The same question was presented to the Chapter some two years or more ago, and received due consideration; and by unanimous vote, the Chapter expressed its disapproval of the system of piecework, but passed no law or rule making it an offense should any member permit departure from regular day labor on constructive works under charge.

The discussion of the sewerage and drainage question was to have been led by Mr. Macy, but that gentleman not being present, the matter was taken up and commented upon generally by the members present. Various suggestions were made as to causes and effects, and some deservedly severe strictures upon the character of construction of street and side sewer work, showing a criminal degree of negligence on the part of those controlling construction, and a weakness, if not dishonest disposition on the part of those who by contract pledge and agree, and are paid to do good work, with good and proper materials, but who substitute inferiority in both workmanship and materials, and consequently construct defective and faulty—instead of what should be, solid, durable and safe—sewers.

The appointment of tailors, shoemakers, beer drinkers, etc.,—men wholly unfit for the position as superintendents of construction,—received rebuke in plain terms.

The meeting was one of great interest. The number present, although not as it should have been—two-thirds of the members of the profession in San Francisco, Oakland, and San Jose—was good, and the proceedings animated and full of interest.

The application of Mr. Seadler, of Sacramento, for membership in the Chapter, was acted upon adversely to the admission of the applicant.

Chicago Soil.

THE *Sanitary News* reports a discussion at the monthly meeting of the Illinois State Architects Association upon the "Bearing Capacity of Chicago Soil," from which it appears that the "bed of blue clay found underneath the layer of loam, and the yielding muck beneath the clay," constitute the formation on which the city of Chicago is built. The clay when dry is "hard and very good for foundations, but when wet it is softened and difficult to treat." "Beds of streams and small rivers run through this stratum of clay," which seem to add to the difficulties of foundation work in certain sections. The fact that this clay is hard and solid when dry, and soft and yielding when wet, renders the study of foundations an important and first essential for architects in planning the erection of buildings in Chicago.

SAN FRANCISCO SOIL

Is much more reliable, as a rule covering all the original layout of the city—the formation being either sand, solid clay, or rock. As a matter of course, the rock-beds must be placed first in the rank of secure formations. Next in order is either the original sand or clay beds, either of which are good, many preferring the sand to the clay. For bearing purposes, when held immovable in position, sand—although in Bible history made to appear as a very treacherous and unreliable under-support for houses—is recognized in this city as safe and sure, unless by wind or water disturbed. The filled-in portions of the city, north, east, and south, will require the solidifying manipulations of centuries to become equal to the original land.

Architects and Draughtmen's Register.

FOR the accommodation and convenience of all parties—practicing architects requiring help, and draughtmen seeking employment—a register is kept in the office of this journal, for the registering of the names of unemployed draughtmen, without any charge, cost, or expense to either party. Draughtmen out of work will do well to enter their names, as orders frequently come to us, "Send us a draughtman." The register is always accessible to architects, and they are at perfect liberty at any time to call and examine list and make selection; or we will, with pleasure, furnish the names of those registered.

THE EFFECT OF ASPHALT ON WORKMEN.—French laborers who work barefooted on asphalt pavements are subject to swelling of the legs, which has been attributed, says *Iron*, to the vaporization, by the heat of the feet, of a small quantity of the petroleum or mineral oil which is contained in the asphalt. The nerves of the feet, which govern muscular action and the contraction of the blood-vessels, form an extensive and very sensitive, nervous network under the arch of the foot, where the skin is always thin, and the nerves are consequently easily affected. In England, workmen on asphalt wear list slippers, and the swelling of the feet has not been noticed.

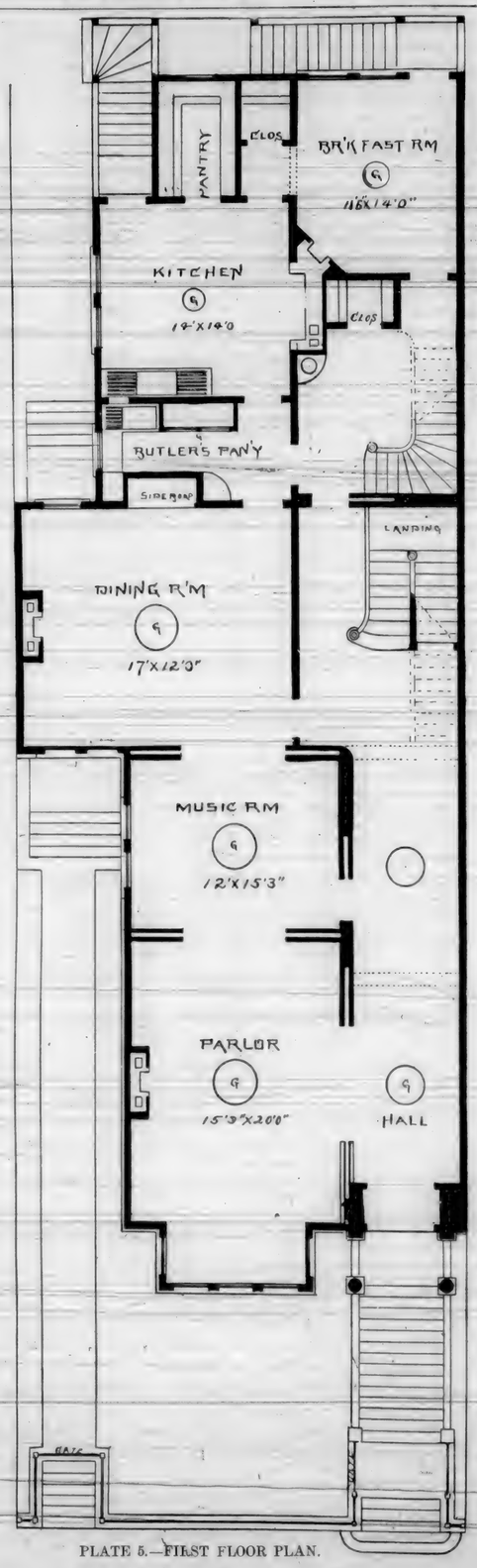


PLATE 5.—FIRST FLOOR PLAN.

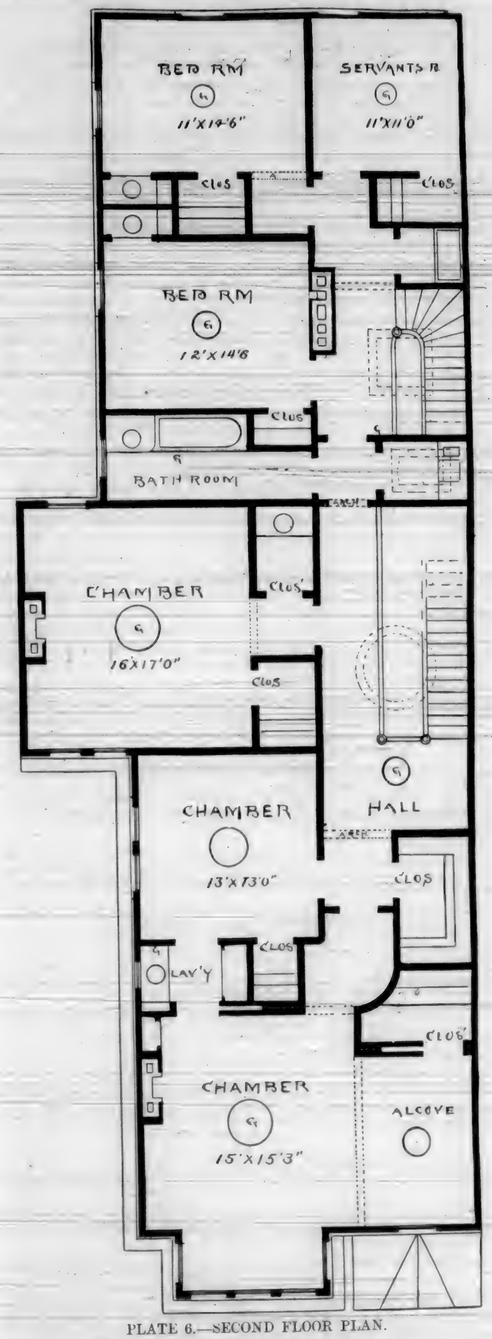


PLATE 6.—SECOND FLOOR PLAN.

CONSIDERABLE trouble is being experienced by the Chartiers Gas Company, of Pittsburg, in laying its pipes along some of the thoroughfares. The gas and water pipes already down are so numerous and close together that the street railway tracks are torn up to make room for putting down the new pipes.

BENJAMIN BAKER, an English authority on bridge building, says Americans are far ahead of the British in bridge building; that America is indeed a paradise of mechanics, and that the practice in this country tends to the production of better bridges than in England.

California Shingles.

THE shingles used in San Francisco and adjacent counties, and in all counties bordering on the Coast Range, and localities adjacent to the redwood belts, are exclusively sawed redwood shingles; in dimensions, ⅝x4x14 inches. As in all other things, they vary in quality, with a market standard of No. 1 and 2, the latter consisting of those more or less sappy, and otherwise not sufficiently good to be classed No. 1, except for temporary purposes. The purchase and use of the second quality is decidedly unwise, as the sappy portions of the wood, either in shingles or in contact with the ground or moisture under any circumstances, soon perish and rot.

There is also difference of quality in the No. 1 quality, as some manufacturers turn out much better shingles than some others, with no better stock in the rifts to produce from. Some of the brands run of equal thickness, regular widths, square butts, and full points, while others lack these important characteristics, and are prolific in "swallow tails"—tapering points—and many of these slivered and rendered wholly unfit for full course work, as not more than one-half or two-thirds of the shingles are good in shape and thickness; and if "nigged" in after the custom of the full-fledged shingle layer, early leakages are sure to develop. For while 16 inches long is the supposed length, and 14 inches or less the actual average measurement, and 4½ inches the rule for weather exposure, then where the slivered and short pointed shingles occur, there cannot be full more than one lap or covering, which is not sufficient, except for sun-shade roofs, as a crack occurring in an upper shingle, over an under joint, or a corresponding split in the lower course, would inevitably open an inlet for the waters of every shower or storm during rainy spells.

In redwood trees, as in all other timber growth, there is difference in the grain of the wood, some being "nice," "first-class," others softer, and some hard and brash. The latter is the more objectionable in redwood shingles; those made of this kind of wood are liable to warp, and more apt to split from natural causes, or by the pressure of the foot in walking over them; although in the matter of wear and tear by the action of time and the elements, they are the more durable, as the moisture does not so readily enter the pores, and decay is the longer resisted.

As to durability, redwood shingles certainly have a fair claim, as, although the average thickness of the butt is less than ⅝ inch, there are roofs now in use in this city which were put on twenty years or more ago, and are still rain tight, with no care looking to their preservation; while others put on more than a quarter of a century since, receiving occasional coats of paint, are in perfect condition, and are likely to remain so for a decade longer, if not for a period of fifty years, provided they receive the attention in paint which should be bestowed on all shingle roofs; for while paint preserves and protects the wood from the action of the elements, it also prevents the accumulation and growth of the greenish, semi-vegetable formations which invariably gather on the shaded, moist sides and sections of roofs in California.

Values and Equivalents.

EQUIVALENTS, as a rule, are regulated by real and actual values, demand and supply being easy, with neither excessive or unduly stimulating. This rule of valuation applies with equal force to everything exchanged or exchangable for money, whether of material, physical, or mental character. The personal, manual toil and service of those who work and strive through the years of life, with scarce a rational aspiration above and beyond the trammels of conditions in which by birth and inheritance they were placed, alike with the mind and mental labors of those who traverse the innumerable gradations of intellectual pursuits, as well as houses, lands, goods, merchandise, gems, jewels and everything namable, comes under the rule, with special advantage to those only who hold superior and commanding positions or exceptional qualifications.

Quality, as a matter of course, is always a material factor, unless stress of necessities compels the acceptance of the inferior for the better at any cost. Force of circumstances frequently compels submission to unfair exactions and hardships, and very acute corners are made in things of value, when the demand is in excess of supplies, or supply preponderates and overflows the market.

All this will be readily accepted as true, as far as goods and merchandise and all material things are concerned, but it is also equally applicable to mechanical, physical, intellectual and mental values; for these, too, in the innumerable pursuits of life, each in its order possesses value and commands equivalents according to circumstances and prevailing demands, which, if sufficiently active, will consume everything offered, with firmness as to

equivalents, the less desirable finding sale or engagement beyond actual merit value in times of posterity.

Applying this theory to mankind in their endless diversities of pursuits, the rule holds good, labor of body and mind having respective valuations—the better always commanding the higher equivalent, and in cases, the power to dictate terms. Fine abilities seldom "go begging," especially in professional spheres, and comparatively so in mechanical pursuits. Mechanics, artisans, and even laborers, who by their superior skill and competency and earnest service have reached the position of really first class in their respective lines, deserve the higher equivalent, and receive it above others whose life wants and necessities may be greater; yet, lacking the qualities which exalt their fellows above them, they are forced to submit to, and accept the equivalent for their labor, enforced by circumstances. Hence the importance of every man who is compelled to labor, striving to improve himself, to qualify himself to advance to the highest possibility, and rest not until he joins hand and gains position with those who are deservedly recognized as superior men.

As long as men content themselves with the allotments of life as received from the conditions of birth and early training, and settle down to a "can't-help-it" state of mind, they cheat and impose upon themselves heavy burdens, and debase not only themselves, but nature—through parental channels often passes down to posterity the physical and mental defects and weaknesses of father or mother, or both. This fact alone should inspire ambitions and create desires for improvement. The incentives are numerous and spread themselves along the pathway of every man, to seek and strive in an honest, right, consistent, legitimate manner to improve himself. Millions of men have lived and passed away, who were truly genuine, human gems of great value, yet from causes have not revealed the luster of their worth, because content to remain in, or unable to remove themselves from the embedments of early training.

Advancement, improvement—a climbing up among our fellowmen—are necessary adjuncts to human happiness and comfort, and is the grand balance weight that regulates equivalents and values; for the services of men are rated and paid, as a rule, according to clearly manifest merit, with those negligent of opportunities, and indifferent as to possibilities, ever at a disadvantage, and the first to be set aside when services are to be dispensed with.

Difference in Value of Labor.

