill, and, still more, a number of houses, looking like a few barnacles, clustered on the side of a great rock, we begin to think of the strong family likeness between ourselves and all other building, burrowing, house-appropriating, and shell-secreting animals. The difference between a man with his house and a mollusk with its shell, lies in the number of steps or phenomena interposed between the fact of individual existence and the completion of the building.'

"Had George Eliot looked over the more aristocratic portion of our city she might have found another very marked difference, and that is in the veracity of the two. Whatever the mollusk's house pretends to be, it is; whatever our houses pretend to be, they are not. Too many of our most imposing edifices are conceived and brought forth in a mingled sentiment of affectation and pride. Marble fronts of pasteboard thickness, granite stoops and wooden columns, the massive stones, but mineral veneer, and the ornamentation, zinc-moulded shams, roughened with glue and sand, outward and visible signs of an inward and spiritual desire to seem, not to be. You see before you a palatial residence, its front an artistically-conceived design of a modern treatment of architecture, but unfortunately it stands by an alley, and exposes its side, brick, brick—good enough in its place, but as much in keeping as would be repairing a seal-skin sacque with coffee-bagging; while worse to come, penurious pride does not even stop here, but makes the back of the mansion of the severest plainness, of the poorest materials, and an utter shame to the ambitious display of the front."

Sub-contracts.

WE are now, and always have been, opposed to the system by which the several portions of a building are let by the original contractor to a person denominated a sub-contractor. Of course, the only object is, that the former, by this means, is enabled, perhaps, to make a little more money than if he did the work under his personal supervision. But while we are thus opposed to the system referred to, we are in favor of having a law passed by which a sub-contractor can get his money for the work done. We know of no better way by which owners can be protected than by the passage of a bill requiring sub-contractors and others, to notify owners of terms of contract under which they are working, and to report any delinquency on part of contractor to pay for work. Failure to so report should be made a misdemeanor, with certain prescribed penalties. If this course is pursued, the worry and annoyance caused by sub-contractors failing to receive their just dues, would become a thing of the past.

Question—"EDITORS CALIFORNIA ARCHITECT: Which do you consider the best works for an apprentice to obtain the greatest amount of information from in regard to the Science of Carpentry?"

Answer—There are several "*best*" works: "Science of Carpentry Made Easy;" "Tredgold's Carpentry;" "American House Carpenter," by Hatfield; "Practical Carpentry," by Hodgson; "Gould's Carpentry;" and the Bound Volumes of this Journal. In any of the above a student will find fully explained the principles of the Science of Carpentry.

The White Incrustation on Brick Walls.

It has been the source of much comment among those who watch the progress of our building interests, that more care is not exercised in the selection of clay with which pressed bricks are made. It is supposed by many that the fault is in the bricks. The following item from the *Manufacturer and Builder*, will be of interest to all concerned in the erection of brick buildings:—

"The disfigurement of brick walls in many Eastern cities with a white incrustation is most pronounced in the spring months, when the bricks become thoroughly saturated with moisture from continued rains. Two causes have been assigned to account for this circumstance:—

"(1) The existence of silicate, or other salt of magnesia, in the brick clay, and which is converted into sulphate of magnesia in the process of burning in the kilns by the sulphurous vapors from the coal; and, (2) the employment of lime containing magnesia for the mortar used in the walls, which, by the absorption of the sulphurous vapors derived from the burning of coal, becomes converted into sulphate of magnesia, and, being dissolved by the rain, penetrates the substance of the more or less porous bricks, efflorescing ultimately upon the surface.

The second of these causes is, undoubtedly, the principal one involved in the appearance of this unsightly incrustation. Brick-clay contains, as a rule, so trifling a percentage of magnesia that the supply of sulphate that it would form would soon be exhausted, and if it were not supplied from some other source, the incrustation would soon disappear. This other source, unfortunately, is present, and is found in the magnesian lime used in the mortar.

"Mr. Henry Pemberton, who was the first, we believe, to clearly point out the true cause of this phenomenon, at the same time called attention to the fact that the authorities generally are greatly in error in their statements respecting the quality of magnesian limes for mortar. Nearly all the text-books affirm that the presence of magnesia is injurious; that even 10 per cent. of it in the lime causes it to become lean (slow and difficult to slack); and that 25 or 30 per cent. makes it quite useless. These statements he shows conclusively to be misleading, and that such lime will slack readily. The behavior of the mortar made from such lime is very different from that made from pure lime.

"The lime used in and about Philadelphia, where the disfigurement of the walls is more pronounced, probably, than in any other city, contains, on an average, 57 per cent. of lime and 37 per cent. of magnesia, or nearly the relative amounts required for equal equivalents (or to form dolomite).

"This cement, Mr. Pemberton notes, contains 37 per cent., or nearly half of its weight, of a substance which is readily attacked, dissolved and formed into a soluble salt. In other words, every 100 pounds of such lime contains enough magnesia to form 230 pounds of Epsom salts—a crystallized sulphate of magnesia. It is not surprising, therefore, that such a cement, when brought into contact with the necessary quantity of sulphuric acid, should be disintegrated, washed out, and destroyed.

"That the universal use of coal in our large cities and towns for domestic and manufacturing purposes will, and does, furnish sulphuric acid in enormously greater quantity than is required to effect this destruction of the mortar, is well known to chemists. Mr. Pemberton gives a striking illustration of this fact. In the manufacture of carbonic acid on the large scale for the chemical industries, it is usually obtained by the combustion of coal, and purification by washings. To wash the gases resulting in twenty-four hours from the combustion in said time of 6,000 pounds of coal, 40 gallons of water per minute are sprayed into a tower through which the hot gases are passed. This water escapes from the tower at a temperature of 110° F., and consequently contains but little carbonic acid, yet it permanently and powerfully reddens litmus paper, and is perceptibly acid to the taste. As this process goes on continually, day and night, it appears that the sulphurous gases produced from the combustion of 3 tons of coal are sufficient in quantity to render distinctly acid 480,000 pounds of water. When it is considered, now, that the coal consumption of a great city will figure up to several thousand tons daily, it is not hard to understand that the quantity of sulphurous gases evolved therefrom will be vastly greater than is necessary to account for the phenomenon here under consideration.

"Mr. Pemberton sums up the evils resulting from the use of magnesian lime for mortar very concisely in the following terms, which are not in the least exaggerated: 'Unsightly and disfiguring as this white efflorescence may be, it is, to the owner of the building, the index to a more serious evil, namely, the disintegration of the mortar uniting the bricks, causing the destruction or fall of the chimneys and the washing out of the joints, particularly in the back walls or gable ends of houses, where the bricks are irregular in size and the said joints are consequently thicker. The cavities and open joints thus produced facilitate the destruction, until the retained moisture penetrates the wall and compels the owner to refill or repoint the joints at a heavy cost—the whole proceeding probably to be repeated after a few years.'

"These evils may be entirely obviated by the use of a lime free from magnesia. There is no dearth of such lime, but in many cases the prejudices of the workmen prevent its use; and in bringing this curious fact to light, Mr. Pemberton has, undoubtedly, placed his finger on the real difficulty, which will have to be overcome before the evils he so clearly elucidates can be done away with. This prejudice of the workmen he finds to be easily accounted for by the great difference in the behavior of mortars made from magnesian lime and from pure lime. Magnesian lime, he points out, in contradiction to most European authorities, forms, when slacked, a gelatinous, fatty mass, absorbing much water, and permitting a large amount of sand to be mixed with it. The bricklayer, when using it, spreads out the mortar on the surface of the brickwork already laid, as far as he can reach without removing his feet from their position. He then places the bricks in line upon this bed of mortar, placing, as he does so, a little mortar on the end of each brick as laid, until, perhaps seven or eight or more, are in place, then points up the brick with the trowel on the face of the work. With *pure lime* mortar this plan will not do. The mortar, when laid on the brickwork, becomes soon so firm—being less gelatinous, or *pasty*, than the magnesian—that two or three bricks only can be laid before it *sets*, or becomes so dry as not to make a proper bond with the new brick and those already laid. Consequently the bricklayer, accustomed to the magnesian lime, promptly and persistently rejects the pure lime as worthless, since he cannot execute the work expected of him in a given time, nor, probably, if used by him, would the bricks be securely and properly bedded.

"Mr. Pemberton proved, by personal experience, that this was so strong a local habit with the Philadelphia bricklayers that they rejected as unfit for use a mortar made of pure lime which he had brought to Philadelphia from the interior of the State of Pennsylvania especially with the view of doing away with the incrustation nuisance and its attendant evils. On the other hand, in other localities, as in Pittsburgh, the only lime available for building purposes is a nearly pure lime (containing at most from 5 to 6 per cent. of magnesia); and the bricklayers throughout all that section of the State, being accustomed to it, and knowing no other, use it with entire satisfaction. No incrustation on the walls occurs there, notwithstanding the enormous consumption of coal in the city and its vicinity.

"In view of the serious evils growing out of the use of magnesian limes—which have been very clearly pointed out in this article—and which are now well known and admitted, the abandonment of the use of this material would seem to be very desirable. How to overcome the prejudice of the workmen in its favor is the only difficulty in the way, but this appears to be a very serious one."

Furniture Polish.

The subjoined simple preparation is said to be desirable for cleaning and polishing old furniture. Over a moderate fire put a perfectly clean vessel. Into this drop two ounces of white or yellow wax. When melted, add four ounces of pure turpentine, then stir until cool, when it is ready for use. The mixture brings out the original color of the wood, adding a luster equal to that of varnish.

BOUND VOLUME OF THIS JOURNAL, $2.50.

The Chapter Should Have a Home of Its Own.

In a report received at the last meeting of the San Francisco Chapter, A. I. A., it was intimated that the best way to advance and cause an interest to be felt in the Chapter, particularly so by apprentices and draughtsmen in the various offices, was by the furnishing of a suitable room which would be recognized by parties interested, as a home.

This idea is a worthy one, and should be immediately carried out by the Chapter. A room should at once be secured and properly furnished. All the different journals and periodicals referring to architecture, carpentry, modeling, decorating, etc., should be kept on file. A room should be conveniently near in which a work bench could be placed, in order that *practical* lessons may be demonstrated in the various callings.

We understand that a prominent capitalist of this city, has offered to give a room free of charge for the purposes indicated. If so, the Chapter should at once take measures to secure the same and have it properly fitted up, so that all connected with the profession, and visiting brethren from the East, while in the city, can feel that there is one place where they will be at home, and find all those little comforts so necessary to the welfare of all true lovers of the architectural profession.

Building Contracts.

When a building must be speedily completed, it is generally easier to attain that object by putting the whole contract into the hands of one man. Two contractors, responsible only to the owner, and jealous or indifferent in regard to each other's interests, always charge each other with the responsibility for the delays which usually occur under such circumstances, and the owner finds it difficult, if not impossible, either to enforce his contract as to time of completion, or to collect indemnity for the delay without doing injustice. Where, however, the time is not restricted to the shortest possible space, most Architects will agree that the best results are obtained by making at least four separate agreements, the cellar-work and grading forming the subject of one; the carpenter-work, including painting and glazing, of a second; the brickwork and plastering, of a third; and the plumbing, of the fourth. It is often desirable to make a fifth agreement for the painting and glazing, but if the carpenter is trustworthy, there is generally some advantage in allowing these to be included in his contract.

By the system of separate contracts better work is usually to be obtained in each branch, and, considering its quality, at a cheaper rate; although speculative builders have ways of making sub-contracts at prices that seem incredibly low to those who are not familiar with the difference between the good and the "jerry" style of work. The best mechanics always prefer to treat directly with the owner; they are, in this way, sure of their pay, and can, therefore, afford to work at a lower rate, while the owner saves the percentage of profits which the principal contractor feels himself entitled to charge upon the tenders made to him by his sub-contractors. Whatever mode is adopted, too much care cannot be taken to have the plans and specifications as full and explicit as possible. If these are what they should be, a building so simple as a dwelling-house can be, and generally is, when the owner knows his own mind in regard to the kind of house he wishes, and takes the trouble to see that the plans express it, carried out to completion without any "extras" whatever, generally, to the great surprise of the proprietor, who is sure to be informed by volunteer counselors, before he begins operation, that his extra bill will inevitably be "at least as large as the contract price;" that he "ought to restrict the Architect to half the sum he intends to spend," and so on.

We make separate contracts for the cellar-work, the carpentry, the brickwork and plastering, and the plumbing, and have also selected a good furnace, and arranged with the makers to put in the requisite pipes and registers in the best manner, when the proper time comes, under a guaranty that the apparatus shall heat a given number of rooms to a temperature of 70° when the thermometer stands at 0°, without taking air from the cellar or any other part of the house, and without regard to the direction of the wind.

Occasionally, the heating apparatus is included in the principal contract, but this is most unwise. As with plumbing, the work to be done is so difficult for any one but an expert to understand or criticise; and the difference between good and inferior work is so great in value, even more than it cos s, that it should never be made the intention of any man to get it done as cheaply as possible.—*From Clark's Building Correspondence.*

Thousand of Building Lots Sold and Purchased.

During the preceding year, 1884, and thus far in '85 the number of building lots offered for sale in San Francisco, and the number purchased by parties for immediate or near future improvement purposes, has been very large. In every part of the City, "*This Lot for Sale*" meets the eye, and those desiring to buy, are afforded splendid opportunities to make satisfactory selections as to sites and localities, and to purchase privately from owners or agents. But in addition to this, since January of present year, hundred of building lots have been offered and sold (or are advertised to be sold) at public auction, and such public sales have been well attended by purchasers "meaning business;" and the prices obtained under the influence of the seductive statements of the artful man of the hammer, have in many cases been excessively high. The prices at which "*sold*" has sometimes been cried, has either been "dunning" fictions, or extravagant exaggeration of values on the part of purchasers, in either case, however, serving to inflate and influence to some exent, at least, the minds of succeeding buyers. So that the result of the sales in several instances has been a great surprise to cooler-headed people, who, being willing to buy at fair and reasonable, are not willing to pay fancy prices on already "high market" rates.

The fact that so much property is offered for sale—that a large number of outside blocks have been subdivded into 40 to 50 building lots, and sold at auction—very clearly establishes the fact that the prices now being obtained are entirely satisfactory to owners, who prefer to sell "on the top of the market" rather than risk the chances of a "further rise," which should not be possible, as real estate generally has already reached too high a figure. Even the outlying blocks, miles away from the center of business, which have been cut up into building lots and sold at auction, have brought unreasonably high prices, which assertion is sustained as a fact, by the other fact that the titles to forty or fifty lots sold in one block are scarcely perfected, before one or more other blocks are fixed up for sale, with all the cheap preliminaries of white-washed fences and trees, a flag pole floating a big flag, and such other devices as will add superficial attractions, and tune purchaser's minds up to the highest pitch of appreciation. All of which is well enough on the part of those selling, as there is no rule of law or moral ethics which forbids the practice of any legitimate means on the part of those offering to sell, to "show their goods to best advantage."

But it is a matter of surprise that so many buyers are so easily influenced, and are so anxious to "grab up" lots and pieces offered at auction, at the excessive prices which have been obtained in many cases,—prices from 25 to 200 per cent. greater than the same properties would have sold for two years ago. Advances in the values of realties are all right and proper, as showing growth and prosperity to the city, but there is a limit even in this, going beyond which reaches into the instabilities of inflation, and which, when pricked by reactions, renders the fall of him who climbs the highest, and strikes the most, the more severe.

A Badly-Used Owner.

COMMENTS UPON OUR MARCH ARTICLE.

Our article entitled "A Badly-Used Owner," in the March issue of this Journal, caused considerable comment among our Eastern brethren. The absurdity of the quantity of brick saved was so apparent, that wonder was expressed how any paper that claims to be reliable, could have published such statements. The *Building Trade Journal* has the following sensible remarks on the subject:—

"A correspondent of a San Francisco paper complains that he has been swindled grievously in the erection of a row of buildings. By his contract with his builder, a brick foundation was to be laid containing 8,000 brick, but by a liberal use of sand filling, so cheap in San Francisco, 5,000 brick were saved to the contractor. It was found that the other work was all done on the same dishonest principle. Now what is the reason? The very clear one is, the owner wanted a good house built for too

little money, and accepted the services of the lowest bidder, without any regard to his reputation or responsibility. The margin of profit for the builder was represented by the amount of sand filling and skin work, and he probably took care that he was well paid for his work. The trouble in such cases is that the quality of the work is not discovered until too late for a demand for restriction. The only remedy, as we have before argued, is to pay a reasonable price for reasonably good work, and take into consideration the previous record of the builder. The reputation of the whole building trade is greatly injured by cases such as this that occasionally come to light, and builders who will stoop to such work for the sake of a small profit should be black-listed for the public benefit and the good of worthy contractors. Beware of bids that have stamped on their face the seal of dishonesty, hidden under a cheap estimate that necessitates a quality of work not honestly in accord with specifications.

Darkening Oak.

TO RENDER new oak wainscoating and oak furniture dark, and give it an antique appearance, we have it from good authority that ammonia is the cleanest, best and cheapest material that can be used. The liquid stains commonly used are apt to raise the grain of the wood, make it rough, and it is with difficulty evenly applied, whereas in the use of ammonia it is simply the fumes that color the wood, and do it so completely that it is difficult to tell whether the wood is really new or old.

A correspondent in the *English Mechanic*, gives the following process of treatment, which he considers the best, after trying the various other processes used by builders and cabinetmakers to darken woods: "Oak is fumigated by liquid ammonia, strength 880°, which may be bought at any wholesale chemist's at 5s. a gallon. The wood should be placed in a *dark* and *air-tight* room (in a big packing case, if you like!), and half a pint or so of ammonia poured into a soup plate, and placed upon the *ground* in the center of the compartment. This done, shut the entrance, and secure any cracks, if any, by pasted slips of paper. Remember that the ammonia does not touch the oak, but the gas that comes from it acts in a wondrous manner upon the tannic acid in that wood, and browns it so deeply that a shaving or two may actually be taken off without removing the color. The depth of shade will entirely depend upon the quantity of ammonia used and the time the wood is exposed. Try an odd bit first experimentally, and then use your own judgment."
—*Scientific American.*

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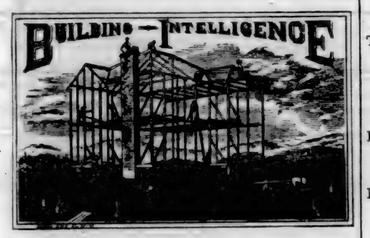

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C.—W. Sinon.
$4,000.

Fourteenth Ave., cor. N. One-story frame.
O.—James O'Din.
C.—Patrick Bardin.
$425.

Railroad Ave., nr. Sixteenth Ave. Improvements.
O.—J. Hauser.
Day's work.
$300.

Scott, nr. Geary. Two-story frame.
O.—F. Bruns.
A.—J. M. Curtis.
Day's work.
$15,000.

Valencia, near Eighteenth. Two-story frame.
O.—M. Fitzgibbons.
A.— — Hoagland.
C.—S. G. Worden.
$4,500.

Lombard, near Buchanan. Two-story frame.
O. and B.—Henry Wegener.
$1,500.

Jackson, nr. Steiner. Two-story frame.
O.—Mrs. J. Newgass.
A.—S. & J. C. Newsom.
C.— — McKay.
$5,000.

Mason, nr. Chestnut. Additions.
O.—J. Burke.
$1,000.

Jackson, bet. Fillmore and Steiner. Two-story frame.
O.—J. J. Valentine.
A.—S. & J. C. Newsom.
C.—Knight & Littlefield.
$20,000.

Fillmore, nr. Pacific. Two-story frame.
O.—P. H Felsenthal.
A.—W. F. Smith.
C.—F. W. Kern.
$8,000.

O'Farrell, nr. Fillmore. Seven two-story frames.
O.—Main & Winchester
A.—Chas Geddes.
C.—J. T. Grant.
$16,000.

California, near Steiner. Two-story frame.
O.—W J. Gray.
A.—Schmidt & Havens.
C.—J. D. McMurray.
$4,000

Union, nr. Steiner. Two two-story frame.
O. and B.— — Ardarme.
$3,000.

Pierce, nr. California. Two-story frame.
O. and B.—Thos. Randall.
$5,000.

Union, cor. Leavenworth. Alterations.
O.— — Medan.
A.—Chas. Mann.
C.—J. P. Hanson.
$2,000.

Filbert, nr. Taylor. Three story frame.
O.—H. Haltmier.
C.—A. H. Taylor.
$7,500.

Filbert, cor. Gough. One one-story frame; one two story frame.
O.— — Krince.
C.—J. Esse.
$10,000.

Green, bet. Leavenworth and Jones. Two-story frame.
O.—G. D Phillips.
A.—S. & J. C. Newsom.
$3,500.

Clay, bet. Polk and Van Ness. Three-story frame.
O.—J. Gobleigh.
A.—S. & J. C. Newsom.
C.—J. McKee.
$6,000.

Golden Gate Ave., bet. Polk and Van Ness. Two two-story.
O.—N. M. Robinson.
A.—J. J. and T. D. Newsom.
C.—John McCann.
$13,000.

Eddy, cor. Broderick. Two-story frame.
O.—Albert Myer.
C.—F. Roettger.
$4,000.

Seventeenth, cor. Eureka. Three two-story frames.
O.—Chas. Solari.
A.—Elsen and Pierce.
C.—D. Perry.
$6,500.

Ninth, nr. Market. Two-story frame.
O.—Geo. A. Ware.
A.—J. J. Clark.
C.—C. Chisholm
$2,500.

Twenty-first, cor. Treat ave. Two-story frame.
O.—Pat. Bannan.
A.—J. J. Clark.
$4,500.

Seventeenth. Frame dwelling.
O.—Thos. Manger.
A.—J. J. Clark.
$2,000.

Octavia, bet. Geary and Post. Two-story frame.
O.—Dr. J. B. McLennen.
A.—J. J. Clark.
C.—J. B. Gonyean.
$4,000.

Twenty-Second, corner Mission. Additions.
O.—P. G. Somp.
A.—J. & T. D. Newsom.
C.— — Plummer.
$2,300.

Union, cor. Octavia. Two-story frame.
O.—Capt. W. N. Shelley.
A.—and B.—W. H. Wharff.
$4,500.

Verona, nr. Third. Two-story frame.
O. and B.—J. Flood.
$2,000.

Oak, nr. Franklin. Two-story frame.
O. and B.—J. F. Gomez.
$3,000.

Haight, nr. Scott. Additions.
O.— — Brown.
C.— — Spangler.
$800.

Pierce, cor. Page. One one-story; one two-story frame.
O.— — Glien.
A— Geilfuss.
C.—Wm. Pluns.
$8,500.

Haight, nr. Scott. Two story frame.
O.—D. Hochstein.
A.—Keinitzer & Raun.
C.—Wm. Pluns.
$8,000.

Haight, nr. Scott. Four two-story frames.
O.—T. Dolan.
A.—F. Shay.
Day's work.
$11,500.

Devisadero, nr. Haight. Two-story frame.
O.—Mrs. Green.
A.— — Gash.
C.—O. Cummings.
$6,000.

Haight, near Devisadero. One-story frame.
O.—J. Greenlep.
$1,000.

Devisadero, near Turk. Three-story frame.
O.—J. Donovan.
A.—Schmidt & Havens.
C.—Studley & Co.
$2,600.

Mission, cor. First. Four-story and basement brick.
O.—P. Donahue.
A.—Wm. Patton.
C.—J. Hughes.
$360,000.

McAllister, near Jones. Six two-story frames.
O.— — Harris.
A.—S. Babson.
C.—Treadwell & Thompson.
$35,000.

California, near Laguna. Two-story frame.
O.—J. B. Crockett.
A.—Clinton Day.
C.— — Chisholm.
$11,000.

Willow Ave., cor. Laguna. Four two-story frames.
O.—I. Townsend.
A.—W. Schrof.
Day's work.
$12,000.

Market, nr. Fell. Five two-story frames.
O.—J. M. Driscoll.
A.—H. D. Mitchell.
C.—J. Geary.
$20,000.

Laurel Ave., bet. Buchanan and Webster. Two-story frame.
A.— — Bestor.
C.—Wilson & Batcheldor.
$2,500.

Broadway, near Pierce. Two-story frame.
O.— — Cunningham.
A.—Clinton Day.
C.— — Flood.
$12,000.

Twenty-first, nr. Church. Two-story frame.
O.—Mrs. S. P. Gunnison.
A.—G. A. Bordwell.
C.— —Gray & Stover.
$5,000.

Haight, bet. Pierce and Steiner. Two-story frame.
O.—Miss Nicoll.
A.—J. Marquis.
C.—J. M. Owens.
$5,500.

Fifth, bet. Folsom and Harrison. Three-story frame.
A.— — Bestor.
C.— — Hanson.
$12,000.

McLea Court, off Ninth. One-story frame.
O.—Dr. McLea.
A.— — Bestor.
C.— — Chisholm.
$2,000.

Second Ave, nr. Sixteenth. Improvements.
O.— — Hall.
Day's work.
$900.

Guerrero, nr. Nineteenth. Two two-story.
O.—F. Crowley.
A.—G. H. Miller.
C.—W. Foote.
$6,000.

Guerrero, nr. Eighteenth. Two-story.
O.—D. Doward.
A.—J. Clark.
C.—J. Adams.
$2,700.

Ford, bet. Sanchez and Noe. One-story and basement.
O.— — Mangel.
A.—J. Clark.
Day's work.

Hancock, bet. Sanchez and Noe. Two-story.
O. and B.—R. Ferry.
$1,000.

Sanchez, nr. Nineteenth. Two-story.
O.—G. W. Chipping.
C.— — Duffey.
$3,000.

Fifteenth, nr. Noe. One-story frame.
O. and B.—J. Nelson.
$800.

Haight, nr. Laguna. Two-story frame.
O.—W. A. Renwick.
A.—J. Gash.
C.— — Cummings.
$7,000.

Lyon, bet. Turk and Tyler. Two one-story frames.
O. and B.—R. Bergfeld.
$4,000.

Stevenson, bet. Twentieth and Twenty-first. Two-story.
O.—C. Schwart.
C.—Day's work.
$2,500.

San Jose Ave, nr. Twenty-fifth. Two-story.
O.—J. M Comerford.
A.— — Kidd.
$3,000.

Cheanry, cor. Thirtieth. One and one-half story frame.
O. and B.—H. Schrader.
$1,000.

Mission, cor. Army Ave. One-story.
O.—C. S. Healey.
Day's work.
$2,500.

Twenty-third, cor. Alabama. Two-story frame.
O.—J. Ribbey.
A.—T. Mitchell.
C.—Sandy & McKenny.
$3,000.

Mission, bet. Eighteenth and Nineteenth. Improvements.
O.—C. Geddes.
Day's work.
$1,500.

Shotwell, nr. Eighteenth. Two-story.
O.—H. Bammann.
A.—Wm. Schrof.
C.—Cormach & Evans.
$3,000.

Haight, nr. Baker. One-story frame.
O. and B.—J. Greely.
$1,500.

Oak, near Laguna. Two-story.
O.—Mrs. Powley.
C.— — Dutton.
$4,000.

Oak, nr. Octavia. Two-story frame.
O.—Mrs. Shram.
A.— — Townsend.
C.—P. F. Lynch.
$3,600.

Devisadero, bet. Tyler and Turk. One-story and basement.
O.—J. J. Dunivan.
A.—Schmidt & Havens.
C.— — Studley.
$3,000.

Hayes, nr. Franklin. Two-story.
O. and B.—Wm. Robinson.
$5,500.

Third, nr. Bryant. Three-story frame.
O.—J. Moran.
A.—T. J. Welsh.
C.—P. Laherty.
$6,500.

Jackson, bet. Hyde and Larkin. Two-story frame.
O.—J. J. Wall
A.—T. J. Welsh.
C.—J. Doherty.
$5,500.

Natoma, bet. Fourteenth and Fifteenth. Two-story frame.
O.—O'Brien.
A.—T. J. Welsh.
C.—Haskell & Webb.
$2,250.

Battery. Two-story frame.
O.—B. Witt.
A.—T. J. Welsh.
C.—J. Rebman.
$2,600.

Shotwell, bet. Fourteenth and Fifteenth. Two-story frame.
O.—T. A. Brown.
A.—T. J. Welsh.
C.—Haskell & Webb.
$3,000.

Polk, bet. O'Farrell and Ellis. Two-story frame.
O.—A. Schlessinger.
A.—Schmidt & Havens.
C.— — Wagner.
$6,500.

Treat Ave., bet. Twenty-fourth and Twenty-fifth. One-story frame.
O. Wm. Klein.
A.—Schmidt & Havens.
C.—R. P. Traxler.
$2,100.

Harrison, bet. Tenth and Eleventh. Two-story frame.
O.—Mrs. Margaret Foley.
A.—Schmidt & Havens.
C.—E. Dunshee.
$4,500.

Leavenworth, bet. Pine and California. Two three-story frame.
O.—L. Hentrich.
A.—Schmidt & Havens.
C.—R. P. Traxler.
$6,500.

Golden Gate Ave., nr. Fillmore. Two-story frame.
O.—L. C. Coleman.
A.—Curlett & Cuthbertson.
C.— — Kincaid.
$7,000.

Third Ave., near Point Lobos Avenue. One-story frame.
O. and B.—Edward Lenard.
$700.

Fifth Ave., nr. Point Lobos Ave. One-story frame.
O.—P. Ward.
C.—J. Bamber.
$1,000.

Fifth Ave., nr. Point Lobos Ave. One-story frame.
O.—J. Jennings.
C.—J. Bamber.
$1,000.

Point Lobos, nr. Fourth Ave. Two-story frame.
O.—J. H. Richards.
C.—J. Bamber.
$2,500.

Eleventh Ave., nr. Point Lobos Avenue. One-story frame.
O.—Mr. Turner.
C.—S. M. Hill.
$1,500.

Twenty-sixth, nr. Capp. One-story frame.
O.—J. B. Griffith.
C.—S. M. Hill.
$1,750.

Devisadero, nr. Geary. One-story frame.
O.—Mr. Foley.
C.—Peterson & Smith.
$1,800.

Post, near Octavia. Additions.
O.—K. Moffat.
C.—S. M. Hill.
$1,500.

Ellis, bet. Hyde and Larkin. One-story frame.
O.—Wm. Hess.
A.— — Littlefield.
C.— — Kincaid.
$—.

Valencia, nr. Eighteenth. Additions.
O.—H. Kuhn.
A.— — Henriksen.
C.—Wm. Pluns.
$2,400.

Eleventh Ave., nr. Point Lobos Avenue. One-story frame.
O. and B.—Henery Eade.
$1,500.

Post, nr. Devisadero. Two-story frame.
O. and B.—S. J. Taylor.
$3,200.

McAllister, cor. Pierce. Three-story frame.
O.—Mrs. Levy.
A.—Schmidt & Havens.
C.—Commary & Beardslee.
$14,000.

Devisadero, near Sutter. One-story frame.
O.—C. H. Dobson.
C.—A Jackson.
$2,000.

Devisadero, near Sutter. One-story frame
O.—A. Kopankiewlec.
A.—H. Geiltuss.
C.—Owen Bros.
$3,500.

Sutter, cor. Scott. Two-story frame.
O.—Wm. Fromheim.
A.—J. C. Felton.
C.— — Wickersham.
$5,000.

Post, between Pierce and Scott. Two-story frame.
O. and B.—J. C. Weir.
$4,000.

Scott, nr. Post. One-story frame.
O.—C. Watts.
C.— — Gibson.
$2,800.

Sutter, nr. Webster. Two-story frame.
O. Thos. Brown.
A.—Townsend & Wyneken.
C.—A. H. Plummer.
$4,000.

Bush, cor. Gough. Additions.
O.—E. J. Ruggles.
A.—W. F. Smith.
C.—R. P. Sanches.
$3,500.

Treat Ave., bet. Twenty-first and Twenty-second. One-story frame.
O.—T. C. Butterworth.
A.—W. F. Smith.
C.—R. P. Sanches.
$2,000.

Octavia, nr. Geary. Additions.
O.—Dr. McClennon.
A.—J. J. Clark.
C.—J. Gourjeau.
$4,000.

Ellis, bet. Leavenworth and Hyde. Two-story frame.
O.—R. H. Lloyd.
A.—Kreitzer & Raun.
C.—Conrad & Miller.
$16,000.

Geary, bet. Hyde and Leavenworth. Two-story frame.
O. and B.—John Hammond.
$3,000.

Fifth Ave., nr. Point Lobos Ave. One-story frame.
O.—Jas. Casey.
C.—J. Bamber.
$1,000.

Fifth Ave., nr. Point Lobos Ave. Two-story frame.
O.—J. Norgrove.
C.—J. Bamber.
$2,550.

MISCELLANEOUS.

Fresno—Baptist Church. C., A. Jackson & J. W. Smith; $6,000.

Petaluma—One-story frame. O., J. F. Fairbanks; A.; Curlett & Cuthbertson; $3,000.

Sonoma—Additions to Union Hotel. O., A. Wissel; A., A. C. Lutgens; C., J. B. Small; $4,700.

Calistoga—Two-story frame. O., H. S. Dexter; A., Clinton Day; C., — Flood; $6,000. Two-story frame stable. O., Mrs. A. Furness; A., Schmidt & Havens; C., Commary & Beardslee; $2,500.

Oakland—Filbert, bet. Sixth and Seventh. One-story frame. O., W. F. Rouse; A., J. J. and T. D. Newsom; C., — Wyne; $3,000. Two-story house with stable. A., Clinton Day; C., Burpbee & Judson; $16,000. Peralta Heights. One-story frame. O., Norma Kelsey; A., S. & J. C. Newsom; C., — Merrill; $4,000. Two-story frame. O., J. H. W. Riley; A., S. and J. C. Newsom; C., Wasson & Pattianni; $7,000.

Daggett Siskiyou County—Frame dwelling. O., Dr. Jul. Koebig; A., G. E. Voelkel, day's work; $8,000.

Alameda—One-story frame. O., J. H. Miller; C., S. M. Hill; $1,750.

Saucelito—One-story frame. O., J. M. Crowley; C., S. M. Hill; $1,750. Two-story frame. O., J. Thomas; C., S. M. Hill; $1,250. Two-story frame. O., N. Sease; C., S. M. Hill; $1,250.

Fair Oaks—Frame house with stable. O., I. D. Atherton; A., Clinton Day; C., Ingerson & Gore; $3,500. Alterations. O., A. Hecht; A., H. C. Macy; C., S. M. Hill; $850.

Woodland—First, cor. Cross ave. Three-story frame Villa. O., A. W. and H. C. Gable; A. and C., Gilbert & Son; $16,500. Second. One-story frame. O., Frank Turner; C., J. Caldwell; $1,500. Fourth. One-story frame. O. and C., Sidney Steinburg; $2,000. Fourth. One-story frame. O., Mrs. Winchel; C., Glenn & White; $1,800. Two-story frame. O., Hugh Cave; C., G. W. Henderson; $2,100. Two-story frame. O., H. P. Merrit; C., G. W. Billings; $1,200. Pendegast Avenue. One story frame. O., Samuel Haines; C., D. F. Myers; $1,600. Elm. One-story frame. O., Thomas McMurry; C., Pool & Sears; $1,200. College ave. Foundry and machine shop. O., Marshale Diggs, building and machinery; $4,500.

Winters—Railroad, cor. Grant ave. O., M. Harriman; Day's work; $2,000. Two-story frame. O., G. N. Seaman; C., Richey & Ward; $1,200.

Knight's Landing—Two-story frame. O., Barney Roseberry; day's work; $4,500.

Martinez—Knights of Pythias Hall. A., Byron Brown; C., Ludden & Marsh; $2,500. Two-story frame. O., — Perry; C., T. Carter; $2,000. Two-story frame. O., — Lazzell; $8,000.

San Jose—Additions. O., — Crites; C., Moore Bros.; $1,500 Alameda Road, cor. Cinnabar. Brick building. O., Fredericksburg Brewing Co.; A., Theo Lenzen; C., Kenny & Leddy; $7,500. Lenzen ave. Additions. O., W. P. Hennessy; A., Theo. Lenzen; C., R. Sunimers; $1,5 0. Third. Additions to San Jose Turn Verein Building; A., Theo. Lenzen; C., G. E. McDougall; $1,800. Second. Barn. O., W. A. Parkhurst; A., Theo. Lenzen; $1,900. Near town. Two-story frame. O., A. Malores; A., Theo. Lenzen; $9,000.

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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.

Summer Building Operations in City and Country—Review for the Past Month.

WE have taken particular pains during the past month to inquire among the owners of different buildings in various parts of the city, their views in relation to the pr sent building boom and the

LIKELIHOOD OF ITS CONTINUANCE.

Simmered down, the answers from a majority of those interviewed would read about thus: In spite of the cry of dull times, more money is in circulation than for any similar period in many years. Many well-to-do people have erected comfortable dwellings for their own use, and this fact has been the agency by which large numbers of mechanics have been kept at steady work; the latter, in turn, have been able to save money and put the same in a little home, and so money has been continually changing hands and always doing that good which manifests itself in the beautifying and adornment of our streets.

Another interesting fact is noticeable: Many have borrowed money with which to build two-story flats. Living in one and renting the other, an income is derived by which more than the interest is regularly met, and, after a few years' determined and energetic action, with the practice of strict economy, a home is secured which amply repays for the struggle incurred in obtaining the same.

MORTGAGES NOT ALWAYS A SIGN OF RETROGRESSION.

The day has gone by when a mortgage is considered a sign of financial embarrassment. At the present low rate of interest obtainable in most of our savings banks, it is, in our mind, a sign of excellent business judgment upon the part of owners to procure money by this means and erect buildings upon what would otherwise be stagnant property. This matter of

LOW RATES OF INTEREST

Is doing as much, if not more, than nearly all the other ideas advanced put together towards making this city the second in importance on this continent. By the means referred too, large manufactories can be built, and numerous enterprises can be put into operation. It should be the boast of California, that we do not import a single pound of nails, nor a gallon of oil, nor a keg of paint. The shores of our bay should be lined with manufactories turning out vast quantities of glass, hardware, cement, plaster, carpets, furniture, ironwork, both plain and ornamental—in fact, we ought not to import anything that can be possibly made with profit on this coast. The lower the rates of interest, the greater number of these enterprises can be started, and this of course means the addition of thousands of operatives to our population, and the circulation of an immense amount of money.

WILL THE BOOM LAST?

At present we can perceive of no sign indicating any sudden relaxation in the number of building operations. Work has been commenced on Market Street below Drumm. The old buildings are in process of demolition, and fine brick edifices will take their place. Further out, grading has been commenced for a fine four-story building. The number of applicants for plans in the various Architects' offices, seems to be, if anything, on the increase. Owners, however, are exercising a greater amount of caution as to the limit placed on the sum necessary for any contemplated improvement. This is such as to cause misgivings in the minds of the Architect as to the practicability of conforming to their client's ideas.

IN THE CITY

A reference to our Building Intelligence will show the following facts: During the month from the 10th of April to the 10th of May, there have been started in this city—

109	frame buildings, value	$519,556
2	brick " "	11,405
16	alterations "	46,882
127		$577,843

Making a grand total for the amount of

127 Buildings of the Value of $577,843.

IN THE COUNTRY.

There is now more work—in the aggregate—being performed throughout the State, in the building line, than at any period during 1884. The following places and localities may be considered as having their share: PORT COSTA, with its immense docks, warehouses, and near by the Selby Smelting Works. MARTINEZ is livelier than she has been for some time. OAKLAND and her sister ALAMEDA are displaying more activity than at any similar period for years. SACRAMENTO is looking up. YOLO COUNTY, as a whole, presents a more than average record. LOS ANGELES is quiet, but still a goodly number of buildings are in process of erection. FRESNO and vicinity is keeping pace with the section further south. SAN DIEGO, the city of *magnificent guesses*, has awakened from its lethargy and actually several houses and improvements have been started. In fact, from every section is beginning to be heard the sound of mechanies' tools, as they are wielded by men who cheerfully look forward to a prosperous season.

LUMBER.

In spite of the new schedule, this material can be had at rates favoring the buyer. Prices may be again raised, but if an owner will take the money in his pocket and travel personally among our dealers, he will soon find out that the amount placed on the cards representing the price of lumber, is anything but that for which lumber can be obtained.

Building Associations.

THE influenc eof these organizations is being felt more and more as people better understand their workings. In all of them, the demand for money is greater than the supply. The "Mission Building Association" is growing at a rate that will soon place it at the head of those in this city. It is fortunate in having for its President Mr. Hutchinson, of Sather & Co., bankers. The premium has gradually advanced from 10 per cent. up to 14, and it is not probable that, in the near future, it will be less than the latter figure. We will endeavor soon to give a full history of the workings of these associations.

A New "Castle Hall."

THE Knights of Pythias in San Francisco have taken the initiative toward securing a permanent abiding place,—a "Castle Hall,"—for the order, where the chivalric brotherhood in this city may assemble in weekly fraternal intercourse; and brethren of the order from all sections of this State and the Pacific Coast, and those from beyond the great mountain chain which divides and sectionizes our great country into East and West, and brother knights from foreign countries, may gather and receive fraternal greetings under the order's own vine and fig-tree, with its proud banner floating above its portals, and the great spirit of pure chivalric brotherhood permeating its inner chambers.

A fine lot, 77.6"x137.6" has been secured, located along the northern line of McAllister Street, about opposite the Hall of Records. While the enterprise will be known as the Knights of Pythias Hall, and will be built for the special purposes and uses of the order, its ownership will not be in the order, as such, but in an incorporated stock organization, known as the "*Knights of Pythias Hall Association*," with a stock capital of 100,000 shares, at $10 per share.

The lodges in San Francisco have already made handsome *first* subscriptions to the enterprise, amounting to nearly $20,000 within the time required to search the title papers. It is expected that every lodge of the order within the jurisdiction of the grand lodges of California and Oregon, will become shareholders; and the individual subscriptions already in, and the excellent feeling expressed among the membership generally, assures us that the personal subscriptions to the enterprise will be large, and that soon the forty odd thousand dollars required for the purchase of the lot will be raised, and a sufficient surplus as a building fund to enable the early commencement of the edifice.

The brilliant success achieved by the order during its few years of existence, its growing popularity and great increase in membership, render it both feasible and necessary that the order should enjoy the advantages and benefits of its own Castle Hall, built for, and dedicated to, the benevolent and fraternal objects of the order, and the perpetuity of the sacred principles which called it into existence, and which in less than twenty years has caused it to grow from the small nucleus organized in the City of Washington, D. C., for purposes of the purest and most sacred character, to an order more or less numerous in every State in the Union, with 117 lodges, and a membership of 9,066 in California, and in the United States nearly two thousand lodges, and 135,000 true and valiant knights, with a present high and honorable standing among the oldest and best fraternal organizations of the age, and a future full of hope and promise.

Science of Carpentry..... **$5.00**

The Buddensick Infamy.

IT is both possible and probable that through the legal technicalities the recognition of doctored testimony, direct perjury, and shrewd legal management, so fearfully admitted and practiced in American courts of justice, the man Buddenseik, if brought to trial, will escape deserved and adequate, if not all punishment for his willful accessoryship before the fact, in the destruction of human life occasioned by the fall of the death traps provided by him in the city of New York, in the shape of houses for human inhabitants. It is unnecessary for us to repeat the story of the fall of the building shams constructed by this man, and the sad results that followed. These have been heralded by the press of the country, and are known to any one who reads the daily papers or class journals; and no disinterested person within the boundaries of the United States questions the culpability and guiltiness of the author of the calamity. except in the degree of punishment that should follow the crime,—for crime it is, whether of negligence or the more probable total disregard of consequence,—or that which is still worse, the ungodly and inhuman spirit of avarice which sets at defiance all laws and ordinances provided to control and regulate the acts of such men, many of whom, if not so bold and daring, are to be found in all parts of the country, San Francisco not excepted. The practical lessons presented in this case are the present more important points worthy of notice.

It is an unfortunate affair for New York, as it involves the reputation of a considerable portion of the real estate improvements in that city, not known to be constructed by reliable contractors under the superintendence of competent and reputable architects. The tendencies are to the depreciation of property, not beyond the possibility of doubt as to character of construction. However limited the Buddenseik class of buildings may be in fact, the happening reveals and fixes *upon the metropolis of* New York the unenviable reputation of a city containing numerous dangerously constructed buildings, and many who might otherwise be inclined to invest in New York improved real estate, will be deterred from doing so through fear of a repetition of trembling walls, fire, and sudden calamitous destruction of life.

The affair is also unfortunate in that it furnishes capital and argument, and gives color to the more or less common notion largely prevailing among the people of other countries, that almost everything American partakes of is shoddyishness and frailty. But while the adverse features of the case are numerous, the occurrence will prove beneficial in the future in this,—that without its warning the man Buddenseik, and perhaps many others of like selfish purposes, would have continued to erect buildings of similar dangerous character, and instead of a single block or row, there would have been, in time, hundreds of fraud structures, each liable to tumble at any moment, killing large numbers of innocent persons.

The good effect of this sad warning has aroused the New York officials having building matters under their control, from the slumber of unpardonable neglect; and for a time at least it may be expected that at least safe, if not eminently substantial, buildings will be the rule. Nor will the influence of the cruel happening be confined to New York. Building commissions, boards of public works, and others appointed and empowered to look after such villainous building manipulators as the man Buddenseik, in other cities, will exercise greater vigilance in the performance of their duties, and it is safe to presume that for years to come the building frauds will be held in check, and but few buildings permitted which will not pass mechanical constructive examination.

Men Who Own Their Homes.

AN artisan who is working industriously to pay for his little garden and home, has a well-defined purpose in life, and when that purpose is attained he becomes the happiest of men. It is laudable ambition to own one's own habitation, in which case a man's house becomes his castle. Rent-paying dulls the edge of effort, and helps to make a man a sort of drone in life's busy hive. Energy and industry will soon earn and pay for a home. The more a man accomplishes the more he may.

The active tool never grows rusty. You will always find those men who are the most forehanded and most forward to do good or to improve the times and the city, always busy. Who start our railroads, our machine-shops, our manufactories, and our new school-houses and churches? Men of industry and enterprise—men who own their homes that they have earned by their own efforts. As long as they live they keep at work, doing something to benefit themselves and others. We go for activity—in body, in mind, in everything. Let the gold grow not dim, nor the thoughts become stale. Keep all things in motion.

New Books.

WATER CLOSETS.—A historical, mechanical, and sanitary treatise, by Glenn Brown, architect.

This new work gives a complete history of progress of inventions in water-closet from a period beginning several hundreds of years before the Christian era, down to the present time. All the late patented closets are fully illustrated and their merits and demerits faithfully portrayed. The sections on tank and supply valves are full of new and interesting ideas. For sale at this office. Price, $1.00.

A query found in the "Mechanical Engineer" deserves to be pasted in the office of every establishment that has an elevator. It is simply: How long is it since you examined the wire rope connections on your elevator? It will not do to suppose things are safe. Inspection reveals that which was hidden, and it is startling to see what we have relied upon sometime.

"INSOLVENT.—*Frederick Cobb, an architect and builder, has filed a petition in insolvency in the Superior Court. His assets are nominal, and liabilities* $3,600."

There are not five in one hundred of Mr. Cobb's class, who are not frauds in more ways than one. Many become *builders*, because they "cannot find steady work" as journeymen; yet the fact is, beyond dispute, that good, competent workmen, unless objectionable through irregular habits, physical ailments or otherwise, are seldom idle even for a day, except of their own choice; and seven out of ten who quit the ranks of wage earners to become master builders, do so from a knowledge of the fact of their inferiority as mechanics, or if not *wholly* from this conviction, the adjunct of great self-conceit in their executive abilities, and the phantoms of great imaginary results sure to flow from the exercise of their latent geniuses, the prospects of placing themselves in positions to control and manipulate the interests of owners, and similar incentives, allure them to venture where even men of honest purposes and good mechanical qualifications have *more generally* failed to make more than bread-and-butter successes. Consequently the field of building operations in California has yielded any number of *tares* of the Cobb kind.

If such men would attempt to reach no farther than the narrow limits to which they may have a shadow of claim, mechanics, the fraudism would be less conspicuous, and they would only be numbered with the thousands of those who have from time to time so tarnished the good name and reputation of "contractors," "builders," etc., that those only who have by years of good, square and upright demonstrations of integrity and competency, gained the reward of honorable recognition. But the assumption of "architect" by such men, is simply adding insult to injury, as not one in a thousand of them has the slightest knowledge of the professional science assumed, and what they do in that direction is more frequently the result of points gained from plans pilfered in some way, ideas obtained from books, or the work of boys and employees in architects' offices.

The failure of Gilbert & Co., of Oakland, is another of like cases as that under notice. They too were "architects and builders," furnishing plans, specifications and contracts, through which assumption they drew into their net many innocent owners, who were misguided by the pretensions—not the integrity or competency of the parties. They had their short day as "architects and builders," with an ending that developed more than intelligent, honest men would consider creditable. We were called upon by one of their victims to help him in his hour of trial, his home being unfinished and more money having been paid than was due, but the papers were of a character which left the unlucky owner at the mercy of those into whose hands he had placed himself, with no remedy at law, and his interests entirely contingent upon the conditions and circumstances of the case. The contract read, "To build a house in San Francisco for A. B." (neither location nor street being mentioned), "according to plans No. 86," etc., for the sum of———. The fact was clear, that the contract was either the result of consummate un-intelligence on the part of the party or parties who wrote it, or a well-concocted purpose to clutch the owner and hold him in a helpless attitude, with no possible redress, and compel him to accept whatever might be given him in the shape of a house.

While any punishment received, is well deserved by owners who will be parties to such transactions for the sake of getting a "cheap house," it is to be regretted that mechanical, architectural and building operations cannot be so protected by law or public sentiment, that such impositions, wrongs and false pretentions would not be possible, or their perpetrators severely punished.

Mend Your Files.

ONCE in a while a file will get broken, even with the best of care; but, with the knocking about they are subject to, it is a mystery how any of them come out whole. Tell the boys to bring a file to you the very minute they break it. Have a little bottle of muriate of zinc (zinc dissolved in muriatic acid), and wet the break with it immediately; then heat a soldering iron and tin the ends of the file. Heat the file pretty warm—not enough to start the temper, but rather too hot to hold in the hand. When well tinned and hot, press the two pieces firmly together, squeeze out nearly all the solder, and let the file cool. Trim off the joint, and, if well done, the file will break in another place next time. It will not pay to solder a file unless it is nearly new. Let it lay a day or two, or, in damp weather, even an hour or two, and you never can mend it so it will stay. Take it the minute it snaps, and you can do what they used to stick a 'prentice on, viz., mend a file.

THE SHARPENING OF TOOLS.—Instead of oil, which thickens and smears the stone, a mixture of glycerine and spirit is recommended. The proportions of the composition vary according to the class of tool to be sharpened. One with a relatively large surface is best sharpened with a clear fluid, three parts of glycerine being mixed with one part of spirit. A graver having a small cutting surface only requires a small pressure on the stone, and in such cases the glycerine should be mixed with only two or three drops of spirit.

The old idea that slow grown timber was stronger than that grown quickly is disproved by recent tests in England, so far, at least, as oak is concerned. Second-growth hickory is usually more valued for handles of axes, hammers, etc., and the annual rings show it to be of swifter growth than the first stock.

Shoddy New York Buildings.

THE details are at hand of the manner in which some buildings in New York City have been constructed. The late disastrous collapse of a row of brick houses, has been the means of exposing the methods by which certain contractors have made fortunes—through and with the aid of public officials. If the latter charge is proven, they, as well as the architect and contractor, should be subjected to the workings of that ancient Persian law which provided that any architect who put up a building that from any cause should afterwards fall down, should be buried alive under the ruins of the fallen structure.

We also notice that the Persians had a way of enforcing this law with great regularity, and that they jammed the sod down tight and quick about the unfortunate builder. The result was a very substantial style of architecture, which, in many places, is still in existence, although more than a score of centuries have rolled away since the foundations of some of their structures were laid.

The best proposition we can advance to our New York friends, is to frame a law with provisions in the same according to the above. The result would be a total cessation of the erection of careless, and we may say criminal, buildings. We fancy, however, that such a law would meet with much opposition from those who adopt the *Buddensick* standard of building as a rule.

The Chapter of Architects.

FOR the first time in a number of months there was not a quorum present at its meeting of the first ult. This should not have been, and its members deserve reproof for neglect. The Chapter is on a good, sound financial and incorporated basis, and should command the support of every reputable architect on the coast. That it can be made a useful, influential and prosperous institution, commanding the respect and confidence of the profession and the public, is beyond doubt; and the only reason why it is not so, is because the architects of San Francisco fail to utilize the opportunity to bring about the result. It is but a small sacrifice for each to make, to devote one evening in each month to fraternal interchanges of views and ideas, and the consideration of matters alike interesting and profitable to all.

In the Eastern States, the Chapter interests are kept up, and much good is being accomplished, and the parent Chapter enjoys a national reputation, while in London the British society is a power in the land, and its published proceedings are worthy the reading and attention of every intelligent architect, at home and abroad. It only requires earnest effort on the part of well-meaning men, firmly banded together, to accomplish results gratifying and beneficial to themselves and others. It is to be hoped that every member of the Chapter will be on hand at its next monthly meeting. Let none be absent.

CALIFORNIA RUSTIC.

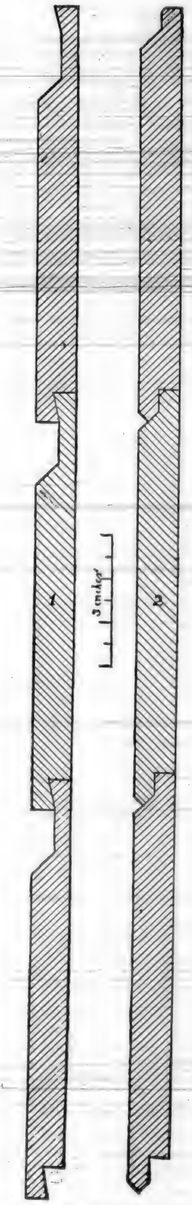


ILLUSTRATION
OF
CALIFORNIA RUSTIC

SAN FRANCISCO is largely what may be termed a "wooden city." The statistics of last year show that out of 930 buildings erected in that time, but twenty-five were brick; this, however, is not a fair comparison, as the number of frame houses erected was unusually large for that period. A fair estimate would place the ratio of about one to twenty-five. Keeping this fact in view, it is not strange that the ingenuity of our architects is taxed to its utmost in studying new shapes for the material to be used on the outside of buildings. In the earlier times, "clapboarding" was used quite extensively, but now it is rarely seen. Tongue and grooved stuff was also used, but its liability to shrink caused its use to be discontinued except in rare instances.

Previous to 1864, rustic was made of ⅞ lumber, thirteen inches wide, and, owing to imperfect machinery, was necessarily costly, the average price being about five dollars more per thousand than T. and G. surfaced redwood. The lumber had to be passed twice through the machine, the first operation being the reduction of the lumber to a uniform width and thickness. We think that it was in the year mentioned that, acting upon a suggestion made by G. B. Knowles, Mr. C. W. Thomas invented a machine by which the two operations were combined into one, and thus, by reducing the time consumed in manufacturing the rustic, materially lessened the price of the same. The mill owned by Thomas was situated on north side of California, between Davis and Drumm. It has long since been a thing of the past, and its place occupied by wholesale stores.

As mentioned before, rustic when first used was made thirteen inches wide; but this width was found to be too great, and was soon after cut down to ten inches, which is now regarded as the standard. In our illustrations, No. 3 represents the kind in most general use, and is called channell rustic. No. 2 is an other form that is much used, and is known as the V rustic. When the latter is used, it should be thoroughly seasoned and not over eight inches wide. The other patterns shown are in general use with the exception of Nos. 1 and 8. The former has one objection that will prevent its adoption. The natural shrinkage of the lumber will cause a "bump," just where one layer laps on the other. The upper edge of one piece being covered by the lap of that above, will not shrink as much as that on the outside, and so the outside will naturally, in being shortened by shrinkage, be forced out from a direct line on the face. In many kinds of lumber, this contraction would be strong enough to split the board, or at least as before mentioned cause a "bump." A still greater objection could be urged against No. 8. If used, it should be worked out of lumber not less than 1⅛ inches thick. This design was suggested by one of our first contractors, who evidently has been a deep student of the results of *capillary attraction*.

No. 7 is a design that is lately coming into prominence. It is very neat and when made from dry lumber, and care taken to have the mill work smoothly done, it gives an extra finish to the exterior of a house. With the lower lip cut off it is also a superior design for a base board, a three or three and half inch lip light moulding making it present a fine appearance.

Nos. 5 and 6 differ from No. 2 only in the width, and the size of the V joint.

There are still other kinds than those we have shown. A few years ago, it was fashionable to have the rustic blocked out to represent stone, but like all imitations it soon tired the eye, and is now but seldom seen.

The primitive style of thirteen-inch rustic is now but seldom seen, but for the benefit of curiosity seekers, we will refer them to an old house on Sutter Street not far from Mason, where

ILLUSTRATION
OF
CALIFORNIA RUSTIC.

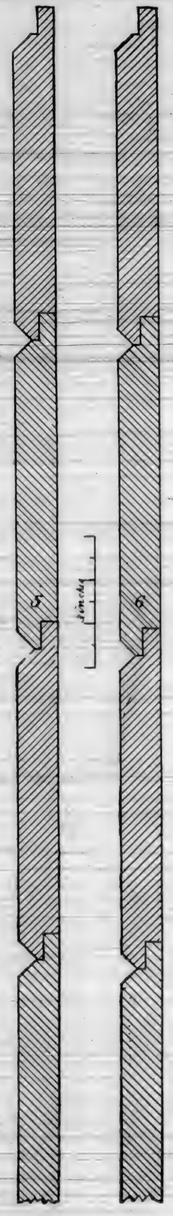


ILLUSTRATION
OF
CALIFORNIA RUSTIC.

specimens of the *first* ideas may be seen. We may add par parenthesis—that although at first from three to five dollars per thousand was charged extra for rustic, the same *liberal* tactics were applied then that are now so successfully practiced. A small bill of rustic alone would be charged the extra price, but for the sake of selling a *bill* of lumber, it would be placed at the same rate as Tongue and Groove. A difference of opinions exists in regard to which variety is best for a building,—hard or soft rustic. By far the greater portion that comes to this market is of the latter kind; it is generally preferred on account of the ease with which it can be sawed, and for the few blows of a hammer necessary to drive a nail home. But there are some of the *long heads* of the lumber fraternity who claim that *hard* rustic is much the best, when care is taken to have the same thoroughly seasoned, and due caution is exercised in the careful driving of the nails.

Never buy second quality rustic. It is more expensive in the end than No. 1. A pile of second quality rustic is made up from probably the run of several mills at scores of different times, consequently the width varies considerably, and is the source of much annoyance even to those using it on a barn. Hard pieces, crooked grain pieces, short pieces, sappy pieces, etc., are all thrown together into the second quality pile. The keen judgment of a first-class mechanic will enable him to quickly notice these different specimens; but the average mechanic consumes more time "assorting out" than would pay the difference in cost of gilt edge rustic.

In 1865 the price varied from $40.00 to $42.50 per thousand. In September, 1879, the price dropped to $20.00, which is the lowest, we think, for which it was ever sold. At present it is about $30.00.

There are buildings standing to-day upon which three different widths of rustic were used. Why the architect should specify one width for first story, a less width for second story, and still less for the third story, is one of those problems that can be answered only by the professional in charge.

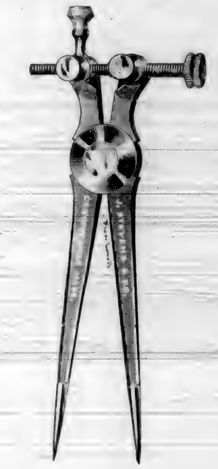
San Francisco owes much of its greatness to redwood rustic. In case of fires, its more than ordinary non-combustible quality has been the means of preventing serious conflagrations. When the wood is heated, the pores of the wood naturally open; and when water is thrown on the same, the wood soaks up the water and is thus rendered less liable to combustion. Thus feeling partly protected from fire, our worthy citizens pile on the exterior finishes, and to-day San Francisco stands forth as the finest built and showiest wooden city of the world. Another safeguard pertaining to rustic, lies in the fact that it is devoid of pitch and other substances of an inflammable character. This is a peculiar feature of all redwood.

Rustic should be V stacked upon the ground immediately upon the commencement of a building; the joints and laps should be primed before being used. A strip of tin placed behind every butt joint is a safeguard against leaks from open joints caused by shrinkage, for redwood *shrinks endways*, and if the material is not extra dry, a disfiguring crevice will appear at every butt joint.

The lumber fraternity generally consider rustic a profitless article to deal in, the thinness of the channel section rendering it very liable to splits and breaks from piling, stacking, or other causes, and the least defect condemns the same from being placed in the *gilt edge* pile.

Other facts in connection with the material under consideration will be given in a future number, as several of our prominent dealers and mill workers have promised us important data in regard to *California Rustic*.

ILLUSTRATION
OF
CALIFORNIA RUSTIC.



Reliable Dividers.

THE above cut represents the new style of "Reliable Dividers" as manufactured by J. Stevens & Co., Chicopee Falls, Mass. They are forged from heavy stock and operated with a right and left hand-screw, thereby removing all back lash, and making, as its name indicates, a *reliable* instrument. A sample of the above can be seen at this office. We can recommend these dividers for superior finish and the hardness of the points. Any hardware dealer will furnish you with one of these instruments, or we will furnish those living remote from cities with any number upon receipt of the price—$2.50 each for the 5-inch size.

Hanging a Grindstone.

TO HANG a grindstone on its axle to keep it from wobbling from side to side, requires great skill. The hole should be at least 3/8 inch or 1/2 inch larger than the axle, and both axle and hole square; then make double wedges for each of the four sides of the square, all alike and thin enough so that one wedge from each side will reach clear through the hole. Drive the wedges from each side. If the hole through the stone is true, the wedges will tighten the stone true; if the hole is not at right angle to the plane of the stone, it must be made so, or the wedge corresponding must be altered in the taper to meet the irregularity in the hole.

Concerning the above method of hanging a grindstone, a correspondent of one of our contemporaries writes as follows: "The method described has been in use as long as the grindstone itself, but it is not the way to do it today. Wedging the center of a stone, is a great help to burst it, and when the speed is excessive, the wedging strain is an important factor in the life of the stone and the safety of those around it. The best and easiest way, and the scientific way, to hang a grindstone is by a nut and collars, almost like a circular saw, and exactly like an emery-wheel. If the hole in a grindstone is 6 or 7 inches square (as usually made) fill up with a piece of green timber. If live timber is not available, soak a piece of wood over night in water; then it will not swell when wet and exert a destructive pressure on the stone. Take a pair of big dividers or a trammel, and find the center of the stone. Do this upon each side of the stone, and bore the hole from both sides. Bore a little larger than the shaft, or burn out the hole if your auger is not quite large enough. See that the stone is decently true upon its sides where the collars bear. If not so either chip the stone or mount it temporarily and turn the sides true. Now put it on the shaft and screw up. True the face of the stone, as it is not probable that you will get it to run exactly true. You now have a grindstone that will not come loose by getting dry every time it stands without water a day or two, and is not apt to split open when first wet. When that stone gets worn down to 18 or 20 inches in diameter, it pays to split it, and make two narrow stones, provided it was 6 or 7 inches thick originally. To split a stone, turn a groove 3/8 or 1/2 inch wide, and as deep as convenient—2 inches will do, but 3 is better—in the center of the face. A piece of 1/4 or 3/8 inch gas-pipe is the tool to use for turning the groove. Drive the groove full of dry pine wedges. Have them fit as well as possible. Do not drive too hard, or you may break out a piece and spoil the stone. After the wedges are all fitted, lay the stone in water or keep it wet, and it will split in two at its leisure."

The Credit System.

WE think too much cannot be said about the exercise of great care in the matter of giving credit. It is a most unpleasant duty to be obliged to inform any one that credit can only be given for a limited amount or on only short time, or that it can't be given at all; but it is none the less, in many cases, a duty, and is a duty we all owe, not only to ourselves but also to those toward whom we are called upon to perform it. It is a duty every man owes to himself to see that neither his money nor his merchandise is put out into hands where there is an uncertainty about its return, especially where the payment of his own bills depends upon that return. Undue extension of credit has caused the ruination of more men than has the limitation of it; and so we say, it is often a duty a dealer owes to a customer to keep him from getting too much in debt. The same principle applies to the time given a man on his account, because, being called upon himself to pay his bills promptly at a certain time, he must see to it that his own customers keep their own accounts up, and therein is where the retail dealer too often makes his mistake —*he don't collect his bills*. We have said to many people who have traded with us: "What makes it so difficult for you to make your payments when they become due?" It is true you haven't a large capital, but you get thirty days' credit here, and that should allow you to get around comfortably?" The answer has been, "My customers don't pay me." "Are you getting a lot of bad accounts?" "Oh, no, my accounts are all good." "Why don't you make them pay?" "I don't like to ask them for money because they would get mad and not trade with me." Now a man with a limited capital and a credit to sustain, which must be done if he is to buy his goods cheap, had better, in our opinion, get that class of men mad if he can't get his money without doing so (though we think he can if he goes to work in the right manner) and let some man sell them who has plenty of capital to pay his bills and accommodate people too. Don't let your customers run up large accounts with you; it is better for them that they shouldn't, and it is better for you.

A fashionable clock-maker told me in course of conversation yesterday, that, in spite of the large supply of small-priced clocks now on the market, there was still the usual demand for the large and expensive imitation "grandfather's clock," which look as if they had been handed down in the family for many generations. It is a fact that no fugitive from justice is more anxious to conceal his antecedents than many of our so-called society families are. They ride in their carriages, flaunt their wealth and hold their heads high, and yet you could confuse them by asking them what business their grandfather's, or even father's, had been. Such people buy "grandfather's clocks," old china, and such articles, and place them in conspicuous places in their residences in order to impress visitors with the antiquity of their family.—*Ex.*

When a paint brush is stiff and hard through drying with paint on it, put some turpentine in a shallow dish and set on fire. Let it burn for a minute until hot, then smother the flame and work the pencil in the fingers, dipping it frequently into hot spirits. Rinse all paint brushes, pencils, etc., in turpentine, grease with a mixture of sweet oil and tallow, to prevent them from drying hard, and put them away in a close box.

A new process for drying lumber is attracting attention. It consists in surrounding the wood with common salt. In ordinary kiln-drying the albumen is killed or destroyed, and the surface dies out first, thus sealing the juices inside to escape eventually through cracks caused by the uneven expansion of the wood. The new process is said to be better in this respect.

Steam pipes, at the temperature of steam, will not ignite wood, but superheated steam will; low water in the boilers will superheat the steam in the pipes.

Our Illustrations.

PLATE 1 represents the elevation of a very convenient and attractive city residence, plates 2 and 4 being the plans of first and second stories. The design is especially adapted to a 25-foot lot and is arranged so that abundance of light can be had in every room. Care has been taken to mark the sizes of the rooms, the names of the various apartments, closets and conveniences, so that any one at all conversant with a plan can readily understand everything in connection with our engravings. Cornices are shown in the parlor, dining-room, hall, and principal bedrooms. As shown, the plan can be carried out for about $8,000.

Plates 3, 5 and 6, are designs for sideboards. They are all of a handsome design and yet of moderate price. Plate 7 is a design for a parlor chair.

Iron Straps in Carpentry.

T. YOUNG, in the *Architect*, states that when it is necessary to employ iron straps for strengthening a joint, considerable attention is necessary that they may be placed properly. The first thing to be determined is the direction of the strain. We must then resolve this strain into a strain parallel to each piece, and another perpendicular to it. Then the strap, which is to be made fast to any of the pieces, must be so fixed that it shall resist in the direction parallel to the piece. Frequently this cannot be done, but we must come as near to it as we can. In such cases we must suppose that the assemblage yields a little to the pressures which act on it. We must examine what change of shape a small yielding would produce. We must now see how this would effect the iron strap which we have already supposed attached to the joint in some manner which we thought suitable. This setting will, perhaps, draw the pieces away from it, leaving it loose and unserviceable. This frequently happens to the plates which are put to secure the obtuse angle of butting timbers, when these bolts are at some distance from the angles, especially when these plates are laid on the inside of the angles. Or it may cause it to compress the pieces harder than before, in which case it is answering our intention. But it may be producing cross strains, which may break them, or it may be crippling them. The strap which we observe most generally ill placed, is that which connects the foot of the rafter with the beam. It only binds down the rafter, but does not act against its horizontal thrust. It should be placed further back on the beam, with a bolt through it, which will allow it to turn round. It should embrace the rafter almost horizontally near the foot, and should be notched square with the back of the rafter.

Walk the streets with your eyes open. Your daily stroll will never fail to have some ideas for you if you will only meet them half way.

PLATE 1.—SEE "OUR ILLUSTRATIONS"

Blind Nailing.

SINCE nailless flooring has become prominent in all first-class work, the form of matching has been improved by giving the tongue and groove a new arrangement that shall be more consistent with the strength of the joint

Fig. 1.

and accessibility in driving nails. Besides, a nailless floor should be self-sustaining and nailed directly to the floor-joist without the necessity of an underfloor, or rough packing of any kind, and be left air-tight, dust-proof, and preventing in this manner drafts and the penetration of foul gases. The first attempt to keep

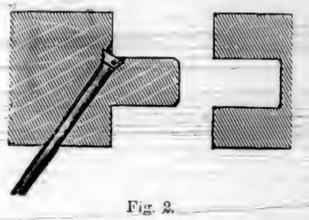


Fig. 2.

the heads of the nails out of sight was to simply toe them in from one edge; as shown on square edge work in Fig. 1, which effectually hides all traces of the nails, which of course must be well set in out of the way of the next board; but, as there were no means of securing only one edge, the flooring was likely to warp and leave

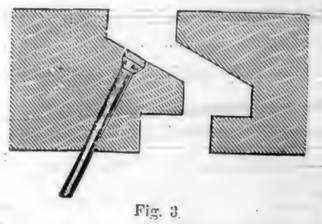


Fig. 3

an uneven floor. As soon as the matching of boards by the tonguing of one edge and grooving the other was employed to strengthen the joint, the shoulder was found sufficient to hold the floor by blind nailing, as shown in figure 2; the shoulder fitting completely over the tongue effectually hides the nails.

The Putney improvement, in the form of matching, not only strengthens the tongue and diminishes the tendency to rise and warp at the shoulder of the groove, but allows any

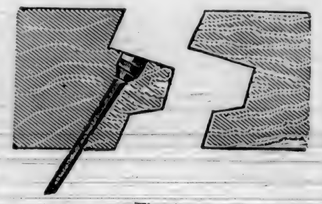


Fig. 4.

practical man sufficient room to drive the floor nails, which may be better understood by referring to Fig. 3. The nails are driven nearly at right angles with the surface of the tongue and far enough from the roots to make room for the hammer. The joint is easily forced together, and makes a union that is nearly seamless, unless they have been tongued and grooved in a saw-mill where the flooring is actually "rattled" out of on the happy-go-

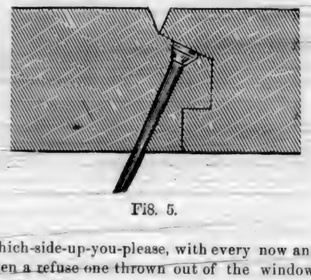


Fig. 5.

which-side-up-you-please, with every now and then a refuse one thrown out of the window. Good work requires care and attention, with machinery that will remain where you leave it. The form shown in Fig. 4 may work with better results where nail-grip is desired. Fig. 5 has been offered for filling purposes or where stock is likely to split. Flooring can be fastened by nailing through one shoulder of the groove instead of the tongue, and Fig. 6 is

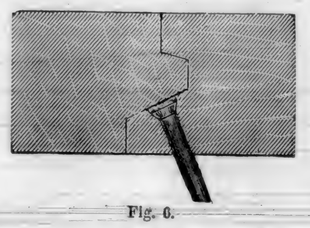


Fig. 6.

given as the most improved form of matching for this purpose. The laying requires but very little skill, and can easily be taken up and relaid without damage, an advantage that must be appreciated in temporary work. The advantages to be derived in nailless flooring where one of these substantial forms are used, must be such as to bring the whole system into extensive use.—*Boston Journal.*

Lecture to Plumbing Apprentices.

THE subject of the fifth lecture to apprentices of the Baltimore Master Plumbers' Association, which was delivered by Mr. John Trainor, March 19th, was: "The present condition of the business in Baltimore, and some of the every-day requirements of a good journeyman and helper."

"In recent years," he said, "I have seen, as others have, 'unskilled and untrained' ride rough-shod into the business, humbugging the people, and injuring the business of those who have made it the study of their lives, until the business, a few years ago, was about as unskilled, or a very great number of those engaged in it were unskilled, and consequently it became very unprofitable for those who do understand the business and had a proper regard for customers' rights and their own reputation. The beginning of a new era in the plumbing business is near, and it is again to take its place among the high mechanical arts. Hence those who expect to command first-class wages must understand the business in detail.

"Great care should be taken in arranging service-pipes, that they may be easily examined or repaired when necessary. Their sizes should be in proportion to what they are expected to supply. Dead ends in water-mains should be avoided, if possible, as they invariably collect considerable dirt, called sediment, for want of means of flushing. Air-chambers are of no value in any other position than perfectly upright, and continuations of pipes below the spigots, and over sinks and other fixtures, where the supply comes from above, never ought to be made, for they are of no value, but collect sediment, and cannot be drained out when necessary. Hydrants and street-washers should not be connected with iron-pipe; if that kind of pipe is used, then there ought to be a couple of feet of lead pipe next to the fixture to prevent the hydrant or street-washer from breaking off when raised by the frost in winter. The size and location of soil, waste, and ventilating pipes is a very important matter for consideration. None of them should be located on the outside of a building if it is possible to have them on the inside, and in no case should ventilation-pipes be on the outside, for in cold and damp weather they are of no use where they are so exposed. The size of soil and waste pipes should be gauged as nearly as possible to answer the services required of them, for, if too large, they are never flushed properly, more particularly on horizontal lines. Dead ends in soil and waste pipes should always be avoided.

"Learn the mechanical part of your business when you are an apprentice, and in after years you can keep step with the march of improvements in your business. Cultivate your hands to work in conjunction with each other. Prepare yourselves to pass such examinations as may be necessary under the 'License Law,' for if you fail in that you will have to go out of the business. So take time by the forelock, and be equipped when your time comes."—*The Sanitary Engineer.*

Various Strengths.

AN important question among architects and wood-workers often presents itself, when two substances or materials are placed in position in a manner that each will be subjected to certain strains, as to the combined strength of both. When an iron rod is placed with a joist, the natural supposition is that the strength of the double will be equal to the united strength of both the wood and iron, which does not always prove correct unless they are firmly attached, which it is impossible to do without weakening one or both; but if such appliances could be brought to bear without thus weakening, of course the combined strength, at normal temperature, would be equal to the square of the combined strength, another impossibility, inasmuch as the difference of contraction and expansion of wood and iron is such that there would be hardly a day in the year when they would both represent their original degree of elasticity and strength.

Take the following results, obtained from laboratory results, of the tensile strength of various materials, and we will find that no two of them placed together will represent the combined strength as represented. The table is based on the number of pounds' pressure required to tear asunder one square inch of each of the following substances:—

Copper,	wrought	34,000
"	cast	19,000
"	wire	61,200
Gold,	cast	20,000
Iron,	"	27,000
"	wire	103,000
"	best bar	72,000
"	medium bar	60,000
"	inferior "	30,000
Lead		800
Platinum wire		53,000
Silver, cast		40,000
Steel		120,000
Tin, block		5,000
Zinc		3,500
Brass		42,000
Ash wood		16,000
Beech "		11,500
Birch "		15,000
Box "		20,000
Cedar "		11,400
Chestnut wood		10,500
Cypress "		6,000
Elm "		13,400
Fir, strong		12,000
" American		8,800
Redwood, Cal.		10,120
Lignum Vita		11,800
Locust		20,500
Mahogany		21,000
Maple		10,500
Oak, white		11,500
Oak, seasoned		13,600
Pine, pitch		12,000
Poplar		7,000
Sycamore		13,000
Walnut		7,800
Willow		13,000

There are many substances in the foregoing not used by wood-workers, but more that are, and the table, taken as a whole, will be found correct, and handy for future reference.

Goods on Approval.

THE practice of sending out various kinds of goods on "sale and return" has attained somewhat considerable proportions in certain branches of the trade. It is severely condemned in many quarters as being wrong in both theory and practice, whilst also being held to be merely a cloak to veil the retailing of the manufacturers who adopt the plan. It is further denounced as being an innovation which invades the domain of the retailer, inasmuch as the tradesman who agrees to so vend the products of a manufacturer sinks his individuality to a great extent, and merges his ordinary profits into that which is really a commission paid to him on the sales he makes. Other objections are also made, prominent amongst them being the charge of encouraging reckless trading; that the system enables a man who may not be worth $5.00, and be void of experience, to make as good a show as the man with $5,000 capital, and well up in his business; and that it raises sundry questions of liability which are not easy of settlement. On the other hand, it is contended that practice promotes sales which might not be made otherwise, seeing that it virtually enables a manufacturer to establish branch show-rooms in different towns without being at the expense of rent, rates, and attendance, besides giving the public an opportunity of selecting from a large stock of goods, which is frequently renewed, and therefore always kept up to the latest ideas. It is also said to benefit manufacturers by "tying" tradesmen to them, and so excluding their competitors.

"Skin Plumbing" originated in the twelfth century, when the tilers attempted to do the plumber's work. The carpenters tried it in the thirteenth century, and it grew to be so bad that legislation was necessary to stop it. In the fifteenth century, 1490, the medical profession turned their attention to bad plumber's work in the attempt to prevent some of the diseases caused by it. In 1690, further checks in the shape of legislation were applied, but to-day when the skin plumber flourisheth like a green bay tree, nothing is done.

A HINT REGARDING TIMBER.—It is a well established fact that timber when seasoning springs toward the sap, and that to secure the best results, all timber should be so placed that the bearing strain will operate against the heart side. In cutting rockers, the heart side should be up; door pillars, with the heart toward the outside; spring bars, with the heart up; axel beds, with the heart down; shafts and poles, with the heart up. This may occasion loss in cutting planks, but it secures a good job.