THE experience of the present and all past times fully confirms the fact that there is a very material difference in the value of individual labor, some doing more and doing it better than others within a given number of hours. This fact creates a disparity in the real value of services rendered, and should regulate compensation. This it does, to the disadvantage of some, in two ways. First, in that men of greater and better mechanical skill and industry secure constant or more constant employment than others who content themselves with operating at lower levels, and working as chance opportunities present themselves, with no laudable aim or ambition for the paths that lead to honor or renown. Second, in that the better classes are always preferred, and are paid better wages. To some extent, and in some cases, this disparity and difference is not to be wondered at, because nature has withheld from some the gifts so generously and bountifully bestowed upon others. Some men might waste a whole life-time in pursuit of certain objects or results, and never attain them, for the reason that unless the physical, mental, and intellectual capacities, powers, and forces are capable and sufficient, all attempts must prove futile. No man can reach beyond the length of his arm. But unless utter submission to circumstances and an unmanly debasement pervade the mind, and the possible refinements of nature are entirely demoralized, there is a chance for improvement. And many who make no right nor earnest effort to improve themselves in directions that would better their condition might do so successfully if they would, by exercising the spirit of mastery over the inclinations that hold them back. Those who do not, because they *will not try* to do, deserve all the privations and punishments that come upon them. Neither friends nor Dame Fortune will force bread into the mouths of able-bodied men who refuse to help themselves, and reject advantages which they might utilize to their benefit. It may be hard work for some to climb and work their way upward, but better this than to remain all of life's time in the murky slums of non-improvement; for, if not advancing and lifting and gaining ground upward, such is our humanity that it cannot hold its grip at any point and remain stationary; and, if not upward, then downward it must be, and although for a time the effect of retrogression may not be rapid, it is sure, and gains pace as time rolls on, requiring but a few years to work out distressing results and debasements.

Technical Schools.

IT is doubtful if with equal expenditure of means, the same amount of effective work can be done for the future manufacturing interests of the country in any other way as can be by the establishing of schools, for which the one established in New York City, by Peter Cooper, may be taken for a model. Not that they should necessarily be of the same magnitude as this; but their aims should be in the same direction. Schools of this kind ought to be so common that every young mechanic could avail himself of their assistance in securing an education, so far as book knowledge goes, in matters relating to the trade he is learning or following. To be sure, all would not do so; but providing means would develop a large amount of latent talent that is now wasted, and the number of those who would be led, from example, to use convenient educational facilities, would increase surprisingly, the result being that manufacturers would reap the benefits of having in their employ a class of workmen bringing to their work intelligence, and a training that fitted them to think of what they were doing. And the more of the thinking, reasoning habit that is centered in any manufacturing business, the better the prospects of success.

Considering the fact, now well understood, that in the future manufacturing will partake more and more, from year to year, of the character of close competition as between different countries, the wisdom of providing every means of increasing knowledge of the subjects connected with it ought to be apparent. In European countries this is very clearly understood, and the matter discussed and helped along in every possible way. Here but little attention is paid to it outside of three or four large cities, and thousands of young men, who are anxious to devote their leisure to study, in the line of their work, find no help in doing so.

Those who have given the subject much attention have almost universally concluded that what is needed is co-ordinate education of the hand and brain. The late Professor Thompson, in his review of the reports of the British commissioners of technical instruction, a review recently made public, shows that in Europe the demand is so largely for men whose training has been, to a great extent, practical, to fill important positions, that there is an excess of men who have a training purely theoretical. He instances Germany, in which it is found that there were a large number of highly trained polytechnic graduates, for whose services there was no demand, while the Austrian Minister of Instruction lamented the inability to reduce the number of theoretical engineers, and to replace them with those who had knowledge of both theory and practice.

If such schools as the Cooper Institute were as common as they should be, this uniting of theory and practice would be the result. We have, in this country, some excellent technical schools, and some of them appear to be fairly successful in uniting theoretical and practical instruction. But no more than the merest fraction of those who ought to have theoretical training are able to take advantage of their facilities. What is wanted is an opportunity for all, so that the best that is in every young mechanic may have an opportunity to develop itself. This is what technical education is coming to in Europe, and is what it must come to here. When this is so, the most important mechanical matters in manufacturing will be in the hands of those best able to manage them in all respects, because every one who has sufficient energy to fill a position of trust, will have secured the necessary theoretical education.—*American Machinist.*

THE *American Architect and Building News* says: "Another old friend, the CALIFORNIA ARCHITECT, is also greatly improved by its new form and style; but we think it's moan that the Pacific Coast—its own preserve—has been deluged by 'tons of specimen copies' of Eastern architectural publications, is unworthy of the courage that has brought the journal to its present position, and perceived the benefits that might accrue from the improvements just referred to." We certainly fail to discover the basis upon which our contemporary reared that doleful word—moan. We merely stated the facts of the case and their extraordinariness, and concluded with the quotation, "He that wrestles with us strengthens our nerve, and sharpens our skill; our opponent is our helper," adding, "so we consider it, and not only propose to hold our own in the face of this avalanche of interlopers, but to so far excel them in supplying a journal specially adapted to this coast, that their presence will be *eminently immaterial.*" If this language is susceptible of the construction placed upon it by our contemporary, we must admit that we failed to give proper expression to our views of matters; for while the "sample market was flooded" it gave us but little concern, feeling, as we did, well assured in the strong position gained by this journal among the thousands who so eagerly read its contents each month.

You Will Live Just as Long.

"GO SLOW;" "take it easy, and you will live just as long," is proper advice to over-diligent men, who do *more* than a fair and reasonable amount of hard work, within the usual prescribed limits of business application, often extending earnest labor into the hours of evening, which should be sacred to restful pleasures or social joys, and to all who are over-anxious, wearing away the vitalities of early manhood, to battle against sometimes imaginary odds, to gain business successes. But its force and application in business relationship cease with these. Men by nature made so, or by education taught to be, slow in every movement, never diligent in anything, never anxious beyond personal comfort and convenience, never intensely earnest in any pursuit, need no such advice.

To wage earners the advice is pernicious, if not in application, dishonest towards employers. The man who employs engages to pay for, and he who hires himself for wages or salary agrees to give, and sells his time and abilities for the price agreed upon, and for the hours per day usual in such cases, or as defined by stipulation, at a certain sum per diem, month or year; consequently *every moment of time* within such hours, and every *right* and *reasonable* service possible in the employed, becomes the property or value of the employer, for which he has paid or is to pay, and any misuse of either is an abuse of the employer's rights. Hence there is no such thing as a wage-earner "going it slow"—*honestly;* of "taking it easy" in the common-sense of the terms, which in effect are simply another manner of expressing the discreditable terms, "loafer" and "loafing," an idling away and waste of time and services *belonging to the employer*, and which an employe has no more right to indulge in than in misusing articles of trade. Every yard, package, or pound of goods in store or trade, belongs to employer, and costs him money, and any party found appropriating any portion of them without accounting, would be considered a *thief;* yet such goods and merchandise no more belong to and cost the owner money, than does the services of employed assistants, clerks, or day laborers; and, viewed in the light of fair—not to say strict—integrity, every hour not put in to the best advantage to the employer, by the employed, is *practical dishonesty*, and, generally, it is of mean and sneaking character, when the willful idler and cheat, conscious of wrong on his part, watches the approach of the employer, and springs to actual or pretended duty at his approach.

Most of those *seemingly* nice maxims and old saws are bad in practice for young men. "Go it while you're young, for when you get old you can't," has proved the ruin of hundreds of thousands of men and women, who, when too late to counteract, have experienced the folly of their mistakes; and millions of men now walk earth's surface in poverty, or lie in prison cells, or places of public charity, through following out the theory of the maxim quoted; better to reverse the rule, *go slowly, cautiously, savingly*, in the days of youthful vigor, so that the years of age and gray hairs may be full of strength and comfort.

A Substitute for Plaster.

THE ornamental finish of the walls and ceilings of rooms and interiors has attracted the attention of our best artists, and a succession of experiments has produced many different materials to be applied in various ways. In opera houses, theaters, public buildings, and private houses of the best class, the use of plaster has been almost entirely done away with. It was objectionable on account of its weight and liability to crack or become damaged.

Every one knows how quickly a little water will disintegrate plaster material and cause it to loosen its hold, and how frequent are accidents of that kind.

The difficulty and trouble necessary in making repairs were further reasons why a substitute should, if possible, be found. Neither a delicate design, nor objects in high relief can be reproduced in plaster. A new and improved material known as fibrous-stone composition has lately been quite extensively used in the Fifth Avenue Hotel, Wallack's Theater, and the private residences of many wealthy gentlemen, upon ceilings and walls, as well as in the ornamental finish of panels, pilasters, and cornices. It has a fibrous foundation, is extremely hard, and can be cut, sawed, filed, and nailed like wood. There is never any danger of its being displaced by sudden jars, or crumbling and tumbling down.

In case of fire it is incombustible—not lending its aid like lath to the conflagration—merely charring into a black stony substance. It is as hard as iron and has really the strength of metal without its weight.

The most esteemed value of this material for decorative purposes is the high artistic character of the work. A model in plaster is first made, the excellence of which depends on the talent of the artist. From this original model a faithful and exact fac simile is reproduced, which is sharp, clean, and with the lightness and grace of superior hand-work. It has a close texture, smooth surface, and can be at once put up without the aid of lath and plaster, and is all ready to receive paint, or metallic finish.

Neither heat nor cold will warp or shrink it and no change of atmosphere will affect it, therefore it is applicable for exterior as well as interior finish.

The combination of lightness and strength is a feature of value; great fluted pillars and deep theater cornices are furnished in sectional parts and handled with ease.

Those charmingly developed figures of heroic size, which we have noticed as posing in graceful attitudes above the stage curtain, and those other obliging females who kindly officiate as perpetual candelabra are hardly more weighty than an orphan child. In construction and manipulation, such practical advantages are easily understood. On the other hand, the delicate tracery of a hand-carved picture frame is reproduced with faithful accuracy, and the dainty, high-bred wall ornamentation of the Louis XVI. period is made with absolute exactness of detail and finish.

Comparative Compressive Strength of Granite.

COMPARATIVE tests of the granites of New England and Minnesota, instituted by Professor Winchell, with a view to determining their crushing strength, exhibit some surprising differences. The pieces employed for this purpose were 2-inch cubes unpolished, and crushed between wooden cushions the average strength of 20 specimens of Minnesota granite was found to be 93,272 pounds, or 23,318 pounds per square inch; crushed between steel plates the average strength was 104,800 pounds, or 26,200 pounds to the square inch of surface. The average obtained for the same number of specimens of New England granite was 59,789 pounds, or 14,756 pounds per square inch. The age of Minnesota granites is archæn; that of New England granites is not definitely known.

ONE of the oldest landmarks in New York has been recently destroyed. The building in question was located at 75 and 77 Nassau Street, and dated back to the period when New York was an English colony. It was a two-story brick dwelling when the Old North Dutch Church—afterward the New York Post-office—was built, and perhaps antedates the old Washington Headquarters at the foot of Broadway, on whose site the present Washington Building stands. Three stories were added in 1785, and since then it has passed through all the changes of a century practically unaltered. For some years it has been considered unsafe on account of the shallow foundations, and the owner reluctantly gave orders to have it torn down. As a specimen of the thoroughness and solidity of house-building 100 years ago the half dismantled walls were extremely interesting. The front stood like a face of rock, the thin bricks and cement-like plaster having become welded into a single mass which the workmen broke with strong cold-chisels and even sledge hammers. The bricks used were all imported from Holland, and are about 6½ inches long and 1¼ inches thick. The mortar was made of pure shell lime with almost no clay or sand in it, and forms a third of the solid mass. "I have torn down a great many old houses in New York and Albany," said Edward Sorensen, the contractor, "but I never saw one so well built as this. Why, it's like rock or flint. It will take my men ten times longer to tear down the walls than it would to build new ones. There's no 'Buddensiek' about these old Dutch builders. You can't find anything like that front wall now."—*Carpentry and Building.*

CHANGE IN STYLE OF ARCHITECTURE.—At the Royal Academy exhibition in London, which gives a fair idea of the architectural taste of the time, it will be found that the plain early English style, so popular with architects for many years past in the designs for churches, is giving way to later styles, especially the flamboyant decorated. A curious example of this new departure is shown in the subjects chosen for study by the art students in the Architectural Museum, Westminster. A few years since scarcely any subjects were selected for drawing or modeling but the beautiful foliages of the thirteenth century, whereas now perpendicular details are preferred almost to the exclusion of all others.

Stagnation in English Shipbuilding.

THE mechanics and laborers employed in the various branches of shipbuilding in England are much concerned over the depression which began in 1884 and yet continues. The total amount of shipbuilding on the Clyde last year, as officially reported, was 195,458 tons, against 296,854 tons in 1884, and 419,664 tons in 1883. At other British shipyards the facts are as disappointing as on the Clyde. This depression has not been affected by any struggle between capital and labor, for there have been no such contentions in the past year. The exceptionally heavy output in 1881, and the two following years, has placed upon the seas an amount of tonnage such as was never previously witnessed, and unless England soon finds new worlds to conquer it is not likely she will want any more new ships for a while.—*The Tradesman.*

UNLESS a radical change supervenes upon the present aspect of affairs, it is certain that some dregs yet remain to be drained before the *cetro flux* of depressed trade has entirely exhausted itself. If we read the signs of the times aright, there are still the last drops to be emptied before the "turn for the better" can really be said to be accomplished. Trade fluctuates in a manner known only to itself, and, although some profess to have discovered a uniformity in the cycles of bad and prosperous times, the divergences in their estimates only serve to emphasize the impossibility of successfully defining such intervals. There is, however, a magic about the mystical "seven" which, through many analogies, has become intimately associated with any change *a fundamento*, and, although the suggestion does little more than fix a coincidence, it may be well to point out that it is now nearly seven years ago that the storm of the last crisis passed over our heads, and left the commercial atmosphere free for the enjoyment of that good long spell of fair weather that followed. We can only hope that the present will prove itself a parallel, although it must be confessed that, at the moment, the clouds show the least perceptible signs of breaking.—*Timber, London.*

THE day of the esthete is approaching a close. Oscar Wilde has cut his hair and consented to appear in "store clothes;" there is melancholy loneliness about the few disciples that still cling to the memory of his curly locks and Bloomer costume that excites sympathy. Oscar was the originator, and knew when the time came to give it up—that time followed closely upon the heels of his $30,000 trip to the United States—his followers, being but imitators, don't know whether it is time to abandon the idea and hardly know how to do so, even though the time has come. The vapid conversation born with estheticism, the exaggerated fob charms, the solitary eye-glass, the flimsy carriage and the deliberate indifference, all prevail to a considerable extent, all have taken a hold that common sense will gradually, though not rapidly, loosen.

In the furnishing and decoration of the home, estheticism shows greater decline than in any other direction; one may be willing to pervert his or her personal dress or characteristics or actions to accord with some crazy idea he or she may entertain, because that costs nothing further than a sacrifice of sense or comfort, and this is readily made; but, when the more serious duty of furnishing comes to be considered, and one is confronted with the esthete's dictum that spareness is a guarantee of good taste, then repudiation usually follows, and the bare floor and bare wall and scant furniture are made to fit the true taste of the individual rather than the acquired.