Rats have a great aversion to the odor of the chloride of lime, and, when mixed with water and poured into the holes through which the rats pass, they usually vacate their haunts. This mixture is harmless, does not kill the rats, but drives them away—sometimes.

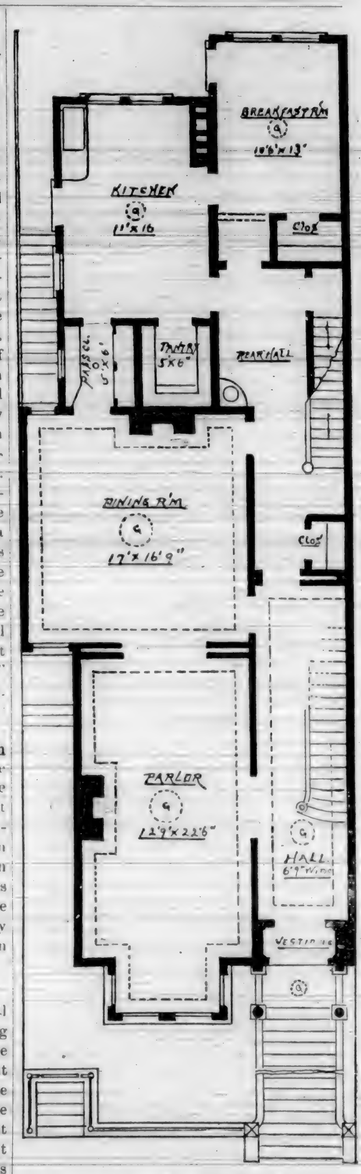


PLATE 2.—SEE "OUR ILLUSTRATIONS."

ARCHITECTS' DIRECTORY.—This work contains a list of Architects practicing their profession, in all the cities of the United States. While there are many blunders, the work, in the main, will be found to be as reliable as any similar publication. For sale at this office. Price, $2.00.

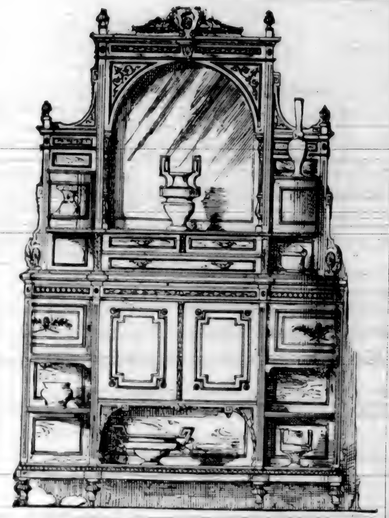


PLATE 3.—SEE "OUR ILLUSTRATIONS."

Common Sense Plumbing.

I SEE so much, or many, unnecessary requirements in architects' specifications, largely brought about by a half understanding, that I am impelled to enter a protest. Plumbers, too, who are ignorant of the actual principles involved, are as likely now to overdo, as they were formerly to leave undone. They get ideas, but lack application. Siphonage does not take place under all situations, therefore it is not necessary always to provide for it. Many pipes put in for ventilation never have a circulation. Traps are often placed where detrimental. I could cite instances, many of them, where the most ridiculous arrangements are called for, which the plumber has to fulfill, knowing it is just so much worse than wasted. You may not consider the protest worth attention, but if you could see and know what our daily experience is you might think as we do.

The writer has had many years' experience in the plumbing business, employs many men, sometimes makes specifications, but more often carries out others, some of which are good, explicit in requirements and evidently founded on fair knowledge of the business; others are faulty, full of loop holes, indefinite and inconsistent. Some are made up as you would make a mince pie, having lots of good features, but terribly mixed. It seems to be thought that if one only gets the traps, the vents, and all the "latest" sanitary features in somewhere, they will "count" and "show up". But who can tell what the actual benefit is, or whether it all is a benefit? The owner looks at the "roughing in," sees that the joints look nice, asks where the ventilation pipes are (he has read about ventilation), is pointed to several that start from some pipe and end in the same pipe, a little distance apart, and several more that go out of the roof with ———'s patent ejector. The net-work of pipes he does not comprehend, nor never after tries to. His house is cut in pieces to get the "system" in, but he contents himself with the fact that the price paid and the amount of ventilation done will forever "bar out" the innumerable diseases due to sewer-gas, which he has read so much about, and of which so many, except plumbers, die. I believe in good plumbing and good fixtures. There are some essentials, as regards vents and ventilation (the two terms are often used as one and the same but differ materially); but the point is this, are we not running to extremes in providing against every "theoretical result" that may appear in print, without giving it a study? Experience and observation often prove the fallacy of much that is advocated. It is not the design now to point out the errors committed in overdoing. The locality, the system of sewerage, the character of buildings, should be considered. Many things, applicable to New York, Boston, and other seacoast cities having tides, would not apply to interior cities. The plumbing of the South will differ from that of the North in many respects. Simplicity should be aimed at. A multitude of pipes, in every conceivable situation, generally inaccessible, may be, in time, a greater source of danger than the lack of some considered desirable, though not essential. Finally, there is a mean between extremes that is nearer the right. Let that be sought, in order that the owner be not unnecessarily taxed, and that he may realize that conveniences can be had without excessive cost. In the "long run," the plumber will be benefited by the greater demand from those that now fear it to be an expensive luxury. Do not be misled by sketches of arrangement seemingly so simple on paper, but practicably inapplicable in actual construction. Let there be a common-sense reason in construction.—*Warren C. Weatherly, in Sanitary News.*

Queen Anne Cottages.

THE reign of good Queen Anne is not likely to be held in high estimation much longer, if the architecture and fittings associated with her name are carried to extremes that begin to threaten. The good lady was rather modest in her tastes and likings—so modest, indeed, that she would not allow her mint masters to stamp her bust upon the coins of the realm until they had duly shielded it with drapery. Indeed, her scruples approached to prudery. What would she have thought, then, of such a bravery of red paint, gilding, tiling, spindle-work and gilt ginger-bread as those who take her name in vain, affix to "Queen Anne" houses and cottages to-day? If modest and sincere, nothing is prettier or more home-like than a Queen Anne cottage with its red roof and clustered chimneys peeping above a screen of shade trees, or a patch, or orchard.

In rustic surroundings it has that aspect of stability, peace, order and content that mark the cottages of England. It is picturesque in its broken lines, its porches, balconies, bays, gables and dormers, and if painted in quiet dark green and dark red, it is a grateful feature in the landscape. It is a great improvement on the "balloon frame" house of wood, and the geometrical structure of brick—artistically worthless structures. But what are we to think of a Queen Anne cottage painted a "howling" vermillion and a staring chrome yellow?

What taste is shown in a Queen Anne house that is shingled on one side from roof to basement with never a window or a peep hole, though the blind side of the house would, if it had eyes, look into a pretty garden? What do his neighbors think of the Teutonic gentleman who, after having rising suns carved on the wooden triglyph above his porches, is having those suns covered with gold foil and causing them to shoot forth rays of violet crimson? Yet these things are to be seen within an hour's walk of each other. There is too much straining after effect in it all; too much of the advertising chromo wrought into building material.

A few hours before this writing, I passed a city house in a dull row of yellow brick shops that had been Queen Annefied by sundry wooden addenda, and that was being painted a strong turquoise blue in two shades. The color combination would not have been unpleasant had the house stood by itself, but when it was backed and faced and flanked by dingy, graceless houses of red, white and yellow brick, and when it is stated that it stood in a crowded, dirty street, it may be surmised that its appearance in such a place was grossly incongruous.

Our city streets lack home-like houses, but the way to distinguish the homes from the shops is not to paint them like tea stores. They should rather give token of quietness and retirement. The English have the advantage of us in that respect. Their old houses look like homes, even though they crowd one another in a narrow street and overhang the sidewalk by a projecting second story. The domestic purpose of these houses is as plainly indicated as if it were advertised. We have good house building enough if architects and builders and decorators will only take pattern from it.

In Long Branch, Flatbush, and Richmond Hill—to mention the environs of New York alone—are handsome residences in Queen Anne style, well considered and picturesque from every point of view, strikingly beautiful in groups, and when surrounded and offset by lawns and trees and gardens, and in New England the style is being advantageously applied to churches, town libraries, public halls and schools. The style has too many good points to come into disfavor, but exaggeration fosters prejudice against it and may result in working it harm. It is when one sees an intrinsically, meritorious thing marred by poor workmanship and undiscipline taste that he deplores the lack of artistic training by those mechanics whose province is truly a branch of applied art, and regrets that no closer union exists between the designer and the workman.—*Decorator and Furnisher.*

Improvements in Window Sash.

OUR readers are measurably familiar with a number of important improvements in the construction of a window sash and in the mode of hanging and adjusting them which have been introduced in this country during the past twenty-five years or more. One of our English exchanges, commenting on an exhibition of building appliances recently held in England, discusses this subject, and, although the improvements referred to are for the most part such as have originated outside of this country, the description cannot fail to be interesting to our readers generally. The account is as follows:—

Since the days of Queen Anne, when the sash window seems to have largely superseded the old English casement of the Tudors, people have been contented with the ordinary mode of opening sashes by weights and pulleys, and up to the present day the larger number of residences are fitted up upon precisely the same model as that adopted during the Georgian period. Little or no improvement has been made in the details of the wooden sill, the "meeting" rails and the construction of the pulley stiles, the forms of which still retain their early peculiarities; and it is only in houses built after improved methods that we find any attempt made to alter these forms or to improve the method of handling the sash. Visitors to the Health Exhibition will have noticed several improved systems in going through certain departments of the exhibition, which are unheeded by the great throng of sight-seers, as mechanical appliances of little interest to them. Some of these improvements are attempts to get over the difficulty of cleaning the outside of the sash. In small windows the difficulty is not great, as one's arm can reach to the upper panes; but in large windows, such as those fitted in town houses of any size, there is not only difficulty, but danger, in the attempt to clean the outside.

Several patents have been taken out for improvements in sash-hanging, many of which have fallen through from apathy on the part of architects and builders in availing themselves of improvements; the consequence is that nine-tenths of our houses have windows of the old type. Some way of removing the inside beads and disconnecting the sash from the pulley-cords, so as to let the sash fall inward, has been the chief effort with many inventors, though the difficulty of the upper sash remained, and the problem presented itself of making the parting bead between the two sashes movable, to supersede it altogether, or to press it back so as to allow the upper sash to be taken out. There are different methods that have been patented for effecting the object, which are pretty well known to our readers. One of the methods devised consists of being able to convert the vertical sliding motion into a swinging action by movable metal tongues, the sashes being turned round upon centers in the pulley stiles by certain alterations in the construction of the stiles—a plan adopted with much ingenuity in the new patent "anti-accident" window of Mr. R. Adams, whose "National Standard" window is well known to architects and builders. Another plan for effecting the same object is to hinge the beads, and to give a casement or door motion to the sliding sashes when it is necessary to clean them. These are called "double-action sashes and frames," and a working model of one may be seen at the Health Exhibition (exhibit of W. J. Penny).

The advantages of either of these methods is that the sashes can be opened or thrown up so as to allow a large piece of furniture to enter or be removed from a room, or for making an exit in case of fire. Another plan that was introduced some time ago was to make the sash frame movable by hinging the whole window on one side—a mode of opening which had the merit of simplicity, though more cumbrous and open to the objection of its being rather an unsafe fixture. Other complicated plans consist of removing the weights through "pocket pieces" specially prepared, and detaching the lines from the sash by other means—patented fittings being used. Such plans could rarely be brought into operation by other than skilled hands, and generally only a joiner could remove the sashes. The sash window has other faults which the skill of inventors has been called upon to remedy. The sashes, if not properly made and fitted and of seasoned stuff, shrink and let in rain and dust and noise. These are evils which many who live in new houses have to endure, greatly to their own discomfort and to the trial of their temper. What can be more unpleasant than a rattling window, or one which admits the draft? The names of patent sash fastener are almost legion, many exceedingly complicated contrivances which no one can understand, and others so cumbrous as to disfigure the window to which they are attached.

We know several very excellent fasteners—such as Adams' "adjustable and secure sash fasteners," and Cope's patent fastener—but the greater number of these appliances are sadly out of proportion to their work, or are complex and difficult in operation. A model at the exhibition shows a window (Tucker's) constructed with water-tight sashes and frames which exclude drafts, dust and rain. In this instance india-rubber cushions are fixed at the top and bottom and at the meeting rails, which fit into corresponding hollows on the head, sill and rail, while the parting beads are screwed to the stiles and have a side tongue which fits into grooves at the sides of sashes. The plan is effectual if the wearing parts are durable, but we have some suspicion of the endurance of india-rubber in positions exposed to alternations of temperature, wet and cold. Other improvements have been made with the object of allowing the sashes to be partially opened for ventilation; among these may be mentioned Adams' patent sash bolt, by which the sash can be fixed at any distance, and the patent ventilating bar—a capital addition to the ordinary window. There is a model also of a sash made with a false head or casing at the top, by which the upper sash can be raised to allow a space for ventilating at the meeting rails. Mr. Bedborough, architect, patented a plan for effecting the same object, but in a more desirable manner, by making the top sash so much in excess of height of the lower one that it could be lowered at the rail without draft. Several "improved" windows are

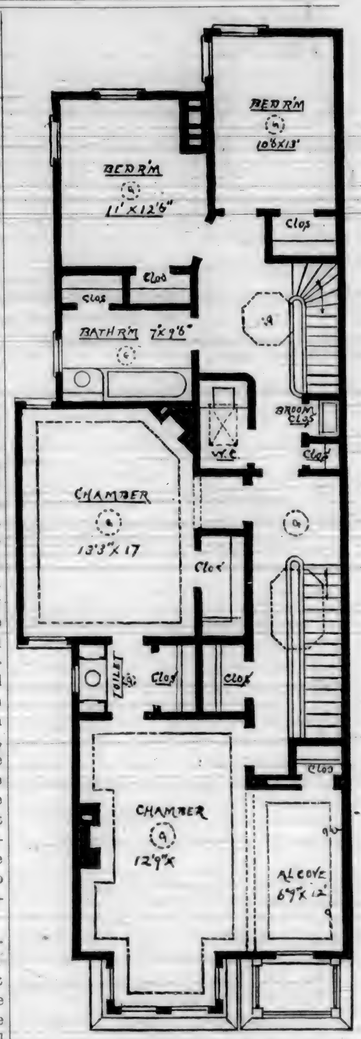


PLATE 4.—SEE "OUR ILLUSTRATIONS."

constructed so that the sashes are made to balance one another, the opening of the bottom sash lowering the upper one; but the plan is not unobjectionable. The objection to weights, which are very liable to become detached from broken cords, is certainly one calling for removal by some better mode of hanging than we at present adopt. Generally the mechanism of the sash window seems to be a subject of sufficient importance to induce a committee of experts to report upon the matter. The trade might be invited to co-operate with architects, or, perhaps better, a prize might be offered for some improved mode of securing safety, ease of movement, cleaning facilities, ventilation and weather-tight qualities in our conventional window.

The Perils of Underpinning.

UNDER this title we recorded recently the result of an action to recover damage in compensation for injuries received through negligence on the part of defendant. The circumstances were as follows: The defendant in the action employed the plaintiff, a bricklayer, to do certain work on defendant's premises, who personally superintended the work. He was to underpin a wall with Portland cement. The wall was underpinned nine feet, but as this was not considered sufficient, the defendant gave orders to underpin another eighteen inches, which was excavated to the whole length of the wall. While the plaintiff was engaged in the operation of pinning up, the wall came down, breaking his legs, and necessitating his confinement in a hospital for fifteen weeks. It is almost needless to say the jury found a verdict for the plaintiff, assessing damages at £100. There was an obvious case here of negligence. The wall having been underpinned nine feet, an extra eighteen inches was ordered, and the navvies had actually excavated the entire length of wall to the required depth. Two lessons are to be drawn from the occurrence. Mechanically, the risk of undermining a wall, or taking away its support even on one side, is great, and incurs serious danger, notwithstanding which we find bricklayers ready to risk their lives upon the most foolish assumption. They often think an old wall will bear any amount of cutting about, and that it is self-supporting. Not long ago we examined a party-wall which had been excavated along its whole length on one side below the footings. What occurred may be easily imagined. The lessee of the adjoining house suffered much in consequence. The walls throughout the house were seriously cracked, and the settlements threw all the sash-frames and cupboard doors near the side wall out of square, so that they could not be opened or closed. The staircase walls showed large fractures, the steps of stone were cracked, and the sills of windows, and the papering and plastering were also fractured and torn. The whole wall, which was a heavy one, had sunk, owing to the lateral resistance of the soil below the footings having been removed. There was a natural compression of the ground below the wall, which might have ended disastrously if the cross-walls and connections had not been contributing to the support. The operation of underpinning is one of those which frequency has rendered careless. It is a common thing to find a considerable removal of wall before the pinning up is commenced, a proceeding which is thought to expedite the work. Nothing can be more dangerous to, nor more reckless of, the lives of those employed in the operation. The very term "underpinning" expresses a piece-meal process, the removal of only a small portion at a time, and the part pinned up in cement and hard materials. A wholesale excavation beneath an old wall is simply taking away its support and hastening its fall. We see besides a variety of operations carried on adjoining a wall of very unstable character, such as digging trenches for foundations and draining, without the slightest care being exercised by shoring the structure. In walls of doubtful composition, or full of old insertions and settlements due to bad foundation, the utmost caution ought to be used, by strutting the wall and inserting "needles" under shaky parts of the structure. On clayey and peaty soils the drainage of water has often a very prejudicial effect, by causing the foundation to yield.

As most of our readers are aware, in common law a neighbor has a right of natural support of the soil, so that if an adjoining owner, by underpinning, causes it to fall he is liable for damages. There is a special easement of support from adjoining land acquired after a certain period of time (twenty years). The case of "Rigby *vs.* Bennett" is instructive as showing the liability of a building owner to underpin his neighbor's wall before going below it. The plaintiff bought some land in Whitechapel on a building lease, subject to approval of plans. After obtaining consent, he commenced building. An adjoining lot was subsequently purchased by the defendant on like terms, and he proceeded to build an end wall, and commenced to excavate below the plaintiff's foundations, calling upon him to take steps to underpin or otherwise secure his building. The plaintiff refused, and obtained an injunction restraining the defendant from further excavating without underpinning plaintiff's walls. It was arranged that the underpinning should be done so as not to delay time, and the cost of it await the trial. The Vice-Chancellor decided in favor of the plaintiff, and the defendant had to pay cost of underpinning. The defendant appealed against the decision, but the court dismissed the appeal with costs, it being held that the first to build and take up his lease was entitled to support of the adjoining land, and if the defendant wished to go down lower, he must first underpin his neighbor's wall. The same thing would have happened if the wall had been a party-wall, unless the plaintiff derived any benefit from it, in which case he would have had to pay his proportion of the cost.

Walls are sometimes found to overhang from insufficient foundations, and the greatest care is required in underpinning. An important case of this kind was heard some time ago (December, 1878) before the Master of the Rolls ("Duke of Westminster *vs.* Tattershall"). The plaintiff sought to restrain the defendant, who had erected a massive building of great height, from overhanging the plaintiff's land, and claimed damages for the injury. The wall in question abutted close to the plaintiff's land, part of the brick footings and concrete of the wall being within the limit of the same; in fact, the foundations were alleged to be upon the stratum of peat above the London clay, instead of being carried down to it. An irregular subsidence took place; the wall had cracked, and the external wall overhung the plaintiff's land ten inches, so that he could not proceed with his building. On the defendant's side it was contended that the wall would not have further encroached had the plaintiff properly shored up the building after having dug certain trenches. Certain strengthening works were rendered necessary, for which the defendant made a counter-claim. Here was a building resting on a bed of peat, which, as it was affected by moisture, caused cracks to appear. How to deal with a building so situated is not an easy matter. It was alleged by one of the witnesses called that the piles driven for the new foundations shook the concrete under the building and caused the cracking. We merely instance the case to show the extreme carefulness necessary in preparing foundations for new buildings next to structures of doubtful stability. After the piles were driven, the earth was excavated, and concrete filled in, the piles being wedged up tightly—the only right course that could have been pursued. But excavating trenches near or below walls of shaky condition, especially when the footings rest upon peat, is not a plan that can be defended, nor is underpinning in brick practicable where great weight has to be borne. It has been said by a good authority that it is not possible to underpin ninety tons by bricks, as they would crush. In such an instance the only substantial means of securing stability is to use Portland cement concrete for the underpinning, and to take every care to secure the wall from cracking or collapsing, by shoring.—*Building News.*

The subjoined simple preparation will be found desirable for cleaning and polishing old furniture. Over a moderate fire put a perfectly clean vessel. Into this drop two ounces of white or yellow wax. When melted, add four ounces of pure turpentine, then stir until cool, when it is ready for use. The mixture brings out the original color of the wood, adding a luster equal to that of varnish. By rubbing with a piece of fine cork, it may, when it fades, be renewed.

Real Estate Market.

THE activity in real estate is less than it has been in the recent past. That it should be so, is both natural and reasonable, nor is there any discouragement in the fact. During the past six months there have been a very large number of building, and some business lots sold, and all of them at high prices—prices which could be obtained only upon an excited market. But buyers have been numerous, and almost every piece of property that has been sold, has been at prices *satisfactory to owners*. There is still a large number of buyers seeking investment for both improvement and speculative purposes, but the top of the market being reached in the latter, at least for the present, there is but little inducement to those having spare coin, to tie it up in investments which are not likely to advance beyond present set values, for some time to come; and those desiring pieces for homestead improvements, hesitate to pay the prices demanded for choice lots, which in scarce a single instance are not high, and generally extravagant; while for rental improvements, the inducements are not strong. The only break in the real estate market, is from high to moderate prices.

The tone is good and sound, and properly will continue to find ready purchasers at fair and right values. There have been lots sold within the last six months, at prices which could not be duplicated to-day, for the sole reason that they were bought under the influence of excitement, and sold high, and it will require time to bring actual value up to the prices paid. Our real estate auction houses have been places of joy and rejoicing for the man of the hammer, for real estate owners, and sometimes to purchasers; and the outlook is still excellent, but not at advanced rates, except in special property. The thousands of lots sold during the past year, must necessarily have largely filled the demand, and the "go slower" period must follow. A calculation based upon the sale of real estate in San Francisco during the past year, supposing it all to have been bought for improvement purposes, would indicate a population for this city, by the end of ten years, of 750,000, a number far greater than can reasonably be expected.

FALLING OFF IN BUILDING.

Our first quarterly report for 1885 showed a state of affairs in building activities, far in advance of any preceding year, for the same period. The great rush that has prevailed, has been largely influenced by the low price of lumber and building materials; by this, more than by an actual demand for more buildings, for either tenement or business purposes. Hundreds of houses and flats have been erected under these circumstances, until the "to let" signs have become numerous on almost every street in the city. Consequently it is to be expected that fewer buildings will be erected during the remaining months of the year, than has ruled since January first, although our report in present issue shows a continuation of brisk activities. If the same ratio of building was kept up, as has prevailed so far this year, there would at the end of ten years be homes for one million of inhabitants. It cannot therefore be otherwise than a little letting up in the future,—for a time at least.

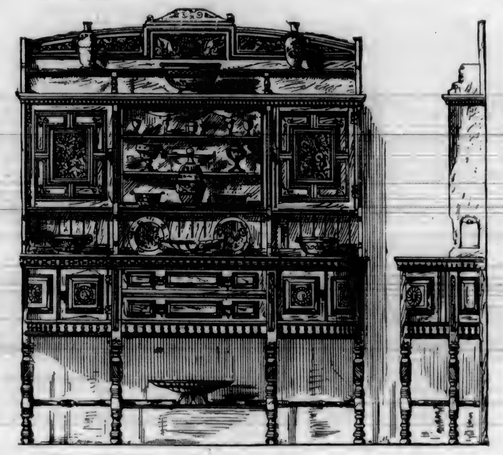


PLATE 5.—SEE "OUR ILLUSTRATIONS."

Fiber in Nails.

UNLESS cut nails are made from better material than is used generally now, their place in the market will be usurped by nails made from fibrous material. Wire nails are very favorably regarded, and are used in preference to cut nails on account of their superior tenacity, notwithstanding superior cost. The iron for cut nails, after being rolled, is slitted or cut lengthwise to a width adapted to the length of the nail to be cut. The length of the nail so cut is directly across the fiber which the iron has acquired by rolling, and, of course, shows it weakest where it should be the strongest. The ordinary cut nails will not drive into seasoned hard wood without "crippling," even under direct blows, and when the blow of the hammer is slightly to one side, they snap like clay pipe stems—they have no tenacity. The weakness of these nails is shown by the fact that it is almost impossible to straighten one that has been drawn from the wood, and then drive it again; in many or most instances the nail will break in drawing.

On the contrary, the wire nails may be crooked into corkscrews, and then be straightened and be redriven. They are not only tough, but they are stiff, and will penetrate hard wood where the cut nail would break sharply off or hopelessly crook beyond restraightening. In every respect the fibrous nail is better than the cro-scut nail. If it could be afforded at the same or an approximate price it would take the place of the ordinary cut nail.—*Scientific American.*

One of the greatest evils of the present day is the unfitness of the average workman for anything but mere routine work. Such a thing as a knowledge of the general details of a craft or trade, is almost unknown. The workman, from boyhood up, has become so accustomed to the pursuit of one idea, one branch of the trade, that he strives only for mediocre excellence in that one branch, and has no ambition beyond that of acquiring a sufficient knowledge of the particular line of business in which he is engaged to insure him the maintenance of his situation. The average workman, if he has the intelligence, has not the ambition to perceive that the skilled and careful man, familiar with all the details of the business, is the one who is most likely to retain the good-will of his employer, and fails to perceive that when the hard times come, the man with the limited knowledge of his business is the first to be dropped from the pay-roll, while his more competent brother, when work fails in one branch of the business, can be profitably put at work in another. Every man should thoroughly master all the details of his business, and some day, he cannot tell how soon, the opportunity will come for him to better his condition and take advantage of those acquirements which have come to him in the days of his apprenticeship. —*The Cincinnati Furniture World.*

Among the artisans, carpenters take the lead in numbers, having increased from 150,000 in 1850 to 373,000 in 1880. A reduction in the rate of increase is noticeable in late years, due to the manufacture by machinery of doors, sashes, etc., work which was formerly done by the job.

PLATE 6.—SEE "OUR ILLUSTRATIONS."

The Workman and His Tools.

WHY is it that the mechanic can work with greater ease and to better advantage with his own than with another's tools, even though the latter may be in size and shape identical with his own? Is it a matter of nerve or mind that makes the difference? That workmen do prefer their own tools and can work better with them is a well ascertained fact. The student even prefers his own books, and can use them to better purpose than other volumes, even if the latter come from the same printer and are enclosed in a similar binding. Not unfrequently we find an old mechanic clinging to an antiquated tool, because he likes it better and finds it handier for him than a new and improved one. If asked why he prefers it, he will say that he has become accustomed to its use and does not care to change. He will sometimes use a lathe tool having a peculiar angle, preferring it to any other, because he has learned to work with it, and has no trouble in using it, while to employ one with another angle would necessitate a change in position, and perhaps a re-training of the muscles of the hand and arm in order to do his work with satisfaction. The workman can always wield his own hammer with more effect than any other, and the same rule prevails with the use of all tools that are frequently employed by him. He clings to his friends, the old tools, with a tenacity surprising to those who are not familiar with the intimacy which, we may be allowed to say, grows up between him and them.

When one becomes habituated to the use of an instrument, he manipulates it with something like automatic precision. His hand knows just when to take it up. It, in a sense, becomes fitted to the hand, and there is something in the trained touch akin to the skill displayed by the musician in striking the keys of the piano. This action is half physical, half mental. It begets a sensitiveness that comes from long practice and skillful handling. Every curve or angle of an instrument touched by the hand leaves a mental impression. So sensitive is the mind to this observation that the mechanic instinctively knows when there has been a change produced in the shape of a tool during his absence. The hand will detect the defect before the eye. Thus, if a small chip be cut from the handle of the hammer the workman will discover the change immediately upon taking it in his hand. The nerves of the hand communicate the fact to the brain even before the eye has picked up the imformation. The weight of the tool is as important to the workman as its shape. If he is asked to use a lighter or heavier hammer than the one he is accustomed to work with, he will find more or less difficulty at first in wielding it. Even a sligh difference in weight will be immediately perceptible to him, and often prove a severe annoyance until he becomes accustomed to the change.

Perhaps all mechanics do not become so sensitive to the use of tools as those we have alluded to. All have not the delicate touch. All pianists are not delicate players, and a few are so insensible as to play without that spirit and understanding which marks the true artist. The good mechanic loves his tools, and feels that regard for them that the student entertains for his books. Indeed, they are his helpers—assistants in his daily toils. That he should prefer them to new ones is not strange. They enable him to do his best work. It is an unfeeling workman who can throw away an old tool without a sigh of regret.

NAILS IN A POUND.—It is said there are ten more nails in a pound of 8-penny iron nails than there are in a pound of 8-penny steel nails. If this is true there would be 1,000 more nails in a keg of 8-penny iron nails than there would be in a keg of steel nails. The count is said to have been made at Wheeling.

"There's tricks in all trades but ours." Speaking of walnut logs, the New York correspondent of the *Northwestern Lumberman* says: "Some of the logs get extensively doctored before they arrive here. I saw a lot in the railroad yard the other day that the shipper probably intended for good logs, and, to cover up some of the defects, doctoring had been done; but it is really time wasted, as the keen eye of the buyer will carefully scan every inch of the surface. In the end of one log a hole had been filled by driving in charred bark and cutting it off smooth, evidently expecting that the paint would so conceal it that the defect would not be noticed by the measurer. One log had a hole in one end at the heart three or four inches in diameter and this was carefully plugged with a round piece of poplar with the heart in the center. This had been smoothly cut off even with the end of the log, and the paint did hide the defect pretty well."

Bancroft's Works, Vol. XIII.

HISTORY OF MEXICO 1824 TO 1861.

THE 16th Vol. of the series of "Bancroft's Works" is now being delivered to subscribers. The original plan of the series has deviated from that first given, so that although the above is given as Vol. XIII it is really the 16th that has been delivered.

The present volume contains a very full and graphic description of the history of Mexico from 1824 to 1861. During that period occurred the war between Mexico and the United States. The various causes which led to that unfortunate episode, the result of the various battles, the advantages gained by the U. S., are described such as can only be portrayed by Bancroft. The author does not believe that the war was a just one, and takes the ground that it was precipitated by President Polk's action in ordering troops beyond the limits of the United States and into Mexican Territory.

There is quite a difference in the accounts of the various battles, as given in this work and those found in other histories. In our opinion the account before us is a just and equitable one, this deduction being made from a careful consideration and study of the various statements by different authors, supplemented by conversations with parties who were actively engaged in the Mexican war.

This strikes us as a fair inference further, because in his preceding volumes Mr. Bancroft has established a most enviable reputation for impartiality and loyalty to the truth. Besides, it will not be doubted that the data from which he writes the history of Mexico is as nearly complete as possible; in fact, the most reliable and comprehensive in existence

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.

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The Enterprising Hardware Dealer.

THE hardware trade of a town is largely what the dealers make it. To a certain extent they create the demand for the goods they sell. Their method of buying presupposes this fact. Otherwise dealers would consult their customers before making selections. True, many articles are bought with a view to anticipate the wants of the purchaser, but there is a large share of the stock which the dealers buy on their own judgment, and with a view of inducing the trade to concur in their choice. Thus, in the matter of stoves, they select such styles, kinds and make, as they deem either the best or the most easily sold, relying upon their ability to make their patrons purchase the same on their recommendation. There are merchants whose power of persuasion is greater than others, and whose voice in controlling the choice of articles by their patrons is very potential. Such dealers are an authority in their several lines. To reach this position it is necessary that one have a thorough knowledge of the business, and full information relative to the comparative merits of various articles coming into competition. The dealer would make a poor show in attempting to sell a new lock at a higher price than charged for those ordinarily kept in stock who could not explain to the purchaser wherein the new lock was superior to the old. Some feign a knowledge in such matters that they do not possess, but they are likely to come to grief, as such shallow pretenses are sooner or later discovered.

The merchant often is called upon to introduce an entirely new thing. Here he certainly is an innovator, and must rely upon his powers of persuasion in bringing it into use. The mistake which many merchants make is in thinking that it is better to follow their trade than lead it. This conservatism might have done in early days, when competition was not rife, but it is no longer safe to follow this course for fear that some enterprising competitor will step to the front and carry off the business. New things are very taking. They often find purchasers on account of their novelty. It is a good reputation for a store to have it generally said that in it are kept all of the new articles in its line. Customers find this out much more rapidly than many suppose. If a merchant once gains a reputation for enterprise, it becomes a part of his capital. He can do much toward cultivating a correct public taste. But he cannot sell silver-plated butts or other ornamental hardware unless he keeps them. He cannot induce his customers to have faith in such articles unless he himself has faith in them. It is not always easy to sell new things to the first customer, but after a while, when the trade has been sufficiently cultivated, the trouble ceases and the goods sell themselves.

It is not such a difficult task after all,—that of guiding and directing the course of the tastes in one's trade. A few timely words, a fair stock in hand to show, a few sales for reference, and the ice is broken. Why so many dread to introduce new articles is the doubt and uncertainty about their being favorably received at first. Yet not a few merchants have confidence enough in themselves to assert that they can sell anything, which, so far as they are concerned, is probably the truth, for a good salesman who has sufficient hope and assurance can sell almost anything he undertakes to dispose of.

The hardware merchant should take pleasure in being the cause of introducing new and improved articles to his trade. If by his means the homes of his patrons are beautified and made more secure, the toils of the housewife lessened, or the comforts of the home increased, the labors of the farm made lighter, and turned into more useful and economical channels, certainly his endeavors have borne good fruit. When a man can be a public benefactor and still make money by so being, it should require little pressure to induce him to become one. To be enabled to educate the public taste is a matter of no small importance. The quiet and unobtrusive work of the merchant is no less beneficial—often far more so than that of a noisy orator. The dealer too often forgets that he is something more than a mere merchant—he is a part of the community; he is an important factor in the civilization that surrounds him; he can be useful to his neighbors and those who dwell within the circle of his usefulness. He should remember that there is something higher than the mere matter of money making. In the conduct of his business, he should strive not alone to amass riches, but to be serviceable to his friends—to the community about him. Having this in mind he becomes a useful member of society, an aid in the elevation of the taste and comfort of his fellow-men. Dealers imbued with such a spirit would seek to introduce the best and most serviceable articles—would strive to culivate a better taste among their followers—would endeavor to give not only value received for every dollar dropping into their tills, but the *best* value received which they could give. A trade built up in such a spirit would be profitable alike to seller and purchaser.—*Industrial World.*

PLATE 7.—SEE "OUR ILLUSTRATIONS."

THE May number of the *Decorator and Furnisher* is one of the most attractive and complete that this beautiful magazine has ever issued.

A magnificent new cover, designed and drawn by Sarony, is the first noticeable improvement. In addition to the usual full quantity of articles and illustrations for the aid of those interested in house decoration and furnishing, either in the trades or as amateurs, there is a magnificently illustrated article upon the 7th Regiment Armory, giving six rich half-page views of the most noticeable rooms, and an interesting description. There are seven pages of original and useful designs for ladies' work with full explanatory text. A full page colored plate for ceiling decoration, and an elegant supplement entitled, "*The Spirit of Night*," by Napoleon Sarony, printed upon heavy plate paper, are presented to every purchaser of this May number. Among the many other articles and designs are several upon Decoration Day, Ceiling Decoration Academy Exhibition, Novelties in Styles, etc., etc.

Published at 30 E. Fourteenth Street, New York City.

SEWER GAS A CAUSE OF MEASLES AND PNEUMONIA.—Attention is called by the *Sanitary World* to an extraordinary outbreak of measles among the children of a public institution, caused by sewer gas. The medical officer states that in the early part of October the drainage became choked, and the sewers had to be opened. During the progress of the work the house became filled with sewer gas, and for some hours the evil was almost intolerable. Thirty-one days afterward an outbreak of measles and pneumonia took place, the whole of the children, twenty-five in number, being almost simultaneously affected. There were four deaths, and the cases were of a severe type, with high fever. While lecturing on healthy houses to the students of the Woman's Medical College this season, the subject of sewer gas came up for some remarks, when one of the students, whose husband is a physician, remarked that she had two children. The bedroom in which they slept had the ordinary wash-bowl, with faucet for hot and cold water. The children coughed considerably during the night, and suffered with sore throats most of the time. The husband, suspecting that sewer gas might possibly enter the room from the water pipes during the night, had them closed. The result was, the coughing ceased at once, and the children have not been troubled with it since.

False Tenders.

THE question of tenders is daily becoming a matter for most serious attention. A glance at the published offers made every week, where there is often a disparity of half, sometimes of three-fourths, between the amounts of the highest and lowest tenders, show that there is something radically wrong. Either the one tender is too high or the other is too low. No mistake can have been made in the estimates, for the same specification has served on a basis for both; beside there is the fact that these low tenders are not occasional, but so common that many plumbing firms of long standing, skill and respectability, are now refraining from taking part in public competition altogether, convinced that their exertions are useless. Tenders made by such firms with the utmost care, and with the alloyance of only the smallest margin for profit, are beaten by others which offer at less than half the amount. Either the former do not know their business—in which they have grown gray—or these tenders are made below cost price, and with no intention of fulfilling the terms of the specifications.

Though that may seem strange, yet there are firms who put in low tenders for the "mere love of business"—to get the name of doing certain work, perhaps—and who faithfully discharge the terms of their engagements. But these firms are extremely few. The bulk of the low tenders are made by firms who cannot possibly do the work indicated at the price they tender for it, always understanding the employment of the best of skill, workmanship and material in its execution. This is what is looked for from them by the customer; but as they have no special sources of cheap labor and material which the respectable firms aforementioned have not, they can no more respond to the common sense stipulations of the specifications than do any other impossible deed. The way the specifications are attempted to be carried out is by the employment of inferior technical oversight, or of even none at all, of low-class material, and of unskilled workmanship. Work thus executed, in the end costs far more than the sum represented by the difference between the highest and lowest tenders, and is a fruitful source of the bad building and unsanitary work which abounds around us, not to speak of the discouragement to honest labor which results therefrom.

Remedies for this state of things which affect only the quality of the workmanship, do very little in mitigation of the evil; what is really wanted is a remedy vastly more far-reaching. It is to be found in simply obtaining the services of some competent arbiter between customer and tradesmen. Such a man is in general the architect and if his estimate of the cost of the work were made the universal basis or test—instead of the exceptional one, as now—of valuation of contract work, there would be an end at once to the evils of the present system, both as toward the trade and the public. The architect's estimate would be a guide—not necessary infallible—to the public as to the approximate cost of the work sought to be executed, done in a workmanlike manner and with sound materials, in accordance with the intentions of the customer. Tenders much below that would be recognized as being impossible of execution in the sense intended by him. On the other hand, an opposite check, on exaggerated tenders, which the competition system is considered to afford, but which in many cases it does not, would be provided.