It is interesting to watch the gradual dissolution of the esthete.—*Decorator and Furnisher.*

ACCORDING to the statements of our versatile Southern correspondent, large areas of lumber lands in the South are being purchased by capitalists, who see that the rapid consumption of lumber in the United States, must soon make very valuable all wooded lands that are within the reach of railroads or rivers. Every dollar now invested in these untouched timber resources will multiply itself over and over again, within twenty years. This country is of vast extent and the consumption of lumber must increase constantly. The building and maintaining of railroads and the ever-increasing demands of house building, in sections destitute of stone, must swell the consumption so that, in time, prices may be pushed so high as to bring into market supplies of lumber not counted at all now because of their remoteness from consuming centers. When these investments realize, it will be on a large scale, and some great fortunes will be rolled up as easily in lumber lands as they have been rolled up in lands upon which cities have sprung into existence. It is not altogether desirable, from an economic and philanthropic standpoint, that men should thus become the owners of great tracts of land, but the competition is open and there is no law against investments such as are referred to.—*Lumber World.*

THE February number of the *Phrenological Journal and Science of Health* (Fowler & Wells Co., 753 Broadway, New York) contains very interesting articles on "Medical Missionaries," "Improve the Morals," "Knowledge," "A New Phrenology," "Professor Drayton's Familiar Talk to Our Young People," "The Stupidity of Sensible People," "Wm. H. Vanderbilt, the Richest Man in America," "Notes from a Teacher's Diary," "An Historical Article from Veronique," "The Vandals, the Goths, and the Huns," "A Magic Lamp," "Should Silver be Demonetized," "The Pictured Rocks of Iowa," "A Tired-out People," "New Theories of Muscle Action and Nutrition," illustrated, "The Physiological Basis of Faith Cure," "Pinel and Insanity," and numerous short articles instructive and interesting. The above journal is usually replete with matter which should be read in every family. Price, $2.00 per annum.

ARCHITECTS are somewhat given to quoting various authors, from Vitruvias to Owen Jones, who insist that painting and sculpture, as well as the minor arts, should be used only as the handmaids of architecture. But this is true mainly as regards monumental structures devoted to the highest uses of ecclesiastical and civic life, or to the commemoration of the dead. It does not properly apply to the private house, and, indeed, under any circumstances, it is manifest absurdity that the statue into every line and curve of which the sculptor has wrought the riches of his brain and heart, or that the portrait of the master painter should be killed by the black, vermilion, ultramarine blue, or emerald green of the frescoer, or the stenciled, stereotyped convolutions of the paper-hanger. If one listens to a solo from a Lind or a Mario, it is an impertinence to have it drowned by the frame-work music of the orchestra, though we may derive much pleasure and musical profit from the orchestra's harmonies without the solo.

The more pronounced in form and color the movable objects of an apartment may be, the more pronounced may be their background; and where they are designed and arranged with special regard to luxury and splendor, the background may be worked up to high effects of general tone, and in some instances even its details may be tolerably assertive without losing that character of subordination which is, or should be, a desideratum.

Market Report.

Pine, Rough	per M feet,	$15 00
" " No. 2	" "	12 00
" " " 2 in lengths	" "	13 00
" " 40 to 50 feet lengths	" "	17 00
" " 50 " 60 " "	" "	18 00
" " Selected	" "	20 00
" " Clear	" "	25 00
" " Fire Wood	" "	8 00
T. & G. Flooring, 1 x 6	" "	27 00
" " 1¼ x 6, 1 x 4, 1¼ x 4, 1¼ x 3, 1 x 3, and narrower	" "	30 00
" " No. 2	" "	22 00
Stepping	" "	35 00
" No. 2	" "	27 50
Furring, 1 x 2	per lineal foot,	00¾
Redwood, Rough	per M feet,	18 00
" " No. 2	" "	14 00
" Surfaced	" "	30 00
" T. & G. 6 in. 12 ft. and over	" "	28 00
" " " 7 to 11 feet	" "	25 00
" " " under 7 feet	" "	20 00
" Rustic	" "	30 00
" " No. 2	" "	26 00
" T. & G. Beaded, 12 ft. and over	" "	30 00
" " " 7 to 11 ft	" "	25 00
" " " under 7 ft	" "	20 00
" Siding, ½ inch	" "	22 50
Pickets, Fancy	per M,	25 00
" Rough Pointed	"	16 00
" " Square	"	14 00
Battens, ½x3	per lineal foot,	00¾
Shingles	per M,	2 00
Laths, 1¼	"	3 25
" 1½	"	3 75
NAILS—Rates were recently reduced to:—		
200 keg lots		3 15
100 keg lots		3 20
Smaller quantities		3 25
PAINTS AND OILS:—		
Pioneer White Lead (local factory)		6¼c @ 6½
Cal. Linseed Oil, raw (single bbl lots)		45
" " boiled " " "		47½
Turpentine, per gallon		58
BRICK—California Building Description, soft, per 1,000		5 50
" " " red, " "		6 50
" " " hard, " "		7 50

THE

MECHANICS' INSTITUTE

OF THE

CITY OF SAN FRANCISCO, CALIFORNIA

ORGANIZED JANUARY 3, 1855.

LIBRARY BUILDING:

31 Post Street, Between Montgomery and Kearny.

MEMBERSHIP.

Entrance Fee,	$1 00
Due per Quarter,	1 50
Life Membership,	50 00

The Library Rooms are large, well lighted, easy of access, and include a private conversation and reading parlor for ladies.

The Library contains forty thousand volumes. The Circulating Department has twenty-one thousand well-selected volumes. New standard and popular works are added as they appear.

The Reference Department is unusually comprehensive; contains many valuable works not possessed by other libraries on this Coast, and is recognized as the best educational library in the State. Members are requested to suggest the names of books they desire, that are not in the Library.

All the privileges of a private library are enjoyed, the Rules permitting personal access to the shelves.

The Reading Rooms are well supplied with Papers, Magazines, and Reviews from all parts of the world, especial attention being given to scientific and educational publications.

The Chess Room is the largest and finest in the country, and the best players on the coast have become members of the Institute.

The Institute has been made the official Repository for Patent Reports by both the English and American Governments, thus making membership of benefit to manufacturers and indispensable to inventors.

The Library is open from 9 A. M. to 10 P. M. On Sunday, for reading only, from 12:30 to 4:30 P. M.

The Reading and Chess Rooms are open every day in the year from 7 A. M. to 10 P. M., except Sunday, when they are open from 8 A. M. to 9 P. M.

Rooms open for inspection day and evening.

MECHANICS' LIEN LAW.

THE ONLY COMPLETE COPY OF THE LAW PUBLISHED.
WITH SUPREME COURT DECISIONS, NOTES, AND EXPLANATIONS.

Every Architect, Mechanic, and Owner should have a copy. Published by the CALIFORNIA ARCHITECT AND BUILDING NEWS CO. Price, 50 cts., bound in cloth. Sent by mail, free of postage, on receipt of 50 cents in one and two cent stamps or postal order. For sale at the office of this jorunal. Trade supplied.

CONSTRUCTION OF TRUSSED ROOFS.

A Practical Book on the Subject,
PUBLISHED BY W. T. COMSTOCK—PRICE, $2.00.

It will be sent by mail free of postage to any part of the world. On sale at this office at publisher's price.

Building Intelligence.

A

Austin, nr. Polk. One-story brick.
O.—M. Sweeney.
C.—H. Please.
$1,200.

B

Baker, bet. Sutter and Bush. One-story frame.
O.—D. Reese.
C.—F. A. Steinman.
$2,000.

Baker, cor. Grove. Two and one-half story frame.
O.—Boys and Girls' Aid Society.
A.—Clinton Day.
C.—Ingerson & Gore.
$30,000.

Broderick, nr. Hayes. One-story frame.
O.—Mrs. J. Fahey.
A.—Salfield & John.
C.—D. B. Spangler.
$2,000.

Bartlett, nr. Twenty-fourth. Three one-story frames.
O.—Julia Whitney.
A.—M. J. Welch.
C.—M. Walsh.
$5,250.

C

California, bet. Jones and Leavenworth. Two-story frame.
O.—Mrs. M Hogan.
A.—C. I. Havens.
C.—C. Quinn.
$4,440.

Church, cor. Twenty-first. Two-story and basement frame.
O.—Jas. O. Clark.
A.—B. E. Henriksen.
C.—A. Norton.
$5,800.

Clementina, bet. Third and Fourth. Three-story frame store and two flats.
O.—P. Dumeneim & J. Lassalle.
A.—M. J. Welch.
C.—Owen Bros.
$5,400.

California, cor. Octavia. Two-story frame stable.
O.—M. Rosenbaum.
A.—W. Mooser.
C.—A. Jackson.
$3,000.

Chattanooga, bet. Twenty-second and Twenty-third. One-story frame.
O.—
C.—J. Crawford.
$2,000.

E

Eighteenth, cor. Valencia. Two-story frame flats.
O.—R. W. Coffin.
A.—A. J. Barnett.
C.—Terrill & Slaven.
$8,145.

Eddy, nr. Leavenworth. Alterations.
O.—J. Maloney.
A.—T. J. Welch.
C.—J. O'Connell.
$1,200.

Ellis, cor. Broderick. Two-story frame store and flats.
O.—Mrs. Cullen.
C.—M. J. Egan.
$3,500.

F

Fillmore, bet. Oak and Page. One-story frame.
O.—
C.—S. S. Emery.
$2,000.

Folsom, bet. Third and Fourth. Three-story frame store and two flats.
O.—P. Dumcheim & J. Lassalle.
A.—M. J. Welch.
C.—Owen Bros.
$5,400.

G

Guerrero, bet. Twenty-fifth and Twenty-sixth. Two-story frame flats.
O.—Jas. Dodd.
A.—Townsend & Wyneken.
C.—Chas. Cody.
$3,500.

Geary, nr. Devisadero. Four two-story frames.
O. and B.—B. F. Norris.
Day work.
$8,000.

Geary, bet. Jones and Leavenworth. Additions.
O.—J. Slecaur.
Day work.
$2,600.

Greenwich, bet. Jones and Hyde. Three two-story frame six flats.
O.—O. Miller.
C.—G. Knorpf.
$9,500.

H

Howard, bet. Tenth and Eleventh. Two-story frame.
O.—J. Clark.
A.—A. J. Barnett.
C.—T. Sullivan.
$3,000.

Hayes, nr. Broderick. Two-story frame.
O.—J. Cahill.
Day work.
$3,500.

Hayes, bet Devisadero and Broderick. One-story frame.
O.—
A.—W. Hoagland.
C.—Martin & Maguire.
$2,800.

Hayes, bet. Scott and Devisadero. Two-story frame.
O.—Thomas O'Brien.
C.—F. Foley.
$2,[illegible]00.

Haight, bet. Webster and Fillmore. One and one-half story frame.
O.—Joseph Robinson.
A.—Townsend & Wyneken.
C.—A. McElroy.
$3,000.

Haight, nr. Steiner. Two-story frame.
O.—Mrs. McLeaar.
A.—J. Gash.
C.—J. McCann.
$4,000.

K

Kentucky, cor. Butte, Two-story frame.
O.—R. Day.
A.—T. J. Welch.
C.—A. McElroy.
$4,500.

L

Linden Ave., nr. Laguna. One and one-half story frame.
O.—T. Mahnix.
Day work.
$1,200.

Laguna, cor. Hickory ave. Two two-story frame flats.
O.—R Dixon.
C.—J. S. Ma kay.
$4,000.

M

Minna, cor. Second. Additions and alterations.
O.—A. M. Goldsmith.
A.—J. Marquis.
Day work.
$1,000.

Market, cor. Franklin. Contracts partly let. Five-story frame boarding house.
O.—John Nightingale.
A.—A. J. Barnett.
C.—O. E. Brady, brick work; iron work, O'Connell & Lewis.
$11,504.

Market, bet. Eighth and Ninth. Five one-story frame stores.
O. and B.—W. M. Fletcher.
Day work.
$3,500.

Market, nr. Sixteenth. Nine one-story frame stores.
O.—W. H. Taylor.
A.—G. H. Broadwell.
C.—C. W. Kinsman.
$7,500.

Market, bet. Eighth and Ninth. Two-story frame.
O.—T. J. O'Brien.
C.—T. B. Moore.
$2,000.

Market, bet. Eighth and Ninth. Additions and alterations.
O.—Con. Barnes.
C.—R. Bunnett.
$2,000.

Market, nr. Sixteenth. Two-story frame.
O. and B.—M. W. Kain.
A.—C. I. Havens.
Day work.
$5,000.

N

Noe cor. Market. Two-story frame store and flat.
O. and B.—R. Fox.
Day work.
$3,000.

Ninth, nr. Mission. One-story frame store.
O.—W. E. Wetzell.
C.—Anderson Bros.
$700.

Ninth, nr. Bryant. Additions and alterations.
O. and B.—P. Sullivan.
Day work.
$2,000.

O

Ocean View Station. Two-story frame.
O.—J. C. Meussdorffer.
A.—P. R. Schmidt.
C.—P. Griffin.
$5,500.

O'Farrell, bet. Fillmore and Webster. Four two-story frames.
O.—H. Samuels.
A.—J. C. Pelton, Jr.
C.—A. Jackson.
$21 000.

P

Post, bet. Fillmore and Webster. Frame church.
O.—Hamilton Park Baptist Church.
Day work.
$2,000.

Pine, nr. Devisadero. Two-story frame.
O.—A. F. Benjamin.
A.—Copeland & Banks.
C.—Geo. Lang.
$4,000.

Pine, cor Broderick. Two-story frame.
O. and B.—W. F. Lewis.
Day work.
$3,500.

Pierce, bet. Oak and Page. Two-story frame.
O. and B.—C. Hinkle.
Day work.
$4,000.

Post, NW cor. Leavenworth. Two-story frame stable.
O.—B. Schweitzer.
A.—P. R. Schmidt.
C.—S. H. Kent.
$1,800.

R

Ridley, cor. Market. Two-story frame.
O.—G. W. Smith.
A.—C. I. Havens.
C.—F. W. Kern.
$4,000.

S

Steiner, nr. Ellis. Additions.
O.—
C.—M. Drury.
$500.

Stockton, nr. Chestnut. One-story frame.
O.—Mary Glynn.
C.—J. Doherty.
$2,750.

Sixth, bet. Brannan and Bryant. Three-story frame, flats and store.
O.—F. F. Speckman.
A.—Salfield & John.
C.—B. Dryer.
$6,500.

Sixteenth, nr Market. One-story frame school.
O.—Mrs. A. C Hines.
Day work.
$800.

Seventeenth, cor. Sanchez. Two-story frame.
O.—A. S. Carlyle.
C.—Thos. Egginson.
$2,500.

Shotwell, bet. Twentieth and Twenty-first. Two two-story frame flats.
O.—O. J. Becker.
A.—M. J. Welch.
C.—Theodore Von Bostel.
$7,750.

Seventh, nr. Bryant. Additions.
O. and B.—J. Kane.
Day work.
$1,600.

Spear, nr. Harrison. Additions.
O.—J. Howard.
Day work.
$1,500.

Sansome, nr. Pine. Additions and alterations.
O.—Macondary estate.
A.—W. F. Smith.
C.—C. L. Tilden.
$5,000.

Seventeenth, cor. Noe. Two-story frame.
O.—H. Bohneder.
A.—H. Gellfuss.
C.—W. J. Brownrigg.
$5,000.

Scott, bet. Page and Oak. One and one-half-story frame.
O.—G. H. Luchsinger.
A.—H. Gellfuss.
C.—A. Miller.
$2,000.

Second, bet. Brannan and Townsend. Four two-story frames.
O.—E. Foster.
A.—C. I. Havens.
C.—F. W. Kern.
$5,050.

Stockton, bet. Post and Sutter. Five-story brick and basement.
O.—Levi Strauss.
A.—P. R. Schmidt.
C.—R. McCann.
$25,000.

Sacramento, bet. Larkin and Polk. Two two-story frames.
O.—J. W. Davis.
A.—P. R. Schmidt.
C.—R. McCann.
$10,000.

Second, bet. Mission and Howard. Two-story frame.
O.—Isaac Ruddee.
A.—Jas. E. Wolfe.
C.—H. Keenan.
$3,108.

T

Thirtieth, nr. Noe. Italian Hospital repairs.
O.—Hibernia Bank.
A.—Huerne & Everett.
C.—F. Buckley.
$830.

Twelfth, bet. Folsom and Harrison. Repairs.
O.—P. Lahaney.
A.—M. J. Welch.
C.—R. Sinnott.
$1,600.

Treat Ave, bet. Twenty-fourth and Twenty-fifth. One-story frame.
O. and B.—John McCarthy.
Day work.
$1,200.

Treat Ave, bet. Twenty-fifth and Twenty-sixth. Two-story frame.
O.—J. Walton.
C.—J. S. Tibbels.
$3,500.

Treat Ave, bet. Twenty-fifth and Twenty-sixth. Two-story frame.
O. and B.—Joseph Sims.
Day work.
$2,400.

Twentieth, cor. Capp. Two-story frame.
O.—H. Walton.
C.—N. W. Stecker.
$2,000.

Twenty-first, cor. Capp. frame church.
O.—Grace Methodist Episcopal Church.
A.—C. Geddes.
C.—R. S. Miller.
$35,000.

V

Valencia, nr. Eighteenth. Two-story frame flats.
O.—A. Dibblee.
A.—S. & J. C. Newsom.
C.—D. B. Spangler.
$6,800.

Valley, nr. Dolores. One-story frame.
O. and B.—M. Loftus.
Day work.
$1,200.

Valley, above Dolores. One-story frame.
O. and B.—R. Bergfeld.
Day work.
$1,400.

Valencia, bet. Eighteenth and Nineteenth. Two-story frame.
O.—H. Mau.
A.—Jas. E. Wolfe.
C.—Herman & Wilson.
$4,658.

Van Ness Ave, bet. Geary and Post. Alterations.
O.—Woman's Relief Society.
A.—Curlett & Cuthbertson.
C.—J. Wilcox.
$2,000.

MISCELLANEOUS.

San Jose—Santa Clara. Alterations. O., Hatman & Normandine; A., Jacob Lenzen & Son; C., W. Boyles; $700. Chapman & Davis Tract. One-story frame. O., E. O. Melcher; A., Jacob Lenzen & Son; C., Kelsey & Crawford; $2,500. Eighteen-Mile House. One story frame. O., Morgan Hill; A., Jacob Lenzen & Son; C., H. C. Skow; $3,055.

Sacramento—Thirteenth, cor. J. Two-story and basement brick. O., Dr. E. Jacobs; A., N. D. Goodell; C., Carle & Croly; $5,727.

Richland—Two-story frame and brick basement. O., Senator Wm. Johnston; A., N. D. Goodell; C., Thos. McCaffrey; $3,500.

Merced—Eighteenth. One-story frame. O., A. Bosso; C., Falla & DeWitt; $900. Seventeenth. One-story frame. O., Mrs. Edwards; C., A. M. Wellman; $

San Rafael—Additions and alterations. O., J. M. Donahue; A., T. J. Welch; C., I. Sharer; $7,000.

Centreville—Frame church. O., P. W. Riordan; A., T. J. Welch; C., A. McElroy; $3,000.

OAKLAND.

Twenty-fourth, cor Elm—1-story fr; o, H. Weil; a, H. Gellfuss; c, Geo Lang; $4,500.

Twenty-fourth, bet Grove and Telegraph ave—1-story fr; o, W. C. Hall; a, J. & T. D. Newsom; c, G. W. Palmer; $2,500.

Twenty-fourth, bet Grove and Telegraph ave—1-story fr; o, W. C. McDonald; a, J. & T. D. Newsom; day work; $3,000.

ALAMEDA.

1-story fr ctg; o, S. E. Knowles; a, C. I. Havens; c, Geo. A. Benseman; $5,500.

STATUE OF "LIBERTY ENLIGHTENING THE WORLD."

More Money Needed.

The Committee in charge of the construction of the pedestal and the erection of the Statue, **in order to raise funds for its completion,** have prepared, from model furnished by the artist, a *perfect fac-simile* Miniature Statuette, which they are delivering to subscribers throughout the United States at the following prices:

No. 1 Statuette, *six inches in height*,—the Statue bronzed: Pedestal, nickel-silvered,—at **One Dollar each,** delivered.

No. 2 Statuette, in same metal, *twelve inches high*, beautifully bronzed and nickeled, at **Five Dollars each,** delivered.

No. 3 Statuette, *twelve inches high*, finely chased, Statue bronzed, Pedestal, **Heavily Silver-Plated,** WITH PLUSH STAND, at **Ten Dollars each,** delivered.

Much time and money have been spent in perfecting the Statuettes, and they are much improved over the first sent out. The Committee have received from subscribers many letters of commendation.

The *New York World* Fund of $100,000 completes the Pedestal, but it is estimated that $40,000 is yet needed to pay for the iron fastenings and the erection of the Statue.

Liberal subscriptions for the Miniature Statuettes will produce the desired amount.

Address, with remittance,

RICHARD BUTLER, Secretary,
American Committee of the Statue of Liberty,
33 Mercer Street, New York.

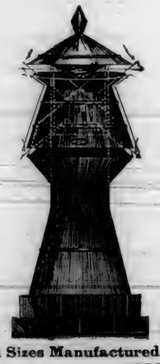
Either of the Books mentioned below, and the California Architect for 1886, will be sent to any address upon receipt of price mentioned

California Architect and Building News, $2.00 per Year
WITH

Science of Carpentry	**$5.50**
Plaster, How to Make It	**2.50**
How to File Saws	**2.50**
Modern Perspective	**7.25**
Practical Geometry	**2.50**
Carpenter's Pocket Book	**2.25**
Church Architecture	**5.25**
Practical Carpentry	**2.50**
Artisan	**6.00**
Architect's Companion	**3.50**
Building Superintendence	**4.25**
Hand Railing	**3.00**
DRAWING FOR	
Carpenters and Joiners	**3.25**
Bricklayers	**3.00**
Cabinet Makers	**3.00**
Stonemasons	**3.00**
Cutting Tools	**3.00**
Carpenter and Joiner	**8.50**
Cumming's Details	**7.00**
Palliser's Details	**3.25**
Painter's Foreman	**3.00**
Universal Assistant	**3.75**
House Plans	**3.50**
Mechanic's Geometry	**6.00**
Gould's Carpentry	**4.00**
Hand Book of Legendary and Mythological Art	**4.00**
Mechanical Drawing Self-Taught	**5.00**
Suburban Cottages	**2.50**
Street, Store, and Bank Fronts	**3.50**
Dwellings for Village and Country	**4.00**
Hand-railing and Stair-casing	**2.50**
How to Build, Furnish, and Decorate	**6.00**
Household Tastes **$4.00** | **Practical Estimator**	**2.00**

ANY BOOK published furnished at lowest rates, post paid.

☞ SEND 2-CENT STAMP FOR CATALOGUE. ☜



"NONE SUCH"
CHIMNEY TOP VENTILATOR

THIS VENTILATOR is especially valuable for regulating draft (upwards and downwards) made by the light, unstable atmosphere of the Coast Range of Mountains. The hundreds of tall stovepipes erected on the chimney tops of houses indicate inconvenience and trouble in the kitchen, the parlor, and chambers below.

SAN FRANCISCO, October 26, 1885.

To whom it may concern:

I take pleasure in stating that the "None Such" Chimney Top and Ventilator, which was put upon the smoke-stack of the Baldwin Hotel about two months ago, has given complete satisfaction.

It has increased the draft to such an extent that there is a perceptible saving in the amount of coal consumed; smaller fires than heretofore will now answer to keep up the steam, thus causing a great saving of the boiler also. We have heretofore had much difficulty in keeping up the amount of steam steadily required, owing to the lack of draft, all of which is now remedied by the use of the "None Such" Chimney Top and Ventilator. I heartily recommend its use to all persons, where a strong draft is required.

PEARSON & ARNOLD,
Proprietors the Baldwin.

All Sizes Manufactured and Sold by KNEASS & CO., 29 Taylor St., San Francisco,
SOLE AGENTS FOR THE PACIFIC COAST.

Agents Wanted for Interior Cities, Oregon, Nevada, Washington Territory, and Arizona.

JOB WORK IN ALL ITS BRANCHES.

THE CALIFORNIA ARCHITECT AND BUILDING NEWS.

VOLUME VII. ENTERED AT POST-OFFICE, SAN FRANCISCO, AS SECOND-CLASS MAIL MATTER. ESTABLISHED JANUARY, 1879. NUMBER 4.

THE
California Architect & Building News.

A MONTHLY JOURNAL,

Devoted to Architecture, Decorating, and Furnishing.

PRICE, $2.00 PER ANNUM.

The official organ of the Pacific Coast Association of Architects. Published by the SAN FRANCISCO ARCHITECTURAL PUBLISHING CO. No. 240 MONTGOMERY STREET, Rooms 11, 12, 13.

Subscribers will please notify us promptly of any failure to receive this journal, and also of any change in their address.

Advertisements inserted at reasonable rates.

SAN FRANCISCO, CAL., APRIL 10, 1886.

CONTENTS.

GENERAL:—

California Building Stone—Ventilation in Schools—Spare the Birds—Picket Fence Over or Through a Hill—High Building Law in New York—Good Houses—Not Fair Treatment—The Late J. B. Gough—Strength of the Knights of Labor—Building Report in Woodland.

BUILDING REPORT 49
SOMETHING NEW IN MANUFACTURE OF LUMBER 50
THE ACOUSTICS OF CHURCHES 50
CONGLOMERATE FIRE ORDINANCE, ETC 51
EXAMINATIONS PREREQUISITE 52
EXAMINING CANDIDATES 54
SCIENCE OF ARCHITECTURE 56
ABROGATING OF TREATY 58
THE WORKING CLASSES AS DRINKERS 59
SAN FRANCISCO CHAPTER OF ARCHITECTS 60

"High Building"—Law of New York.

BUILDING, in its issue of March 20, refers to the introduction of a bill in the New York Legislature to repeal the "high building" law, passed by the law-making body and signed by the Governor last summer, which restricted the height of tenement buildings to seventy feet on streets of sixty feet or less in width.

The passage of the restrictive law was received with favor and approval, except by speculative parties who would not only—if possible—penetrate the lofty clouds with piles of brick and mortar, but dig as deep in the opposite direction, for sordid gain, without a single regard for human life, health, or comfort.

There is but a single reasonable and right argument favoring excessive heights of tenement structures, to wit: positive insufficiency of space of territory to supply the required number of shelters for the inhabitants, and even in this and every other regard they are objectionable, as they shut out some light, and cast gloomy shadows, and provide darkened and gloomy apartments, which possess none of the elements of cheerful life. "They are so regarded *per se* and in their relation to adjoining property."

"In view of the fact that in every civilized country there is some law fixing the proportion between the height of a dwelling and the width of the street on which it adjoins, the city of New York acted wisely in having such law passed last year. It would be a serious step backward to repeal now this beneficent law. It should, by all means, be supported."

Change of Date of Issue.

WITH the January issue of this journal, the date was fixed at the 5th of each month. This, however, does not work well, and we are compelled to change date of publication to the 10th. The reason for this is, that reports of meetings held in the first week of the month often come to hand too late for insertion until the following month. Consequently, for the purpose of accommodating all interests, *the tenth day of each month will hereafter be the date of issue.*

All communications should be handed in as near the first as possible, and reports not later than the sixth of each month.

Summary of Building Activities.

OUR present monthly report shows an apparent decrease in building operations, over the same month's report for 1885; but scarcely so in real fact, as several commencements are not included this month, for the reason that only portions of the work has as yet passed to contract. With these added, the amount for April, 1886, would fully equal that of 1885.

The grading, brick work, cast iron work, wrought iron work, and carpenter work of the J. C. Flood's building, corner Market and Fourth Streets, have been let respectively, in the order named, to A. C. Buckman, Butler & McGowan, Reese Llewellyn, Sims & Morris, and C. C. Terrell. The total of these and the remaining branches will appear in future issues.

Additional contracts on the Nightingale building, to the amount of $31,035, have been let, but these do not include entire cost.

"Davis Bros.'" building is in progress, and will be an expensive building; but, as yet, the contracts awarded amount only to $19,500.

The activities in residence and tenement improvements are large, and the prospective outlook is of the most encouraging character. The report for April sums as follows:—

152 frames, value	$675,206
6 bricks "	51,000
24 alterations and improvements	112,310
182 Total for current month	$838,516

For same period in 1885: Total engagements, 168; total value, $1,131,450, showing for April of present year, 14 commencements more than in 1885, with $292,934 investment in favor of the preceding year. But, as we have stated, were the cost of the buildings commenced, and not included in present report, added, the balance would be in favor of 1886.

Delaying reports of contract amounts for portions of the work on buildings, until all the branches are let, is preferred by most architects and owners, and is more a matter of interest than importance to outsiders. We do so in many cases by special request, not failing, however, to wind up our annual report with the full sum of expenditures, as nearly and correctly as possible.

HYDRAULIC-LIME CONCRETE.—A kind of concrete, hard and solid, is now being used for building purposes in Paris. It is composed of eight parts of sand, gravel and pebbles; one part of common earth, burnt and powdered; one part powdered cinders, and one and a half parts unslacked hydraulic lime. These materials are thoroughly beaten up together, their mixture giving a concrete which sets almost immediately, and becomes in a few days extremely hard and solid, which property may be still further increased by the addition of a small quantity, say one part, of cement. Among other constructions to which this material has been applied, is a house three stories in height, sixty-five by forty-five feet, standing on a terrace, having a perpendicular retaining wall 200 feet in length and 20 feet high. Every part of this structure was made of the hard concrete, including foundations, vaults of cellars, retaining walls and all walls, exterior and interior, as well as the cornice work, mouldings, string-courses, balustrades, parapets; and the building is without band-iron, lintels or wood throughout.—*Exchange.*

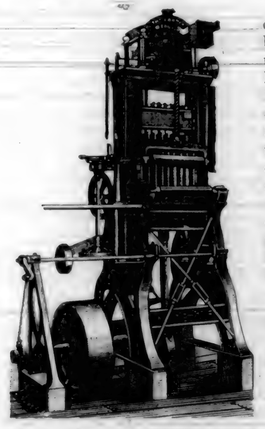
THE EXPLORATIONS AT DELOS.—In the *Revue Critique*, M. Homolle gives an account of the results of the new explorations carried on at Delos. The remains of a medieval city have been laid bare, and the discoveries in the field of classical archæology, though not so sensational as those of the previous enterprise, are still full of interest for the history of the "island schools." Fifty fragments of marble sculpture have been found, besides *terra cotta* and small bronzes. To these have to be added 224 fragments of inscriptions, some dating as early as the fifth century B. C.—none later than the first century B. C. They contain funeral inscriptions, dedications, decrees, and choragic lists. One of them is 600 lines long, and the whole, when edited, are sure to throw much light on the politics and commerce of the Cyclades.