The competition system is a good one, but it is capable of abuse at its two extremes. With the checks we have suggested honest trading would be fostered, and the indiscriminating public protected, while bad workmanship and dishonest trading would be discouraged.—*The Builder and Wood-Worker.*

Merit starving in a garret is very pathetic and romantic, but merit battling with the world for recognition is manly and admirable, and deserves all the credit its hearty self-reliance is certain to win for it in the end.

Beautiful surroundings inspire pleasure insensibly. The author can write, the artist can paint better in a comfortable studio than in a bare garret. The beatification of life is a duty every man owes to himself, and the readiest way to beautify life is to live it in an atmosphere of refinement and intellectual enjoyment. The mind has an appetite as well as the body, and it must be fed as regularly through the eye as the stomach is supplied through the mouth.

MASONS' AND BUILDERS' EXCHANGE
OF SAN FRANCISCO
Room 11, 314 Montgomery St.

BELOW will be found a list of the members composing this Exchange. Boxes are provided for each member, so that architects, owners, or others desiring the services of any particular member, or those having boxes who are not members, and yet whose business is directly connected with that of the Exchange, can readily secure the attendance of the party sought, by leaving a note in the respective boxes.

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BOWERS. T. N. Oakland, 804 Castro St.... " 49
BENDER, JACOB, 1009 Clay St..... " 73
BECK, J., 10 Eleventh St..... " 12
CAIN, R. K., 213 Page St..... " 61
CALVERT, JOHN, 812 Hyde St..... "
COX, JOHN, 608 Jones St..... " 16
CLAWSON, L. E., 129 Oak St..... " 2
DUNBAR, WM., 27 Eleventh St..... " 14
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DUNPHY, ED., 1006 Bryant St..... " 34
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GLYNN, JAS., 432 Clementina St..... " 57
HANAVAN, JOHN H., 1711 Jessie St..... " 15
HOCK, T., 422 Golden Gate Ave..... " 60
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JORDAN, D., 911 Webster St..... " 59
KNEEDLER, G. W., 1013 Vallejo St..... " 51
KINCAID, J. E., 2219 Pacific Ave..... " 45
LIEBERT, J. G., Treasurer, 330 Oak St..... " 32
LOANE, F. M., 1512 Golden Gate Ave..... " 38
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MCCARTHY, JOHN, 2509 Folsom St..... " 7
MCGOWAN, MATT., 614 Linden Ave..... " 17
MCDERMOTT, JOHN, 124 10th St..... " 33
MCGUIRE, JOHN, 212 Grove St..... " 74
MULCAHY, JAS, 612 Larkin St..... " 33
NAGLE, GEO. D., 427 Montgomery St..... " 24
O'CONNOR, J. J., 648 Minna St..... " 19
O'BRIEN, D. J., 323 Dupont St..... " 31
O'SULLIVAN, P., 432 11th St..... " 35
RICHARDSON, GEO., 513 Ellis St..... " 39
RICHARDSON, M. B., 624 Shotwell St..... " 1
RILEY, J. F., 166 Perry St..... " 38
ROBERTS, S. N., 54 3d St..... " 55
STEVENS, W. E., cor. Larkin and Market Sts. " 46
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PETERSON, H. M., Sand and Gravel..... " 63
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PATENT BRICK CO..... " 29
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PATENT CHIMNEYS.

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BROWELL, J., Patent Chimneys..... " 71
CLAWSON, L. E., Patent Chimneys..... " 2

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DAVIS & COWELL, Lime and Cement.....Box 43
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BUTTERWORTH, T. C., Glazier..... " 48
HARNEY & SON, Street Contractors..... " 54

Wrong Statement Corrected.

A bill recently passed by the California assembly gives to any young man under twenty-six years of age, who learns a trade by serving an apprenticeship for three years, and is a moral young man, $250 out of the State treasury.

The above article we fine in a late number of the *Building*. The statement contained therein is decidedly erroneous. The bill, although introduced, was, to use a senator's phrase, "ridiculed into a side pocket," and never had the remotest chance of becoming a law.

BUSINESS NOTES.

Wood Filler.—This celebrated preparation—"WHITTIER'S PATENT WOOD FILLER"—is justly earning a reputation for its superior qualities in rendering red and other soft woods capable of receiving a high degree of finish. It is also applicable to hard woods, and is about the only article that gives a durable, economical, natural and perfect finish. Pamphlets giving information in regard to this preparation, may be obtained by addressing the Bridgeport Wood Finishing Co., 40 Bleeker Street, New York City.

Mechanics' Tools.—Osborn & Alexander are the accredited agents for all new designs and inventions in the line of Mechanics' Tools. Send for circulars to 622 Market Street.

Elevators.—Write to John Hammond, 42 Beale Street, agent for the Otis ELEVATOR, and you will receive circulars giving full description of the best elevator now in use.

Window Glass.—F. H. Rosenbaum & Co., 567 Market Street, are the agents for all the best brands of window glass. They also make a specialty of looking glasses, and will furnish any size and quality to order.

Builders' Hardware.—Dunham, Carrigan & Co. have the largest assortment of any firm on this coast. Their assortment of locks is superb. Call on or write to them for information.

Wood Mantels.—Call FIRST on the Boller Mfg. Co. warerooms, corner of Turk and Taylor. We say FIRST, because after inspecting their stock there will be no necessity of inquiring any further.

Pan Closets.—Jos. Budde, 126 First Street, manufactures the best Pan Closets. Write to him for particulars.

Paints and Oils.—Par excellence is the brand on every keg of paint and barrel of oil that is furnished by the well tried and proven firm of Sullivan & Ravelen. The latter gentleman was formerly the manager of the first lead company started on this coast, and his thorough knowledge of the qualities and materials necessary to produce a superior article of paint, makes him peculiarly fit to be at the head of the GERMANIA LEAD CO. Try the Germania Lead, and you will always give a second order for the same brand.

Where owners' names are left blank, it is so done in many instances by special request.

The building, reported in our last issue, on Jackson Street between Fillmore and Steiner, should have been credited as follows:

Oakland—20th Street and 13th Avenue; O., J. Valentine, $20,000.

The change will be noticed in our semi-annual report.

Hayes, corner Buchanan. Two-story frame. O.—Simpson Memorial Med. Church. A.—J. Maquis. C.—J. A. Leonard. $30,000.

Franklin, near Turk. Six two story frames. O and B.—J. R. Mitchell $25,000.

Eighteenth, nr. Guerrero. Two-story frame. O.—F. J. O. Wilke. A.—Kenitzer & Raun. C.—Conrad & Miller. $15,000.

Scott, between Waller and Haight. Eight two-story frames. O and B.—J. Hinkle. $30,000.

Bush, between Larkin and Hyde. Two-story frame. O.—Rev. Dr. Noble. C.—S. T. Green. $5,000.

Bush, near Hyde. Three-story frame. O.—A. Paturel. A.—G. E. Voelkel. C.—J. McKay. $10,000.

Clay, near Lyon. One-story frame. O.—M. s. J. Murphy. C.—Patterson & Smith. $1,500.

Capp, nr. Seventeenth. Alterations. O.—J. Doran. C.—William McKaon. $2,000.

Capp, corner Seventeenth. Two-story frame. O.—J. Laughmane. A.—M. J. Welsh. C.—Cormack & Elam. $4,000.

Devisadero, nr. Washington. Two-story frame. O.—W. H. McAllester. A.—J. C. Pelton. C.—R. Smiley. $4,500.

Eddy, near Scott. Alterations. O.—J. Gampl. C.—J. Maguire. $1,500.

Ellis, nr. Scott. One-story frame. O. and B.—A. Ross. $1,000.

Eddy, near Taylor. Alterations. O. A.—Plasis & Moore. C.—Wm. Langstaff. $3,500.

Fillmore, nr. Fulton. Two-story frame. O.—D. Roemer. A.—G. H. Miller. C.—F. W. Kerns. $4,000.

Geary, corner Scott. Two-story frame. O.—F. Bruns. A.—J. M. Curtis. C.—F. Bruns. $7,000.

Hyde, bet. Sutter and Post. Alterations. O.—J. Gabriel. C.—C. Hartman. $3,500.

Haight, near Pierce. One-story frame. O.—E. M. Jones. C.—H. W. Darrow. $3,000.

Howard, nr. Sixth. Two-story frame. O.—Mme. Encoyand. A.—B. E. Henricksen. C.—Moore Bros. $7,000.

Howard, nr. Tenth. One-story frame. O.—J. Mier. C.—Ozias D'Anis. $3,000.

Ivy Ave., corner Webster. Two-story frame. O.—J. W. Hamilton. C.—Haskell & Webb. $3,000.

Jackson, bet. Broderick and Baker. Three one-story frames. O. and B.—W. F. Lewis. $3,500.

Jackson, bet. Baker and Lyon. Two-story frame. O. and B.—P. Murphy. $700.

Jackson, north side, nr. Hyde. Alterations. O.—J. Wall. A.—T. J. Welsh. C.—B. R. Baukins. $1,000.

Jackson, south side, near Leavenworth. Alterations. O.—P. Harris. C.—B. R. Baukins. $750.

Sutter, Baker and Broderick. Three one-story frames. O.—C. Buckley. A.—T. J. Welsh. C.—F. & F. J. Owens. $17,000.

Mission, nr. Seventeenth. Skating Rink. O.—S. Shear. C.—W. M. Fletcher. $6,500.

McAllester, near Larkin. Two-story frame. O.—W. Lang. C.—William Pluns. $5,000.

Pine, nr. Van Ness. Three-story frame. O.—G. F. Casey. A.—Schmidt & Havens. C.—F. W. Kern. $4,000.

Pacific, nr. Larkin. Two-story frame. O.—J. C. Moore. C.—Weber & Roth. $3,000.

Pierce, near Page. One-story frame. O.—J. Hinken. A.—M. P. Schetzel. C.—William Pluns. $2,500.

Page, near Baker. Two-story frame. O.—Mrs. M. White. C.—Wm. White. $3,500.

Rauch, nr. Howard. Two-story frame. O.—J. Murphy. A.—M. J. Welsh. C.—H. Scholten. $2,000.

Shotwell, cor. Nineteenth. Two-story frame. O.—Keyston Bros. C.—Barrett & Walker. $3,000.

Treat Avenue, nr. Twenty-sixth. One-story frame. O.—C. Stephens; days' work. $3,000.

Twenty-fourth, nr. Alabama. Three two-story frames. O.—E. McGinness. A.—M. J. Welsh. C.—F. R. Daly $5,000.

Fifth, near Folsom. Three-story frame. O.—H. Swett. A.—H. T. Bestor. C.—S. C. Hanson. $12,000.

Fillmore and Fulton. One-story and basement frame. O.—O. Romer. A.—G. H. Miller. C.—F. W. Kern. $4,000.

Twenty-second, nr. Alabama. One-story frame. O.—P. Dudeo. A.—M. J. Welsh. C.—Thos. Mitchell. $2,500.

Twenty-first, cor. Treat ave. Two-story frame. O.—P. Bannan. A.—J. Clark. C.—W. A. Sheffield. $5,000.

Union, nr. Polk. One-story frame. O.—W. O. Bradley. C.—Geo. R. Bowles. $1,000.

Vallejo, near Stockton. Two-story frame. O.—H. Mathews. C.—S. Baldwin. $2,400.

Vallejo, nr. Octavia. Two-story frame. O.—E. A. Rix. A.—S. & J. C. Newsom. C.—D. B. Spangler. $6,000.

Washington, near Devisadero. Two-story frame. O. and B.—F. Gauterau. $4,000.

Ridley, corner Guerrero. Two-story frame. O. and B.—J. Sullivan. $5,000.

Bush, nr. Laguna. Alterations. O.—L. Harsch. A.—B. E. Henriksen. C.—Patterson & Smith. $1,200.

Baker, near Sacramento. One-story frame. O.—J. Sullivan. C.—Wm. Pluns. $2,300.

Pine, near Polk. Two-story frame. O.—G. L. Smith. A.—Percy & Hamilton. C.—Terrill & Slaven. $7,995.

Sacramento, nr. Franklin. Two-story frame. O.—Mrs. K. Backus. A.—S. & J. C. Newsom. C.—D. B. Spangler. $4,000.

Octavia and Linden Ave. Additions. O.—John Herbor. A.—G. H. Miller. C.—W. Huwe. $3,900.

Howard and Eleventh. One-story frame. O.—J. Meyer. A.—G. H. Miller. $3,500.

Seventeenth, nr. Castro. Two-story frame. O.—E. H. Doyle. A.—T. J. Welsh. C.—M. W. Kane. $6,500.

Jackson, near Hyde. Repairs. O.—J. Wall. A.—T. J. Welsh. C.—B. R. Baukins. $3,300.

Post, nr. Jones. Addition. O.—J. O'Brien. A.—T. J. Welsh. C.—J. W. Smith. $3,300.

Dolores, cor. Seventeenth. Two-story brick. O.—C. Duveinck. A.—T. J. Welsh. C.—J. Blake. $7,200.

Pine, Dupont and Stockton. Two-story brick. O.—P. Cuneo. A.—J. C. Pelton. C.—D. J. O'Brien. $3,700.

Fulton, nr. Octavia. Three-story frame. O.—Chas. Christen. A.—B. E. Henriksen. C.—J. Klein. $6,700.

Broadway, corner Powell. Two two-story frames. O.—Dr. Alex. Buck. A.—B. E. Henriksen. C.—Patterson & Smith. $10,500.

Tenth, near Folsom. One-story frame. O.—Union Soap Co. C.—Thos. Morris. $1,200.

Folsom, nr. Twelfth. Two-story frame. O.—M. Lahaney. A.—M. J. Welsh. C.—C. A. Anderson. $3,500.

Isis, bet. Twelfth and Thirteenth. One-story frame. O. and B.—H. A. Walter. $1,000.

Harrison, nr. Thirteenth. Two-story frame O. and B.—H. C. Leu. $2,000.

Valencia, bet. Herman and Ridley. Three-story frame. O.—G. H. Bew. A.—G. H. Hardwell. C.—R. P. Hurlbut. $6,000.

Ridley, near Market. Two-story frame. O.—W. Fredericka. A.—Schmidt & Havens. C.—C. Quinn. $5,000.

Sacramento, near Franklin. Two-story frame. O.—Miss K. Backus. A.—S. & J. C. Newsom. C.—D. B. Spangler. $7,000.

Mission, nr. Willow. Two-story frame. O.—J. Driscol. A.—M. J. Welsh. C.—H. Summers. $4,000.

Ford, near Seventeenth. One-story frame. O.—J. H. Carah. A.—J. J. Clark. $2,170.

Baker, nr. Pine. Two one-story frame. O.—F. Schutze. A.—H. Gielfuss. C.—Wm. Pluns. $3,600.

Fair Oaks, corner Twenty-fifth. Two-story frame. O.—Jas. W. Simpson. A.—J. T. Kidd. C.—C. Mason. $3,500.

Lyon, nr. California. One-story frame. O.—P. Connelly. C.—D. F. McGraw. $3,000.

Valencia, near Twenty-sixth. One-story frame. O.—Mrs. D. Hannegan. C.—J. Kelly. $1,400.

Valencia, near Twenty-fourth. Two-story frame. O. and B.—Thos. Randall. $3,500.

Valencia, near Twenty-third. Two-story frame. O.—H. H. Castle. A.—Townsend & Wyneken. C.—R. Parker. $4,000.

Minna, cor. Eighth. Alterations. O.—O. Ryan. A.—I. J. Clark. C.—T. Fox. $2,000.

Market, bet. Fourteenth and Fifteenth. Two-story frame. O.—W. Hoyt. C.—E. A. Doolittle. $2,500.

Sixteenth, near Market. Two-story frame. O. and B.—M. Irwin. $4,000.

Sixteenth, near Market. One-story frame. O. and B.—J. Irwin. $800.

Sixteenth, near Castro. One-story frame. O.—J. Duffy. C.—W. Walsh. $1,600.

Market, corner Noe. One-story frame. O.—Market Street Med. Epis. Church. C.—Odell & Fowler. $1,700.

Twenty-seventh, near Church. One-story frame. O.—Mrs. H. Miesner. A.—Townsend & Wyneken. C.—I. Sellanger. $2,000.

Jessie, nr. Seventh. Alterations. O.—Mrs. Wm. Burrows. A.—Townsend & Wyneken. C.—C. Brown. $1,500.

Fillmore, nr. Haight. Two-story frame. O.—J. Cooney. A.—Townsend & Wyneken. C.—T. McElroy. $4,500.

Oak, bet. Laguna and Buchanan. Two-story frame. O.—Mrs. H. Mohrmann. A.—John J. Clark. C.—Charles Quinn. $9,000.

Dupont, near Sacramento. Alterations. O.—W. G. Dobson. A.—W. Mooser. C.—C. F. Clawson; brick F. Dunphy. $7,500.

California, nr. Buchanan. Two-story frame. O.—Miss R. Bowie. A.—Pisels & Moore. C.—A. Jackson. $7,000.

Ellis, between Hyde and Larkin. Two-story frame. Basement. O.—George Hass. A.—J. H. Litchfield. C.—Haskell & Webb; mason, D. Pierce. $3,500.

Clementina, bet. Fourth and Fifth. Two-story frame.
O.—B. Barry.
A.—J. J. Clark.
C.—A. Nelson.
$3,000.

Washington, near Stockton. One-story frame.
O.—Jos. Tape et al.
A.—W. H. Wharff.
$2,100.

Florida, near Mariposa. One-story frame.
O.—Vernon Campbell.
A.—J. J. Clark.
C.—J. R. Wilcox.
$2,800.

Jackson, bet. Fillmore and Steiner. Two two-story frames.
O.—Baum & Goldstone.
A.—H. C. Macy.
C.—Geo. Lang.
$11,000.

Pine, bet. Webster and Buchanan. Alterations.
O.—Jas. O'Leary.
A.—Geo. A. Bordwell.
Day's work.
$1,000.

Ellis, bet. Franklin and Gough. Two-story frame.
O.—J. G. Hasshagen.
A.—Schmidt & Havens.
C.—F. W. Kern.
$6,000.

Leavenworth, bet. California and Sacramento. Two three-story frames.
O.—B. Heutrich.
A.—Schmidt & Havens.
C.—R. P. Taylor.
$7,000.

Turk, bet. Larkin and Polk. Alterations.
O.—M. A. de Laveaga.
A.—Schmidt & Havens.
C.—P. Crichton
$4,000.

Pine, bet. Van Ness Ave. and Franklin. Three-story frame.
O.—John Casey.
A.—Schmidt & Havens.
C.—F. W. Kern.
$4,000.

Ridley, bet. Guerrero and Dolores. Two-story frame.
O.—W. A. Fredericks.
A.—Schmidt & Havens.
C.—Chas. Quinn.
$5,000.

Howard, bet. Twenty-fourth and Twenty-fifth. One-story frame.
O.—H. H. Mayhew.
A.—Schmidt & Havens.
C.—Bergman & Buckley.
$3,750.

McAllister, northwest cor. Pierce. Four two-story frames.
O.—S. Anspacher.
A.—Schmidt & Havens.
C.—T. C. Riddell.
$35,000.

Clay, bet. Hyde and Leavenworth. One-story frame.
O.—Frank Grinciel.
A.—Schmidt & Havens.
C.—C. A. Anderson.
$2,500.

Ellis, nr. Franklin. Two-story frame.
O.—W. W. Dick.
A.—McDougall & Son.
C.—A. Jackson.
$6,000.

Thirtieth, nr. San Jose Road. Two one-story frames.
O.—Mrs. J. Wohlers.
A.—Huerne & Everett.
C.—L. D. Frichette.
$2,400.

Powell, cor. Bush. Three-story frame.
O.—Mrs. C. Himmelmann.
A.—H. Geilfuss.
C.—P. Dryer.
$15,000.

Baker, cor. Pine. One-story frame.
O.—E. Reinhold.
A. H. Geilfuss.
C.—Wm. Pluns.
$4,090.

Washington, nr. Sansome Alterations.
O.—R. Jordan.
A.—H. Geilfuss.
C. Conrad & Miller.
$5,000.

Leavenworth, nr. Turk. Three-story frame.
O.—L. Kobelin.
A.—Schield & John.
C.—Munster & Ames.
$7,000.

Washington, near Sacramento. Two-story frame.
O.—W. E. Stevens
Days' work.
$3,000.

MISCELLANEOUS.

Martinez—Two-story and attic frame. O., B. Fernandez; A., B. J. Clinch; C., Bulger Bros.; $15,000.

Merced—Two-story brick. O. and B., Meany & Packer; $8,000. One-story brick. O., P. Reilley; C., Meany & Packer; $2,500.

Vallejo—Three-story frame addition with brick foundation. O., Good Templars' Home for Orphans; A., A. A. Cook; C., Carle & Croly; $3,000.

Milpitas—Two-story frame. O., T. J. Sinnott; A., Jacob Lenzen & Son; C., J. S. Selby; $2,299.

Berkeley.—Three-story frame. O., J. Ballard; A., Curlett & Cuthbertson; C., J. Wilcox; $20,000.

Woodland—Main Street. Two-story brick. O., Frank Knox; C., B. F. Myers; $5,500. Elm. One-story frame. O., E. J. Pfeiffer; C., Glenn & White; $2,000. College Avenue. Two-story frame. O., Wm. L. Manour; C., Pool & Sears; $1,200. Third and Cross. One-story frame. O. and B., W. Hayden; $1,000. Improvements on Court House. Day's work; $1,000. Two-story frame carriage-house and stable. O., W. Childs; C., J. W. Henderson; $1,000. Main. One-story brick improvement Craft House. Day's work; $1,000.

Davisville—Two-story frame carriage-house and stable. O., Hext Brothers; C., W. H. Winne; $1,500. Two-story frame extension. O., Hext Brothers; C., W. H. Winne; $1,100. (Willow Slough District) school-house. Day's work; $1,200. Black Station. Two-story frame addition. O., D. N. Heurshey; C., G. W. Cooper; $1,200.

Yolo—Two-story frame. O., L. Knight; C., J. Caldwell; $3,500.

Petaluma—Two-story frame. O., G. R. Williams; A., S. & J. C. Newsom; $4,000.

Eureka—Additions. O., Wm. Carson; A., S. & J. C. Newsom; $50,000.

San Jose—Santa Clara, corner Santa Teresa. Two-story frame. O., M. Kenny; A., Lanzen & Son; C., —Mellwain; $4,700. Cinnabar, near the Alameda. Frame stables. O., Fredericksburg Brewery; A., Lenzen & Son; C., D. Green; $1,700. Two-story brick building. O., J. Plau; A., Lenzen & Son; C., Drew & Vincent; $6,500. I. O. O. F. building, three-story brick. A., Lenzen & Son; C., W. H. Kelsey; $3,100. One-story frame. O., C. A. Hunt; C., R. Summers; $1,909. Four one-story frames. O., F. Shilling; C., F. Davis; $3,150. Two-story frame. O., G. M. Bowman; A., S. & J. C. Newsom; C., A. I. McIlrain; $10,000. Santa Clara Street near Orchard. Two-story brick. O., John Plau; A., Jacob Lenzen & Son; C., Drew & Vincent; $6,000. Corner 3d and Santa Clara Streets. Three story brick. O., I. O. O. F. Hall; A., Jacob Lenzen & Son; C., D. H. Kelsey; $29,450.

Hollister—One-story frame. O., C. J. Cox; A., Lenzen & Son; C., J. Dorn; $2,000.

Fair Oaks—Additions. O., A. B. Hecht; A., H. C. Macy; day's work; $3,000.

Courtland—Two-story frame. O., Wm. Runyon; A., W. G. Copeland; days' work; $6,000.

Napa City—Two-story frame. O., Capt. Pinkham; A., J. Marquis; C., Corlett & Sons.

Sacramento—I and Twenty-fourth Streets. One-story and basement frame. O., Chas. B. Strong; A., N. D. Goodell; C., N. Harvie; $2,200. J Street, bet. Eighth and Ninth. Improvements and new front. O., A. Coolot; A., N. D. Goodell; C., Carle & Croly; $1,000. Front, bet. Second and R. Brick warehouse, one-story and basement. O., Drew & Clunie; A., N. D. Goodell; C., brickwork, E. F. Woodward; carpenter, Dean & Bohn and C. Ruggles; about $10,000. K, bet. Eighth and Ninth. Theater. O., Thomas J. Clunie; A., N. D. Goodell; C., E. A. Boyer; $16,000. D, between Eleventh and Twelfth. Improvements and additions. O., P. E. Platt; A., N. D. Goodell; C., N. Harvie; $1,600. L, bet. Eleventh and Twelfth. Two-story and basement dwelling. O., Jas. Bithell; A., N. D. Goodell; C., B. F. Bell; $6,200. Improvements to a two-story brick building on 3d and K Streets. O., P. Scheid; A., A. A. Cook; days' work.

Dixon.—Near town. Two-story and basement dwelling. O., James Porter; A. N. D. Goodell; C., B. F. Bell; $6,800. Near town. Tank-house and wind-mill. O., James Porter; A., N. D. Goodell; C., Carle & Croly; $1,400.

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Sanitary Engineer,

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Damascene or Berlin

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CARPENTERS'

—AND—

MACHINISTS'

TOOLS.

D. N. and C. A. HAWLEY, 501 to 507 Market St.

The California Architect and Building News.

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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.

A Splendid Semi-Annual Showing of Building Activities and Investments in S. F.

THE break in building operations, anticipated and prophesied by many, has not as yet put in an appearance in any tangible form, as our report for the current month not only shows no falling off, but an increase over the preceding month of May, and largely in excess of the same month of 1884, while the present summary for six months of the current year

SHOWS A GAIN OF

$1,267,889

OVER THE FIRST SIX MONTHS OF 1884,

AS FOLLOWS:

First quarterly report of 1885, ending with our March issue, 288 building engagements, value	$2,069,261
Reported in April issue, 178, value	1,221,045
" " May " 127, "	577,843
" " June (present mo.), 148, val.	588,410
Total, 6 months, 1885	$4,456,559
" " " 1884	3,188,670
In favor of 1885	$1,267,889

No better indication of the real financial condition of the inhabitants of San Francisco can be had than the figures and facts above given. The great majority of building movements have been, and are, prosecuted upon the solid basis of cash in the hands of owners. The amount of borrowed capital is comparatively light, showing that an era of general prosperity has existed among the "common people," from the well-to-do and more favorably circumstanced down to those who toil with the hod, hoe, and shovel, hundreds of whom have provided themselves with comfortable homes, and many accumulate enough to invest in improvements for renting.

But it would not be reasonable to expect an uninterrupted continuation of this great increase, augmenting more than

TWO AND ONE-HALF MILLIONS PER ANNUM,

And no discouragement should be experienced by any one should there be a considerable letting up during the remaining months of 1885. But as all prophesyings and prognostications upon this subject have failed, the man who can tell just what will be in the future, and when the building interest will subside to a condition of comparative or positive dullness, must possess greater wisdom and penetration of judgment than the knowing ones who have from time to time predicted that the march of improvement was being forced and must halt. But with all this grand increase in the number of buildings erected in San Francisco, the "to let" signs do not appear to multiply, nor are rents affected thereby so as to make it unprofitable to owners to build; and so long as people can improve their lands so as to yield returns greater than bank interests—often nearly twice as great—there is no danger of the building interests paralyzing.

Building Interest in Woodland and Yolo Co.

TO THE EDITOR OF THE "CALIFORNIA ARCHITECT AND BUILDING NEWS:" Three more months, with all its cares and anxieties, have passed since we turned in an account of the building progress of our city and Yolo County, and you will see by the following that we have at least held our own and kept the building interest alive, and now return a fair showing of the number of houses and improvements erected and those in course of construction, lending assurance that we are enjoying a liberal amount of prosperity. Still we would refrain from overestimating in our midday prosperity, and let the figures pass at par value, simply remarking that the second quarter of 1885, in number of buildings and values, is ahead of any before reported since 1880.

The grade of work and buildings erected embodies a fair degree of actual solidity, promising long endurance, with sufficient architectural refinement to figure substantially in the make-up of our city, with houses not constructed for the present, but for time, which seems to say, "Let not the form of shallow mockery become a part of this solid house."

The number employing architectural service is more in proportion than at any previous time, and the structures, as a whole, are more costly, with several worthy of special mention. The Gable Brothers' villa and John M. Briggs' residence on First Street are two, the aggregate cost of which will undoubtedly exceed $40,000.

The following is the number of buildings and improvements of all classes for the past three months:—

CITY OF WOODLAND.

26 Frame buildings, costing	$77,800
1 Brick building, "	5,500
6 Improvements, "	7,000
33 Buildings and improvements; total for city	$90,300

YOLO COUNTY.

8 Frame buildings, costing	$16,000
1 Brick building, "	12,000
2 Improvements, "	2,300
11 Buildings and improvements; total for county	30,300
44 Buildings and improvements city and county, final aggregate	$120,600
Final aggregate for corresponding three months of 1884 (25 buildings)	79,782
Increase in number of buildings, 19; in value	40,818

Should this meet favor with you, we may try again, although we distrust our competency to furnish such suitable material for your valuable columns as will be of sufficient importance to interest your many readers. Accept our thanks for past courtesies and favors. Respectfully yours,

GILBERT & SON.

June 4, 1885.

To Polish Zinc.

TAKE one part of muriatic acid to two parts of water, scour the zinc well with this mixture and fine sand, then dry carefully and give a thin coating of oil.

Carpenter—Building Contractors' Organization.

THE master carpenters in San Francisco—at least a majority of the leading and more responsible of their number—have formed an organization, and adopted rules and regulations which will to a considerable extent, if enforced, change some of the practices hitherto prevailing in connection with the erection of buildings. The movement is based upon the experiences of the past, without any harshness of expression, or seeming disposition to antagonize either owners or architects. They simply state in their own behalf, what they will and will not do; to wit, they claim the right to exercise exclusive control over all matters for which they, under the contract, are responsible; to purchase all materials of any nature and kind, necessary to the fulfillment of, and the use of which is included in their contract obligations; that owners who segregate and reserve to themselves the right to furnish mantels, glass, and other things, must be responsible for the safety of the same, and make good, at their own expense, all breakages and damage that may occur thereto; that the purchase of lumber and other constructive material is a privilege which the contractor should enjoy, together with such financial advantages as are to be derived from skillful management, judicious purchases, good credit, or ready cash.

OWNERS HAVE PROVOKED IT.

The general rule adopted for years in this State in letting contracts for buildings of any importance, has been to let each principal mechanical branch separately, and purchase a considerable portion of the materials. If this had been confined within reasonable and legitimate bounds, the present move of the carpenters would not have been thought of. But some owners, and many of them the wealthy, millionaire class, imagining financial savings by segregations and purchase of materials, have gone beyond all reason, and reached for every dollar possible of being saved, until master contractors have justly felt themselves deprived and cut off from many of the rights and proper advantages which should accrue to them, as legitimate compensations for the special skill and abilities necessary in the prosecution of works for which they are obligated, and the seen and unseen responsibilities which must and does always attach in the honest carrying out of constructive works. This spirit of going for every dollar in sight by owners

IS INDUCIVE OF IRREGULARITIES.

As in all other, so in the building business, there are regular and right profits, and legitimate and reasonable advantages, to which no right minded owner should object. When the erection of buildings is submitted to competition among a number of good, responsible, and competent men, whether as a whole or by segregations, the owner should be content with the competitive advantages secured, and leave those which are further possible to the lowest bidder, to his benefit, as a business right, without seeking further advantages, by cutting off every chance on the part of the contractor to secure more than the closely figured result of actual, personal, or hired labor; and making the master mechanic a mere contingent, full of responsibilities, but curtailed of the legitimate financial results which should be reached, in compensation for skillful management, careful purchases, and the risks involved in every building operation.

A CITY AND STATE BUILT OF WOOD MATERIALS.

Owing to the fact that the early buildings and constructions in San Francisco, and California generally, were almost exclusively of wood materials, the carpenter contractors naturally became, and were recognized as the right and proper parties to control and manage building matters generally; and as a rule, for many years, contracts, as a whole, were let to them, and they in turn sub-let the various branches to whom they pleased. But unfortunately for the craft, thousands of unscrupulous fellows who never spent an hour in servitude to acquire a knowledge of the business, nor possessed the first degree of mechanical competency, crept into the business, and aped the *master*, while in fact but mechanical *ninnies*. San Francisco has been at times "full" of this class, and thousands of villainous things have been done by them, and hundreds of thousands of dollars lost to subcontractors, material men, and others, through the misdoings of this renegade class. Consequently, organizations have from time to time been formed by the various classes of mechanics, and owners have made purchases to protect themselves against the uncertainties of this condition of things, and segregation and original contracts with owners have been demanded by nearly all the principal trades. Even the roofers, stair builders, and lesser operators, from feelings of uncertainty, have clamored for separate contracts, to save them from the clutches of those who have disgraced and injured the reputation of carpenter contractors, and reduced it to a most humiliating level. But the unreliable class has largely disappeared, and the better men are, by the movement noticed, seeking to rebuild and restore the broken down places, and elevate the science of building construction to its honorable place in the business world of San Francisco.

The restrictions and curtailments which have been practiced, were not aimed at, but to a very great extent affected the good and reliable men; as a general rule or law governing in such cases, unless made direct and personal in character, could not otherwise, than to some extent at least, attach to all within the same circle.

The movement calling forth this article has in it the argument of personal vindication and honor; that of men vindicating their rights, and asking honorable recognition as competent and qualified parties to assume all the responsibilities involved in the prosecution of their avocation, seeking no more than all other good business men demand,—the right to manage and control all matters which involve them in responsibilities.

This new departure, however, will naturally disturb and dam up some of the business rivulets that have hitherto flowed through the fields of building operations. Dealers in building materials have appreciated the safety assured to them, by selling directly to owners, as security against trading with men of uncertain responsibility, realizing the fact, that many who operate as building contractors are not financially reliable, however honest in principle and purpose they may be; that *honesty*—a priceless possession in itself—is worthless, as against bills and notes due and payable, unless there is a coin backing to sustain the moral feature. Consequently it will become necessary for owners who recognize the rights claimed by the contractors, to be very careful in letting contracts so as to avoid mechanics' liens, and material men will be required to exercise the strictest scrutiny into the responsibility of those to whom they sell material otherwise than for cash on delivery. But as there are a sufficient number of competent and financially, as well as mechanically, qualified contractors to encompass the whole business, there is no good reason why the interests to both owners and material men may not be made secure.

The Amended Lien Law.

FROM first reading of the amendments to the Mechanics' Lien Law, passed by the last Legislature of this State, we supposed that they were the concoctions and emanations of some undeveloped "country member's" brain, who had no proper knowledge of the mechanical trades, nor had ever read intelligently any lien law or law book of any kind; and that the members of the honorable body approving the same, were still suffering from the *fatigues* of the previous night, at the time of passage of the bill. But when informed by good authority that a S. F. attorney of considerable repute as a lawyer generally, and in lien law matters particularly, had been paid by interested parties to prepare some practical amendments, consistent with the principles of common law, we had no more to say. Our faith in the infallibility of the legal profession as a whole, not *one* excepted, was terribly shaken, and we settle down in the belief that it is even possible for a clever, intelligent lawyer to do a silly thing.

The law as amended is made cumbersome and inconvenient, and, in material respects, illegal and therefore void, and so the Supreme Court will decide whenever certain parts are submitted to that tribunal. But in the mean time, thousands of parties operating in building construction will be subjected to provoking annoyances, while the interests of but few, if any, will be made more secure. Their author must have known that in parts, at least, the amendments, as passed, where illogical and illegal, and that they would and will not stand the test of review by the court of last resort. It is to be regretted that the amendments as now recorded on the statute books of the State were passed, as they simply complicate matters and multiply difficulties, affording special security to those only who may gain points under them until they are nullified by appeal to the Supreme Court.

S. F. Chapter as a Live Institution.

IT is pleasing to notice the spirit and interest manifested at the Chapter meeting, held on the 5th inst. The attendance was most gratifying, and the proceedings of such character as to justify the hopes so often expressed in this Journal, that it is only a matter of time when the Chapter will become an influential and eminently useful organization. As a result of its existence, the architects of this city and State are better known to, and understood by each other, than would have been the case in the next ensuing quarter of a century, or has been prior to its organization, since the founding of the State.

The prediction of failure so freely prognosticated at its inception, having so signally proved an error of judgment, if not a *mis-desire* on the part of those who refused, and still refuse to co-operate, should satisfy all that there are at least some in the profession who have added works to faith, and that the seed sown years ago, in a not too fertile soil, is still healthy and putting forth buds with the promise of rich, ripe fruit in the future. Brethren of the profession—those who have—work on; the labor so employed will yield its return; and to those who have not joined the effort to be good to themselves and their brethren, we say in all kindness, lay aside your prejudices, personal or otherwise, and atone to yourselves for what you have lost, by earnest co-operation in the future. It must by this time be apparent to any reasonable minded man that the organization of the Chapter was not for individual purposes, nor from personal incentives. Its work has been general and for the good of all. Its influence has helped even those who have withheld a helping hand, and the profession to-day stands in better light before our clients than it would have done had the Chapter not existed. The kindly interchanges of views, the familiar intercourses between members of the Chapter, and its purifying and rectifying influences, have relieved the profession to a large extent from that cold indifference and jealousy which, prior to its organization, overhung and beclouded the relationship between men who should never have entertained an unkind sentiment toward each other.

Much is promised for the next meeting, and it is hoped that a grand rally of the members will be realized, and that some of the few good men who have not, will send in their application for membership, and be present in person.

Cabinet work of a finer description requires a more than ordinarily lustrous polish. The following is recommended for delicate work: Of linseed oil, half a pint, and the same quantity of old ale, the white of an egg, one ounce of spirits of wine, and one ounce of spirits of salts. It should be well shaken before being used, and a little should be applied to a soft linen pad and lightly rubbed off with an old silk handkerchief. If kept in a bottle well corked, this polish will keep any length of time.

Compressive Strength of Brickwork.

THE subsidence and failure of lofty chimneys erected for manufacturing purposes might profitably suggest the importance of collecting data relating to the greatest direct pressure which shafts of masonry and brickwork can actually sustain with safety. The effect of the wind is a point that should not be overlooked in the construction of chimneys, although undue pressure is also caused by settlement, expansion by heat, &c. The *Building News*, of London, in considering the subject, gives some interesting figures relating to high chimneys in different manufacturing centers, and to the pressures exerted by them. Thus, for example, it mentions a chimney at Edinburgh, 341 feet high, and resting on a hard clay shale. It is 40 feet square at its base, and, according to one authority, exerts a pressure amounting to 2½ tons per square foot. The brick shaft above the stone pedestal exercises a pressure at the base of 8 tons per square foot, while the strength of ordinary brick has been estimated at from 20 to 30 tons per square foot. As a further instance our contemporary cites a chimney at Birmingham which is 312 feet high, the pressure on the base being 6 tons per square foot, and on the foundation below the footings, 1½ tons per square foot. Another chimney, 145 feet high, exerts at the base a pressure of 8½ tons per square foot of the hexagonal base. A glass-house cone, 75 feet high, had 4 tons per foot on the piers between the arches, which is thought as much as should be allowed where the brickwork is exposed to great heat. The great chimney of St. Rollox, near Glasgow, is 455 feet high, and is 41 feet in diameter at the base, diminishing to 13 feet at the summit.

So long as the pressure is not greater than one-twelfth of the ultimate resistance of the material, there need be little anxiety felt; but accidental causes, such as wind, leaning from a yielding foundation and settlement may bring the pressure on some portion of the beds to within a limit at which the structure would not be safe. Inferior bricks are often used in construction of this kind, and when these are used in the foundations or base, the margin of safety becomes considerably diminished. In the oversetting tendency of wind on a high pile of brickwork, the pressure is suddenly shifted to one side, the leeward, and if the resultant approaches the outer face of the work, the pressure may be so increased as to cause a bulging or crushing at the joints, such as was observed in the chimney at Bradford, England.

A mixture which is said to be a cure for undue perspiration of the hands, is made of a quarter of an ounce of powdered alum, the white of one egg, and enough bran to make a thick paste. After washing the hands, apply this; let it remain on the hands two or three minutes, and then wipe off with a dry, soft towel. Lukewarm water is better than hot or cold, if the skin is tender, or inclined to chap.

Slate.

THE advantages possessed by slate as a roofing material are, (1) its comparative cheapness, (2) fire-proof quality, (3) cleanliness, (4) appearance.

First, its cheapness is apparent upon inspection of these comparative figures, as obtained from a recent publication, which, however, are subject to slight variation:—

Slate per sq. (10 ft. sq. or 100 sq. ft.)				$4.50 to $5.00
Boards	"	"	"	2.00
Tin	"	"	"	5.60 to $6.50
Shingles	"	"	"	4.00
Corrugated iron	"	"	"	6.00

Exposure to the weather effects these materials very differently. Slate remains firm and water-proof indefinitely (at least sixty or seventy-five years and longer); boards are efficient eight years, tin nearly twenty, shingles twelve, and iron lasts about twenty years, making a yearly cost per square of 7½ cents for slate, 32½ for tin, 25 for boards, 33⅓ for shingles, and 30 for iron. To secure the correct service for the periods named, these substances, with the single exception of slate, must be painted at intervals of four or five years, entailing additional expense.

In communities where cistern water is used, there is no possible doubt of the supreme advantage slate offers as a surface over which rain water should flow. Its cleanliness and freedom from disintegrated particles of poisonous paint and vegetable growth incident to other materials, especially wood, clearly establish the fact. It is practically fire-proof, and presents a beautiful appearance in its place.

A square of slate is a quantity sufficient to cover a space ten feet by ten or 100 square feet. The number of slates required in each size for such square is

28x14	83	16x12	185
26x14	89	16x10	222
24x16	86	16x 9	247
24x14	98	16x 8	277
24x12	115	14x14	188
22x14	109	14x12	219
22x12	127	14x10	262
22x11	138	14x 9	291
20x14	122	14x 8	328
20x12	142	14x 7	375
20x11	155	12x12	267
20x10	170	12x10	320
18x12	160	12x 9	355
18x11	175	12x 8	400
18x10	192	12x 7	458
18x9	214	12x 6	533

The weight per square varies from 550 to 650 pounds, but is generally quoted at six hundred pounds for No. 1 slate.

Slate is largely used as a material for mantels, hearths, tiles, steps, sills, lintels, coping, flagging, and other structural articles. Grave boxes made of this material to hold the casket or coffin in place of wooden cases are growing in favor in the United States.

To remove varnish without injuring paint Brush on spirits of ammonia or hartshorn, which soon softens the oil, allowing of its being rubbed off easily.

Sewers, Gases and Sewerages.

[Written for this Journal by F. Hillert, Architect and Mechanical Engineer.]

PHYSICAL and chemical laws governing the creation and motion of gases from animal and vegetable matter applicable to sanitary

PLUMBING WORK.

Gases are either permanent or vaporous; the first cannot be converted to a fluid condition, while the latter may, by the negative action of heat, or by pressure, be reduced to a fluid state; both are expanded by heat, and the density is in the reverse ratio to its volume; by reason of the mobility of their molecules, must be enclosed or surrounded.

The organic combinations of animal or vegetable matter of the waste are composed of the chemical elements of carbon, besides oxygen, nitrogen, sulphur, phosphorus, etc., in such a manner that one or more of these elements in the organic bodies are missing.

The animal and vegetable matter to be carried off by waste and sewer pipes is first deodorized and dissolved by the water, and in solution conveyed away to fulfill its work in the laboratory of nature, or may be, and is in some places converted, by chemical process, to fertilizers of considerable value. The parts not readily dissolved are rotted or decomposed slowly, at a temperature between the boiling point and the freezing point of water, creating from the component chemical elements of the residue, carbureted gases, and some of the lowest (microscopical) animal and vegetable organizations, which frequently form the germs of contagious diseases and epidemics. The gases created therefrom, either pure, diffused, or mixed, are:

1. Carbonic acid gas ($C O_2$), which is a colorless gas of a pungent, sour taste, suffocating, and of 1,524 density, atmospheric air taken at a unit, one volume of water will absorb 1.06 of this gas to saturation, and by its density will gravitate and descend in soil and waste pipe through the lighter atmospheric air similar to water. A pipe filled with this gas will, by its density, have a small inside pressure in excess over the outside atmospheric air pressure.

2. Hydrogen gas (H) is colorless, odorless, and a permanent gas of 0.0692 density, combustible, burns, and unites to water, when brought in contact in the presence of atmospheric air with a burning body, creating a high heat with a non-shining light. One volume of water absorbs only 0.156 of gas; is raised by its density by natural current, through the air in a $\frac{40}{30}$ (respectively) feet long upright pipe with $\frac{15.24}{41.14}$ (respectively) feet velocity per second, and conveys away per minute $\frac{60.78}{51.50}$ (respectively) cubic feet of gas, or $\frac{0.34}{0.32}$ (respectively) lbs. through a two-inch pipe usually used in our plumbing work. A vacuum will be filled by the atmospheric air at a rate of 1,275 feet velocity per second.

3. Hydrocarbureted gas ($C H_4$) occurs in mines as fire-damp; is colorless, odorless, and a permanent gas, suffocating and of 0.55 density, burns with a bluish flame; one volume of water absorbs 0.037 of gas; it ascends by its density in a $\frac{40}{30}$ feet high pipe, with $\frac{33.52}{29.01}$ feet velocity, and a two-inch pipe will discharge through air $\frac{42.23}{36.55}$ cubic feet, or $\frac{1.75}{1.60}$ lbs. of gas per minute.

4. The heavy hydrocarbureted gas ($C_2 H_4$) (oilfiant) is colorless and of a light smell, suffocating, and of 0.94 density, combustible, and burns with a bright flame; one volume of water absorbs 0.155 volume of gas, and ascends by its density in a $\frac{40}{30}$ feet high pipe with $\frac{11.85}{10.59}$ feet velocity, and a two-inch pipe will discharge $\frac{11.85}{10.59}$ cubic feet, or $\frac{1.06}{0.98}$ lbs. of gas per minute.

5. Hydrosulphuriatic gas ($H_2 S$) is colorless, and of a strong smell of rotten eggs and is of a poisonous action on the organization, and when ignited with a burning body burns with a bluish flame; is of 1.19 density; one volume of water absorbs from 2 to 3 volumes of gas. Its presence is detected by its smell, and by coloring silver and white lead, when brought in contact, brown or black, being heavier than air, will descend.

6. Ammonia ($H_3 N_2$). Hydrogen and nitrogen will unite, when becoming free by decomposition of organic substances containing nitrogen; it is colorless, of a peculiar smell, of 0.59 density; it has a highly absorbing quality, one volume of water absorbs 670. volumes of gas, and will ascend in a $\frac{40}{30}$ feet high pipe with $\frac{31.94}{27.87}$ feet per second, and a two-inch pipe will discharge $\frac{40.20}{34.80}$ cubic feet, or $\frac{1.80}{1.30}$ lbs. per minute, and other gases and vapors of bad odor having solid matter, and matter of parasitic and fungal organization microscopically suspended, and for the present purpose of investigation, conveying them from the place of creation by natural current, may be classified as having the same physical and mechanical properties.

If the gases created do not readily escape, but intermix (having no chemical affinity), that two or more of them will fill the same space, increasing the density of them in this space; assuming this mixture having a density of 0.60 than the same will pass through a $\frac{40}{30}$ feet high two-inch pipe with $\frac{31.62}{26.50}$ feet velocity per second, discharging $\frac{57124}{48102}$ cubic feet, or $\frac{2751.95}{2313.21}$ lbs. per twenty-four hours, namely, $\frac{2741.95}{2318.21}$ lbs. of solid matter, or waste, converted to gas, will be discharged in this form through a $\frac{40}{30}$ feet upright two-inch pipe which is of sufficient capacity to ventilate and clear one hundred houses. It is not correct, and is injurious to have the ventilation pipes excessively large.

The amount of discharge may be artificially increased, by passing heat in the form of hot air, steam, or by a gas jet into the ventilation or sewer pipes, and it is a gross error to prohibit this by law.

Since the current of gases inclosed by pipe, increases with the height of the same, the sewer, waste, and ventilation pipes, and rain water conductors should run uninterrupted continuously from the main sewer-pipe of the street up to above the house-roof. The different discharges from sinks, etc., must be trapped, to shut off any air from the inside of the house to the pipe, then the flow of the gas created in the trap will be taken and drawn up by the existing uprising current. It is an error to intercept this current by the insertion of a slop-hopper, which, by the consequent decrease of the current of gas, the saturation of the water-seal by sewer gas, the decay of matter in the slop-hopper, hastened by standing on low ground, exposed to the sun's rays, is a source of danger to the people occupying the premises.

The manner of ventilating the sewer-trap in front of the house through the sidewalk is of a very doubtful utility, as the elements for producing a natural ventilating current are missing. The gas, if any, should be conducted to above the house-roof, and not on the street in the wake of men.

For the capacity of the sewer-pipe, and the material the same is made of, be it noted that a six-inch pipe, smooth inside, fifty feet long, laid with a ten-inch pitch, will convey nearly three thousand gallons of water per minute, with 3.39 feet velocity per second, and with a ten-foot perpendicular extension, ten thousand one hundred and twenty gallons per minute, with 22.49 feet velocity per second. A four-inch pipe, under the same circumstances, will convey four hundred and fifty-eight gallons with 2.95 feet velocity, and respectively one thousand four hundred and ninety-six gallons with 9.57 feet velocity, large enough to drain a dwelling-house of ordinary capacity, provided that there is a usual amount of water used for slushing, and the sewer not wantonly misused. Clay pipe is indestructible in water, acids, fatty and oily substances, and has been used as pottery for ages past for cooking purposes.

Tar, pitch, asphaltum, and its kindred substances are the natural or artificial products of dry distillation of coal or wood, of a hydrocarboniferous composition; they are insoluble in water and in non-concentrated acids, but easily soluble in lye, spirits of wine, ætheric and fatty oils; but since in every household alkalies and fatty oils are extensively used, the inside coating of the iron pipes used for sewer-pipes will be dissolved, and the iron of the pipe exposed to oxidation and rapid destruction, entailing new expenses and trouble to our house-owners.

From the above, it can be no trouble by an educated and paid Board of Health, with the aid of the exact sciences on chemistry and mechanics, and some scientific experimenting on the subject-matter, to formulate a plumbing law, wherein, according to the amount of waste decomposed and to be conveyed away, the size of pipe to be graded and the most suitable material for it selected, that with good workmanship an effective, suitable and economical house-drain can be constructed, when house-owner and mechanic, comprehending the problem and its utility, will cheerfully assist and aid in the execution of the law, when they can see that the same is intelligently made for their benefit, and not in an arbitrary interest of the supplying material men for a market of their ware. The owners submit and avoid legal expenses, as by process of law no better details can be obtained.

Sunny Rooms Make Sunny Lives.

LET us take the airiest, choicest, and sunniest room in the house for our living room—the workshop where brain and body are built up and renewed; and there let us have a bay-window, no matter how plain in structure, through which the good twin angels—sunlight and pure air—can freely enter. This window shall be the poem of the house. It shall give freedom and scope to the sunsets, the tender green and changing tints of spring, the glow of summer, the pomp of autumn, the white of winter, storm and sunshine, glimmer and gloom—all these we can enjoy as we sit in our sheltered room, as the changing years roll on. Dark rooms bring depression of spirits, imparting a sense of confinement, of isolation, of powerlessness, which is chilling to energy and vigor; but in light is good cheer. Even with a gloomy house, where walls and furniture are dingy brown, you have but to take down the dingy curtains, open wide the window, hang brackets on either side, set flower pots on the brackets, and ivy in the pots, and let the warm air stream freely in.

The best paints for preserving iron exposed to the weather are prepared from the pulverized oxides of iron, such as yellow and red iron ochres, or brown hematite iron-ores finely ground, and simply mixed with linseed oil and a drier. White lead applied directly, requires incessant renewal, and, indeed, probably exerts a corrosive effect. It may, however, be applied over the more durable colors where appearance requires it. Red led is said to be very durable when pure. When the size of the exposed iron admits of it, its freedom from rusting may be promoted to a large extent by first heating it thoroughly, and then dipping it into, or washing it with linseed oil, which will then penetrate into the interior of the iron. For tinned iron exposed to the weather on roofs, rain-pipes, etc., Spanish brown is a very durable color. The tin is frequently found perfectly bright and protected where the color has been used, after an exposure of forty or fifty years. White paint washes off in a few years by the action of rain.

The following announcement appears in the last issue of our esteemed contemporary, the *American Architect:*—

"In view of the embarrassment in which the founders and late publishers of this journal find themselves temporarily involved, it may be well to forestall even the slightest agitation on the part of our subscribers or advertisers by saying plainly that the misfortune alluded to affects this journal only through the sympathies of its editors. So far as business relations go, the journal, under the same editorial management as always, will continue to fulfill all its obligations to subscriber and advertiser."

We congratulate the *Architect*, and join with its friends in best wishes for its continued prosperity.

Evolution of the Elevator.

I DO not know, nor does the Encyclopædia afford me any information, when the contrivance called an "elevator" or "lift" was first introduced into public use. I think, however, that it is of very recent origin, except possibly for hoisting freight, etc., when some lifting apparatus has, of course, always been necessary. But the passenger elevator certainly does not go back over half a score of years. It seems rather curious, therefore, to find in the "Greville Memoirs," in the account of a visit to Genoa, made by the author in 1830, the following note: "Called on Mme. Durazzo, and went with her and her niece, Mme. Ferrai, to the king's palace, formerly a Durazzo palace, like the others, a fine house, full of painting and gilding, and with a terrace of black and white marble commanding a view of the sea. The first picture is a Paul Veronese of a Magdalen with our Saviour. The king and queen sleep together, and on each side of the royal bed there is an assortment of ivory palms, crucifixes, boxes for holy water and other spiritual guards for their souls. For the convenience of their bodies he has had a machine made like a car, which is drawn up by a chain from the bottom to the top of the house; it holds about six people, who can be at pleasure elevated to any story, and at each landing place there is a contrivance to let them in and out." Certainly this was the precursor of the modern elevator, for it possesses all its essential features—much more so than the passenger car used in the torture-chamber of the Inquisition in the sixteenth century, which took in passengers, hoisted them up, and then had a bad habit of letting them out through the bottom and landing them on sharp spikes without consulting them as to when or where they desired to make a landing.—*Germantown Telegraph.*

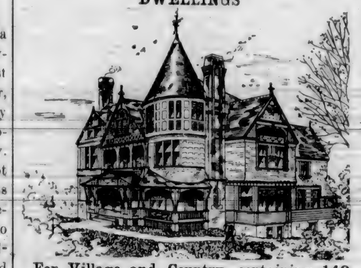
A Treatise on the Use of Belting for the Transmission of Power. By John H. Cooper.

IT has been the aim of the author, in this book, to collect, in the simplest manner, the opinions of practical and theoretical men. It also contains more *original* matter than any other book printed on the same subject. It is written in the plainest language, and is as easy to understand as any work of a technical character. In order to lessen labor, the author has introduced original abbreviations, such as, R p m for *revolutions per minute*, F p m for *feet per minute*, etc., the letters thus indicating the words. The difference between adhesion and friction is also clearly set forth. The chapter on *Use of Belting* is replete with a large array of facts and figures consistent with accuracy and in harmony with best use. It also supplies many helps in the shape of experimental data and practical working of belts.

The above work is for sale in this office and will be forwarded to any address upon receipt of the publisher's price, $3.50.

Village and Country Homes..... **$5.00**

DWELLINGS



For Village and Country, containing 149 illustrations.

The author of this work has followed an original plan in regard to its arrangement. Beginning with an "Asbury" cottage of three rooms, costing $700, he follows by gradual gradations with plans showing an increasing cost, until we find at the last end a seventy-five room "Orient," a duplicate of which will cost $20,000. Some of the names selected for the various styles of architecture shown are rather unique, such as "Stepping Stones," "Walking Ford," "Montclair," "Bayswater," "Islip," "Blackrock," "Mamaroneck," "Lillie Lake," etc.

The author has followed a plan suggested by this Journal some years ago in its article, "*Notice to Publishers*"—a full list of all the articles connected with the building, given with the cost thereof at time of publication, any fluctuations in the price of materials or labor, can readily be applied to costs as given in book, and a true estimate thus can be found.

The book is finely printed and can be seen at this office. Price, $3.00.

"Grimshaw on Saws."

FROM the publishers, Thos. W. Hartley & Co., 420 Franklin Street, Philadelphia, we have received a copy of the work entitled "Grimshaw on Saws."

We have examined the book critically, and are satisfied that the author has done himself much credit in its production. He has drawn liberally upon numerous and widely spread sources of information, intelligently classifying the different varieties of saw-teeth and blades, and going thoroughly into the details of saw manufacture, from the making of steel to the final finish.

The author has taken much pains to impartially select examples of the various manufactures of those who make saws a specialty. We notice that the *N. W. Spaulding inserted teeth* and the productions of the *Pacific Saw Manufacturing Co.*, of this city, receive liberal notice and are well illustrated.

The chapters on files and the setting of saws are very interesting, and every carpenter and mill-man would be greatly benefited by a careful study of these sections.

The work is beautifully printed on heavy book paper. THE PRICE IS $4.00, upon receipt of which a copy will be sent to any address.

Where the Architect and Plumber Meet

First in the architect's office, when the specifications for the work are open for bids. Many architects, when they are left to their own volition, will only permit a certain few plumbers, in whom they feel confidence, to bid on their work. This is perfectly natural, and, while it gives rise to the charge of favoritism, should not be entirely condemned. An architect of the better class can be trusted in his selection of workmen to figure on jobs, while a shyster architect would prefer a skin-plumber any way.

When the work is figured on, and the contract is awarded, the plumber should be careful in his suggestions of changes in the plans. There are some architects who will listen to suggestions of that kind, and if they are valuable, and do not increase the cost, might adopt them. But in the majority of cases, the architect having designed the plumbing-fixtures as they are drawn, any suggested change from the plans will be looked upon with suspicion. Hence, the plumber having bid on the specifications as they existed, it is better for him to follow the specifications to the letter.

The architect usually notifies the plumber when the building is ready for roughing in. There is not so much work to be done behind the plastered walls nowadays as formerly, owing to the desire to have all pipes, so far as possible, in a position where they may be examined easily. The few iron waste and ventilation-pipes, which run between partitions, must all be put in before lathing is completed.

In doing the gas-piping, if it is provided for in the same contract with the plumbing, there should be much care. Cheap gas-fitting is an abomination. In rooms arranged en suite, with a center light in the ceiling of each, the gas-fitter should never notch the beams in the middle, and endeavor to run one straight line of pipe over all the centers. Beams should never be notched more than two feet from the bearing, and the center lights should be supplied by branches run from a pipe so placed.

Gas-pipes should be so laid as to give a continuous fall toward the meter, otherwise, the condensations from the gas will choke the pipe. The gas-fitter should take great care to place center lights exactly where designed, if not, when the ceiling is decorated, it will be very annoying to the owner to find the light out of center. The height of bracket-light outlets should be four feet and ten inches from the under floor, and this height should not be changed to save cutting the pipe. In halls, and in first-story rooms, the height is usually five feet and seven inches. Mirror lights should have outlets eight feet from the floor.

When the outlets are placed at proper height, care should be taken that the nipples are of correct length, and that they will permit the bracket-fixture, when placed, to bear at right angles to the wall. In order to secure this accurately, a pipe of sufficient length may be screwed on each nipple, as soon as set, and carefully made level and plumb, by testing with a carpenter's square. All deviations found should be corrected, before testing by a mercury gauge, so that any leaks caused by such correction will be discovered. Bends, tees, etc., for gas-pipe under two inches in diameter, are made of malleable iron, and it is wise to use these as they will stand a little bending, and that is often the easiest way to bring pipes into place. The nipples projecting from the pipe to receive the fixture, should be the proper length, so as to extend beyond the plastered wall not more than one and one-fourth inches, nor less than three-fourths of an inch. The gas-fitter commonly uses miscellaneous scrap-pipe for nipples, but he should endeavor to make them the proper length.

These are points in which all architects are, or ought to be, educated, and will be the foundation for criticising the man who has the contract if they are improperly done.

The architect, or his superintendent, after the whole gas-fitting service is in place, will probably examine the entire system to see that the irresponsible journeyman has not used split or defective pipe, closed with putty or red lead. It would be well for the master plumber to do this himself. The caps are then screwed on, and the tightness of the work tested by a mercury gauge. A manometer is placed at one outlet, and air is pumped into the pipes until the pressure in the system approximates the pressure of the gas supply. The mercury should remain at one height in the gauge over one night. If it does that, the work may be relied upon. If the gas-fitter does this work himself, very well; if not, the architect will probably require him to do it.

After the plastering is completed, the architect should notify the plumber that he may go on with his work. He should inquire as to the use of all stock which the plumber may bring to the building. The cast-iron pipe for the soil-pipe should be especially examined, and it should conform to the specifications as to weight. Manufactures have been covering pipe with a coating of asphaltum, and it is now generally used, but some believe that the asphaltum simply fills up sand holes and renders it difficult to detect doubtful pipe. Each length of pipe should be examined thoroughly for defects, thickness, strength of hub, etc., and all doubtful pieces promptly rejected. If possible, each length should be subjected to the oil-test, previously described in the *Sanitary News*. The requirements for joints in soil-pipe are so few and simple that only the most careful architects will permit any joint other than the oakum and calked lead to be made. The plumber, himself, should be especially cautious concerning the making of soil-pipe joints, because they, more than any other part, are indexes to the general character of the work. The architect will never allow the plumber to secure iron pipe by wires, but will insist on iron straps and hooks. No joints should be made before the pipe occupies the position in which it is to remain.

The architect will be especially careful concerning the weight and size of lead pipe used. When the end of the coil is cut off, the act of sawing increases the apparent thickness of the pipe, and it is difficult to judge of the weight and thickness of it. It is not generally considered safe to use pipe (except for a very light pressure), of a less thickness than three-sixteenths of an inch. Waste and vent pipes may be one-eighth of an inch. The plumber should refrain from using honey-combed or corroded pipe, and that which is of unequal thickness.

When brass tubing is used, the cold water supply-pipes should be tin-lined. Sometimes it is wise to use plain brass pipe for the hot-water supply, and lead for the cold, as the brass pipe is not so injuriously affected by changes in temperature as is lead pipe. Brass pipe should not be confined rigidly in long lines, as it will soon break the joints if it is. It is customary to put a coat of shellac on exposed brass plumbing work, and often the plumber will leave that for the painter, who will refuse to do it.

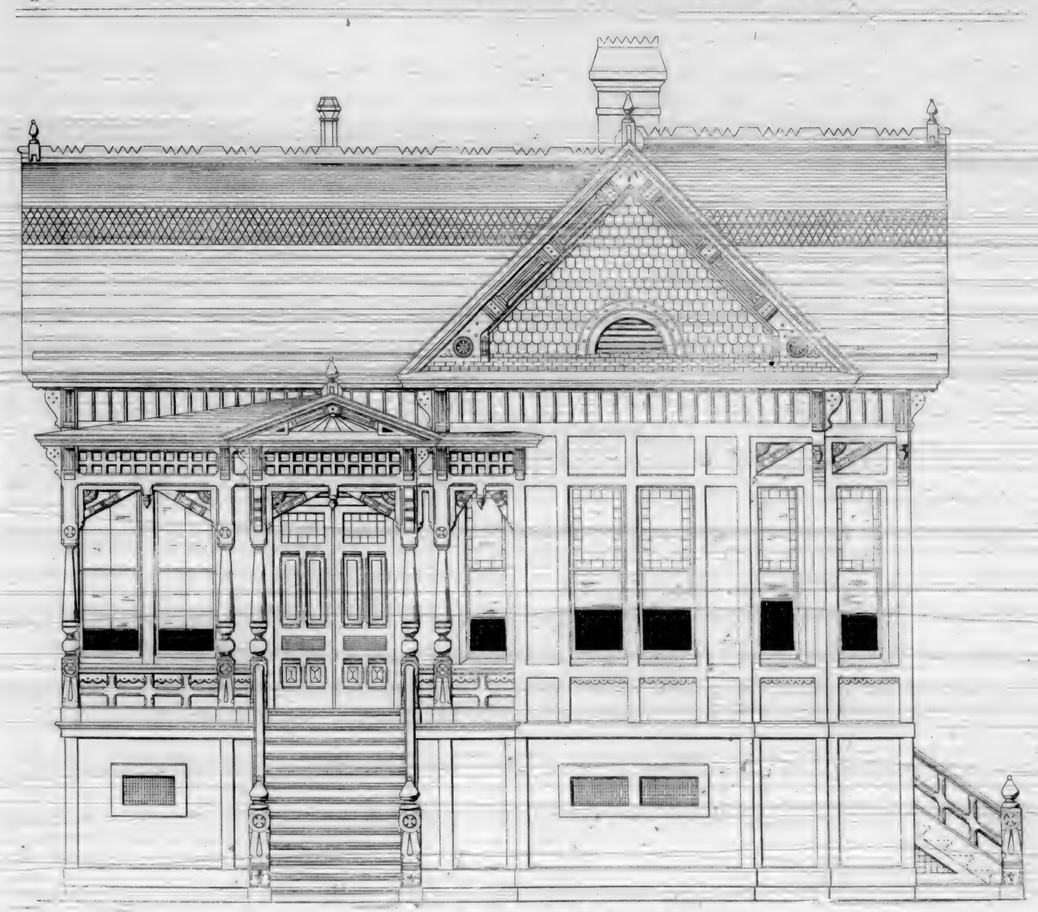
If a superior piece of work is done, and zinc casings are required to carry off condensations, leaks, etc., the architect will see that the casings are well-made, correctly applied, and have a proper fall to a safe outlet.

The course which the pipes take very often proclaims the skillful mechanic. If the several pipes used to connect up a bath-room, for instance, go coursing under and over each other in hopeless confusion, the man who arranged them so may be set down as a botch. A good workman will follow straight lines, so far as possible, and will separate the hot-water pipe from the cold-water pipe far enough so that heat will not be lost from one to the other. The house service pipe should not lead so close to the furnace or range as to warm the water when standing. All pipes will be laid with a continuous fall toward some faucet by which all the water may be drained off.

It is generally the duty of the carpenter to place boards against walls or ceiling where pipes are to run. The plumber should see that these are adequately fastened. When pipes are attached to these boards vertically, they should be fastened every four feet; when on the underside of a ceiling, about once in two feet, and, when lying on a horizontal surface, about once in eight feet. Metal tacks prevent vertical pipes from creeping downward by contraction and expansion. Brass bands are used by good plumbers to secure horizontal runs of pipe. Architects judge of the general character of a man's work by his attention to details, sometimes rightly concluding that if the slightest portions of the work are performed neatly, the more important parts are not neglected.

It is frequently true, too frequently indeed, that the specifications for the plumbing are not at all distinct or definite. In such cases, it must be understood that the plumber will do the work as cheaply as he can. The superintendent, or architect, will know just how good work he may expect, gauging the work by the compensation. In such cases, it is manifestly better to have a smaller amount of work and that well done, than to have the work scamped, and spread over all the house. By an attention to detail, and by avoiding captious authority, the architect may save the plumber money and reputation for careful work.

Whether a plumber should follow out a specification he knows to be bad or unnecessary, will depend on his acquaintance with the architect. At any rate, all questions of difference should be settled without bringing in the owner, who would know nothing as to the propriety of the work, and judge by prejudice simply.—*The Sanitary News.*



FRONT ELEVATION OF SUBURBAN COTTAGE.—PLATE 1.

Ambergris is a valuable and costly adjunct of the perfumer's art. It is believed to be caused by a disease of the liver in the spermaceti whale, in the intestines of which it is chiefly found, although it is cast up by the sea in Oriental climes, and is gathered along the shores of Coromandel, Madagascar, and Japan. It is an aromatic, gray substance, and as much as 150 pounds of it have been taken from one whale. A lump of ambergris of that size is worth to the whaler about $3,000. It is worth about as much as $15 an ounce in New York It is of incalculable benefit to the perfumer, as it gives homogeneity to the fragrance of combined extracts and oils in a remarkable manner, and strongly develops the delicate and evanescent odors of volatile oils.

Among the city ordinances which seem to meet with very little observance, is that relating to unnecessary obstructions of the sidewalk, where buildings are being erected or altered. The respectable contractors are not to blame in the matter, still less so are the subcontractors. In making bids every effort is, of course, made to get the figures down to the lowest notch, and as the unscrupulous man, he who is always ready to evade the law, or, at least, to observe it as little as possible, knows how little regard he needs pay to the class of ordinances referred to, he makes his calculations without any reference to the expense of complying with them, and thus gains a great advantage over his more scrupulous brother. Were it once fully understood that the law in this matter would be energetically and impartially enforced as to all alike, this element of cost would appear in all calculations: the just and the unjust would be put on the same level, and the public convenience would not suffer as it does now.—*Building Trade Journal.*

The Temple of Baalbec.

REV. HENRY M. FIELD, D. D., after his return from an extended tour through Eastern countries, has published a book on India and the Holy Land which is both instructive and entertaining. Doctor Field, in a letter to the *Evangelist*, of which he is the editor, thus describes the ruins that mark the place where the grandest of ancient cities is believed to have existed:—

The ruins of the ancient city of Baalbec, situated on the plain forty-three miles northwest of Damascus, are the wonder of modern architects.

Everything is colossal. The area is larger than that of the temple at Jerusalem. We may begin with the walls, which are half a mile around, and of such height and depth as are rarely attained in the most tremendous fortress. Where from within I climbed to the top, it made me giddy to look over the perilous edge to the depth below; and when from without the walls I looked up at them, they rose high in the air. Some of the stones seem as if they had been reared in place, not by Titans, but by the gods. There are nine stones 30 feet long and 10 feet thick, which are larger than the foundation stones of the temple at Jerusalem, dating from the time of Solomon, or any blocks in the Great Pyramid.

But even these are pygmies compared with the three giants of the western wall, 62 feet, 63½ feet, and 64 feet long. These are said to be the largest stones ever used in any construction. They weigh hundreds of tons, and instead of being merely hewn out of a quarry which might have been on the site, and left to lie where they were before, they have been lifted 19 feet from the ground, and there embedded in the wall. Never was there such cyclopean architecture. How such masses could have been moved is a problem with modern engineers.

Sir Charles Wilson, whom I met in Jerusalem, is at this moment in Baalbec. Standing in the grounds of the temple, he tells me that in the British Museum there is an ancient tablet which reveals the way such stones were moved. The mechanics were very simple; rollers were put under them, and they were drawn up inclined planes by sheer human muscle—the united strength of great numbers of men. In the rude design on the tablet the whole scene is pictured to the eye.

There are battalions of men, hundreds to a single roller, with the taskmasters standing over them, lash in hand, which was freely applied to make them pull together, and the king sitting on high to give the signal for this putting forth of human strength *en masse* as if an army were moving to battle. A battle it was in the waste of human life it caused. These temples of Baalbec must have been a whole generation in building, and have consumed the population of a province and the wealth of an empire.

The Walnut.

A WRITER in the *Garden* (London) wonders why this tree is comparatively but little planted, a singular fact when the beauty and value of its wood are taken into account. For gunstocks and much of our finer sorts of furniture, walnut timber is invaluable. Walnut trees, moreover, are free growing on almost all kinds of soil, and the crops of nuts which they produce would pay at least the rent of the land on which they grow, while freeholds might be purchased with trees of four score years of age. Walnuts in a landscape, also, are trees of mark, their magnificent heads of fine foliage in parks or paddocks rendering them especially adapted for such situations. They associate well with oak, beech, elm, sweet and horse chestnut, as well as with various other trees, and they do not rob the land more than their companions do. Their smooth, glossy leaves are washed clean by every shower, and the foliage is not so thick as to throw the rain off the grass or to keep air currents from circulating freely among the branches. There are, therefore, no trees either in park or pasture under which herbage grows better than it does under walnuts. Besides, walnuts come into leaf late, make their growth quickly, and lose their foliage nearly all at once after the first autumn frost. Thus a chance is given to take the leaves out of the way, so as not to injure the grass, while the shining dark young wood, with the grayish mature limbs, are left full in view. As to any tree that will grow more quickly into a size to be useful, I do not know where to look for it. I have seen old walnut trees that measured from 60 feet to 90 feet high; diameter of branches from 60 feet to 96 feet; and of bole or trunk from 3 feet to 5 feet diameter; and no doubt larger trees are elsewhere to be found.

"The American Architect."

FOR several years the *American Architect and Building News* has been published by the firm of Osgood & Co., of Boston. Business depressions have caused this firm to suspend. We are happy to announce, however, that the failure does not affect the publication of the above journal, and we are assured that its future prospects and growth will in no wise be retarded. To its friends on this coast, we can assure that it will be found at the proper time and will continue an uninterrupted publication. The editorial management continues in the hands of those who have so ably been the means of exalting it to the position of the leading Architectural Journal of America. We have received many favors at the hands of the managers, and publicly desire to express our appreciation of the same.

It isn't always the noisy, blustering, rushing foreman who gets the most work out of men or machines. His mind may be so taken by his ideas of "rushing business" that there is no time for cool calculation.

Errors Will Creep In.

OCCASIONAL complaints are made that our building intelligence reports contain errors. It would be a feat of extraordinary journalism, should we be able to complete each monthly statement, under the peculiar circumstances surrounding, without a single error. It is very often the case that the desired information is obtained by strategy, not willingly given by those in interest, and obstacles are interposed to prevent the obtainment of facts, for various reasons. Sometimes the architect is unapproachable, and will not "expose his business," thus leaving us to gain as best we may the information that might be correctly furnished at the simple cost of sacrificing a little individual self-importance and personal conceit, which can only inconvenience, but never prevent the obtainment of facts and figures. Sometimes contractors and owners misrepresent cases by hypothetical statements for purposes, and sometimes positive refusals to answer any questions are emphasized. When the fact is considered that the building reports for this journal involve interviews with from one to two hundred persons monthly, who are at liberty to make such statements and answers as they please, and the other fact that a *few* men are to be found who consider it a "good joke" to falsify and mislead, the greater wonder is that the reports are so nearly correct as they are, which, in the main, does not affect the grand totals, as over and under statements are perhaps about equal.

CREDITING THE WRONG ARCHITECT.

A complaint comes from San Jose that this was done in the May issue. If so, it was unintentional on our part, and an error in the report received from the capital city of the beautiful valley of Santa Clara. Naturally, information from places outside of San Francisco must come through correspondents, and we earnestly request that our kind friends use the greatest possible care to avoid error, particularly where two parties of the same name are practicing the profession in the same localities. As far as this journal is concerned, we repudiate the idea of possibility of an act of the kind being done intentionally.

THE ADDRESS OF OWNERS.

It has repeatedly been requested and urged that in connection with the months' report of building intelligence the *address* of owners should also be given. This would be a convenience to many for certain purposes, but it is sometimes with difficulty that the *names* alone are obtained, and in some cases are positively refused, and if the address were added, the difficulties in making up our reports would be greatly augmented, as owners generally prefer the least possible publicity being given to their private affairs. So that while we would be pleased to gratify every reasonable request of our patrons, it would be unwise to pursue a course for that purpose which would antagonize the feelings of many of our professional brethren and their clients.

SIDE ELEVATION OF SUBURBAN COTTAGE.—PLATE 2.

Brick in Ancient Rome.

THOUGH an ancient Roman boasted that he had found Rome brick and left it marble, the former has generally superseded both marble and all other kinds of stone, and even here in the heart of the iron industry complaint is made that owing to our sulphurous atmosphere it costs more to keep iron painted and free from oxidation than it is worth, and there are more brick than iron fronts in our heavy warehouses.

The Greeks, though celebrated for their work in marble, understood the value of brick, and did not allow them to be used until seasoned for five years, and their quality certified to by a magistrate.

The Romans were skilled in their manufacture, and the bricks in the baths of Titus and Caracalla have withstood the "tooth of time" better than the stones of the Coliseum. They introduced the manufacture into England, and left specimens of a deep red color well burnt, and at this date better than those made by English workmen in the reign of Elizabeth.

The Dutch made better bricks in the mediæval ages than the English, and specimens of Holland brick are still found in some of the old Dutch houses of New York.

In Asia the industry seems to have been followed to a time beyond, perhaps, the stone age, and the Chinese give the face of their brick the texture of porcelain.

The ancient Peruvians made bricks so well that a scientific Spaniard thought there must have been some secret in their composition, which had been lost prior to Spanish occupation.—*Brick and Tile Review.*

Chicago Crumbling Away.

CHICAGO'S public buildings, of whose magnificence its citizens have been so proud, and which it was thought would be "things of beauty and joys forever," are in a fair way to tumble out of sight in a hurry. To-day another one of the great cornices of the new Court House, which is barely finished, fell, knocking off half a dozen projecting ornaments on its way down and making a wreck at the sidewalk. This makes about twenty immense blocks of stone, weighing from 500 to 2,000 pounds, which have fallen off this huge edifice within two months. Each has barely missed crushing a number of citizens out of existence, and now that side of the street is avoided like a dead line. It is amusing to see a man or a couple start leisurely up that way, and then, suddenly remembering, glance at the building, and dash across the street as if life depended on it. Architects pronounce the whole of the imposing pile unsafe and declare it will be but a short time when it will all fall to pieces. The stone of which the building is constructed is of a very poor kind, and not at all suited to Chicago's alternate freezing and thawing. The post-office, too, is in the same condition. It has been condemned a dozen times as a most dangerous structure, and not more than a glance is needed at the great cracks an inch or more wide which traverse its broad sides hither and yon to believe any statement that may be made against it. As Mayor Harrison remarked, the Jail appears to be about the only building that can be relied on.—*Cleveland Leader.*

CONCERNING PICTURES.

A String of Paragraphs Gleaned from Various Sources.

PICTURES are undoubtedly among the most satisfactory of house attractions. They never wear or change in fashion. They are an ever-present pleasure, and to one accustomed to good ones, a home looks drear, indeed, without them. And "if things of beauty," we have the poet's authority for pronouncing them "joys forever."

The beauties of coloring in a well executed picture, the lights and shades, seem to be inherent to the sketch, for the same charm exists should the picture be a hundred years old, or only one.

Concerning the employment of pictures, let there be few, if only they are good, rather than many without excellence. Walls had better be bare than covered with worthless pictures. Some excellent work of young artists can be had for reasonable prices, if the work of men of great reputation cannot be afforded, and the purchase of such will encourage a very deserving and promising class.