Something New in the Manufacture of Lumber.

EVERY perfected improvement in machinery, systems, or methods calculated more fully to develop and enlarge the manufacturing and producing interests and resources of the Pacific Coast, becomes a matter of general, as well as specific and individual interest. The permanent prosperity of this State depends largely upon the practical developments in the mechanical and producing arts and sciences, with the growth, expansion, and enlargement of which, sufficient to meet and supply the daily, re-occurring necessities and demands of the times, assurance and confidence is strengthened, that California and its sister Pacific States and Territories are, in themselvese, qual to any emergency that may arise, with surplus for other markets. A people possessing the intelligence, practical capacities, energies and availabilities to produce and supply every home and local want from natural resources within their own boundaries, must ever be self-reliant, progressive, and aggressive in everything that promises personal and community comfort, happiness, and wealth.

A SPLENDID SAW-MILL OUTFIT—NEW DEVICE.

In this connection we present a cut and short description of a new saw-mill enterprise which should, from the standpoint outlined above, be a matter of interest far beyond the circle of those directly connected financially, for two special reasons: 1. Because in and of itself, the mill, with its numerous appurtenances and appliances, is a most complete and perfect mechanical conception, unequaled by anything of its kind in use upon this coast in the manufacture of lumber. 2. The mechanical construction of the mill is entirely Californian, or, more properly speaking, San Franciscan—the first of its kind ever manufactured on this coast, and another illustration of the capacity, proficiency and skill that has placed the Union Iron Works of this city in the fore ranks, if not fully equal to the oldest and best in the United States in the production of massive as well as intrinsically fine machinery.



This piece, or combination of machinery is claimed to be the largest of its kind in use in the manufacture of lumber—at least west of the Rocky Mountains. It is what is known as a "gang," but differing materially from the old, ordinary gang-saw device. It is a steel sash, or frame, 44 inches in width, with 32 saws in the frame, driven vertically by steam power. The arrangement is such that the frames and saws oscillate, so as to produce a motion similar to the old-fashioned whip saw. The vertical motion of the saws is 200 per minute, which, multiplied by the distance traveled each motion, 2 feet = 400 feet to each blade + 32 blades = 12,800 feet of cut each minute by the gang, producing each day of 10 hours, 50,000 feet of lumber, with the twofold advantage of economy in the log material, resultant from the saving produced by the use of thin-bladed saws, and the sawing of lumber absolutely true, straight, and square. The mill was designed by Mr. F. S. Farmer, who is acknowledged to have no superiors in practical saw-mill engineering on this coast, and who has built some of the finest mills known to the trade.

Mr. Irwin M. Scott, manager of the Union Iron Works, was so favorably impressed and well pleased with the drawings prepared by Mr. Farmer, that he applied, and, as will be seen by examination of the cut, placed on the head frontis-plate the name, Farmer Gang.

Some idea of the magnitude of the mill may be comprehended by the fact that the construction shown by the cut weighs 62,000 pounds, 31 tons, sand cost about $10,000. It is now being placed in position by its designer, at the extensive mill site of the Western Mill and Lumber Co., Port Hadlock, Puget Sound, Washington Territory. The office of the Company is at 840 Fourth Street, San Francisco, Turner, Kennedy & Shaw, agents. It may be further stated that the other appointments of the mill consist in part, of ten heavy steel boilers, two large engines, 28x36-inch cylinders, gang edgers, live rolls, yankee fireman, slab and sawdust conveyors, bull wheels, and all other appurtenances required in a first-class lumber saw-mill.

"Reciprocal relief,"—"home manufacture,"—is well exemplified in this connection, as the whole of this splendid machinery and outfit are the product of a San Francisco machine shop and foundry, which must be admitted as a creditable witness to the fact that there is no right or reasonable excuse on the part of any one going abroad to obtain that which can be as well or better produced among ourselves, as from quarters and parties in other sections of the country, whose only special sympathy in the interests of this city, State, and coast, is to secure contract and trade advantages, and bear away not only the *profits* on engagements, but the *full sum of cost of raw material and labor as well.* In this regard, the promoters and owners of the enterprise under notice deserve all praise; for while a financial preference was given to the San Francisco firm, they did not err in doing so, as they have in return, machinery that could not be bettered anywhere in completeness and quality of workmanship, and the money so expended remains in this city, as bread cast upon the waters, to return in part at least, in due time. And the proud satisfaction of having a mill unsurpassed, if approached, by any other within the entire scope of the great northwestern timber regions of our great continent, is one that should fully compensate for every sacrifice made in preferring and rewarding home industry, over the questionable and petty economies that might have been practiced in canvassing for a cheaper market to secure a present saving, at the expense of tenfold cost in the future to remedy the imperfections assured and certain to follow, particularly in machinery works, when cheapness is made the controlling factor. The support of "home industries" is the life of every city and State, and those who go abroad for that which can be procured at home, as good in kind and quality, certainly forfeit claim to good citizenship, as far as the best interests of the commonwealth are concerned; for money required to pay for the thing unnecessarily imported, must come from the purses of those who should have enjoyed the benefits and advantages of producing, or manufacturing the thing imported.

It is to be hoped that the example set in this case may prove powerful in argument against the unwise practice, on the part of many, of sending abroad for that which can be had this side of the mountains, without any loss or sacrifice whatever, other than that of subjugating a penurious disposition of mind to the wiser economy of sustaining home industries.

The Acoustics of Churches.

THIS subject is of the greatest importance in connection with a large church suited to modern requirements, but, unhappily, very little is really known concerning it. This, however, is certain, that echo and reverberation are caused by sound being reflected from flat surfaces within confined spaces. In churches these effects mostly result from bald, unbroken wall spaces, bad proportions, piers with flat surfaces, horizontal ceilings, and square-ended transepts, unless the transepts be of such length that the voice, decaying before reaching the end walls, is not strong enough to be unpleasantly reflected. It has been unjustly said that domes are always bad for sound, and St. Paul's is frequently instanced as an example. I maintain that a dome is not necessarily bad for sound, and many Gothic churches have more reverberation and echo than many Italian churches with cupolas. The acoustic qualities depend upon the arrangement. In St. Paul's the dome has certainly very little to do with the acoustic defects, and I quote St. Paul's as a well known example. The reverberation there is caused mainly by the flat surfaces of the piers generally, by the re-entering angles of the large piers at the corner of the octagon respectively, by the slight curve and plain circular face of the pendentives, by the square-ended transepts, and by the large flat surfaces in the aisles. At a certain distance from the re-entering angles of the large piers, at the point where the voice of a preacher is reflected from both surfaces and these reflections meet, not a word can be distinguished; while by moving out of the angle of reflection only one or two seats farther forward, and being then seventy or eighty feet from the speaker, every word can be distinctly heard. This demonstrates the effect of large piers with flat surfaces. St. Augustine's, Hackney, is an instance out of many of the effect of bald wall surface and square-ended transepts. There, when the pulpit was placed near the chancel arch, the reverberation was very great, the voice being reflected by the transepts, which have no arcades or aisles; when, however, the pulpit was moved to the west side of transept into the nave, the preacher could be heard with ease; and other instances of a similar plan give the same result. In other large churches with aisle walls quite plain to a considerable height, the reverberation is always great. Professor Roger Smith, who has given this subject much attention, has evidently arrived at a similar conclusion as to the cause of echo, etc., for he says in his work on practical acoustics, "The formation of recesses, breaking up end walls, rounding and canting off angles, bringing the ceiling onto the walls with a cove or cant, and breaking it up with groining, are all methods of avoiding the risk of acoustic failure." In plain language, this means that plain surfaces should be avoided. Domes of no great height, on square piers, or over spaces confined by flat walls and without large voids like a nave or transept, into which sound may escape, are undoubtedly bad as far as echo and reverberation are concerned. This is notably shown in the Pantheon at Rome, the reading-room at the British Museum, London, the Picton Reading-room, Liverpool, Napoleon's Tomb, at Paris, the Taj Mahal, at Agra, and numbers of the Italian and Indian domes. In these the voice cannot escape, and is reflected backwards and forwards from the flat surfaces. That a low dome is worse in its acoustic results than a high one is proved by the fact that the reverberation in the first gallery of St. Paul's is much greater than on the floor level, while in the whispering-gallery the echo is extraordinary, as the name denotes. The Picton Reading-room is also a local example of this. In fact, to avoid reflection (*i. e.*, echo and reverberation), sound must be either lost in a void, or absorbed by drapery, or deflected and shattered on the confining surfaces. In the latter case there is practically no reflection from the piers or walls. It is evident, if this can be arranged, that a larger congregation could hear more freely in a great area covered by a lofty dome than in a long and comparatively narrow nave. And this result can be obtained by the shape of the piers, the arrangement of wall surfaces, and the proportions. For a voice to fill a large space accommodating a crowd of two or three thousand people, a sounding-board would always be necessary to throw the voice forward. In the plan submitted* to give practical effect to the principles above stated, all lengthened plain surfaces of wall have been avoided; the dome is of great height, and the nave and transepts form large voids into which sound can escape. The large piers supporting the dome are circular on plan, by which means the direction of sound would simply be changed without reflection. The alternate sides of the octagon have semi-circular recesses behind the arches, broken by galleries, by deeply-recessed windows, and by double tracery. The pendentives are constructed with a great variety of curved surfaces at different angles, and broken by projecting arches and ribs. Above the pendentives two galleries break the height, also a traceried arcade in front of the deeply-splayed windows. The dome itself is of such a height that any reflection of sound taking place, in spite of the arcading to the drum and the projecting galleries, would practically be lost, and could not affect either the preacher or the audience. The transepts are as deep as the site will allow, are octagonal on plan, instead of flat, and have recesses at the angles. The aisles are broken by deep recesses formed by bringing the necessary buttresses inside (giving also greater internal effect of width, and supplying space for monuments, and having a constructional advantage with the form of roof adopted by giving better abutment at the foot of the roofing vault to aisles). The surface of the west wall is broken by projecting columns and a gallery (which also affords convenient space for arranging either heavy curtains, mats, or a screen to the west doors). The roofs, too, are groined.—*William Emerson, in British Architect.*

*Reference to which was made in *Building* for March 13, in the description of the designs submitted for the Liverpool Cathedral.

Conglomerate—"Fire Limit Ordinance," Building Law, Etc., in San Francisco.

LAWS and ordinances establishing and empowering "Building Bureaus," "Building Boards," "Boards of Public Works," etc., exist in most of the larger cities of the United States, with special jurisdiction over t e erection and construction of buildings, in matters of sufficiency of strength and other details, as regulated by the respective codes of laws and ordinances, which are from time to time changed and amended to fit each newly-developed necessity.

But—singular as it may appear, and is in fact—in the great, prosperous, and progressive city of San Francisco, there is no better building law than the *medley* of "Fire Limit Ordinances," in which is mixed up all there is in the shape of laws and ordinances regulating the science of architecture and building construction; and to complete the irregularity, the interpretation, application, and enforcement of the ordinance is placed wholly within the control of the chief of the fire department, his deputies and assistants, and those within the fire department circle. To all of which, there are many reasonable and valid objections.

The construction of buildings, in an architectural and mechanical sense, is an important special science in and of itself, requiring mechanical and professional skill and experience to rightly understand, apply, and demonstrate its numerous problems. This being so, it should be under the control of those properly qualified by individual education and practical experiences to manage and direct matters.

On the other hand, the science of combating the devouring elements is one of special character, requiring special physical and mental qualifications,—courage, strength, agility, daring, correct judgment, etc.; but men may become splendid firemen, as chiefs and subordinates, braving terrible dangers and performing acts of heroism, who, in other spheres, would amount to but little, and who, if called upon to decide issues in, or direct constructive building operations *from, personal knowledge and understanding,* would be altogether incompetent.

In the fire department sphere, the great and all-absorbing thought runs in the fire channel, and the thinkings and dictations of wardens, chief, deputies, and men are pre-eminently for fire department interests, and every other consideration is made to bend and yield to the notions and ideas incubated and vitalized under the influence of the fire department.

The two sciences, therefore, being distinctive in character, requirements, purposes, etc., should be provided with governments, managements, and dictations specially adapted to each; all matters involved in or pertaining to the control of the department,—conflagrations, storage of dangerous explosives, and the innumerable details of the special department work,—remaining with the fire wardens, chief, and their auxiliaries; and that which pertains to building construction to be placed under the control of a "Building Board," "Building Bureau," or any other form of authority composed of intelligent and competent men, familiar with the numberless involvements in building construction.

The ordinances at present affecting building construction are certainly not by any means explicit, sufficient, or consistent, and many of the provisions are daily disregarded by both architects and builders; and, being so thoroughly impracticable, their violations are permitted to pass unnoticed, even by the watchful guardians who sometimes insist upon the rigid observance of immaterial things, which are enforced because the ordinance says so and so, although, practically, for any good purpose, the same may be entirely useless and unnecessary.

These suggestions are made in all candor, without intent to antagonize or offend in any direction. The division proposed is in harmony with the results of experience in other cities, where building laws, special to constructive works, are considered to be of vast importance, and receive great attention. There is no good reason why an efficient Building Board should not be established in San Francisco. The columns of this journal are free to any one entertaining adverse views upon the subject matter introduced in this article, as well as those in harmony therewith. An intelligent discussion of the issue might prove interesting, and lead to right and desirable conclusions and results.

Strength of the Knights of Labor.

IN speaking of the great strike now going on, and extending from St. Louis to the Gulf of Mexico, the St Louis *Globe Democrat* says: "It is ascertained from the most reliable sources that District Assembly No. 17, with headquarters in this city, has a membership of from 12,000 to 15,000, and within a radius of 300 miles are about 50,000 Knights of Labor. Altogether in the country there are, counting some newly organized assemblies, about 160 district assemblies, some of which are very strong, numerically considered. Some of the district assemblies in the manufacturing districts of the East count up fully 50,000 members, and of the total membership of the order various estimates are given, ranging from 500,000 to 1,500,000. In close connection with the Knights of Labor in this city is the International Working People's Association, which will give the Knights of Labor their moral support, and, if necessary, material aid. Both organizations are said to be in close communion, and will act in concert in any emergency that may arise. The numerical strength of the International Working People's Association has been greatly underestimated, from the fact that they do not care to let their exact number be known. In the various groups of the order are included something like 10,000 members in this State and Illinois alone. In this city and close vicinity are probably 20,000 men who are members of organizations directly upholding the strikers of District Assembly No. 101.