The choice and position of pictures should be subjects of careful study. The former, perhaps, depends largely on one's means, but there are certain rules which must be applied to the latter in order to obtain the best effects. Care should be exercised in arranging a number of pictures having frames of different colors, to have them harmonize and look well. If there be taste or judgment, let it be exercised here; if money is spent to gratify a desire for something artistic and beautiful, be sure to get full value for it.

More attention should be paid to frames than is usually done. Frequently the intention of the artist is utterly defeated by an incongruous frame. A long chapter might be written upon this branch of the subject.

Pictures should be hung from a moulding extending along the wall directly under the ceiling; or, if there be a wide frieze, the moulding may serve as a separator between it and the dado, by means of hooks and wire picture cord, so that they will be on a level with the eyes of a person of ordinary height; but most houses do not have this moulding, and in a brick or plaster wall the driving of nails is a work of some difficulty. If you manage to hit the "studding," you are all right, except it happen that the "studding" is a foot or two out of the way—when you are all wrong.

Plain wood frames are the rule in the framing of small etchings. A very pretty frame for this purpose is made of polished white pine, with a bead line through it. All frames for etchings should be light in color.

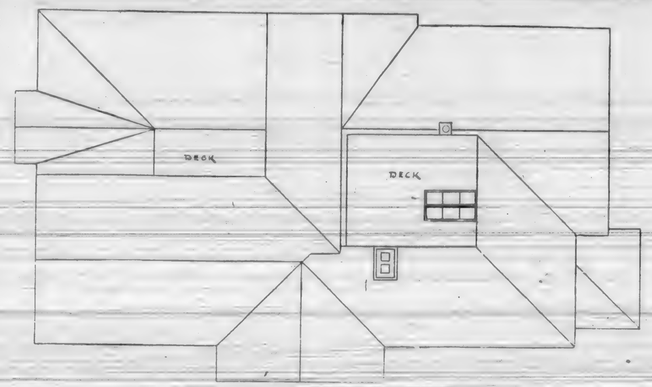
The largest photographs in the world are on exhibition at the New Orleans Exposition. They are views of the public buildings of Washington, taken by order of the Government, and are seven feet long and five feet wide.

Smoke pictures are a popular artistic fancy. They are made by smoking a piece of glazed card-board over a candle, wiping the half tones out of the sooty surface with a brush, which leaves a gray ground, and taking out the high lights with a pointed bit of wood.

In chromos America ranks first; the specimens we receive from Boston principally are conceded to be superior in finish to any in the world. In steel engravings American artists also do good work; but in pictures generally we have to rely on the Old World, for there are to be found the great masterpieces of which copies are sent all over the world.

When a person considers the numbers of pictures in an average dwelling, and the fact that new ones are being bought frequently and old ones retouched, the business will be seen to be of very great proportions.—*St. Louis Furniture Magazine.*

In France and Spain ordinary brick-dust made from hard-burned, finely pulverized bricks, and mixed with common lime, is universally used as a substitute for hydraulic cement. It is in some respects even superior to the best Rosendale hydraulic cement for culverts, drains, tanks or cisterns, and even for roofing purposes. It is regularly known in those countries as an article of commerce, and is sold in barrels by dealers at the same price as cement. A block of this substance one inch thick, without sand, after immersion in water for four months, bore, without crushing or splitting, a pressure of 1,500 pounds per square inch. The mixture of a small quantity of brick-dust to ordinary mortar will, it has been said, prevent disintegration.



ROOF PLAN OF SUBURBAN COTTAGE.—PLATE 3.

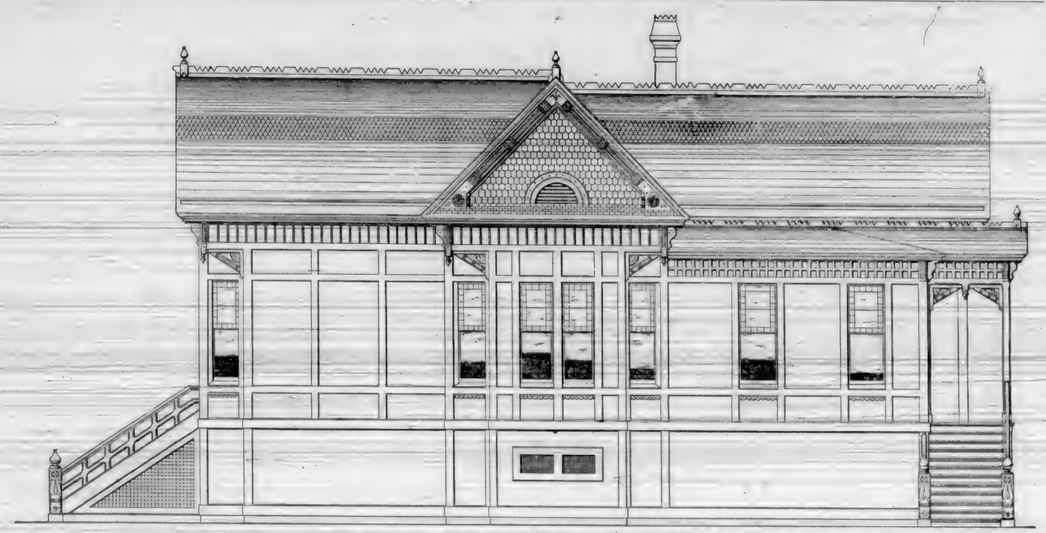
Buying a Lot from a Swindler—Need of Search of Titles.

AN unfortunate farmer named Hamberg, from Santa Clara County, last month, gave his small farm there, worth $2,500, and $1,000 in cash, for a lot 50x90 feet in size, on N. E. side Sixth Street, commencing 75 feet southeast of Bryant. At the price he was paying ($3,500) the lot would have been very cheap, as it is really worth $6,000. The buyer, with a verdancy that even Mr. Verdant Green would have been ashamed of, did not search the title to the Sixth Street property. After the transaction was closed and the Peter Funk deed went of record, Hamberg was rudely woke up by the true owner of the lot appearing. The latter was greatly scared, for he feared that the bogus deed would in some way deprive him of the title to his property. He was scared, while the defrauded farmer was full of indignation. The latter's own folly in not searching the title made the swindle possible. This transaction leads us to remark to buyers, that they should never, under *any* circumstances whatever, neglect to search the title, no matter who they are buying from, or how short a time previously the title had been searched. The title may be quite clear to-day and very much mixed to-morrow. The savings banks act upon that belief, for they never pay out a loan until they have first recorded the mortgage, and run the search down to the moment when the mortgage is recorded.

While the band saw has been steadily making its way into the mills that cut hard woods, the pine manufacturers have looked askance at it, doubtful if it could successfully compete with the log-devouring circular. However, some of the more progressive or more venturesome mill owners in the pine districts are giving the band mills a trial, and their efficiency will soon be settled. One of the latest to adopt the band saw is Radford Bros. & Co., of Ohkosh, Wis., who have just completed a double mill of the Hoffman make. This firm is best known as manufacturers of sash, doors, and blinds, but has always run a saw-mill in connection with its other business. The circular mill will continue to run, but the logs will be sorted, the better ones going to the band mill. A member of the firm, when asked if he did not feel a little anxious about the result of the experiment, said that he was perfectly confident of its success. They had thoroughly investigated the matter before placing the contract, and expected the mill to run straight ahead without trouble. He expected each saw to cut 25,000 feet a day, and their combined cut of 50,000 feet would be equal to that of a very respectable single circular mill. The mill was an expensive one to build, but he calculated that the saving over the circular, and the better grade of lumber turned out, would amount to $150 a day, when working in such logs as they would feed to it. This was allowing liberally for every contingency. The question of its success will soon be settled, and if this firm proves the efficiency, there will be others in eastern Wisconsin that will quickly profit by this experiment.

There is a science, after all, in so simple a matter as driving a nail. A correspondent writes that he recently witnessed the experiment of driving nails into timber that had been hard seasoned and well dried. The first nails, after passing through an ordinary board, went into the timber about an inch and then doubled up under the hammer. The tips of the rest of the nails were dipped into lard, and the driving was accomplished without any difficulty. The remedy is not a new one, but it is simple enough to be recommended for trial.

"There was a man once on a time who thought him wondrous wise; he swore by all the fabled gods he'd never advertise. But his goods were advertised ere long, and thereby hangs a tale; the 'ad' was set in nonpareil, and headed 'Sheriff's Sale.'"



SIDE ELEVATION OF SUBURBAN COTTAGE.—PLATE 4.

Plumbing Work.

TO OBTAIN and secure system of drainage and plumbing in a building, to secure to a house immunity at all times from sewer gas, and to prevent any subsequent annoyances incident to bad arrangement and careless workmanship in water pipes and plumbing appliances, it is necessary to observe the following points:—

First, to have the system of fixtures, supply and waste pipes well planned and arranged in accordance with the best rules; next, to have the work itself constructed in a thoroughly able and efficient manner by competent mechanics and under proper superintendence; and finally, after the work is all completed and put to use, to have it managed with intelligence, properly taken care of, and examined from time to time as to its continued soundness and freedom from defects. Hence, the subject naturally divides itself into the following sections, viz.:—

A. Principles, governing the planning and location of plumbing work in dwellings.
B. Rules, regarding the proper construction of the work, in particular as to
   (1) Materials;
   (2) Workmanship;
   (3) General arrangement;
   (4) Tests and general condition.
C. Suggestions as to the management and proper care of plumbing apparatus.

It is well known that much of the success of a system of house drainage and plumbing, to say nothing of the convenient and compact grouping of fixtures and the thereby reduced cost of the work, depends upon a judicious planning and arrangement by the architect or persons designing the plans of the building.

The general requirements mentioned under B should form a part—the principal part—of every plumbing specification. In order to adapt such a general specification to any particular building or dwelling house under consideration, it would only be necessary to add to the general requirements a detailed enumeration of all plumbing fixtures, including tank, boiler, cisterns and taps of all kind required in the building; a detailed description of all special apparatus wanted, including fixtures, traps, etc.; and a minute description of the material and of the course of all hot and cold water supply pipes, soil drain, waste and vent pipes, with reference to floor plans and sections of the buildings, which must always accompany a plumbing specification, and must show clearly the proposed system of drainage and water supply.

The suggestions named under C refer especially to householders and servants. It has become a recognized fact that a properly constructed drainage of a house must be intelligently used, and needs constant care and attention on the part of the householder to keep it in good order. Especially is this true of the vast number of houses occupied only during a part of the year, such as summer residences, seaside and mountain cottages, etc. It also refers to city houses, many of which are closed and vacated during the hot summer months. How to leave plumbing work in such houses during winter and during summer, without incurring the risk of finding on return that the pipes and traps have been frozen and burst, or that the rooms, walls, carpets and furniture are saturated with sewer air, is a question to which a certain amount of attention might with advantage be paid by every householder.—*Wm. Paul Gerhard, in Plumbers' Trade Journal.*

The Nail of the Future.

IRON cut nails are fast going out of fashion. Steel cut nails are driving them out. Wire nails are coming into use with great rapidity, and the designing of machinery for making them is taxing the inventive ability of many good mechanics. It is the opinion of some who have carefully studied the mechanical and metallurgical progress, that steel wire nails are destined to come into common use in the near future. Old Bessemer rails will come upon the market in large quantities before many months have passed, because they are wearing out faster than was thought possible in the earlier days of steel tracks. Mr. Masters has shown that they can be melted in an ordinary cupola and moulded into good castings, but it is believed that they can be utilized with more profit by drawing them into wire. Old steel rails can be readily worked into wire of good quality, suitable for nails. A mill has been erected in Syracuse for making wire from old rails, but it has not yet gone into operation. How fast steel wire nails will come into use depends largely upon how fast old steel rails are thrown upon the market.

An exchange proposes that street railways that charge five-cent fares should sell twelve tickets for fifty cents, or twenty-five for a dollar, assuming that people would ride oftener and take shorter rides by reason of the reduction. This is undoubtedly true. A person will ride three times at five-cent fares, when he would only ride twice at six cents, the result being a gain of three cents to the road. There is also another gain in the length of the ride, the two six-cent rides probably covering a longer distance than the three five-cent rides. In such case the road is a double gainer.

House-Building vs. Home-Building.

TALKING a plan for a small house with a client a short time ago, I objected to its having no inside cellar-stairs, to which he responded, "Oh, well, that don't matter; it is only a cheap house to rent." I used to respect that man, but now I look upon him much as I would if he had said, "Oh, well, that don't matter; poor people have no rights." And that man is the type of a great many men who build houses to rent. It is no wonder that the people who have lived in these houses "built to rent" are becoming building-association members by the thousand, and putting by something every week in the hope of some day building homes of their own—houses *built to live in*, and not "to rent."

A badly-arranged house is a constant source of annoyance to those who live in it. Nor is this the worst that may come of a house being built without all possible regard to the wants of its inmates. Serious injury to the health, especially in the case of the wife and mother who does her own work, is liable to result from such carelessness or ignorance; as, for instance, my client's idea of having the only cellarway an out-of-door one. Suppose the good woman of the house, or any one she may have to assist her, in the midst of some heating kitchen-work, is obliged to go to the cellar for some necessary article; she must go out of the hot kitchen into the weather, no matter how cold or damp it may be, get what she requires from the cellar, and in case of it being something requiring both hands to carry, she must make another trip to shut the heavy cellar door. The consequences may be only a disagreeable cold, or they may be unto'd misery and even death, destroying the happiness of the family entirely.

My client said that he had never looked at it in that way, and wanted to have at least three pairs of inside cellar-stairs to make sure of avoiding such direful calamities as I had pictured. I restrained his enthusiasm, however, and we compromised on one interior and one exterior cellar entrance.

A lady was showing me through her new house a few weeks since, not merely the parlor and front part of the house, but the whole establishment—kitchen, pantry, and all; and she said, "Why, sir, you can't imagine how much less work housekeeping is here than in our old house; and my husband can tell you that I have grown ever so much better-natured than I used to be, and it is all owing to the charmingly convenient arrangement of our new house."

"Yes, indeed," said the husband; "the remnant of my auburn locks will last much longer here than if we had stayed in the other house."

"Yes, and so will my china," rejoined his wife; "for it was being broken at a terrific rate in that dark, narrow china-closet."

"Your kitchen is smaller than the old one," I observed.

"Yes, and it is a great improvement; just that many less steps to take and that much less room to keep clean. This kitchen is fourteen feet square, and I wouldn't wish it larger."

I think that most housekeepers will agree with the lady on this subject.

It is not the purpose of this paper to give an exhaustive treatise on home-building, but I think we may condense into a few lines some general advice to prospective nest-builders that will be more readily comprehended and advantageously acted upon, than a whole volume of confusing science by men who have forgotten how to build anything less than law-courts, admiralty buildings, etc.

The first step is for the husband and wife to spend an evening talking the subject over, and make up their minds what the reasonable requirements of the family will be. They must decide how many rooms they ought to have; and it will be well for them to form as much of an idea as they can of what they want their house to be. The next step should invariably be to go to an architect—not any architect who may happen to live around the corner, and possibly advertise "plans and specifications while you wait;" but a good architect, one whose work bespeaks him a reliable and competent man in his profession. Such a man will not charge you more than two and a half per cent. on the cost of your house for making complete drawings and specifications for a house that will be satisfactory to you when finished. In addition to preparing drawings and specifications, your architect will draw up contracts for the work, and attend to the "bidding" and the signing of the contracts by the successful bidders, in legal form. You may depend upon it that the two and a half per cent. paid to a good architect is as well and economically spent as if it went directly into lumber and shingles for the new house. No matter how plain your house is to be, have it drawn by an architect, and don't think that it is too small to bother a *good* architect with.

When you have had the first talk with the man you have chosen to help you make your house a home, and an understanding of the requirement of the case has been arrived at, let him make a sketch for you which will serve as a basis for a final discussion. Now it is time for the question, "How much will such a house built in a good and substantial manner cost?" This the architect should be able to answer with approximate accuracy. If the price is a little more than you feel that you can afford to put into your house, an investigation of the sketches will probably suggest several opportunities of cutting down its cost without materially interfering with its arrangement or convenience. Let such cutting come off such features of the house as partake most of the character of luxuries—things which you would like to have, but can get along comfortably without. If the cost of the sort of house you ought to have is so much beyond your means that such a reducing process as I have described will not bring it within an amount that you feel you can consistently spend, the wisest way is to pay the architect a fee for the sketches, and lay them away till Dame Economy has increased your hoard sufficiently to allow you to go to the architect again and have him make the drawings, etc., for a house which you will find a constant source of contentment and satisfaction. As a rule, this is much better than building a house that is within your means, but not adequate to your needs, or, still worse, encumbering yourself with a heavy debt. So much for home-building in general.

SANITARY SELF-RIGHTEOUSNESS.—This caption may seem a trifle ambiguous, but it properly characterizes the feeling many people have when they read and talk of the terrible unsanitary condition of their neighbor's premises. In small towns it takes the familiar form of a guarantee that "our water comes from the best well in town," or "our house is well ventilated," because there may be transoms over the sleeping-room doors. It is always present in the confidence people have that their house is not a house to cause sickness and death. It is a never-failing resource in times of epidemics. It results in exposure to contagious diseases because some member of the family had once been exposed and was not attacked, consequently the disease was not "catching," or there was some occult influence, probably hereditary and providential, which protected this particular family. What poor, superstitious, unreasoning, go-it-blind creatures the larger proportion of the world is composed of! The majority are not even ready to act on the belief that cause is, and must be, followed by effect. Sanitary self-righteousness interferes with the administration of health laws by the health officials. It invariably makes the persons troubled with it think that health officers are a meddling, officious set, prone to disturbing innocent people for purely vindictive reasons, with no sincere knowledge of sanitary matters, and no desire to learn. All such people cast a wet blanket on sanitary progress. Sanitary self-righteousness interferes with sanitary progress on the part of the public, which is always only too ready to believe ill of a reform or a reformer. The self-righteous sanitarians frown on all but their own methods of work, and with their followers form a serious drawback to the proud advance sanitation is making in this country. —*Sanitary News, Chicago.*

The lumber for 48,000 clothes pins costs $3.00 and the clothes pins are worth $386.50. Four kinds of saws, a revolving polishing cylinder of iron, and a kiln, are requisite for their manufacture, and the poor creature who makes them has only 50 per cent. profit when he sells them for one cent.

"Science of Carpentry Made Easy." A new lot of this justly celebrated work, just received, will be sent post-paid to any address upon receipt of five dollars.

FLOOR PLAN OF SUBURBAN COTTAGE.—PLATE 5.

A Theory of the Redwoods.

THEORIES and explanations in regard to the question, why redwood should only be indigenous to a limited portion of the Pacific Coast, have been promulgated and answered ever since redwood lumber became an article of general consumption. We have endeavored from time to time, in the columns of this journal, to present interesting facts in regard to the production, manufacture, and uses of redwood lumber. Mr. Belleisle, a gentleman connected with the Southern Pacific Railroad, has made a study of the question propounded above, and it is with pleasure that we give his opinions in regard to the apparently stinted manner which Providence seems to have blessed this world with trees of the redwood species.

"One of the matters over which I have pondered for many long years," said he, "is the cause of the difference between the trees in the three districts comprised within the redwood belt—Santa Cruz, Mendocino, and Humboldt. I have a theory of my own, which I think is both original and correct. You are aware, of course, that, so far as is generally accepted, the belt I have mentioned practically contains all the timber redwood of the State. Occasionally, however, are to be found a few scattering trees along the coast ranges. Upon the latter fact I base one portion of my theory. To carry it out, we must go back almost into the mystic dreamland of ages and ages ago. My firm belief is that in times primeval the whole of the Coast Range and the mountains, as far away down south as they stretch, were covered with gigantic redwoods and other forest trees, recalling Longfellow's opening lines in his poem of 'Hiawatha.' I believe that very ancient buildings, if they could be unearthed, would substantiate this. How they were destroyed, who but the Omniscient knows? Scarcely to any immense extent by man, unless the mortals who used them have passed away, leaving no greater trace behind them than the grand old trees themselves. If the trees died a natural death, beaten and buffeted by the over-warring elements, and finally succumbing to old age, gout in the roots, rheumatism in the branches, neuralgia in the heart, and a feeble brain, what marvelous

"CLIMATIC AND PHYSICAL CHANGES

"Must they not have witnessed, but caused. To their death or destruction—presuming this portion of my theory is correct—may we not attribute to a very marked degree many of our sterile plains, deserts, and barren mountains down south? Forests destroyed prevent the moisture and the fertile leaf-mold requisite for agriculture. The absence of traces of these trees—except occasionally, as I have said—may be attributed to the tender shoots being dried out and poisoned, as it were for lack of protecting cover. Gradually, too, the ground would become too arid for even the support of the roots and stumps, and they, in the course of ages, would disappear.

"Now, then, the next step will be to Monterey. You have seen those grand old cypresses between Monterey and Carmel Mission, festooned with their garlands of trailing moss; with their gnarled and contorted trunks golden green with lycopodiums and a thousand and one species of mosses; silvery gray with many hued lichens and other parasites, and with the poisonous mistletoe pendant from their branches—all sapping away the life-blood from these venerable and gloomy-hued patriarchs. They have lived for thousands upon thousands of years, but are now fighting a fearful battle for bare existence. They are like a brave warrior in the agonies of death, and praying only for a brief respite to settle his worldly affairs and make his peace with God. They are doomed—although they may exist for centuries—for the pitiless elements are waging an irresistible war against them. They appear to have a stronger vitality than the redwood, for they have outlasted them, as comparatively few are to be found here, while the other trees are of much younger and more rapid growth, and of a different character.

"Now we cross the bay to Santa Cruz, with out discussing what geological changes may have happened in the eras of the past. Here we find that, although still somewhat protected by the Monterey forest belt, the redwoods are getting

"READY FOR THEIR FINAL FIGHT

"With nature's forces. We leave man and his invasion into their domains out of the question. Do you see how closely the grain and fiber cling together, as if the tree shuddered and shivered, as a man does in a chilling, icy-cold wind, which contracts closer every nerve in his body? As with the man, so with the tree—both feel the advance of decay and death. Mendocino comes next, more vigorous in youth than Santa Cruz, and consequently slightly more open in fiber, but already beginning to feel the threatened attack. Last comes Humboldt, younger and lustier, and of more rapid growth, fostered by the greater moisture and better protective influences. Consequently the wood is softer and more readily worked for many purposes than the harder of the southern woods. Another portion of my theory, and resulting from what I have said, is that the redwoods have, as it were crept up from the south, slowly driven from there to a more congenial climate. As to the manner in which this grand army of evergreen leviathans marched into our State, this must be left to be discovered by wiser heads than ours, although the student of forestry can find many similar examples among forest trees. We must be thankful that we live in our age, when they are with us to enrich the grand resources of our State, and in our gratitude we should treat them as kindly as we can—utilize them, but not willfully and wastefully destroy them. Hitherto it has been the practice to waste the butts and stumps, and hundreds of serviceable logs are lying idly on the ground; but erelong it will be found that they will all become very valuable, and perchance the most valuable.

"BEFORE MANY YEARS HAVE PASSED

"Away there will be no more blasting, by dynamite, of roots to make a potato patch, for it will be found that half a dozen such roots are worth more than an acre of potatoes. No; Economy in redwood will soon necessarily be the order of the day. The demand for it in this State, to say nothing of the rapidly increasing demand for it outside, will enforce a careful use of it. We do not yet know to how many uses this invaluable wood can be put. There scarcely seems to be any restriction upon its availability and adaptability to modern demands. Each day brings forth some newly discovered merits. The latest, and perhaps, one of the most important discoveries is its use as an ornamental wood for paneling purposes. It takes a very high polish, or can be polished to any extent desired. It is most durable, and not liable to split or warp, and has a grain of most beautiful texture and beauty, of varying and innumerable design."

Durability of White Lead.

WHY is it that white lead does not wear as well as it used to? is a question that is frequently asked by painters and consumers. They also add: We used to be able to obtain an article that would wear for years, while now its durability is much less. The important reason for this is found in the difference between the methods of manufacture employed now and a few years ago. Formerly, white lead was corroded by immersing it in vinegar aciduated with acetic acid, which is only concentrated vinegar. The process required about eight weeks before the carbonate was ready for use. This process, however, was found too costly, and the production was too limited to supply the demands. Then, too, a process requiring so long a time would compel corroders to invest a large capital from which they could realize no returns for a long period. They could not afford to produce lead in this manner at a cost sufficiently low to meet the demand for a low-priced article. Accordingly their ingenuity was taxed to invent some method whereby the carbonate could be produced much quicker and at a much less price. Thus they adopted the present process whereby the lead is now corroded by means of a stronger acid in a month, or even in a few days. The result is that the pure article is much less durable when applied to buildings. Speed in the manufacture of some articles, it is true does not sacrifice quality, while in others the greater celerity in manufacture the less durable the products. Not only is this seen in the production of lead, but another branch of manufacture where it is especially noticeable is that of leather. Formerly it required fifteen months to thoroughly tan a hide. Now the process has been shortened and a month and a half at the longest witnesses the completion of the work. As in the case of white lead, the result is lack of durability, and people constantly complain that leather soon cracks out and lacks its original durability.—*P., in the Painter.*

Risen from the Bench.

NOT from the Judicial Bench only, but also from the Joiners' Bench, have arisen some of the noblest of men; thus proving that where the hard-toiling mechanic rightly and perseveringly applies his talents he may rise, not only to influence, but frequently to affluence.

Inigo Jones, the celebrated architect, who was patronized by the nobility and crowned heads, not only of England, but of other countries, commenced life as a common carpenter.

Braham, the celebrated engineer, who conferred so great a boon upon his country and the world by the invention of the "Hydraulic Press," was apprenticed as a carpenter.

Dr. John Hunter, who by the common consent of all his successors, is regarded as the greatest man who ever practiced surgery; he who left behind him one of the greatest monuments of skill of which Great Britain can boast—the Hunterian Museum—was the son of a Scotch farmer, and until nearly twenty years of age worked as a carpenter with Mr. Buchanan, of Glasgow. Though rough in his manners, and very deficient in his education, he rose by his indomitable perseverance to the highest pinnacle of fame.

Henry Peto, Esq., the original proprietor of the extensive square of buildings known as Furnival's Inn, in Holborn, London, started life as a carpenter.

John Harrison, born at Foulby, near Pontefract, the inventor of the "Compound Pendulum" and the "Time Keeper" for ascertaining the longitude (for which invaluable invention he received £20,000 from the Government), was the son of a working carpenter.

Opic, so well known as the late president of the Royal Academy, was the son of a carpenter.

Haydn, the celebrated composer, was the son of a wheelwright.

George Harvey, Fellow of the Royal Society, the celebrated mathematician and president of the Plymouth Athenæum, started life as a carpenter.

Sir John Hawkins, an eminent London magistrate, whose remains are interred in Westminster Abbey, was originally a carpenter.

Dr. Samuel Lee, the celebrated professor of Hebrew at the University of Cambridge, was, at the age of twelve, apprenticed as a carpenter. This eminent and accomplished scholar received his education in the Charity School of Longnor, near Shewsbury.

Thomas Cubitt, who designed and built Queen Victoria's residence, Osborne House, in the Isle of Wight, was once a working carpenter.

Tredgold, one of the ablest engineers of which England can boast, the author of the popular work on the Steam Engine, was apprenticed to a common carpenter in his native village of Braudon near Durham. For five years he worked as a journeyman carpenter in Scotland. His biographer says: "During his leisure hours he diligently studied chemistry, geology, and mathematics, which was the secret of his extraordinary success in after life."

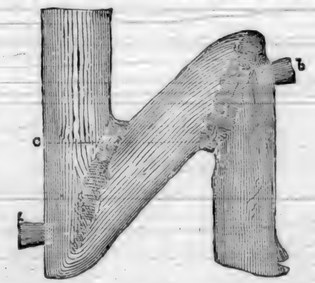
Sir S. M. Peto, Bart., was not ashamed to own that he once worked at the bench as a carpenter.

Alderman Cubitt, one of the greatest builders of the present age, worked at the bench as a carpenter.

These illustrations of eminent Englishmen who have started from the carpenters' bench might be largely increased by the examples of our own countrymen whose industry and perseverance have enabled them to overcome obstacles and to rise to distinction. Good use of leisure hours is a stepping-stone to success. —*Illustrated Christian Weekly.*

A Primitive Trap.

THE illustration given below is a correct representation of a hand-made trap which Mr. James Kelly, of this city, found in a public building at Paris, Texas. The plumbing of this building was recently overhauled by the Kelly Bros. and modern appliances substituted. The building had been supplied with water-closets, sinks, etc., and the usual amount of pipes, which discharged into a wooden, under-ground drain, which, in turn, emptied into a ravine, or other out-of-the-way place. The trap shown below was the only one in the entire building, and this was under a sink in a drug store on the first floor. It was made of straight pieces of lead pipe, clumsily soldered together at the joints, thus making sharp angles, and not curves. The dip at the left upper angle was not sufficient to reach the water line (shown at c), consequently it was of no use in



preventing the return of gasses. At a and b rubber corks were inserted in holes, the use for which was made necessary in removing solid substances which found their way into the trap from the drug store sink. This native specimen may be seen at this office. The job was probably done by a tinsmith or hardware dealer, and undoubtedly satisfied the demand for a "trap."—*Sanitary News.*

A good employer will make his controlling f ree felt without saying anything about it. To boast of power is to lose the greater part of it.

Velvet papers are among the most difficult material to handle which the paper-hanger is called upon to use. It is difficult at all times and sometimes impossible, to apply them to the walls without showing the seams. In some instances the paper, after being on for a while, will shrink and part at the seams, showing the white wall underneath through the opening thus made. In order to avoid such a result, the paper-hanger should see that the wall he is to cover is as smooth as possible. The paper should be trimmed with a knife and straight-edge. This method is necessary, because it is impossible to "butt" two edges of paper together properly which are not perfectly straight. A little dry color should be provided as near to the shade of the predominating color of the paper used as possible, and applied to the white edge of the paper after it has been trimmed, and before removing it from the paste-board. This will obscure the white edge, which is apt to show a little occasionally, even under the most skillful manipulation, on account of the edges not coming down to an exact level with each other. The position of the seams should be ascertained before any paper is put upon the wall, and a stripe about an inch wide made with the same color that is used on the edge of the paper, so that the seam will come in the center of it. If this color is carefully used in the places recommended, there will be no difficulty about white showing through the seams.

T. B. PETERSON & BROTHERS, Philadelphia have issued a new work entitled, "SNOB PAPERS," by Adair Welcker, Deputy Superintendent of Public Instruction, Sacramento, California. The scene is laid in San Francisco, Oakland, and the surrounding country, and the hero, a bluff old "Forty-Niner," has grown rich at the mines. He comes to San Francisco to mingle with the snobs and see life, and the shrewd sayings delivered in peculiar style, are of the most convulsing type, being one whirl of ludicrous adventures, which are quite exciting and sensational, while the action never ceases. Hosts of droll characters are introduced, among them several remarkably lively young ladies and some ladies of uncertain age who are untiring fishers in the matrimonial sea, while the local snobs and dudes are mercilessly ridiculed. "SNOB PAPERS" will be published in one large duodecimo volume of 500 pages, at the exceedingly low price of seventy-five cents a copy in paper cover, or $1.25 bound in morocco cloth, and copies will be sent to any one at once on receipt of price.

AN IMPORTANT INSURANCE DECISION.—Judge Holmes, of the Supreme Court of Massachusetts, rules that in case of fire "the insured is not bound to give a detailed statement of his loss; that the insurance companies must ascertain the amount as they can, and pay, or else they must stand suit. The plaintiff's right to sue is not dependent on having sent to the insurance companies a detailed statement of the loss which he has suffered."

The Embryo Architect.

THE profession of architecture is yearly increasing in public estimation, and the fallacy of the idea that the carpenter and the mason are the only parties required in building is becoming more clearly shown. We find that the appreciation of this art is in direct proportion to the increase in wealth, intelligence, and refinement, and many persons seem desirous of enabling their children to embark in the profession, which they consider one not only of good social status, but which has often proved to be one of emolument also. But the great mistake too often occurs of putting a boy into the profession who has no natural aptitude for such study. The first thing to be considered is whether or not a youth shows that predisposition which is an infallible sign of dormant aptitude. One who shows a natural fondness for the effort of delineating and originating things from his own meager resources, no matter how poor the first results may be—with a taste for reading and study, good practical sense, and no inclination to idle when he should be at work—needs only a good general education and the opportunity to become a first-class architect. After entering upon active duties, the architect has comparatively little time left for reading, and it is important that he be prepared beforehand with a good stock of literary information. The beginner, after having decided to enter upon architectural studies, will have to depend for future success almost entirely upon himself. The office of his principal will not be found to be a school such as he has been used to. All the architect can do is to allow his pupil a negative advantage—although it results as a positive one—in picking up bits of information from the daily business transacted in the office. The learner must keep his eyes and ears open, and not lapse into a listless state, expecting the information will be driven into him. He must improve his time in reading works connected with the history and practice of modern and mediæval architecture, never dodge a difficulty in executing a plan, and make comparisons of buildings of every kind with the drawings prepared for them. In short, he must rely upon his own resources. A teacher can hardly do more than to guide him to the right road and give his encouragement.

The great difficulty with American youth is the almost insane desire to arrive at desired results with but a single effort. The first short lesson in architecture should be that "Rome was not built in a day," and that it takes time to accomplish things. Many young men enter an architect's office with a vague notion that to design a fine building is only to make a few marks on drawing-paper, and that only a few months will be required to master the secret of just how to draw them. But the unexpected fact gradually dawns that architecture, after all, is something that people have to study, and very diligently, too. Many get discouraged at the maze of detail that is continually opening before them with no promise of end, and give up the study in despair, even after they have traveled a good portion of the road to ultimate success.—*Building Trade Journal.*

Architectural Journals.

AT the last session of the American Institute of Architects, O. P. Hatfield and Henry M. Congdon were appointed a special committee to report upon the Architectural Journals published in the United States.

The following report upon the CALIFORNIA ARCHITECT AND BUILDING NEWS was published in a pamphlet issued by the committee:

"In San Francisco, California, the 'California Architect and Building News' is a monthly publication, conducted with great energy and ability, and now issuing its fifth volume. Its illustrations of California buildings are liberally given, and it adds a series of portraits of the leading architects of the Pacific Coast. It reports the proceedings of the S. F. Chapter of the American Institute of Architects quite fully, and gives biographies of its prominent members."

The committee also adds that they "congratulate the Institute and the profession on the number of excellent serials that are now issued in this country in the interests of architecture and its kindred arts."

In concluding its report the committee earnestly draws the attention of every one connected with the profession to the following:—

"Every architect should feel it to be his duty to contribute promptly and steadily by literary work, drawings and subscriptions, to the support and maintenance of architectural serials."

Architects of the Pacific Slope.

IT should be your pride to say that you have furnished designs or written articles for publication in the CALIFORNIA ARCHITECT. We will be pleased to receive the same, and give full credit to contributing patrons. Drawings should be on card-board, line shaded, and extra care taken to use PERFECTLY BLACK INK. Any questions in regard to the above will be answered by addressing the editors, 240 Montgomery Street.

Old whitewashed walls are a difficult surface to make paper adhere to properly. In treating such a wall, the loose whitewash should be scraped off and a strong coat of glue size applied to the wall. After this has become dry, the paper may be put on. But this is not all. The paste used on the paper should also be specially prepared. Pure wheat-flour paste should be used, and to every pailful of it, thinned to the proper consistency, use about one pound of common sugar thoroughly mixed with the paste. Occasionally paper-hangers will have difficulty with this kind of work, but if they observe these hints, not forgetting the sugar, difficulties will be of rare occurrence.

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OF SAN FRANCISCO
Room 11, 314 Montgomery St.

BELOW will be found a list of the members composing this Exchange. Boxes are provided for each member, so that architects, owners, or others desiring the services of any particular member, or those having boxes who are not members, and yet whose business is directly connected with that of the Exchange, can readily secure the attendance of the party sought, by leaving a note in the respective boxes.

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BUILDING INTELLIGENCE.

By reason of oversight the following buildings were incorrectly credited last month. The credit belongs to Theo. Lenzen, Architect, San Jose.

San Jose.—S. E. corner Santa Clara and San Teresa. Two-story frame. O., M. Kenny; A., Theodore Lenzen; C., A. J. McIlvain; $4,700. Cinnabar, near Alameda. Frame stable. O., Fredricksburg Brewing Co.; A., Theodore Lenzen; C., M. D. Green; $1,700.

Willow, corner Laguna. Three two-story frames. O. and B.—J. Thompson. $11,000.

Gough, corner Ellis. Two-story frame. O.—W. Easton. A.—W. F. Smith. C.—J. Robertson. $10,000.

Golden Gate Ave., nr. Polk. Two two-story frames. O.—J. Robinson. A.—John Newsom. C.—J. McCann. $16,000.

Laguna, corner O'Farrell. Alterations. O. and B.—Jos. Gasling. Days' work. $2,500.

Ellis, nr. Van Ness Ave. Two-story frame. O.—S. W. Dick. A.—McDougal & Son. C.—A. Jackson. $6,500.

Union, cor. Pierce. One one-story frame. O.—H. Bartels. C.—F. Schibel. $2,500.

Greenwich, nr. Pierce. Two-story frame. O.—H. Klincks. C.—O. H. Walker. $1,800.

Pixley, bet. Fillmore and Steiner. One-story frame. O.—F. Heusell. C.—Cupp & Green. $2,500.

Union, cor. Gough. Two-story frame. O.—S. Tallman. C.—J. Taylor. $3,000.

McAllister, northeast cor. Laguna. Three-story frame and alterations. O.—Julius Schulken. A.—Schmidt & Havens. C.—Jas. A. Hayden. $10,000.

Howard, east side, bet. Twentieth and Twenty-first. Two-story frame. O.—J. F. English. A.—Schmidt & Havens. C.—F. W. Kern. $2,500.

Clay, southeast corner Hyde. Two-story frame. O.—Jas. Musto. A.—Schmidt & Havens. $15,000.

Oak, near Steiner. Two-story frame. O.—J. H. Humphrey. Days' work. $3,000.

Page, near Devisadero. Two-story frame. O. and B.—H. L. Plummer. $3,500.

McAllister, near Pierce. Four two-story frames. A.—Schmidt & Havens.

Fillmore, nr. McAllister. Two one-story frames. O.—Mrs. L. Albrecht. A.—J. C. Pelton. C.—F. W. Kern. $4,500.

Fillmore, bet. Bush and Sutter. Additions. O.—M. Herman. A.—S. & J. C. Newsom. C.—D. B. Spangler. $1,000.

Channel, nr. Byrant Ave. One-story frame. O.—L. Davis. C.—G. A. Stevens. $2,000.

M., bet. Eleventh and Twelfth Ave. Five one-story frames. O. and B.—J. Hanlon. $5,000.

Harrison, near Twenty-fourth. Alterations. O.—P. Dumont. C.—J. Lagrange. $700.

Treat Ave, nr. Twentieth. Alterations. O.—Dr. Cowen. A.—J. Marquis. C.—W. M. Kincaid. $1,000.

Columbia, bet. Twenty-fourth and Twenty-fifth. Two-story frame. O.—L. Hackett. A.—M. J. Welch. C.—L. F. Hubley. $2,500.

Twelfth, nr. Folsom. Repairs. O.—Stevens. C.—T. Moffat. $4,000.