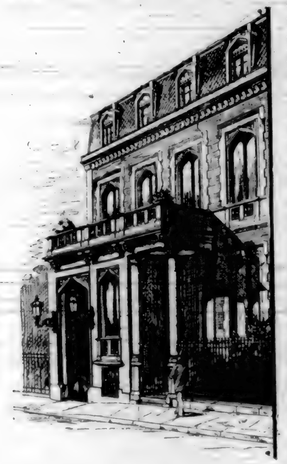
THE owner of one of a row of new houses saw a little girl taking observations on the street the other day and entered into conversation with her. "Oh, yes," she said, "I like these houses, but my papa don't." "Well, what fault has he to find with them?" "He says he cannot drive through this street because they frighten his horse."

Ancient Wood Carving.

AMONG the papers read at a meeting on Monday of the Society of Antiquaries of Scotland, was one on a wood-carver's tool box found in a bog in the island of Avie, Orkney, and exhibited by the finder. The box, which measures 11½ inches in length by 4¾ inches in breadth, and 3 inches in depth, is elaborately ornamented by a running pattern of diverging spirals, and other designs of specially Celtic character. The box was furnished with a sliding lid, which is now in fragments, and it contained a series of tool handles made of bone or horn, evidently for carving in wood, or some such purposes. The blades of the tools which have been of iron have entirely perished, but there remains in the box the piece of pumice stone with which the carver used to polish up his work. This box is one of the oldest bits of wood-carving known in Scotland.—*Ex.*

Pay of Architects.

NOTWITHSTANDING all that is said and admitted about the mercenaries of clients, the crudeness of popular taste, and the general lack of a critical appreciation of the merits of good buildings, the most serious obstacle to a due recognition of the architectural profession, by the public, is the unprofessional quality of a large portion of its membership, and often suggests a doubt whether they really know what professional conduct is. Witness the following transaction, of recent date, in a prominent Western city, where a couple of architects, in their eagerness to secure employment, sacrificed every consideration of personal profit and professional dignity. In the city of A it is proposed to erect a $50,000 building for the Young Men's Christian Association, and part of the funds have already been pledged. Regardless of all professional etiquette, the firm of B & C, architects, addressed a written communication to the building committee, soliciting employment for this work, and offering to make "all the drawings, specifications, details, etc.," and to superintend the building, *free of expense, regardless of what the structure may cost.* We are not informed of the final decision of the committee, nor of their opinion of architects who solicit work in this ignoble fashion, but the affair suggests a few very obvious reflections. As for the architects themselves, they could hardly occupy a more humiliating position than that they have voluntarily and gratuitously chosen in this transaction. Had they referred to similar buildings which they had designed and erected, or offered any other evidence of superior qualification for the work they solicit, their position would be different; but to make an appeal solely on the ground of the cheapness of their services, is, by implication, to confess that cheapness is their chief merit. A class of disreputable doctors often advertise, "No cure, no pay," but these architects have gone a step beyond the doctors in offering to take no pay in any event.



Capable talent does not go begging for employment in this gratuitous fashion. Architects who can command pay for their services are not apt to urge them, as a gift, on building committees. Moreover, employment secured in this mendicant fashion, seldom brings any profit or honor with it. The self-abasement at the start invites a series of slights, snubs, and bitter humiliations throughout. Good work, fairly paid for, brings most thanks and favors as well as most profit. The old plea that a man has a right to work for nothing, if he chooses, will not answer in this case. An architect is *ipso facto* representative of the architectural profession, and, as such, is not at liberty to solicit work, or otherwise conduct himself in a manner calculated to bring his profession into public contempt. After he has been selected as architect for a proposed building, he may contribute as large a donation as he chooses, to the cause, either in cash or in personal services; but to offer such donation or gratuitous service as an inducement for the award of the work to himself, is as disreputable in an architect as it would be in a lawyer or a physician. Such parties consciously set a depraved example, audaciously trusting to the superior honor and self-respect of their *confreres* for the success of their strategy. Were the custom to become general, of soliciting work in this manner, their sole ground of preference would be taken away. They would not dare inaugurate the practice, therefore, but for a confident belief that the most of the profession will be too honorable to resort to it under any circumstances. As for the committee, a sensible man would be very apt to inquire whether it might not be wiser, safer, and ultimately cheaper to intrust their work to a thoroughly responsible and capable architect, at a just compensation, than to risk the fifty-thousand-dollar building in the hands of those who intrusively offer their services for nothing. A good architect often saves more than the amount of his commission in his conduct of the work apart from the superior quality of the building. Moreover, it is contrary to human nature to work without pay, and when people in any business make offers of this nature, it naturally suggests suspicion of some stratagem by which they expect secretly to derive ample profits for their liberality at the expense of a confiding customer.—*Inland Architect and Builder.*

California Building Stone.

THIS is practically a *new find* in building material in this State, although long known and used in the locality of its deposit. One or more buildings are said to have been erected near the quarry, and the effect of time, wear and tear has fully proved that it is of superior quality, although that used for the purpose named was the top rock, below which a much better texture and quality of stone are found.

The specimen left in the office of this journal certainly appears well for all building purposes, whether as wall material, lintels, sills or otherwise. It is from the Valley Spring Quarry, Calaveras County. The color is good, light gray, lighter than the sandstone of Santa Clara County, and would make a very handsome contrast for trimmings in press brick fronts.

It is pure silex and silicate of soda, fine grained, easily picked, rubbed, tooled or shaped into ornamental forms. Blocks of any required size or dimensions can be quarried. It is of fine, even texture, very strong, approximating if not equaling that of the best granite, and can be worked at half the cost of granite. There are no muddy impurities in its composition, and exposure to the atmosphere simply adds to its hardening and strength. It is also said to be comparatively fireproof, and consequently superior over granite for columns and lintels.

This stone is not only suitable for all kinds of dimension and ornamental purposes, but splendid for ruble-walls, being much superior to brick in foundation walls.

The need for a stone possessing the qualities claimed for that under notice, has been long felt in California, and it is to be hoped that the material in question will fill up all hitherto deficiencies in the line of a good building stone.

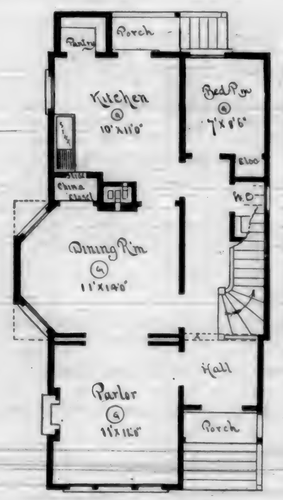
The quarry is reported to be extensive, and so far accessible to transportation that the rock can be delivered in this city at a very low price, as compared with the stone heretofore used in building construction. This being so, there seems to be no reason why it should not come into general use. The specimen in this office is free to the inspection of architects, builders, and owners contemplating the erection of buildings, and to all parties interested in the development of the State.

Examination a Pre-requisite to Practice.

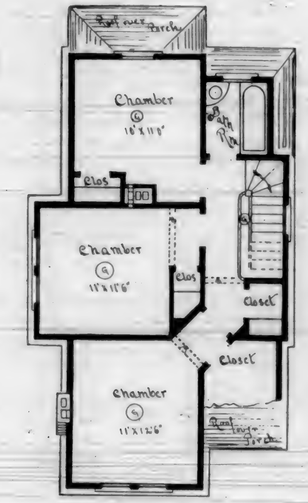
IN an article, "Essentials of a Building Law," the *Western Architect and Builder*, among other things, says: "No person should practice the profession of architecture without first having passed a satisfactory examination before the State Board, consisting of the State Architect, the Commissioner of Public Buildings, and such other members as may be thought best."

In the passage of any law or regulation enforcing the suggestion of our contemporary, which should be national in character, there would be terrible howling in present architectural circles, but not among the intelligent, experienced, and competent men who suffer daily annoyances, if not from direct competition and contact with the minnows that wiggle their tails in architectural waters, then from the innumerable innovations upon right and honorable professional practices, and the shameful abuse of privilege in departures from the consistent and true, and the substitution of the fanciful, wild, and extravagant architectural gewgaws, —not styles founded upon the time-honored orders, nor possessing any recommendation to place them on record as the legitimate offspring or result of architectural culture and refined taste.

If matters *could be* so regulated by legal, constitutional enactment as to prevent those not qualified from entering into practice,



FIRST FLOOR PLAN



SECOND FLOOR PLAN

and imposing their services upon the unsuspecting and confiding, through false representations of themselves and their abilities to perform the responsible duties incumbent upon architects, owners, as well as qualified architects, and the profession as a whole, would be vastly benefited; for then men would understand that study, preparation, qualification, and the attainment of a proper knowledge of the innumerable details of the science, were an indispensable requirement, and those by *nature* qualified would seek every other necessary qualification.

Under such a regulation there would be no curtailment of privileges or opportunities to young men. The door of entry would be as widely open and free as now; but it would then be known and understood that the attainment of right and proper knowledge was a prerequisite to the privilege of assuming professional responsibilities as an architect, instead of, as now, any one who pleases, however little qualified, asserting claims to, and playing a part never studied nor understood by them.

Examining Candidates for Membership in the Kansas City Master Plumbers' Association.

A HARDWARE firm in a town in Kansas, desiring to go into the plumbing business, associated with themselves a man who claimed to be a practical plumber. This man made application to join the Master Plumbers' Association of Kansas City. A committee was appointed to examine the applicant and report upon his eligibility for membership. This committee sends us the following report of the examination:—

Question—Are you a practical plumber? Answer—I am.

Q.—How long have you been at the business? A.—About twelve years.

Q.—Where located? A.—Run shop four years at Greenville, O., and also at Bramptom, Canada; had in my employ fifteen men.

Q.—What are the different grades of lead pipe? A.—Light, medium, and extra strong; iron pipe the same.

Q.—Into how many pieces would you cut sheet-lead to line a tank 3x3x3 feet? A.—Five pieces, one for each side.

Q.—What would you do with the lead then? A.—Scrape it with a scraper, then paint the edges black and solder it.

Q.—What is the proper name for the tool you call scraper? A.—Why, scraper or knife.

Q.—What is the proper name of the black paint you mention? A.—Paint is the only name I have ever heard it called.

Q.—What are the ingredients in this paint, as you call it? A.—I don't know.

Q.—Can you wipe a joint? A.—Certainly.

Q.—Will you go now to Mr. Ford's shop and make one? A.—Not to-night, as it is two years since I made one.

Q.—How would you proceed to make a branch-joint, and what tools would you require? A.—Have forgotten the names of most of the tools.

Q.—How is a trap ventilated? A.—Never ventilated any.

Q. What are the different patterns of traps most commonly used? A.—Do not remember.

Q.—What is a hot-water circulation-pipe, and where used? A.—Pipe running from center of boiler to the top of the boiler.

Q.—What is a lead safe? A.—A pan under a water-closet to catch leaks.

Q.—Is there a pipe leading from the safe usually? A.—Yes, going direct to the sewer.

Q.—Are you sure you are a practical plumber? A.—Oh, yes.

Q.—What are the Philadelphia rules for gas-fitting? A.—There are no rules that I know of.

Q.—Did you work at plumbing in Chicago? A.—No; I was with the People's Gas Light Company.

Q.—You still claim to be a practical plumber? A.—Yes, sir, I do.

That is all. The above is a fair sample of the *practical plumber* found in the tin shops and hardware stores of Kansas; yet they have the unadulterated gall to apply for membership to the Master Plumbers' Association. The applicant was most respectfully told to stick to bell-hanging.

W. F. McCARTHY,
WM. STOCKINGER, } *Committee.*
JOHN E. FORD,

[We are glad to learn that men of this class are not admitted to membership in the Kansas Association. We presume there is nothing to prevent this man from experimenting with plumbing work in the State of Kansas, but we hope the time will come when such men will not be allowed to attempt the execution of plumbing work anywhere. This applicant's answer to the question, where a pipe from a lead safe usually leads to, explains some of the illustrations that we give in this issue of dangerous plumbing blunders in Philadelphia.—ED. *San. Eng.*]

We regret to add that there are very many of the Kansas City specimens of *practical plumbers* operating in San Francisco, who could not if they would, execute a perfect piece of plumbing work, and it is doubtful whether they would if they could. This class of mechanical incubuses—frauds in every sense involving skilled workmanship—are mere tinkers, lacking the natural mental necessities to qualify them to *understand* the laws of mechanical science, much less to *execute* them. The "scum of society" is often applied to certain classes, and with equal force and propriety, "mechanical scum" attaches to these tinker *practical plumbers*, who fail to exemplify more than the crudest forms of mechanical workmanship, without an approach to *skillfulness*, particularly in those matters in plumbing work which require the nicest conception and application of the plumbing art.

Since the adoption of the plumbing law in this State, this evil has been to an extent regulated, but not exterminated, until the really practical plumbers were driven to the wall by the aggressive methods of the invaders, who have worked themselves in as competitors with competent men. They made no move to reclaim their just rights, but yielded to the pressure, and learned to practice many of the mechanical connubiations by which their enemies managed to underbid and secure important jobs, as well as the greater portion of the smaller class of buildings.

Necessity finally led to the adoption of the plumbing law, which places a check upon the many rascally things practiced under the old personal privilege regulation. But the law is yet too mild, in that, while it restrains and controls the more important departments of sewer, soil, vent pipe, etc., work, it leaves it possible for the Kansas kind to operate.

The law, to be wholly sufficient for the purposes for which it was intended, should require and compel every *practical plumber* to undergo a rigid examination before a competent board of examiners, denying the right to practice, as master plumbers, to those not capable of answering correctly every essential question connected with or involved in the science of plumbing. Such examination would be an indorsement of competent men, and an exposure of those who, as a class, by their defective workmanship have been instrumental in prostrating thousands of their fellow-creatures upon beds of pain and suffering, and sending as many more to untimely graves.

Spare the Birds.

IN view of the great slaughter of birds in America for sportsmen's pleasure, and to gratify the demands of gaudy fashion, the American Ornithologists' Union has organized a "Committee on the Protection of North American Birds," consisting of Geo. B. Sennett, chairman; Eugene P. Bricknell, secretary; J. A. Allen, Dr. J. B. Holder, Dr. G. B. Grinnell, William Dutcher, and L. S. Foster, all of New York City; Wm. Brewster, Cambridge, Mass.; Montague Chamberlain, St. John, N. B., and Col. N. S. Goss, Topeka, Kansas.

The heartlessness with which millions of the feathered family are yearly destroyed, mainly to gratify the passion in the sportsmen of our country to shoot and kill birds, is incalculably great. The little innocents are shot at simply to illustrate the shooter's skill and proficiency with his gun, or for the mercenary purpose of supplying an article of extravagant ornamentation in the fashion world. And fashion, the foster sister of pride, the mother of untold evils in social and family life, demands its pleasings and gratifications with remorseless severity at whatever cost.