Nebraska, nr. Nevada. Additions. O. and B.—G. Dillman. $800.

Nebraska, nr. Humboldt. One-story frame. O. and B.—C. Hanson. $2,000.

Market, corner Fell. Two-story frame. O.—Mrs. J. Driscoll. A.—H. D. Mitchell. C.—James Geary. $12,000.

Washington Ave., nr. Mission. Two-story frame. O.—W. Celner. A.—A. C. Lutgens. C.—H. Thom Worden. $3,000.

Willow, nr. Valencia. Alterations. O. and B.—P. Inaud. $1,000.

Baker, nr. Pine. Two one-story frames. O.—E. Rienhold and F. Schultz. A.—H. Gielfuss. C.—Wm. Pluns. $4,000.

Elgin Park, cor. Ridley. Two-story frame. O.—Mrs. M. Murphy. A.—J. C. Pelton. C.—J. McCann. $3,500.

Fell, nr. Market. Two-story frame. O.—Mrs. J. Driscoll. A.—H. D. Mitchell. C.—Jas. Geary. $8,000.

Bush, nr. Buchanan. Two-story frame. O.—I Frank. C.—H. Meyn. $4,500.

Grove, nr. Broderick. One-story frame. O. and B.—R. Lund. $1,000.

Golden Gate Ave., nr. Fillmore. One-story frame. O.—H. Worth. A.—McDougal & Son. C.—D. F. McGraw. $3,500.

Golden Gate Ave. Two-story frame. O. and B.—S. Harris. A.—C. Day. C.—J. B. Gouyeau. $5,000.

Seventeenth, bet. Noe and Sanchez. Additions. O.—O. D. Baldwin. Days' work. $1,500.

Ford, nr. Noe. One-story frame. O. and B.—T. Darcy. $1,600.

Castro, bet. Seventeenth and Eighteenth. Two-story frame. O.—L. Koford. Days' work. $2,700.

Bush, nr. Buchanan. Five two-story frames. O.—C. H. Stanyan. C.—J. Drury. $17,000.

Pierce, bet. Sutter and Post. One-story frame. O.—C. D. Salfield. A.—Salfield & John. C.—F. W. Kern. $4,000.

Sutter, bet. Baker and Lyon. Two-story frame. O.—F. Marks. C.—F. Wienell. $3,000.

Dehon, bet. Sixteenth and Seventeenth. One-story frame. O.—H. H. Murphy. C.—J. A. Dyer. $2,000.

Sanchez, nr. Seventeenth. One-story frame. O.—C. P. Williams. C.—I. P. Kincaid. $500.

Ford, nr. Sanchez. One-story frame. O. and B.—E. Mandonnet. $1,000.

Sanchez, nr. Nineteenth. Two-story frame. O. and B.—S. Foster. $3,000.

Seventeenth, nr. Mission. Additions. O.—Capt. H. G. Burns. C.—C. E. Dunshee. $2,000.

Ford, nr. Sanchez. One-story frame. O.—H. J. Carah. A.—J. J. Clark. Days' work. $1,500.

Harrison, near Twenty-Third. Two-story frame. O.—J. Hogan. A.—M. J. Welch. C.—Bigelow & Son. $1,400.

Harrison, bet. Eighteenth and Nineteenth. Repairs. O.—P. Gannon. A.—M. J. Welch. C.—McCormack & Elam. $1,600.

Market, bet. Ninth and Tenth. Three-story frame. O.—Geo. D. Nagle. A.—John J. & T. D. Newsome. Days' work. $15,000.

Sacramento, bet. Franklin and Van Ness Ave. Three two-story frames. O.—R. Gonzales. A.—J. Marquis. C.—L. Wagner. $15,000.

Post, bet. Leavenworth and Hyde. Additions. O.—Chas. Gibbs. A.—J. Marquis. C.—L. Wagner. $4,000.

Market, cor. Sixteenth. One-story frame. O.—Trinity M. E. Church. A.—J. Gash. Days' work. 2,000.

Haight, bet. Octavia and Laguna. Two-story frame. O.—L. C. Lefavar. A.—John J. & T. D. Newsome. C.—A. H. Plummer. $4,500.

South Park, cor. Center Place. Two-story frame. O.—S. B. Vreeland. A.—Percy & Hamilton. C.—Grey & Stover. $4,500.

Hayes, nr. Gough. Six two-story frames. O.—Mrs. Kasts. A.—Salfield & John. C.—H. Meyn. $14,000.

Fourth, cor. Harrison. Alterations. O.—F. E. Hessedaal. A.—Geo. E. Voelkel. C.—G. Knopfe. $500.

Bush, nr. Hyde. Three-story frame. O.—Mrs. A. Paturel. A.—Geo. E. Voelkel. C.—G. Knopfe. $5,000.

Market, cor. Golden Gate Ave. Additions. O.—W. E. Dean. A.—E. R. Swain. C.—Geo. Richardson. $30,000.

Bryant, nr. Third. Two-story frame. O.—J. Monyhan. A.—John J. Clark. $3,000.

Fillmore, cor. Oak. Two-story frame. O.—F. T. McCauliffe. A.—John J. Clark. C.—John Adams. $6,000.

Baker, bet. Sutter and Bush. Two-story frame. O.—D. J. Sullivan. A.—T. J. Welch. C.—S. D. Mathews. $2,000.

Turk, south side, nr. Franklin. Two-story frame. O.—John J. Vollmee. A.—S. & J. C. Newsom. C.—W. Tryon. $5,000.

Union, south side, near Mason. Two-story frame. O.—P. Barbeiri. A.—S. & J. C. Newsom. C.—C. W. Tryon. $5,000.

Octavia, west side, near Green. Two-story frame. O.—C. Lacy. A.—S. & J. C. Newsom. C.—R. W. Murry. $4,000.

Harrison, bet. Third and Fourth. Two two-story frames. O.—F. E. Hessedaal. A.—Geo. E. Voelkel. C.—G. Knopfe. $4,500.

Fourth, nr. Harrison. Two two-story frames. O.—F. E. Hessedaal. A.—Geo. E. Voelkel. C.—G. Knopfe. $5,000.

Van Ness Ave., cor. Fulton. Five two-story frames. O.—C. G. Hooker. A.—Percy & Hamilton. C.—Grey & Stover. $28,000.

Bush, bet. Octavia and Laguna. Two-story frame. O.—J. F. Eklund. A.—T. J. Welch. C.—S. T. Green. $6,000.

Kipling, bet. Eleventh and Twelfth. Two-story frame. O.—J. E. Tosney. A.—T. J. Welch. C.—J. W. Smith. $2,500.

Fourth, bet. Folsom and Harrison. One-story frame. O.—C. Maginnis. A.—T. J. Welch. C.—F. Bohnenberg. $1,400.

Polk, nr. Jackson. Alterations. O.—M. H. Gallnoy. A.—T. J. Welch. C.—Bateman Bros. $2,000.

Bath, nr. Kentucky. Alterations. O.—H. Day. A.—T. J. Welch. C.—T. Conners. $510.

Leavenworth, bet. Turk and Tyler. Three-story frame. O.—L. Koehelin. A.—Salfield & John. C.—Müster & Ames. $7,500.

Greenwich, southeast cor. Pierce. Four one-story frames. O.—Aug. Harenberg. A.—B. E. Henricksen. C.—G. Walker. $5,200.

Bush, bet. Stockton and Powell. Four-story frame. O.—J. Ritch. A.—Townsend & Wyneken. C.—Wm. McFletcher. $20,000.

Valencia, bet. Twenty-third and Twenty-fourth. Seven one-story frames. C.—Mrs. S. Dredge. A.—Townsend & Wyneken. $7,000.

Bartlett, bet. Twenty-first and Twenty-second. One-story frame. A.—W. G. Copeland. C.—Geo. McRae. $2,400.

Seventeenth, nr. Mission. Alterations. O.—Col. Burns. A.—H. D. Mitchell. C.—D. B. Spangler. $1,500.

Howard, bet. First and Second. Alterations. O.—M. Becker. A.—B. E. Henricksen. C.—Y. Hanavan. $1,500.

Park Ave., opp. City Hall. One-story brick. O.—F. Happenberger. A.—F. H. Hillert. Days' work. $2,000.

Fair Oaks, cor. Eighteenth. Two-story frame. O.—M. T. W. Lewis. A.—Townsend & Wyneken. C.—Littlefield & Chapman. $4,500.

Larkin, northeast cor. Olive Ave. Three two-story frames. O.—Chris. Hacke. A.—H. Gielfuss. C.—Wm. Pluns. $9,000.

Ellis, nr. Powell. Three-story frame. O.—Wm. E. Turner. A.—H. D. Mitchell. C.—R. McCann. $12,000.

Bush, nr. Steiner. Three-story brick. O.—Dominican Fathers. A.—T. J. Welch. Masons.—McGowan & Butler. Carpenters.—Mahoney Bros. $70,000.

Pine, bet. Baker and Lyon. Two-story frame. O.—Mrs. M. Gordan. C.—C. Christy. $6,000.

Washington, nr. Scott. Two-story frame.
O.—A. C. Corbett.
A.—Curlett & Cuthbertson.
C.—E. Crichton.
$8,000.

Baker, nr. Sacramento. One-story frame.
O.—J. Sullivan.
C.—Wm. Plunn.
$2,500.

Webster, nr. California. One-story frame.
O.—W. H. Vencient.
A.—Percy & Hamilton.
C.—A. C. Hussey.
$3,000.

Seventeenth, cor. Castro. Two-story frame.
O.—E. H. Doyle.
A.—T. J. Welch.
C.—T. E. Kane.
$5,000.

Sanchez, bet. Sixteenth and Seventeenth. Two-story frame.
O.—H. Kessing.
C.—Mulford & Croemer.
$3,500.

Webster, nr. Haight. Additions.
O.—C. Fowler.
C.—Moore Bros.
$1,400.

Jackson, bet. Steiner and Pierce. Two-story frame.
O.—Hamm & Goldstone.
A.—H. C. Macy.
C.—G. R. Lang.
$11,000.

Church, nr. Herman. Two-story frame.
O. and B.—C. Bartells.
$1,500.

Waller, nr. Webster. Two one-story frames.
O.—Aug. Koehler.
A.—Saifield & John.
C.—E. Wienold.
$3,500.

Seventh, nr. Bryant. Additions.
O.—M. Betzald.
A.—H. Gielfuss.
C.—H. Meyn.
$2,000.

Pacific, cor. Hyde. Two-story frame.
O.—A. Downey.
C.—M. Cornell.
$3,000.

Guerrero, bet. Twentieth and Twenty-first. Repairs.
O.—J. Mooney.
A.—M. J. Welch.
C.—J. Mooney.
$2,000.

Chenery, nr. Thirtieth. One-story frame.
O.—J. Shaugnessey.
Days' work.
$1,500.

Dolores, cor. Cumberland. One-story frame.
O. and B.—J. F. Kessing.
$1,000.

Filbert, bet. Hyde and Lavenworth. Two-story frame.
O. Mrs. A. Ward.
A.—M. J. Welch.
C.—M. Lynch.
$3,000.

Thirtieth, near Sanchez. One-story frame.
O. and B.—J. Patterson.
$1,500.

Dolores, nr. Thirty-first. One-story frame
O.—J. P. Poole.
Days' work.
$4,000.

Clipper, nr. Sanchez. Two one-story frames.
O. and B.—F. C. Kleebauer.
$2,200.

M, nr. San Jose Ave. One-story frame.
O.—D. Sullivan.
C.—J. Sullivan.
$1,400.

East Oakland—Cor. Fifteenth Ave. and Sixteenth. One-story frame. O., Roman Catholic Church; A., B. J. Clinch; C., Geo. A. Embury; $16,000.

Pleasanton—Alameda County. Two-story frame. O., Geo. Johnstone; A., John J. Clark; days' work; $4,500.

Oakland—Three-story brick. O., J. C. & E. Coleman; A., John J. & T. D. Newsome; C., W. Hall, carpenter, Geo. D. Nagle, brick, Bigelow & Little, iron; $43,000. Webster, nr. Twenty first. Two-story brick. O., Convent Sacred Name; A., B. J. Clinch; C., J. L. Binet; $16,000.

Berkeley—Spruce, nr. Rose. One-story frame. O., Mrs. D. Garrick; A., B. J. Clinch; C., A. Kachieschang; $1,900.

Alvarado—Alameda County. One-story frame. O., E. H. Dyer; A., S. & J. C. Newsom; C., W. Embery; $2,500.

Batavia—Solano County. Two-story frame. O., Geo. Coulter; A., S. & J. C. Newsom; days' work; $4,000.

Benicia—Solano County. Two-story frame. O., T. C. Crooks; A., Salfield & John; $10,000.

San Jose—First St. Two-story brick. O., Chas. Doerr; A., J. Lenzen & Son; C., Balten & Co.; $3,750. High School. Three-story frame; additions A., J. Lenzen & Son; C., F. Davis; $800. Meridian Road. Two-story frame. O., C. A. Pitkin; A., Theodore Lenzen; C., E. A. Van Dalsen; $4,850. Third, bet. St. Johns and St. James. Two-story frame. O., J. W. Blaner; A., Theodore Lenzen; C., P. R. Wells; $4,300. Park Ave., bet. Market and Orchard. One-story frame. O., B. Myers; A., Theodore Lenzen; C., A. J. McIlvain; $3,500.

Woodland—First Street. Two-story and basement. O., John M. Briggs; A. and C., Richie & Ward; $17,000. First. One-story frame. O., Warren Powers; A., W. H. Carson; C., Amesbury & Davis; $1,500. First. One-story frame. O., Wm. Caward; C., W. Hunt; $1 500. First. Two-story frame improvement. O., Wm. Caward; C., W. Gammell; $1,250. One-story frame. O., Peter Lawson; C., J. Amesbury; $1,6 0. Cross Ave. One-story frame. O. and B., W. Hoyden; $1,000. Two-story frame improvement. O., Benj. Peart; C., W. H. Winne; $1,650. Two-story frame. O., Mrs. B. Miller; A., Victor Hoffman; C., William Towlson; $3,500. Elm. One-story frame. O., Mrs. Ward; A., J. Caldwell; C., Amesbury & Davis; $1,500. One-story frame. O. and B., John Ruport; $1,000 One-story frame. O., C. B. Church; C., A. Lake, $1,200. College Ave. Two-story frame improvement. O., J. P. Grafton; C., G. W. Myrick; $1,000 Two-story frame. O., Emma H. Briggs; days' work; $2,500. Elm. One-story frame. O., G. W. Evans; C., John Mitten; $1,800. Sixth, cor. Court. One-story frame; O., J. J. Hannan; A., A. J. Newson; $2,000. Main. Pacific Hotel. O., Chris. Seiber. Improvements. C., Amesbury & Davis; $1,050. Two-story frame. O., George Pierce; C., W. H. Winne; $5,000.

Black Station—Two-story frame. O., Fred. Henrich; C., George Cornkike; $2,100.

Orleans Hill—Two-story brick winery. O., Arpad Haraszthy & Co.; C., Mr. Mullanny; $12,000.

Santa Clara—Near town. Two-story frame. O., J. B. J. Postal; A., J. O. McKae; C., R. Summery; $6,575.

Los Gatos—Cottage. O., B. L. Bartlett; A., J. O. McKee; C., F. Lobdell; $2,460.

MISCELLANEOUS.

East Berkeley—One-story frame. O., G. Wilson; A., M. J. Welch; C., J. Spencer; $1,000.

Napa City—One-story frame. O., M. Preece; A., J. Marquis; C., J. Stevens; $3,500. Two-story frame. O., Chas. Knapp A., J. Marquis; days' work; $3,000

Martinez—Contra Costa County. Three-story frame. O., B. Fernandez; A., B. J. Clinch; C., Bulger Bros.; $14,000.

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The California Architect and Building News.

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CONTENTS.

Present, Past, and Future.

Of the past we have written, as month by month its facts have revealed and developed themselves and furnished material for notice or comment. The record up to the present time has been exceedingly brilliant, as far as the extent of building improvements are concerned, and the expenditures made in the erection of structures for business, resident, and tenement purposes. While hundreds of acres of building lots have been utilized for the erection of either homesteads ranging from moderate cost to almost palatial residences, and houses and flats of greater or less cost and pretention, very many splendid and costly structures designed for commercial and general business, or special purposes, have been erected,—all of which has been a subject-matter of surprise and comment; for while this great prosperity has been enjoyed to the great delight and profit of those who have furnished and sold, and those who have handled and worked up the large amount of materials required for the purposes, there has been a continuous complaining among all classes of producers and trades people, from the "heavy operators," down to the tape and needle vendor, that "times are dull." Still—without entering into the why and wherefore—the building interests have maintained great activity, as has been shown by the monthly reports appearing in this Journal, and especially by the semi-annual report given in the June number.

But how about the future? Can this state of things be continued, and, if so, for how long a time? That there has been more buildings erected than seemed to be necessary to supply demand for rented houses, is plainly evident from the large number of "to let" signs exposed on the fronts of buildings, new and old. And the question arises, whether it is reasonable to anticipate a continuance of improvements, equal to that which has been during the past three years? If it is, and future facts demonstrate such anticipations to have been well founded, then indeed is there a most grand future in store for the metropolis of the Pacific Coast. This one material fact, however, still exists, that a great many who have not as yet done so, are seeking for building lots in desirable localities, with the intention of improving the same with comfortable residences, varying from $7,000 to $20,000.

A Russian traveler predicts that Thibet will prove to be a second California, as during a recent visit there, he found the natives gold-washing in the crudest way, but with the richest results.

Building Report for July, 1885.

The returns, from all sources, of building engagements, for the month ending with present issue of this Journal, shows that, as compared with the June report, there has been a decline in activities, aggregating as follows:—

June, 1885, 148 building engagements, amounting to $588,410
July, 1885, 99 building engagements, amounting to 412,050
July less than June $176,360

The July report in 1884 was eighty-seven engagements, of the value of $663,909, showing that, while July of present year returns ninety-nine building engagements, as against eighty-seven in 1884, the expenditures are $251,859 less. While the foregoing facts indicate a breathing spell in building circles, it is confined to the speculative operators—those who rush up buildings to sell, glutting the market with a certain class of *cheaply* constructed houses, which are sold as "first-class"—the *first-class* being a taking term with those incapable of judging quality beyond the general, outward appearances of things, and others who have improved their lots because "lumber is cheap," until the great rush that has been going on has more than provided for all reasonable necessities, and furnished a supply greater than the demand. But with a temporary suspension in the "boom in building" that has been going on during the past three years and longer, there is no indication of a decline in the more-to-be-desired class of buildings, *i. e.*, private residences costing from $5,000 to $20,000. Good lots in desirable localities are being sought for by scores of business men, who, although among the number who have been crying "dull times," are prepared with the cash to buy lots and erect private residences for themselves and families. Altogether, matters in this connection still have a healthy appearance, and we do not fear any set-back greater than to cool down the ardor of the rushers who have driven matters just a little too far.

Dr. John H. Rauch, Secretary of the Illinois State Board of Health, says that returns of the house-to-house inspection and sanitary survey continue to be received by the Board, and a wonderful improvement is noticeable between the time of making the first inspection and the second. An examination of the tabular statement shows that an immense amount of cleaning up, abatement of nuisances, and general sanitary work is being done throughout the State, and should be continued while the favorable weather lasts.

Not "One-Sided Nor Prejudiced."

THE *Building Trade Journal* in its issue of June 15th, in quoting and noticing our article—"*Insolvent*"—in our May number, page 75, says: "Although there are incompetents in every trade and profession, the ratio given above, as applying to builders, indicates a rather *one-sided and prejudiced* view of the matter."

The sentence last above italicized, is, to us, severely objectionable, for it is not in us nor of us to be actuated or influenced by motives or feelings so ignoble and unworthy to common manhood, and much more so to one who occupies the chair editorial of a class journal. There was neither malice nor prejudice in the cases reported by us; neither of the parties were known to us personally, nor had we knowledge of their existence as men, until their financial status became matters of general information through the daily press and otherwise. Consequently, there is no shadow of grounds for our St. Louis contemporary presuming that personal feelings entered into the case.

And more than this, the facts of the Gilbert & Co. case were mildly stated, nor near one-half the story told, as has been clearly demonstrated by subsequent developments,—investigation showing that the concern was guilty of *absolute* recklessness, but little if any less in character than preconceived and preconcerted rascality; or, if not this, then executive incompetency and personal ignorance of values, and lack of ordinary good judgment and common-sense were largely in the ascendancy. Contract upon contract was undertaken by them at ruinous figures, and the loss upon one afforded no admonition of care in the next,—each successive and subsequent move augmenting their financial difficulties, until, overwhelmed by accumulated burdens, they were compelled to succumb, and terrible in its way was the fall thereof; as numerous confiding creditors and clients were made to suffer to the tune of nearly one hundred cents on the dollar, and the houses turned out by them were of the worst "skin" kind; thus adding mechanical to financial dishonesty. Yet our kind-hearted brother editor indulges the suspicion that we, with these facts before us, may have been "one-sided and prejudiced." This we presume to be prompted by his great natural innocence and kindness of heart, and his lack of experience in the "ways of the world," as found in the history of the building business in California.

It is no more pleasant to us than to him, to speak or write disparagingly of any one, and we are as ready and willing as any one to sympathize with misfortune, nor wish we ill even to our meanest enemy; for "vengeance is mine, saith the Lord," and far be it from us to seek to anticipate the divine will, by the interposition of personal prejudice or petty spite toward any one. But while most generously disposed, and ready to help our fellow-man, as journalists in the interests of architecture and building sciences, it becomes an incumbent duty to expose transactions and customs which bring discredit and reproach upon either, and financial disaster and loss to those who furnish the materials and labor accompanying such results.

Again, our good brother did not read us understandingly, or he would not have placed us in a false light in his columns. Our ratio did not apply to mechanics generally, but to that *special class* of "frauds" which have so largely abounded in California. We said: "There are not five in one hundred of *the — class* who are not frauds in more ways than one," and it is true. It may be that in St. Louis and other cities such cases are the exception, but on this coast they have been numerous; and the outcry among the good and competent of all classes of mechanics has been for a quarter of a century against the demoralizing and injurious effects of the class in question; who—however honest in intent and purposes, and however deserving of sympathy they may be, in business practices, are consummate asses and swindlers, taking work sometimes at but little better figures than the actual cost of materials, settling with creditors at all rates of percentages, from 10 cents on the dollar and upward; and as it has been in a large number of cases, where the owners have been compelled to finish up their buildings on account of contract, the balance of contract sum has proved insufficient to complete the work, leaving creditors no *pro rata* whatever.

We hope hereafter that contemporaries in the older States, before impugning our motives in the relation of cases occurring in California, that they inform themselves more perfectly as to the state of facts, and fix judgment upon those, rather than rejecting statements coming to them from authentic sources, simply because they seem extraordinary and improbable, viewed in the light of experiences in cities and States where such irregularities seldom if ever occur.

It is well and charitable to "*hope* that ambition and real enterprise have more to do with the desire to climb upward, than a combination of incompetency and egotism;" it is well to so *hope*, but such hopes rest upon a poor foundation, when placed in men whose ambition and enterprise terminate in discredit and dishonor to themselves, and financial loss to others. Ambition and enterprise sustained by good judgment and sound business sense has given to the world a multitude of splendid results, but millions of ambitious and enterprising *frauds* have lived only to do mischief; and it is to this latter "class" we referred in our previous article. There are, from time to time, failures in the business world, and some of a character which stamps the parties as business ignoramuses or out and out rogues; in either case creditors are made to suffer loss, and the reputation of many innocent persons prejudiced.

If the two cases mentioned by us were the only ones of the kind on record in these parts, they would have passed unnoticed; but such is not the case; hundreds have done the same thing and some of them many times over, and hundreds of facts are well known, going to prove not only incompetency and egotism, but that which is worse,—deliberately concocted rascalities.

But, with all this, we wish it fully understood that there are at the head and front of the building business in California, sterling good men—mechanics of education and service, honest in nature, heart, and soul, and as competent as men can be made. Of these, good words only can be said. And as time rolls on, there are others, who, being mechanics in an acceptable sense, seek to emulate and equal those whom they have served, and by a judicious, cautious, and careful course, work their way into the fold of good and competent contractors; but the "frauds" of whom we have written, are those who attempt more than they are capable to accomplish, look sensibly at no end from the beginning, care but little for consequences, and through their incompetency and egotism, strongly tinctured with premeditated dishonesty, they make failure of about all they undertake.

Our contemporary further says: "Were the general argument good, there is no visible reason why it should not also apply to painters, plumbers," etc. The general argument is correct, and does most fittingly apply to the "*fraud*" *class* of painters and plumbers in this State,—to painters who, to exemplify and amplify their "*ambition and real enterprise*," compound all manner of base ingredients—soap, plaster paris, benzine, water, and other ingredients possessing no quality of genuine lead and oil paint, nor reputable compounds—and swearing by high heaven that there is not a particle of adulteration in the mixture, and with premeditated and deliberate purpose, by strong assertions of honesty and fraudism of the most brazen character, cheat good and worthy men out of opportunities to perform honest work, and swindle owners without mercy or compunction of conscience; and to plumbers who, incompetent to make a decent "wiped joint," who understand not the first principle of sanitary plumbing, and are refused more than temporary employment as semi menials in any first-class plumbing establishment,—even these, by scores, ape mastership, full of enterprise and ambition; but not that honorable and worthy enterprise and ambition which inspires men of noble purposes to step forth from the ranks of wage earners, fortified by mechanical mastery over the intricacies of the branches to which they have devoted their years of apprenticeship and earlier manhood, to assume the attitude of men ambitious to win like honorable name and position with those who have established themselves as competent and reliable masters of the art pursued.

To the latter our hand and columns are ever open and *free*, and we commend *honorable* ambition and enterprise on the part of any one who, by industry, application, and diligent effort, has won the laurels of competent mechanics, but have no word too severe to use in reprobation of the "*fraud class*," to whom our first article referred, whose ambitions and enterprise is of that debased character that entails dishonor, and reflects discredit upon building and mechanical pursuits.

Master Plumbers' Convention.

A FULL report of the meeting of master plumbers, held at St. Louis the week ending June 27th, appears in some of our Eastern exchanges, from which we gather that the meeting was largely attended, with delegates from Alton, Ill.; Birmingham, Ala.; Baltimore, Md. (12); Boston, Mass.; Brooklyn, N. Y.; Chicago, Ill. (16); Cincinnati, O; Columbus, O.; Cedar Rapids, Ia.; Denver, Col.; Des Moines, Ia.; Hampden Co., Mass; Hudson Co., N. Y.; Kansas City, Mo.; Kansas State; Louisville, Ky.; Muscatine, Ia.; Milwaukee, Wis.; Minneapolis, Minn.; Memphis, Tenn.; Madison, Wis.; New York City (24); Omaha, Neb.; Providence, R. I.; Philadelphia (17); Pittsburg, Pa.; St. Louis, Mo. (13); St. Paul, Minn.; Washington, D. C.; Wheeling, Va. The proceedings appear to have been in every way satisfactory. "It was unanimously resolved to indorse the action of the vice-president in his course taken against the firms who had issued certain documents to the public." The following was passed:—

"*Resolved*, That it is the plain duty of this association to maintain and enforce the integrity of the Baltimore resolution, and that all members of the craft, in self-defense, be requested to withdraw further patronage from dissenting manufacturers, and stand by those who stand by us."

"Your committee recognize that an extremely important element in the sanitary future of all large cities, is a judicious and efficient building law, designating the relative duties and responsibilities of architects, plumbers, and boards of health; and especially to place the legal requirements of plumbers up to the highest standard of sanitary science. We desire the aid and co-operation of local associations in having such laws enacted by the State Legislatures as will clearly define, as above, the duties and responsibilities of each, and for the enforcement of a rigid inspection of all plumbing work. We deem that this is admitted when we plead for law in order to render advanced knowledge available. Our plea is neither ignoble, selfish, nor narrow, as with our success, communities are benefited, as it means healthy dwellings alike for both the rich and poor."

SAN FRANCISCO NOT REPRESENTED.

Why is it that the craft in San Francisco was not represented by some one or more of the most excellent and competent gentlemen, qualified to represent and reflect credit upon the Pacific States, especially San Francisco, by their presence at the Convention? We regret that this fine opportunity has been allowed to pass, to extend the warm hand of California to the members of the plumbing art from Eastern, Western, Northern and Southern States. Unfortunately, neither the representative architects nor mechanics of San Francisco seem to manifest that interest which by all means should exist, of placing themselves side by side with the progressive advancing people of the East. The Chapter of Architects in this city should at once elect some one of their number to be present at the next general gathering of the parent institute, and we earnestly urge that the plumbers take the matter in hand, and at once nominate one or more delegates to be at the next general assembly of their brethren in 1886. Do not let us remain forever exiled from our fellows abroad, and confirm the belief that California is a way off, forsaken land; good in grain, fruits, wine, and vivacious fleas, but not much as far as architecture, plumbing, and the mechanical sciences are concerned. In some respects, California leads; but so long as her talents are shut up under the bushel of unconcern, it cannot be expected that strangers will come among us, and drag out that which should be made manifest by our own will and acts.

Honesty a Beautiful Thing.

BEAUTIFUL in theory, but more beautiful in practice, both generally and in mechanical pursuits; but how about its application in these days of progression and advancement, as a governing and controlling principle among men, in shaping their intercourse and dealings with each other? Everybody appreciates, approves, and *in words* glorifies the theory, teachings, and poetry of true honesty, and loudly commend and applaud the acts of the few who demonstrated the possibility of human kind, at least sometimes rising to that purer life which commends itself as worthy of admiration; but how many are there who make it a rule of life, and exemplify it in even a reasonably, spotless degree—the inner principle considered? The outward rule of being honest as honesty goes, doing nothing not within the law and customs of the times, and the exercise of that higher degree of integrity which places self-interests in jeopardy, when they or the sacred principle of right in the sight of God are at stake, are very different considerations. How many in high and honorable professions, in trades, vocations, and callings of endless names and kinds; how many who from sacred platforms and altars, proclaim peace on earth and good will to man, and make the sanctuary of holiness grand by the sound of words gilded with the accents of eloquence, who are in all things, both of words and acts, pure from the defilement of dishonesty, beyond the words they utter before listening throngs of men and women, and within the limits where they must stand to avoid exposure of human weakness in some form.

It may appear sweeping to thus question, but who that has seen the world, met the sometimes bitter experiences encountered in active business pursuits, and has read, and understands human nature in its more common forms and characters, as developed at the present day, that is not compelled to say, O *honesty*, in thy *purity* thou art *beautiful*, but where, oh where, art thou to be found, and why are thy followers so few?

California Not Reported.

IN many of our Eastern contemporaries, we find the building activities of cities beyond the limits of the city and State of publication, extensively and regularly reported; but rarely, so far as San Francisco and California are concerned, although this Journal, with its full monthly report of Building Intelligence, is regularly received, and other matter from its columns frequently copied and accredited.

This fact would seem to argue that the building interests of this coast were of immaterial consequence east of the Sierras, or that it is best to leave us severely alone, to enjoy the rich fruits of our splendid prosperities, unnoticed. Be this as it may, it is a fact that during the infant days of this Journal's existence, the advance statements forwarded from this office to New York were received with "thanks," and were always duly published; but so soon as this *special correspondence* ceased, San Francisco and California were dropped, and no longer appeared among the notices of cities and States worthy of being reported as prosperous in building improvements.

THREE TERRIBLE CALAMITIES.—The heartless Buddensiek led off with the first, in Brooklyn came the second, while the third was reserved for Jersey City, each inflicting calamity, loss, bodily injury, and death itself. While condemnation too severe cannot be measured out to men, who, from mechanical and moral baseness, become the agents through which such occurrences transpire. The Jersey man is entitled to some small degree of pity and sympathy, inasmuch as by the work of his own hands, three of his family were the victims of his wrong doings; the greater pity being, that he, instead of the innocent ones who looked up to him, was not buried beneath the ruins of his own creation.

LABOR STRIKES.—They have been numerous within the past twelve months, in various parts of the country, but, as a rule, the "strikers" have won—the employers generally yielding, receding, or compromising. The argument, in this State, of facts rather favors the conclusion that the present and future business and trade prospects are good, and that production must go on. Were it otherwise, and appearances seemingly justifying a continuance of the conflict on the part of employers, it is not likely that they would have vacated their demands for reductions, or submitted, as they have in some cases, to increase of wages. It may therefore be fairly argued that the conditions and prospects generally are in no wise discouraging.

Crazy Quilt Architecture.

THE following from the pen of Bill Nye, in the Chatanooga *Times*, contains more truth than fiction, and is well worth reading:—

"It may be premature, perhaps, but I desire to suggest to any one who may be contemplating the erection of a summer residence for me, as a slight testimonial of his high regard for my sterling worth and symmetrical escutcheon—a testimonial more suggestive of earnest admiration and warm personal friendship than of great intrinsic value, etc.—that I hope he will not construct it on the modern plan of mental hallucination and morbid delirium tremens peculiar to recent architecture.

"Of course a man ought not to look a gift house in the gable end, but if my friends don't know me any better than to build me a summer house and throw in odd windows that nobody else wanted, and then daub it up with colors they have bought at auction and applied to the house after dark with a shotgun, I think that it is time that we had a better understanding.

"Such a structure does not come within either of the three classes of renaissance. It is neither Florentine, Roman, nor Venetian. Any man can originate such a style of architecture if he will drink the right kind of whisky long enough, and then describe his feelings to an amanuensis. Imagine the sensation that one of these modern, sawed-off cottages would create a hundred years from now, if it should survive. But that is impossible. The only cheering feature of the whole matter is that these creatures of a disordered imagination must soon pass away, and the bright sunlight of hard horse sense, shine in through the shattered dormers and gables of gnawed off architecture of the average summer resort. A friend of mine, a few days ago, showed me his new house with much pride. He asked me what I thought of it. I told him I liked it first rate. Then I went home and wept all night. It was my first falsehood.

"The house taken as a whole looked to me like a skating-rink that had started out to make money, and then suddenly changed its mind, and resolved to become a tannery. Then ten feet higher it had lost all self-respect and blossomed into a full-blown drunk and disorderly surrounded by the smoke-stack of a foundry, and with the bright future of thirty days ahead with the chaingang. That's the way it looked to me.

"The roofs were made of little odds and ends of misfit rafters and distorted shingles that somebody had purchased at sheriff's sale, and the rooms and stairs were giddy in the extreme. I went in and rambled around among the cross-eyed staircases and other nightmares till reason tottered on her throne. Then I came out and stood on the architectural wart called the side porch, to get fresh air. This porch was painted a dull red, and it had wooden rosettes at the corners that looked like a bran new carbuncle on the nose of a social wreck. Farther up on the demoralized lumber pile I saw now and then places where the workman's mind had wandered and he had nailed on his clapboards wrong side up and then painted them with the paris green that he had intended to use on something else. It was an odd looking structure, indeed. If my friend got all the material for nothing from people who had fragments of paint and lumber left over after they failed, and then if the workmen constructed it nights for mental relaxation and intellectual repose, without charge, of course the scheme was a financial success, but architecturally the house is a gross violation of the statutes in such cases made and provided, and against the peace and dignity of the State.

"There is a look of extreme poverty about the structure which a man might struggle for years to acquire and then fail. No one could look upon it without feeling a heart-ache for the man who built that house, and probably struggled on year after year, building a little of it at a time as he could steal the lumber, getting a new workman each year, building a knob here and a protuberance there, putting in a three-cornered window at one point and a yellow tile or a wad of broken glass and other debris at another, patiently filling in around the ranch with any old rubbish that other people had got through with, and painting it as he went along, taking what was left in the bottom of the pot after his neighbors had painted their bobsleds or their tree boxes—little favors thankfully received—and then surmounting the whole pile with a potpourri of roof, a grand farewell incumbus of bumps and hollows for the rain to wander through and seek out the different cells where the lunatics live who inhabit it.

"I did tell my friend of one thing that I thought would improve the looks of his house. He asked me eagerly what it could be. I said it would take a man of great courage to do it for him. He said he *didn't care* for that. He would do it himself. If it only needed one thing, he would never rest until he had it, whatever that might be. Then I told him that if he had a friend—one that he could trust—who would steal in there some night while the family were away, and scratch a match on the leg of his breeches, or on the breeches of any other gentleman who happened to be present, and hold it where it would ignite the alleged house, and then remain there to see that the fire department did not meddle with it, he would confer a great favor on one who would cheerfully retaliate in kind at call."

"The Plan Lunatic," supposed to have died out from sheer exhaustion, revived and appeared again in the columns of the *Evening Bulletin*, June 18th. The indications are that semi-dementia has become chronic. Peculiar people and cranks of various types have lived in all ages, and it seems that the architecture profession in California must have some of the kind.

Building Materials.

THE price of materials is an important factor in stimulating or depressing building enterprises. The period of unprecedented building activities which has prevailed in San Francisco during the recent past in particular, has been largely due to the fact of extremely low prices in lumber, which at times has been sold at no profit, if anything above cost of manufacture. Hundreds of houses have been erected within the past twelve months because lumber dealers have been extremely kind-hearted and generous in dealing out materials at but little or no profit; and the slight advance made on the prices of twelve months ago should not be wondered at—the surprise being, rather, that so intelligent a set of business men should have permitted so great a depression below fair and compensating rates.

We have never favored the lumber combinations which placed the products of the forest at prices where the cost of production and profits have averaged more than equal in favor of the latter, nor can we conceive any rational and good reason why a commodity so generally and largely in demand should be sold without profit, or so near production cost that dealers barely saved themselves from actual loss. There should be a rule of *common equity* between producer and consumer, the one never seeking to obtain exorbitant and extortionate values, nor the other refusing to pay a fair and right advance over cost on their purchases.

But so long as lumber manufactures and dealers, having full contro' of matters in their own hands, cause fluctuations in rates, they must expect that consumers will take advantage of the inducements offered, and glut themselves with supplies on a low market, and leave sellers to enjoy all the glory of advanced rates, to find customers among those who must of necessity purchase; while a system of steady prices, at fair remuneration to producers, would create a steady demand all the year round.

A demoralized condition of things in prices of material, for the time being, stimulates some to build who otherwise might not do so "just now;" but there are only a few of these who would permit their lands to remain unimproved for any great length of time, with an existing demand for more houses, and the chances of fair rental returns on investments.

However, if dealers and producers deem it a good and wise policy, and profitable to break the market occasionally, they may depend upon consumers availing themselves of the advantages presented.

Man has a various nature, which requires a variety of occupation and discipline for its growth. Study, meditation, society, and relaxation should be mixed up with his physical toils. He has intellect, heart, imagination, taste, as well as bones and muscles; and he is grievously wronged when compelled exclusively to drudgery for bodily subsistence.

Royal Institute of British Architects.

THE report of proceedings for 1884–85 has been received, from which we quote: "The secretary announces a large number of donations and purchases to the library." "Every newly elected Metropolitan Fellow and Associate is required to make donation in coin, or furnish an original paper." A pamphlet from M. Charles Lucas, of Paris, has been received by the library, describing his visit to the Conference of Architects held in London last year; together with a critical review of the last two published volumes of transactions 1882–83, and 1883–84, and other matter relating to architecture in England, all of which were regarded as highly and sincerely complimentary to the Institute. The Institute is, beyond question, one of honorable reputation and high influence, yet the report continues: "Professor Kerr, *Fellow*, in accordance with former notice, submitted proposals for higher operations by the Institute, and suggesting four standing committees on Art, Science, Literature, and Practice." He also read papers prepared by him, reviewing the subject-matter of his suggestions, using in part the following language:—

In the stately language of our Charter of Incorporation, there is assigned to us a primary duty;—"*the advancement of Civil Architecture, as an art esteemed and encouraged in all enlightened nations;* everything short of this supreme purpose is but the inconsiderable commonplace of daily maintenance, the narrow things of the house." "The academical work of the Institute may be thus qualified: (1) *Architectural Art*, the province of taste; (2) *Architectural Science*, the natural philosophy of building; (3) *Architectural Literature*, past and present, and (4) *Architectural Practice*." *A gold medal* was presented to Dr. Schliemann, who had traveled from Athens to receive it. An appropriate presentation speech was made by the president, in which the passage occurs, "The Medal which I have the honor of presenting to you this evening, is the highest distinction in the power of the Royal Institute of British Architects to bestow. It is given by our patron, the Queen, but Her Majesty intrusts to us the task, somewhat a difficult one, of deciding, subject to the Queen's final approval on the most worthy to receive it." The presentation was followed by an appreciative reply from the recipient. Other Medal presentations were made to distinguished gentlemen.

The report of proceedings throughout, exhibit an advanced condition of affairs in the Architectural profession of England, with still higher aspirations and purposes for the future. And while we regret that the fraternity of Architects in the United States have not been able to organize an Institute of like excellence, we congratulate our British brethren upon their success, hoping that they may attain to the highest possibilities, and reach an eminence in the advancements of the age, coequal with the magnitude and grandeur of the profession so dear to every high-minded and honorable member of the Architectural profession.

Compensation for Bids.

OF late there has been much discussion among reliable and responsible contractors as to a system of remuneration for time consumed in figuring on work. It is claimed by some that a great deal of time is lost in figuring on buildings the erection of which is only in the mind of the schemer. It is proposed that the leading contractors form an association and decide upon means of securing pay for figure labor as it is claimed that the contractors have as much right to emolument for their paper work as the architect. They claim it takes time, study, and brains to qualify a person for such work, and why not receive a recompense therefor. Several ideas have been advanced on the subject among them one "that all figures on buildings to cost above a set amount be paid for only to the unsuccessful competitors, the successful one having his remuneration included in the contract awarded him." The writer claims that by such a course architects would be more careful in selecting bidders of acknowledged ability and responsibility and irresponsible men could not send in bids for the paltry amount paid for the work as it would require a bond with every bid. This would be a fair way it seems, and as the owner from the mere fact of his asking for bids, expects to be benefited thereby, it is no more than fair that he should pay for such benefit. Discussion upon this subject through these columns is invited.—*Northwestern Architect and Improvement Record.*

Can We Build Cheaply Now?

THIS question is asked a thousand times every day, be the conditions what they may. "*Cheap*" is the first and all-absorbing idea with three-fourths of those who contemplate building, not that they really want "cheap" constructions, for "*cheap*," *i. e.*, low cost buildings, are poor investments. The import of the question means and implies more than this,—whether good, substantial houses can be erected at about, or for a little less than actual cost of the materials and labor employed in their construction. A proposition of the kind is certainly unreasonable, yet the *delusion of its possibilities* influences many owners, who disregard every other consideration, and fail to realize the equities that should exist between owners, and those who build for them. At present, however, there is nothing used in connection with house building that is not sufficiently low to satisfy any reasonable person, and induce all who desire to, to proceed with their improvements. Lumber is far below the prices ruling one year ago, although a little advanced on the rates of the recent past. Bricks are much less than the prices at which they have been held during the past three or four years, while the great influx of carpenters to this city has made the supply vastly greater than the demand, with the consequent result of wages, less than has ruled since 1880. The cost of hardware, cements, and building materials generally is moderate—much less than in recent, former years; and with the vigorous competitions that rule among the building classes, those who desire to improve their real estate, may feel assured that they will run no risk in commencing operations under the present state of things.

Improvements for Plumbers.

THERE now seems to be some prospect for the master plumbers of the country gaining a point they have long been striving for,—that of making plumbing a separate and independent part of a general contract in the construction of buildings. The question was presented to the Architectural Association of Minnesota by the master plumbers of St. Paul and Minneapolis at one of its meetings last winter, upon which favorable action was taken, and now we see the same course is being pursued by the associations of other States and by the different chapters of the American Institute of Architects. Surely these requests are reasonable and if universally adopted, as they should be, they would eventually be the means of getting rid of the skin plumber. In the present state of affairs it is simply impossible to procure a decent job of plumbing. The general contractor lets the work to whom he chooses, and generally the lowest bidder gets it, no matter what his reputation or standing, or how his work on previous contracts was performed. If there is an opportunity for the contractor to get ahead a few dollars, anything goes. The honorable and creditable plumbers who render full value for money received, and will not undertake to do work at prices where they cannot afford to employ good help, are hampered at every turn by these "skins" who are always as ready to put in a water-closet or set up a hot water tank as to patch a boiler, mend a key, or sell a piece of sheet iron. They are men that can do anything, in their mind, but really nothing as it should be. Is it reasonable to suppose that a job of plumbing can be done as it should be, for $500, when five or six first-class men say it will cost $900 or $1,000? No one can expect that the work will be properly done under such circumstances, and when sickness or death of occupants leads to the discovery of the defects, the plumber is cursed far and wide—for they are all common botches to the one who has suffered. Such tremendous cutting in prices means inferior work and there is nothing else to it. The sooner the old system is abolished of letting contracts to men who know nothing about the work that is to be performed, and care less, the sooner these dishonest practices in plumbing will cease.—*Northwestern Architect and Improvement Record.*

Clay Pipes and Ornamentals.

THE "iron stone" "vitrified" clay pipe, at present so universally in use for sewer purposes, is beyond question the most lasting and practical of all devices in that connection, as it can be moulded into any desired shape or form, suitable for any application, and in duration is without limit or number of years, centuries proving insufficient to mark the impress of decay, when not subjected to special destructive agencies, not found in connection with sewers.

Clay ornamentations and utilities, doubtless cruder in design than those of the present day, are of antiquity far back of the founding of many of the civilized nations of the world; said to be as old in China as 2599 B. C. "The invention of pottery dates from the most remote period, and its application is almost universal—objects of pottery being in use amongst races semi-barbarous. The art of moulding or fashioning vessels of moist clay, and subsequently drying them in the sun, is so obvious that it is not above the intelligence of the suden savage" to give it form and shape, even sometimes that of supposed deities, before which to do homage after their heathen idea of worship. History furnishes a multitude of interesting facts in regard to the manipulations of clay through past centuries, but our object is not to repeat the earlier and evolving facts, but those relating to the manufacture and uses of the

CLAY ORNAMENTATIONS OF THE PRESENT.

There has been a vast amount of skill and handy workmanship developed in the production of ornaments for building and endless other purposes: and the recent past and present taste and demand are for the application of the rich and sometimes beautiful specimens wrought out in clay, many of which are as regular and clear cut as though of softer material, shaped by the keen edge of the carver's chisel. It is also a pleasing fact to know that California produces some most excellent qualities of the crude material, and that the California manufacturers are equal to those of the older States, and are furnishing everything desired, which can be made of clay. The fronts of many buildings, enriched by clay, or terra cotta devices, are to be seen in San Francisco and other cities, and the disposition seems to be to make the use of this material more general. It is well adapted in every practical sense, where elaborations are desired, and the cost and expense is much less than stone, which serves no better purpose.

The Artisan, or Practical Methods That May Be Applied to Works of Building and Other Constructions. New edition of 1885. Among the practical ideas in this work will be found the utility of the right angle, and its application in s living many useful problems. By means of a right angle the exact circumference of a circle is determined at once. It also shows a simple and correct method for the measurement of boards, floors and other surfaces. It is applied to lines of any length, and divides them into equal parts. It gives the cuts and lengths of rafters, bracss, and other timbers in framing. There can be no doubt as to the value of a right angle and its utility in this connection. It is clearly illustrated in the *framing square*, a tool which solves nearly every problem in practical geometry. **Price, Five Dollars.**

Afraid of Plumbing Work.

THE necessity of perfect work in this branch of mechanism is universally admitted; and when thinking, intelligent people begin the work of preparation for building, among the first thoughts suggested is good plumbing work. With many, there is a sort of "holy horror" connected with placing even the best improved sanitary plumbing fixtures within the walls of the building contemplated, and some are so firm in their resolves upon this point that no advice or persuasion from architects or others is sufficient to change the determination; nor is it always a mere notion with such persons; those who have had the deep sorrows of sickness, and perhaps death itself among their loved ones, enforced upon them, with well-authenticated proofs that the agency thereof has been defective plumbing work, have sufficient reason to fear and tremble at the sight of that which bears the name of the evil genius that is believed to have done its deadly work; and palliations, theories, persuasions, and arguments fail to remove the dread and fear caused by former experiences. When the mind becomes impressed and impregnated with a conclusion against any one thing, it is difficult to dissipate the impress made, and that which produced the result must forever bear a repugnance, and appear in the light of a treacherous, dangerous enemy.

That such sentiments and aversions should exist is not to be wondered at, but it is a well-known and well-established fact that there is no feature of house construction which so directly connects home-life with the dreaded and to be feared consequences ever and always attending defective plumbing work, and the inlet of sewer vapors to apartments occupied by human kind, especially to rooms where people sleep, in which free and perfect ventilation does not exist. The stealthy midnight robber may carry off precious jewels and valued treasures which may be recovered or replaced in time, but when priceless lives and human health is seized upon by inhalations as gentle, if not so sweet in perfume and action as the sweet zephyrs of spring, yet fatal in consequences, the occasion for fear and caution is at hand; and he who disregards all this, betrays a folly most unwise. The direct application of these thoughts is twofold,—that owners should be exceedingly careful in selecting an architect who, in *real fact*, enjoys a thoroughly practical as well as theoretical understanding of the sciences of the plumbing art, independent of, and equal to the best of practical plumbers; and secondly, not to intrust so important and essential a matter to any living being not beyond all doubt and question fully competent in all respects, practically, and trustworthy, and honest with all; for it may be that a man may *know enough* to enable him to do all that is right, good, and proper, but a deficiency in moral or mechanical *integrity* may outweigh the good, and practically make him a more dangerous man to trust than one of less knowledge and more earnest and careful interest and purpose.

The Best Sash Pulley Made.

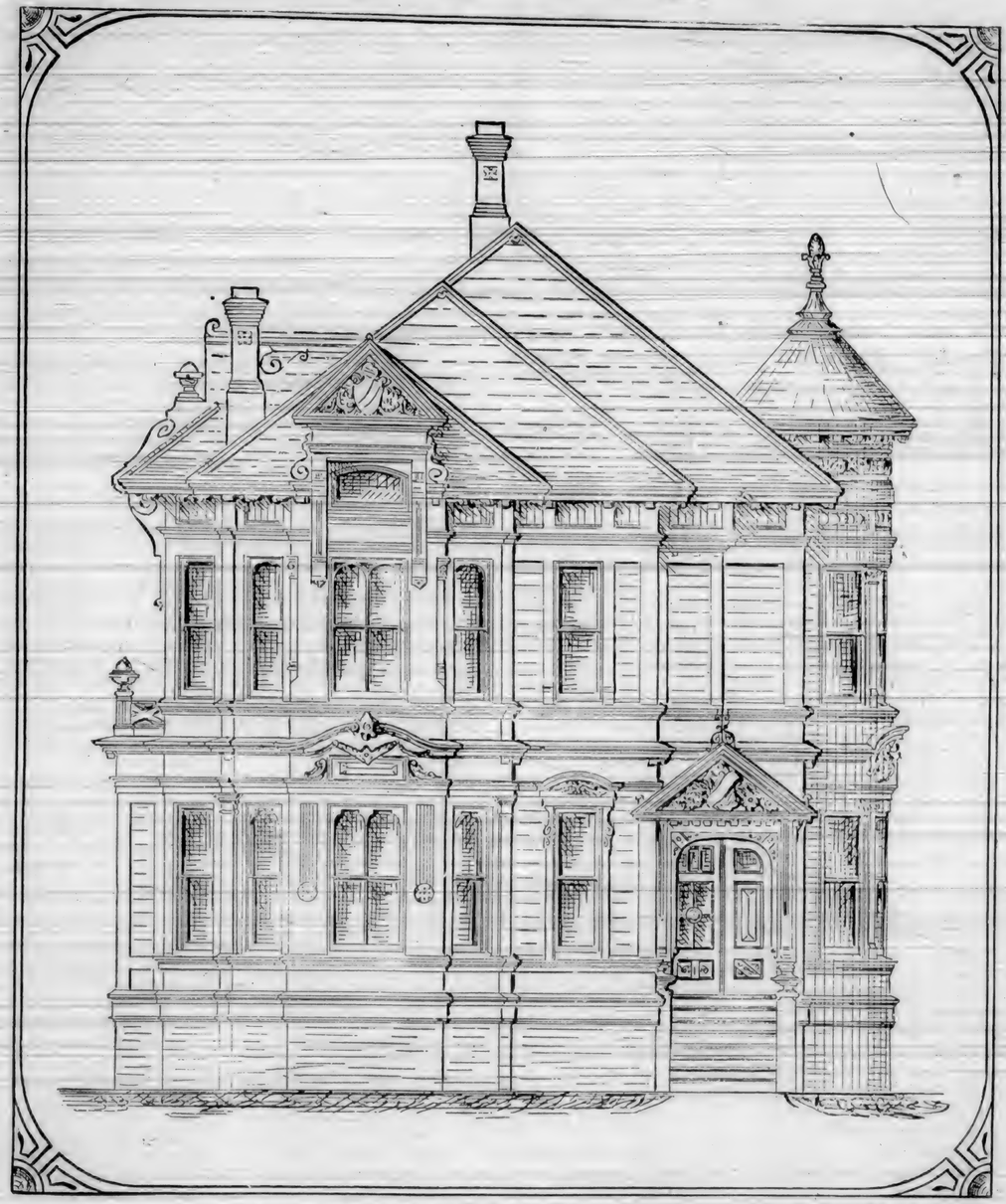
WE have received from C. Sidney Norris & Co., Baltimore, a sample board of sash pulleys, which are the best we have seen, ranging from some very handsome, bronze face plates, down to ordinary iron for general use in the cheaper class houses, but all of the same general construction, which differs from the pulleys in common use, and are much more serviceable.

The motion of the wheels is smooth and noiseless, and the manner of seating the lower end of the shell in the wood, with but one screw in the face plate, gives them great strength. One of the devices contains double pulleys in each shell, to provide for two "chains" or cords in cases of sash with extra heavy plate glass, so that one of the chains breaking, the remaining one would hold the weight of the sash, and prevent a fall damaging too expensive glass; and at the same time, the chains plying over two separate pulleys, make them run easily. They are well worthy the attention of architects and owners; to be seen at the office of this Journal.

MORTAR.—Mortar for sewer works in all cases should be capable of setting in water. Portland cement and lias limes make good hydraulic mortar. The proportions of cement, or of lime to sand, should not exceed two and a half of clean, sharp sand to one by measure of ground Portland cement or lias lime. If clean furnace ashes or slag are available, there may be two of sand and one-half of ashes or slag, the whole to be mixed in a revolving pan, each pan-full to have twenty minutes' grinding. When mortar is used with bricks, the beds and joints should be spread thick and full over the entire area of both bed and joint, leaving, when pressed into place, a bed and joint never less than one-eighth of an inch in thickness of mortar. In four cubic yards of completed brickwork there should not be less than one cubic yard of mortar incorporated. In making mortar or concrete, it will be of the utmost importance to use clean materials and to preserve them clean. The water used for wetting bricks and for mixing concrete and mortar must be free from silt. Concrete and mortar should also be used on clean surfaces.—*Sir R. Rawlinson, C. E.*

Eastlake Paint, said to be a great improvement even upon the best lead and oil compounds, guaranteed not to contain gum, rosin, benzine, or turpentine, but to be made of pure lead, zinc, and oil only, with a chemical solution that renders the paint hard and glossy when spread, alike resisting the action of fogs and heat, and free from the oxidation or chalking so commonly the case in California. It is manufactured by the Eastlake Paint Co., San Jose.

If this paint possesses the qualities claimed for it—we know nothing to the contrary—it certainly will be to owners' interest to use it,—first, for its excellence, and secondly, because manufactured in California.



ELEVATION OF COUNTRY DWELLING.—PLATE I.

Tenants Benefited.

As soon as people acquire wealth and are able to reside in dwellings of their own choosing, they immediately develop a surprising interest in "dwellings for the poor," and the sanitary papers, as well as the daily press, are made to do duty in describing the unsanitary conditions in which such a large proportion of the population live. Heretofore, the poor have been benefited, silently, by all the philanthropy which has been bestowed upon them by sympathetic societies. Up to the present time there has been no one so rash as to defend the conditions which are so threatening to the continued low death-rate of our various countries, Scotland in particular.

The enterprise of a London illustrated journal has led it to send an article to depict the mode of life of the crofters in Scotland. The pictures and accompanying letter-press represent the dwellings of the crofters to be of the most primitive construction, being little better than rude huts, having no light or ventilation save through an aperture at the top, through which the smoke escapes. The evils which must advert the dwellers in these huts is graphically described. To this attack, strange as it may seem, there arises a defender. A Highlander, born and reared in one of these 'bothies" writes to the London *Times* that, to the peculiar construction of his boyhood's home, he owes the strong frame and unimpaired health which he enjoys to-day. He states that the ventilation is ample and sufficient, and, furthermore, that the breathing of the smoke from the peat fires, habitually found in the "bothies," renders the system very insusceptible to consumption. This latter statement is supported by the testimony of a prominent physician of Manchester. He states that there is a remarkable immunity from consumption among the Highland people, and he ascribes it largely to the inhalation of peat-smoke, which, he says, contains many ingredients of an antiseptic character, such as tannin, tar, and creosote.

Roman Tenement Houses.—The Romans had to contend with the evils of enormous tenement houses two thousand years ago. Gibbon mentions that Augustus and Nero repeatedly enacted that the height of dwellings within the walls of Rome should not exceed seventy feet from the ground. The space within the Roman walls was necessarily circumscribed. Much of this was occupied by the rich patricians and senators, with their palaces and gardens, so that the body of the Roman people were crowded into high tenements, and the different floors and apartments were divided among several families of plebeians, who suffered consequently in health and comfort. Juvenal, recognizing the unfortunate condition of the poor in this respect, advised them to leave the city and seek homes in the small towns.—*Exchange.*

Treads and Risers..... $ .50

AROUND THE HOUSE.

The Exciting Rage for Æsthetic Jimcracks, And What There Is to Gratify It.

The collection of æsthetic ornaments of bric-a-brac, etc., is, with many, a question of arithmetic. The question is mainly one of ability to buy and a space to display; the intrinsic worth of many of the specimens is slight, and it must be owned that the taste exhibited is abnormal.

Bric-a-brac ornaments, to deserve a conspicuous place in a room, should possess one or more of these attributes of excellence:—

1. Historical, representing an interesting phase of art in an earlier period.

2. Artistic, being in their design and execution conformable to the standards of artistic truth and beauty.

3. Social, calling to mind an earlier phase of social life and custom.

4. Personal, association with noted persons, or personal friends and relatives.

Any of these give value to such ornaments and justify their use to a certain extent. But they should be few in number and should be judiciously chosen and tastefully arranged.

Among new devices for mantel piece ornaments is a light-house wrought in copper and carefully elaborated in details, which carries two disks on the lantern, one showing the time, the other the days of the month and the moon's changes. Another idea is the mounting of a gold cage and bird over a clock, the bird flapping its wings through a hidden connection with works on the striking of the hours.

Movable Japanese screens have a wooden stand, carved, with two large fancy-colored paper fans fixed out at the top, folding up and pointing downward at the sides. These move up by means of a spring, meet in the middle, and form a large circle.

A clever conceit is a card-receiver of hammered copper in the shape of a large grape leap. Ornaments of lizards, beetles, and queer-looking bugs are used.

A very clever plaque is of royal copper metal, with lapped edges and hammered. The center shows a Hungarian scene in gold and silver effects.

A drawing-room mirror, made in the shape of a fan and mounted in bronze or silver, is a very pleasing novelty.

The new metal, royal copper, is now being made up into all kinds of artistic metal goods.

Scorpions, snakes, and lizards are the latest French rage in metal goods ornamentations.

Parties when asked what they would charge to furnish corn enough to cover a checker board, placing one kernal on the first block, two on the next, four on the next, and so on, have answered from $5.00 to $10.00. Local mathematicians have figured it up and find that it would take 8,680,760,438,824¾ bushels, estimating it at 200,000 kernals to a bushel, which at sixty cents per bushel amounts to $5,208,402,203,294.85.—*Ithaca Journal.*

Decorative Art in Gotham.

In the new dining-room of Cornelius Vanderbilt's house some remarkable triumphs of the decorator's art are to be seen. There is a reproduction of Gobelin tapestry, which cost Mr. Vanderbilt $30,000. A portiere which is to hang at the dining-room door is literally a *cloth of gold*. It measures six feet by four, and hangs upon an oaken bar with rings of gold. To prove that it is a cloth of gold it is only necessary to state that Tiffany & Co., the jewelers, under the direction of an artist, spun from pure gold a thread which composes this hanging, at a cost of $20,000. Miss Tillinghast, whose work of design and embroidery is at the head of that particular art in this country, and possibly in the world, undertook, with her assistants, the embellishment, with the needle, of this cloth of gold. The picture represents certain scenes of the Æneid. If the hours spent upon it were reckoned by the eight-hours-a-day system, four years and a half would be the result shown of the time consumed.

Rapid Bridge Building.

A bridge of concrete, thirty-three feet in span, and carrying a roadway thirteen feet wide, and capable of supporting safely a load of two hundred tons, was recently built in Switzerland in a single day, under the direction of Professor Tetmaier, of Zurich. According to *Le Génie Civil*, the bridge was a single arch, of segmental profile, rising six feet and a half from springing to crown, and twenty inches thick at the crown, and forty at the springing, with abutments ten feet thick. The concrete used for the arch was composed of one part cement, mixed dry with two parts sand, and the whole then mixed with four parts of gravel, and water enough to cause a light sweating as the concrete set. For the abutments, three parts of sand and seven of gravel were used to one of cement. All the materials were made ready beforehand, and at six o'clock in the morning the construction of the abutments was begun. As soon as these were brought to the proper height, the center was set in place and the arch turned, and tympanum walls built up on each face of the arch, to the level of the roadway. Gravel was then filled in over the arch, between the tympanum walls, to the roadway level, and the bridge was pronounced finished, the whole work having been completed in twelve hours, at a cost of six hundred and four dollars, including the expense of an iron railing on each side. It would have been foolish to permit vehicles to pass over the bridge at once, and two months were allowed for the hardening of the concrete, after which a heavy traffic immediately began, without any apparent injury to the construction.

A chicken with a clipped wing made several ineffectual attempts to fly over a fence. An Irishman, who witnessed the efforts of the "chick," laughingly exclaimed, "Begorra, she has a defective flew."

A model architectural competition seems to have been that lately concluded in Leipsic, Germany, for the governmental judiciary buildings or law courts. From an interesting account in the Leipsic *Illustrirte Zeitung* we gather the following: The size of the building is approximately 100 by 130 meters, or about 325 by 422 feet. The programme was complicated and difficult, including session chambers for six or seven different courts, a large assembly hall, rotunda and stairway, reception rooms, consulting rooms, offices, etc., for a great number of chiefs and subordinates in each department, and finally a library to hold 150,000 volumes, with administration rooms, etc. The general conditions of the competition were unusually simple and fair, imposing the least possible restriction upon participants. They prescribed the number and size of drawings for each design and required a descriptive memoir with approximate estimate of cost. The limit of cost was not fixed but was left, very wisely we think, discretionary with the architects themselves. The committee of award consisted of six architects and five members of the judiciary. There was one prize of 8,000 marks, about $2,000 of our money, two of 4,000 marks each, and two of 2,000 marks each, the premiated designs to belong to the Government. The time allowed to competitors was nearly five months, another judicious feature! One hundred and nineteen designs were received, each embracing not less than ten sheets—nearly twelve hundred drawings in all. All were exhibited for two weeks in the winter garden hall of the Leipsic Crystal Palace, and attracted much public attention, as was natural in so important a competition, and with such a cultured community. —*Inland Architect and Builder.*

First Floor Plan of Country Dwelling.—Plate 2.

Corrugated Iron.

This is a material largely used for various purposes, and is well adapted, among other things, for roofing. We notice that the *Cincinnati Corrugating Company*, for which C. J. Tallon, 123 California Street, is agent, have received the "*Gold Medal of the First Class*," for corrugated iron for building purposes, at the World's Industrial and Cotton Centennial Exposition at New Orleans."

Corrugated iron is often used in the construction of certain classes of buildings, and is admirably adapted for barns, grain warehouses, and other buildings erected on farms and in places remote from fire engine protection; also in the construction of light way walls, to make them comply with the requirements of fire ordinances, where brick is not feasible or possible. The lightness of walls constructed of this iron is also a recommendation, as it affords protection against fire, without bulk or great weight.

The signs "+" and "—," it is said, were first used by Christopher Rudolph about 1524. The sign "=" was first employed by Robert Recorde in 1557." "Because," said he, "noe 2 thynges can be moare equalle."

Ancient Reservoirs.

The reservoirs of the ancients were not inferior to those of the present time. The expertness of the ancient engineers is attested by the remains extant; they certainly are not buried in the waters of the Lethe. The Pools of Solomon still continue to furnish water to Jerusalem. They are three in number. The upper is 160 feet above the middle one, the latter 248 feet above the lower. The first was supplied by pipes from springs, and, when full, emptied into the second, and that into the lower one. The water was used for irrigating Solomon's gardens and supplying his temple. The lower pool held about 31,442,425 gallons, the middle about 12,289,912, and the upper one contained 13,778,772—a grand total of 58 511,109 gallons, or nearly six times as much as the Kansas City reservoir, which is estimated at 10,000,000 gallons. These pools were solid rock and masonry, lined with cement, and had steps leading to the bottom. One historian says that Nebuchadnezzar, wishing to brick the bottom of the Euphrates, which flowed through the center of Babylon, caused a reservoir forty miles square to be dug, so as to allow his masons a dry river-bed. Another historian writes that Nitocris, a daughter of Nebuchadnezzar, is said to have dug a reservoir 420 stadia in circumference, lined with stone, for the waters of the Euphrates, in order that the river-bed at Babylon should be dry, so that she could build piers for a bridge. A stadium being 625 feet, it would make this circumference 49 miles. These two reservoirs may be the same, and this shows what discrepancies there are among writers.—*Building and Engineering Times.*

An Architect's Suit Decided.

In the Second District Court, Judge Henry has filed a written opinion in the case of Charles D. Marvin against Dr. Clarence W. Butler and wife. The case was tried in March last. The facts were, that the defendants employed the plaintiff, a New York architect, to prepare plans and specifications for a dwelling-house, to be erected on Fullerton avenue, Montclair. After the plans and specifications were drawn and the contractor's bids submitted, the defendants refused to accept the plans and thereupon the architect demanded the usual commission for his services, on which, being refused, he brought suit. The defence, interposed by the defendants was two-fold; first, that the plans called for a building which if erected, would project beyond the defendant's lot a few inches; second, that the lowest bid of any contractor exceeded the stated amount the defendants wished to spend on the building. In reply, the plaintiff proved that the measurements of the lot were furnished by Dr. Butler, and therefore the error had been occasioned by the defendant's mistake, and that the changes in the original plans, made at the request of the defendants, had occasioned the increased cost. Judge Henry, after hearing A. E. Van Giesen for the defendants, and E. A. Rayner for the plaintiff, in a lengthy opinion reviewing both the law and the facts, holds that the plaintiff is entitled to recover a reasonable compensation for his services in preparing the plans, etc, and gave judgment in his favor.—*Building.*

Disinfectants.

It is often asked what is the best disinfectant for a cesspool? Two pounds of copperas, or sulphate of iron, dissolved in a pail of water, will greatly assist in purifying a privy or cesspool. A pound of nitrate of lead dissolved in the same way is excellent for sinks, drains, or vaults. Chloride of lime is also effectual, or a layer of charcoal dust will prevent offensive odors arising from any decomposing substance. The quantity of these substances will depend upon the amount of filth to be deodorized, and the length of time during which they will be effectual will depend upon local conditions.

The Japanese Hand-saws cut on the pull stroke; so no matter how hard the wood or dull the saw, they will not bend or buckle. It is rather more difficult to saw to line with such saws than with ours, but they have their advantages. Take one of our key-hole or compass saws, cutting on the push or shove stroke—what an aggravating, limber thing it is. Now point the teeth the other way, and you will have a tool that will keep stiff no matter how many knots it encounters or how dull it gets. In other words, the pull stroke of 3,000 years ago is the best for such thin, narrow blades.

Stair Building Made Easy **$1.00**

New Law in Tax Titles—No More Extortion.

One very important amendment was made by the last Legislature in relation to the issuing of deeds on a sale of property for delinquent taxes:—

"It is now provided that the purchaser of property sold for delinquent taxes, or his assignee, must, thirty days previous to the expiration of the time for the redemption, or thirty days before he applies for a deed, serve upon the owner of the property purchased, or upon the person occupying the property if said property *is* occupied, a written notice, stating that said property, or a portion thereof, has been sold for delinquent taxes; giving written notice of the date of sale, the amount of property sold, the amount for which it was sold, the amount then due, and the time when the right of redemption will expire, or when the purchaser will apply for a deed. The new amendments provide that the owner of the property shall have the right of redemption indefinitely *until such notice shall have been given* and said deed applied for, upon the payment of fees, percentage, penalties, and costs required by law. If the property sold is unoccupied, it is then provided that a similar notice shall be posted in a conspicuous place upon the property, at least thirty days before the expiration of the time for redemption, that is, thirty days before the purchaser applies for a deed. It is further provided that the Tax Collector shall not issue a deed to the tax-title purchaser until such purchaser shall have filed an affidavit with the Tax Collector showing that the notice required to be given has been in fact given as required. This affidavit must be filed and preserved by the Tax Collector as other papers are kept in his office. These new amendments will prevent tax-title extortion. Heretofore, when the time of redemption ran out—in one year from date of tax sale - some tax-title buyers asked $250 for a tax title that cost them $15 to $25. Many owners' property was sold for taxes because of their ignorance that the taxes were delinquent. The tax-title buyers will now be compelled to give delinquents notice before they can get tax deeds."

To Make Watch Hands Red.—Mix to a paste, over a lamp, one ounce of carmine, one ounce chloride of silver, and a half ounce tinners' japan. Put some of the paste on the hands, and lay them face upwards on a sheet of copper, holding it over a spirit lamp until the desired color appears on them.

Onyx.—Onyx is deservedly a favorite for table tops. Its semi-translucency, with dappled shades from saffron to white, delicate tinge of green and grain formed of wavy lines render it peculiarly attractive.

All varnishes crack from the surface, and paint cracks from the bottom. The presence of ammonia in the atmosphere is the greatest enemy to varnish, as it weakens the cohesion between the oil and gum.

The Safety of Cast-Iron Columns.

The safety of cast-iron columns in case of fire, as compared with columns of wrought iron, or pillars of stone, brick, or cement concrete, has been the subject of investigation by Professor Bauschinger, of Munich. It will be remembered that the Berlin police authorities, in consequence of unfavorable experiences with cast-iron columns in recent fires at Berlin, issued regulations forbidding the use of such supports in the construction of dwelling houses, but permitting the employment of columns of wrought iron and clinkers in cement mortar. Cast-iron columns may only be employed if they are surrounded with immovable mantels of wrought iron separated from them by an air space. Professor Bauschinger heated cast and wrought-iron columns weighted with burdens usually imposed in structures first to 300°, next to 600°, and finally to red heat, and suddenly cooling them afterwards by a jet of cold water, as applied in extinguishing fires. The experiments demonstrated that cast-iron columns, although they were bent by red heat, and showed transverse cracks when water was applied, supported the weight imposed upon them, whilst wrought-iron columns were bent before arriving at a state of red heat, and were so much distorted by the application of water that a straightening was out of the question. In reality they would have collapsed under the weight they had to support. Professor Bauschinger concludes from his experiments that cast-iron columns, notwithstanding cracks and bends, would continue to support the weights imposed upon them, whilst wrought-iron columns would not. In examining pillars of stone, brick, and cement concrete, the latter proved to be the best. Concrete pillars withstood the action of fire for from one to three hours; those of ordinary brick, as well as those of clinkers set in cement mortar, displayed great resistance; whilst natural stone—granite, limestone, and sandstone—were not fire-proof.—*Illustrated Carpenter and Builder.*

The oftener carpets are shaken, the longer thy wear. The dirt that collects under them grinds out the threads. Do not sweep carpets oftener than is necessary. A broom wears them very much. When a carpet is faded, strong salt and water will often restore the brightness of the color.

George H. Fuller, manufacturer of and dealer in all kinds of office, school, church, and lodge furniture, and fine cabinet work, has removed from New Montgomery Street to 638 and 640 Mission Street. Those desiring things in his line, may rely upon square and honorable dealings and good work, whether under personal arrangements or by orders from sections outside of San Francisco.

To remove varnish without injuring paint. Brush on spirts of ammonia or hartshorn, which soon softens the oil, allowing of its being rubbed off easily.

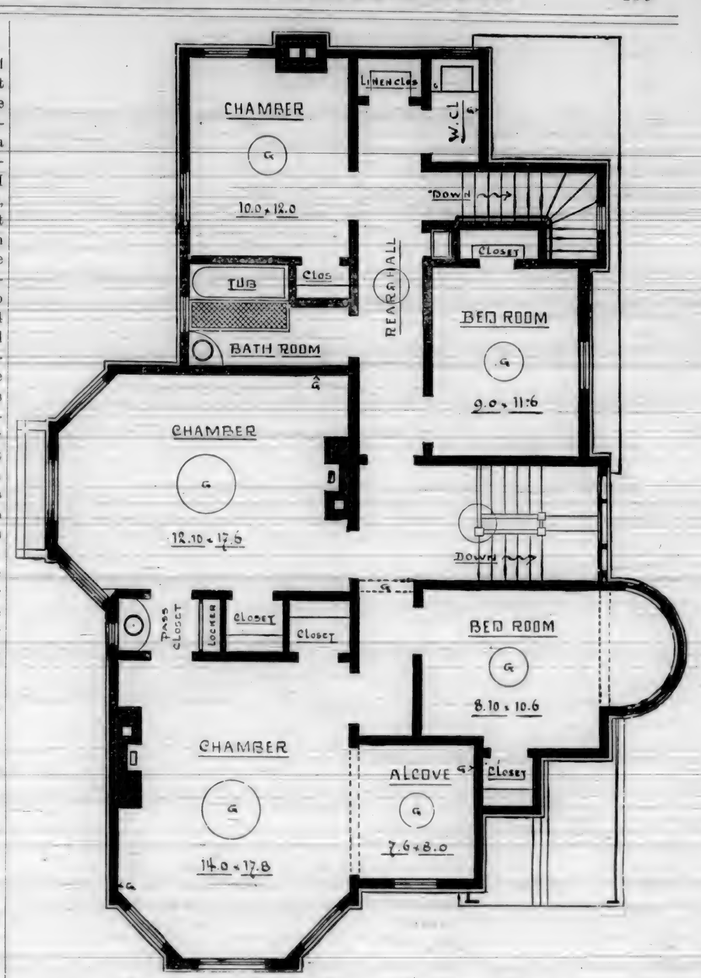
Going Up-Stairs.

Many persons complain of the fatigue of mounting long flights of steps, and feel that they are failing before their time. There need be no anxiety on this score. Going upstairs is simply performing so much work in a given time. Mr. G. Farmer, who has investigated this subject, says: "Just for curiosity I sent my assistant, who weighed 152 pounds, to climb the stairs at the Forty-second Street Station, to note the time in seconds which was required to climb them leisurely. He counted the stairs, 36, and it took him 34 seconds to climb them. The rise of each step was 8 inches; total rise, 8x36=288 inches=24 feet. Now, his weight, 152 pounds, multiplied by the total rise, 288 inches=43,786 inch-pounds = 3,648 foot-pounds of work done in 34 seconds. Now, one horse-power does 550 foot-pounds in one second, and in 34 seconds will do 34 × 550=18,750 foot-pounds; now divide 3,648 by 18,750, and we get 195, almost 1-5th of a horse power, which this young man exerted while he was climbing these stairs leisurely. He said he usually went up two steps at a time when in haste. Now let us compare this work with that done ordinarily while walking on level ground. His average step when walking rapidly would be not far from 26 inches, and the distance from the ground to the thigh-joint would be not far from 33 inches; thus at every step he lifts his center of gravity $2\frac{5}{8}$ inches—all, or nearly all, his weight above the knees will be raised $2\frac{5}{8}$ inches at every step. Assume that 130 pounds would be lifted $2\frac{5}{8}$ inches at every step, this would equal 341 inch-pounds per step. Now, divide 43,776 by 341, and we get 128.4 steps, which multiplied by 26 inches, gives us 3,338.4 inches=278 1-5 feet as the distance he would have to travel in 34 seconds to do work equivalent to climbing those stairs.

$$\text{"This is } \frac{287.2 \times 3\,600}{34 \times 5.280} = 5.58 \text{ miles per hour,}$$

which I think is an under estimate. How few invalids—ay, how few tired persons could maintain this pace even for half a minute without great fatigue!"—*Exchange.*

Hereafter the highest building in New York must not exceed an altitude of eighty feet. The law does not, however, prohibit the erection of giant office buildings or great business structures. This may be well, as the convenience of business may require the concentration of offices on a small area, but we feel that the law is an excellent one as applied to the residential portions of the city. With our elevated roads and the probable progress that will be made in rapid transit, there is no occasion for the immense apartment houses that have been built in the last few years. Should the city's population continue to increase as it has done, spread it out over the 23d and 24th wards and lower Westchester, and better and healthier homes will be provided for the people, and it will be far more equitable as regards the rights of adjacent owners.—*Building.*



Second Floor Plan of Country Dwelling.—Plate 3.

Next to a good house nothing is more desirable than a good side-walk, but the one is not always accompanied by the other, and hence the incongruity. A bad side-walk is not altogether the result of individual negligence, since the municipal authorities are supposed to have jurisdiction over them, but at the same time property owners should not consider themselves freed from all responsibility. It is no uncommon thing in any large city, to see a house and grounds magnificently appointed and well kept, while the approaches are in a state of extreme dilapidation.

Why are so many houses, especially farm houses, in the United States painted white? A neat white house surrounded by green trees and shrubbery, is often a very pleasing object in the landscape, but a grim rectangular structure, standing unrelieved as many houses do, receives a glaring addition to its ugliness by the coat of white paint which covers it. Neutral colors are rarely offensive, and easily obtained. Only conservative inclinations cause the present style, and in this matter good taste should not be influenced by bad example.

A metal that expands in cooling is made of lead, nine parts; antimony, two parts; bismuth, one part. This alloy can be advantageously used to fill small holes and defects in iron castings.

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