The object in view by the Union is the obtainment and diffusion of all possible information in reference to the magnitude of the slaughter of birds for mercenary purposes; the destruction of birds' nests, etc., etc.; to develop a public sentiment in favor of rigid protection of birds; to prevent the depredations of sportsmen and boys, and the destruction of bird eggs; to secure more perfect legislation leaving the game birds subject to reasonable season protection.

The committee requests the sending of facts and information from all sections of the country, to their head-quarters, at the American Museum of Natural History, Central Park, New York City.

CUSTOMER (entering unexpectedly)—"So, sir, I've caught you putting water in the milk." *Milkman*—"Yes—er—no; that is, sir, I'm only washing it. You don't s'pose I'm going to serve my customers with dirty milk, do you?"

The Late J. B. Gough.

ALTHOUGH the following resolutions have appeared in the daily journals, we deem it a fitting tribute to the memory of a truly good, and, in his life-time, distinguished worker in the cause of temperance and humanity, to give them a place in the columns of this journal.

Thousands have good and sufficient reasons for thanking God that this earnest man, full of devoted zeal and interest in the cause he so ably advocated, lived and labored so faithfully and successfully, with a power and influence for good not possessed by millions of other good men, influencing tens of thousands to abandon the vice of indulgence in strong drink, and turn their feet away from the paths which pursued, inevitably lead to a drunkard's grave.

If from the confines of the tomb his voice could be uttered, even louder and more earnest than in life would be his cry to the living, Touch not, taste not, handle not the accursed thing.

RESOLUTIONS OF RESPECT ON THE DEATH OF JOHN B. GOUGH.

The following resolutions were offered by Dr. R. H. McDonald and unanimously adopted at a meeting of the International Lodge of I. O. G. T., held in Grand Central Hall, San Francisco, Cal., March 1, 1886.

WHEREAS, An all-wise Providence has removed from the scenes of earth the illustrious and brilliant orator and devoted patron saint of temperance and prohibition, the justly renowned and beloved John B. Gough, therefore be it

Resolved, That we deeply mourn the loss that we, and humanity in general, have sustained in the death of the eloquent advocate, whose life was spent in incessant toil and tireless devotion to the uplifting of fallen humanity.

Resolved, That we tender to the bereaved and afflicted widow and family our heartfelt and sincere sympathy, and assure her that, in this case, her loss is our loss, and that we mingle our tears with hers in this great trial, but hope to meet him "beyond the river."

Resolved, That these resolutions be engrossed, and that a copy be furnished the widow and family of the deceased, and also for publication in the *Rescue*, *California Voice*, and other papers.

The following telegram of condolence was sent to MRS. John B. Gough and family, by a Past Worthy Chief Templar of International Lodge, 291, I. O. G. T., of San Francisco, and was indorsed by said Lodge:—

SAN FRANCISCO, Feb., 1886.

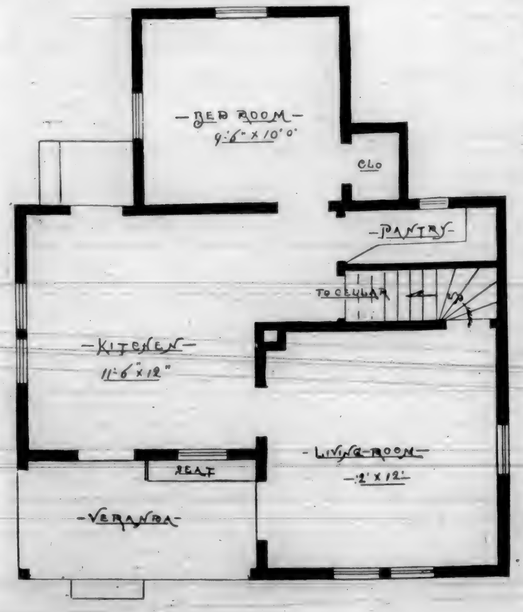
To the widow and family of John B. Gough, Boylston, Mass.—

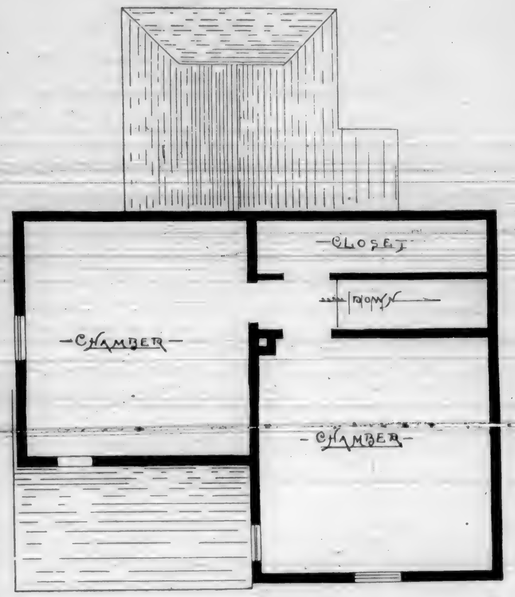
We mingle our tears with you, in this great affliction. Please put flowers on the body for us. We shall meet him "beyond the river." Our flag is half-mast. California mourns the loss of one so honored, so brilliant, so devoted, so true.

R. H. McDONALD.

Secretary, HELENA YOUNG.

AN oak mantel imported from England, made by a London manufacturer, bears in the center of its expensive, but plain, upper portion, which slopes backward, a warrior's steel breastplate and his trusty weapons crossed beneath it. Over the fireplace is a series of tiles, representing a troop of wild horses.





Not Fair Treatment.

THERE is in journalism, as in all other matters and transactions, a rule of right and fairness, which transgressed, is a wrong committed. These may sometimes occur without intent or design, but when frequently repeated, with plain and unmistakable opportunities to avoid them, the design and intent become transparent. This journal was the first, and to-day, is the only, or nearest reliable reporter of the building intelligence in San Francisco. So much so that the city papers generally, have used our monthly, quarterly, and yearly reports as showing the building activities, some giving us due credit always, and some occasionally, while at other times our reports have been appropriated as a whole in such manner as to make it appear that the statements made were the result of enterprise on the part of those journals, filching matter, which of course cost us considerable money and time to provide and prepare.

One of these most glaring illustrations of journalistic profligacy occurred in the *Daily Examiner*, in its issue of March 15, in which our quarterly report and tabulations were copied entire, word for word, and figure for figure, and the credit given to an obscure sheet that never originated a single fact or figure stated. There can be no reasonable excuse for this, as the journal in question was furnished with a copy of the CALIFORNIA ARCHITECT AND BUILDING NEWS containing said report, and had it wholly in its power to have avoided the miscredit, if it had been so inclined. It would have been a transgression of privilege to copy the item without any credit, but the appropriation of matter from these columns with credit to a source not entitled to it, and from whence it did not originate, makes it more than an oversight.

THE Knights of Pythias Hall Association, by its officers, report 4,201 volumes of useful and instructive books in the library, being a gain of 268 volumes during the year 1885. Number of books issued during the year, to 1,420; readers, 12,568. The report shows a healthy and prosperous condition of things in this department of order work.

A PORTABLE bath, having a flexible rim or water-guard, which is to prevent the floor from becoming splashed, has been patented by J. H. Crocker, Brussels, Ont. The bath has an upright flange, from which four, more or less, radical arms are made to project. These arms support a strip of flexible material which completely surrounds the bath. The arms are held in place by means of enlarged heads that pass through wire loops attached to the upright rim.—*The Brooklyn Real Estate Review and Long Island Record.*

GENERAL GRANT'S book will be the best monument of the man; it will show every side of him and show him well.

Science of Architecture.

[Special for this Journal. By F. Hillert, Architect and Mechanical Engineer.]

(*Continued.*)

IN the formula designated, v v_1, the velocity of the air at a constant section, $2g = 19.62$, acceleration of gravity; H the height of the channel; T the temperature of the warm, t the one of the cold air current; L L_1, length of the distances to be conducted; D D_1, the diameter respectively the sides of the channel; U U_1, the circumference washed by the air current; F F_1, sectional surface of the channel; f, a coefficient of friction, = 0.024.

$$v \sqrt{\frac{2\,g\,H\,(T-t)}{273+t}} : \sqrt{1+\frac{2\,g\,f\,L}{D}}$$

When the channel is made of two unlike parts (f.i. of a horizontal or downwards directed and of an ascending channel) then is:

$$v \sqrt{\frac{2\,g\,H\,(T-t)}{273+t} - \frac{2\,g\,f\,L_1\,v_1^2}{D}} : \sqrt{1+\frac{2\,g\,f\,L}{D}}$$

Letters marked with ¹ are ndex references to the second channel section.

If the velocity v_1 can be expressed by v, probably $v_1 = \frac{v}{n}$ then is:

$$v = \sqrt{\frac{2\,g\,H\,(T-t)}{273+t}} : \sqrt{1+\frac{2\,g\,f\,L}{D}+\frac{2\,g\,f\,L_1}{D_1\,n^2}}$$

Is the section of the channel not square or circular, and can be set for $D = \frac{4\,F}{U}$. For more than two channels of different sections is in general:

$$v^2 = \frac{2\,g\,H\,(T-t)}{273+t} - \frac{2\,g\,f\,L\,U\,v^2}{4\,F} - \frac{2\,g\,f\,L_1\,U_1\,v_1^2}{4\,F_1} - \frac{2\,g\,f\,L_2\,U_2\,v_2^2}{4\,F_2}.$$

Ventilation by machine arrangement. Ventilation can be produced either by forcing in of air or by suction; the first is commonly known as "pulsation" ventilation.

Machine arrangements, in most instances, are only applied when, by the heating of the air alone, the required velocity of the same for a safe, effective, and good ventilation is not to be obtained, or when economy or the arrangement of the building should demand it. This can be the case, either with very extensive buildings, for which a central arrangement is needed, and a large extension of the horizontal channels is required; or with buildings whose rooms require a considerable change of air, and therefore necessitate very wide channels, difficult to locate and place; or when, for economical reasons, an unusually large heating of the escaping air would be needed, ventilation would be established by difference of temperature.

In general, for ventilation of buildings, the so-called "blowers" find little or no application, and mostly are used in the so-called ventilators for rooms for manufacturing purposes, where an intense noise made by the working is no objection. In limited number, the so-called "steam injector" ventilators are there applied.

The ventilator, acting either by pressure or suction, or acting by pressure and suction combined, are constructed as centrifugal wings, or as screw ventilators.

The number of the constructions of centrifugal ventilators generally employed is not a small one; the difference between them is mostly in the box and in the form of wings, which are either straight or curved. Ventilators with even wings are applied for small pressure; by higher pressure, in the interest of increasing the degree of effect, curved wings are used. The general requirements required of a good ventilator are a noiseless movement, the effectiveness at least 0.3, easy and convenient access for removal of the wings, and, lastly, a sufficient strength of the casing.

The number of horse-power N required for the running of a ventilator is direct proportional to the amount of air needed (Q) per second of time, and the pressure (h) expressed in meter by water column, and in reverse ratio to the real effect (e) produced.

$$N = \frac{13.3\,Q\,h}{e}$$

The general description of the ventilators are: a shaft, to which are attached either straight or curved wings, or wings of a sigmental screw shape, inclosed in a wrought or cast iron casing; to the shaft a quick rotary motion by elementary power is given; by it the air is drawn in at the center of the shaft, and by the action of the centrifugal force is thrown towards the circumference and discharged through an opening left in the circumference of the casing.

The steam injection ventilator depends on the action of steam passing from a narrow, small outlet to a wider pipe; the thinning of air hereby created in the latter, by which a suction of the air surrounding the pipe is produced, is then, with the current of steam, conveyed hence. Those ventilators find only application in buildings where the noise produced by the steam is of no disagreeable consequence to occupants of the room, as in workshops.

The use of the steam injector ventilator is proportionately expensive, but its advantage consists, that neither machinery nor transmission of motion is required, and the first outlay of procuring them and mounting are small. The effect can be seen by the following table:—

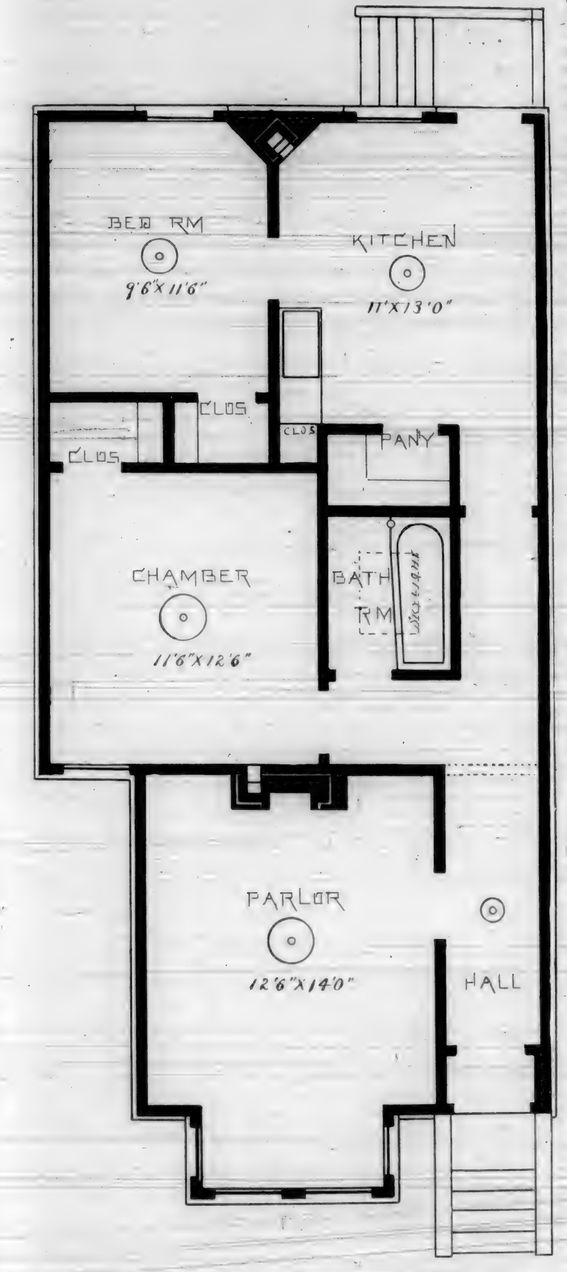
DIAMETER.		DISCHARGE OF AIR PER MINUTE IN CBM.
OF STEAM PIPE IN MM.	OF AIR CONDUCTOR IN CM.	
10	160	6
20	300	25
35	550	100
50	900	250
60	1100	400
70	1200	475
80	1500	625

Compression ventilators can be arranged for direct and indirect action, t. i., that either all air or only a portion must pass the ventilator. In the first instance the air-conducting channels are brought in direct connection with the discharge and only to be considered as a continuation; in the second instance the outlet of the discharge empties in the air-conducting channel, which is connected with the outside air. The air discharged from the ventilator produces a suction on the outside air.

As a rule, centrifugal—wing—ventilators are placed for the purpose of direct action. The placing of screw ventilators is done for the purpose of direct action. Ventilators for suction of air from buildings are rarely applied. At most they are used as auxiliaries of other systems, since the arrangement of them is mostly complicated, therefore the working of them is difficult, and, in effect, compared with compression ventilators, gives a very unfavorable result. As a rule, it is found that, by the arrangement of compression and suction ventilators together, the first is mostly kept in operation.

With the mounting and placing of ventilators, every precaution must be taken that they are easy of access, and all parts to be open for inspection, and the bearings of the shafting to be convenient for lubrication.

The disposition of a ventilation arrangement for the application of ventilators, does not differ much from the ventilation by difference of temperature. At the lowest point of the pressing air column is placed the compression ventilator (the suction ventilator in the common discharge channel). When, with the calculation for the sections of the channels for ventilation, based on the difference of temperature in the first instance, is to be found the actual velocity, we have for ventilation with ventilators the advantage, to assume the velocity of the air within certain limits, and from it to determine the sections of the air channels. It is always of advantage not to rate the velocity of the air too high, and grade, accordingly, the channel section smaller, making, consequently, the use and working correspondingly more expensive, the cleaning of the channels more difficult; and the danger of introducing dust into the rooms is increased and made certain.



In most cases of practical execution, the placing of vertical admission channels (the section of them having been decided on with the aid of ventilation by difference of temperature) offers no difficulties, when the arrangement of the horizontal common distribution pipes meets frequently with considerable hindrance and difficulties. In such instances it is recommendable, for ventilation with the use of machinery, to retain the sizes of the vertical channels calculated with the aid of ventilation with difference of temperature, and the horizontal distribution only in the sections to be taken smaller, to increase in them the velocity of the air.

For the correct calculation of the power required to drive a ventilator, it is necessary to know the pressure of the air, to reach the desired velocity of the same in the channels.

Ventilation of the most unfavorable instance is the one by which the drawing off of the air to above the roof, without heating the same, is to be effected, and by which, even in summer-time, a renewal of the air by the ventilator is to be safely secured.

We can consider the whole arrangement of the channels to be divided in two parts; namely, in the horizontal distribution channels, and in the vertical admission and discharging channels. In the latter exists, in winter-time, an ascending motion of the air; in summer-time, a tendency to settle. For the summer-time the ventilator, therefore, has to counteract, in all ascending channels, the falling motion of the air, as also to force the upward motion of the same. The channel, being the farthest off from the ventilator, is the one to be used for the calculation of the pressure of the air.

To v, the theoretical velocity of the air, which must exist at the bottom of the vertical channel farthest away from the ventilator, to supply the room with the required quantity of air, then is the velocity V, according to which the pressure of the air back of the ventilator is to be calculated.

$$V = v \sqrt{1 + \Sigma\,(C_o) + C\,\frac{l}{d}}$$

$\Sigma\,(C_o)$ is the sum of the coefficient of the resistances for all the changes of direction in the channels; C is the coefficient of friction = 0.024; l, the length of the air-distributing channels measured from the ventilator; d, the diameter of the channel. For aright angular square section with the sides = a and C is to be substituted for $\frac{l}{d} = \frac{a+b}{2\,ab}\,b$

The pressure corresponding to the velocity V in the ventilator is

$$p = \gamma \frac{V^2}{2\,g}$$

Wherein p is the specific pressure of the air in kg. per square meter; γ, the weight of one cubic meter of air: $2g = 19.62$, the acceleration of gravity.

Since the weight of 10,000 kg. corresponds to the height of a water column of 10 meters, p will in the same time be obtained as the height of pressure expressed in (mm.) milimeter. For the finding of the theoretical velocity v, are, as long as the vertical channels are computed and executed, with regard to the differing of temperature, the previous formulas used and given; v certainly must be obtained for the winter season as the mean of the ascending velocity in the admitting and discharging channels, while for the summer season, v must be calculated as the mean velocity of the ascending velocity, increased by the acceleration of gravity in the admitting and discharging channels.

On the Selection of a Ventilating System.—For the choice of a ventilating system, we have to consider and decide from case to case. There, where the utmost safety of ventilation is desired, it is earnestly to be recommended to make ventilation independent of heating; best to separate both arrangements.

The heating of the rooms is mostly done with reference to the outside temperature, while ventilation is dependent on the adulteration of the air, and the quantity of the same required; each must be accordingly arranged. For each arrangement different preliminary conditions exist, therefore, to work on.

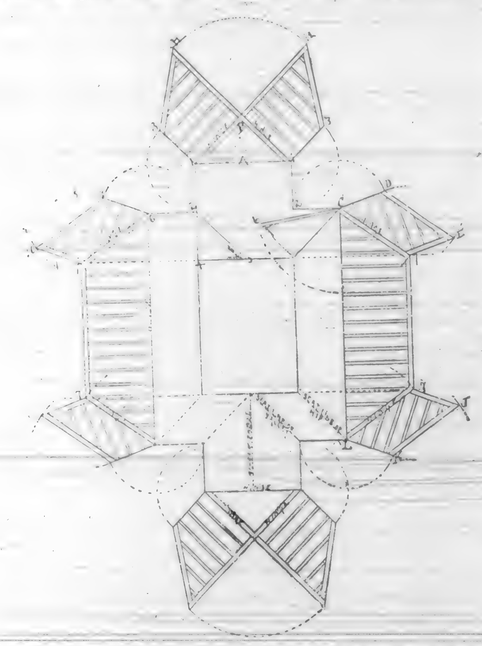
An important factor for the selection of a system is the condition whether ventilation is only desired for the winter season, or for both winter and summer. This condition, and the above-mentioned separation of the heating from the ventilation arrangement, are frequently not sufficiently considered in execution. In the programmes set up for heating and vetilation, we often find the system of heating, as well as that of ventilation, the quantity of air to be renewed, decided without any previous investigation of the question, that by the arrangement of the system selected, the desired effect can be obtained. Before the adoption of any certain system, the building distributions are also to be considered, the highest outside temperature to be ascertained, up to which a full effect of ventilation can be reached. By the highest outside, the most unfavorable temperature for ventilation is then to be concluded, which ventilation system for the case under consideration is to be adopted. Self-evidently in the arrangement, that system will have a deserving preference which is the most simple in execution.

Since hereby the distribution in the building forms a question for consideration, even for buildings serving the same purpose, frequently different systems are applied, and for this reason it is advisable to employ competent persons for the designing of the ventilation project. The designing must be done in time, that the required alterations in the plans can be effected.

ADDENDA.—To measure the temperature of the air, etc., quicksilver thermometers are used. The measure of the temperature depends on the expansive capacity of a fluid, either ether or quicksilver. The fluid to be selected for thermometer must have a uniform expansive capacity, that is, for the same amount of increase or decrease of sensible heat an equal amount of expansion must be obtained.

EDITOR OF CALIFORNIA ARCHITECT—*Dear Sir:* I herewith furnish a graphic illustration of a hip and gable roof, similar to that appearing in the January number of your journal, by which the roof covering of the ground plan can be found unerringly.

First, draw ground plan to any given scale. Set up the height of roof, say A B, then draw the seat line of both the hips and valleys, on the ground as shown. Square up from the seat line of hips, and set up the height of roof as elevation A B.



Connect C and B, which gives the length of hip rafter. Square out from the deck line, 7–7–7–7. Take the compass and stand in C, and open up to B. Describe curve cutting at 7. Connect 7 and C, then C and 7 is the length of the hip rafter that will stand over C A in the ground plan in position.

Come back to A B, draw the common rafter or gable end, and square out from common rafter as shown. Take the compass and stand in 1. Draw the curve from 2, cutting the line squared from the common rafter at 3, each side. Take the compass and stand in A; open out to the face line of deck, and with that distance stand in B and cut the lines marked H H; then connect H and 3 each side, and H and 3 will be the length of valley rafters, to stand in position over 2 5 in ground plan.

This brings the problem to the most difficult cut in the structure,—the finding of the correct lean. Draw a line from 2 to X in the ground plan, and set up the height of elevation; connect 2 and 5; take in the compass, the distance 2 5, and move over and stand in 7; draw the curve marked 8; come to number 6; stand in 6 with the compass, and open out to number 2, and draw the curve cutting at 9; connect 6 and 8, which will give the correct incline or lean of timbers. The outside commencing at 1, cut to 3; from 3 to H; from H to B; from H to 3; from 3 to 1. Cut from C to D, to E, to Y, to J, to K, to L.

Now weaken at where hinge is printed, and fold from you, and stand up on the ground plan lines. This will give a model showing every timber in place, and, in fact, give a better illustration of construction than pages of written explanations.

M. J. MARION.

THE PROFESSING ARCHITECT, AS SEEN BY SOME OTHERS.—Men who live in houses do not build them; they hire them and have a hope—which by this time cannot be called reasonable—that the landlord has built with a view to comfort. Not so; he builds with a view to money, and the tenant suffers every day of the year, because the simplest precautions have not been taken in building to meet the changes arising from variation in temperature. It may be wrong to blame the landlord, or even the speculative builder, when the right person to blame is the architect. So far as the outside world may judge, the profession of "architect" is, from first to last, a delusion and a snare. The only thing the "professor" is good for is to blackguard the Government (or municipal authorities) or private individuals, over every bit of work done. No work is ever done by the right person, or is well done. The latter is unavoidable; for what capitalist can decide as to the right party, or how can the man act freely when selected, when every other member of the profession is like a tom-cat, snarling at every design as a whole, and at every detail in the design? Who ever heard of an architect paying attention to common-sense suggestions in designing the miles upon miles of houses in the towns of England? And surely some architect has been consulted in the majority of cases. The aim is to make a something to look at from the outside, while comfort and convenience are of no import.—*Contractor.*

Abrogation of Treaty.

THE speech of the Hon. John H. Mitchel, of Oregon, before the Senate of the United States, February 26, 1886, if in any part at variance with the laws of nations, or questionably strong upon the matter of abrogation of treaties, it nevertheless enunciates the correct and only true doctrine applicable to the Chinese issue. If the presence of Chinamen in the United States is an evil, and such it is known to be to every man who understands and comprehends the whole matter in its full and correct light, then any necessary measure calculated to crush out the evil is legitimate, and no fancy philosophy of treaty obligation should be permitted to intervene. As a matter of course, "silver-tongued" orators, and minds and intellects capable of glossing over and beautifying surfaces, and concealing the underlying and material facts of any issue, may work up appearances to a degree that will make the true seem false, and the false assume the brilliancy of truth. Fine-spun arguments and theories, covering special points, or spread out over all creation, are often made to appear as gilded certainties; while in real fact the structures so reared have no foundation below the surface. Many of the social evils, which are revolting to every refined mind, judged from the standpoint of moral rectitude, are surrounded and impregnated with alluring and pleasurable argument—so much so that millions of men and women the world over, accept them as good, and blind their eyes to underlying facts and consequences.

So in reference to the Chinese question, many good men and women who look only at the comitig, theoretical, humanitarian, Christianizing side of the issue, fail or refuse to go below these superficial aspects of the case, and hence are in total darkness and blindness as to true merit. If these "poor heathen" are to be pitied and helped by the people of the United States, that call of mercy is as loud and strong to every other Christian nation, and we fail to discover the obligation resting specially upon us as a people, to accept the whole burden that should be distributed over every civilized land, in permitting the hordes of slaves, and

the minions of vice, idolatry and heathenis from China, to swarm this grand and glorious heritage, which God in his great goodness has intrusted to us, filling it with every good and happifying thing, and making it, as it has been and is, a light to the world, whose beams of freedom and prosperity have shaken, and are at the presen moment causing the thrones of kingdoms and empires to tremble, and the down-trodden of earth to see and claim their individual rights.

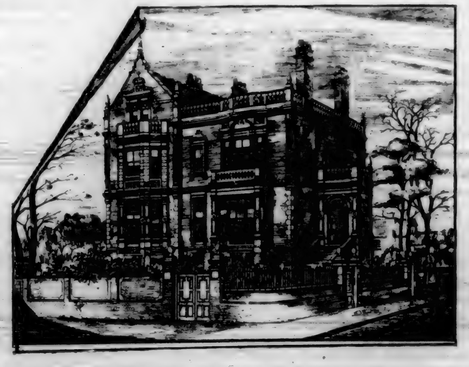
If we keep the Chinamen at home in their own land, then this nation will be able to help them. Millions of money and thousands of self-sacrificing missionaries may be sent to the flowery land to teach the children of the sun—the followers of Confucius, better things, and establish among them the royal principles of a holy religion, and assist them to raise themselves as a nation, to that higher plane of life enjoyed by the Caucasian race upon this great continent. But if they are permitted to swarm hither, as they will by millions unless the avenues are barred, the period is not long distant when they will assume an attitude of fearful consequence, controlling labor, mechanical, and financial interests to such an extent that the dragoon flag will float on every breeze from ocean to ocean, and the triumphs achieved by them will but stimulate the pride of victory and rebellion against our institutions more bitter and relentless than was ever known in the internal conflict of nations. Chinamen have no love for Americanism, beyond its gains and profits, and with these at their command they will spurn our philanthropies, hate our religion, despise our institutions, cling to their idolatry and vices, and make this, the land of the free and the home of the brave, the revelling place of all the abominations that at present curse and degrade the people of the Chinese Empire.

These are the *possibilities*, with open ports and all restrictions upon Chinese immigration off. China can spare twenty or more millions of her subjects, and with free entry and general encouragement in trade, manufacture, commerce, etc., it would be a matter of but limited time when their numbers in this free land would reach in millions what they now do in hundreds of thousands. And with this increased number, and a like multitude coming, and waiting daily to come, with full privileges after arrival, the white man would indeed be compelled to hang his harp upon the willows and weep over the desolation of his once happy country. The comparative few who have come among us have practically solved this apparently problematic question, and clearly and unmistakably indicated the results that would follow the influx of several, if not twenty, millions of the race.

But such a state of things cannot, will not arrive. The effect of Chinaism upon the interests of the country is too well defined and certain, and is too well understood by a sufficient number, to be permitted to longer rest in peace, and prosper. And if delayed for a period, the time will come when the safeguards against this gigantic monster will be made so strong that our working people, manufacturers, and others, will be secured against Chinese encroachments.

The Working Classes as Drinkers.

THE terribly pernicious and demoralizing habit of indulgence in beer and whisky drinking by millions of wage-earners in the United States, with the number many times multiplied throughout other parts of the world, is one of tremendous proportions and magnitude. Although, strictly speaking, this may be a matter of personal, social, moral and physical import, its effects and result so far impregnate and enter into and affect mechanical, professional, and all other circles of brain and muscle workers, that class journals in whatever interest published, as well as those devoted specially to moral and reformatory matters, are fully justified in any reference to the subject calculated to show up the resultant evils, and cause—if, perchance it may be so—some to consider the folly and injuriousness of the habit, and to view it in its true and too often fatal light.



The living evidences of mental and physical wreck and ruin through indulgence in intoxicating beverages, are in numbers, beyond all computation. Millions of otherwise most noble and excellent men, capable not only of mastering the intricacies of the mechanical and professional arts and sciences in their unlimited forms, features, and applications, but of filling, honorably and well, high positions among their fellow-men, in social, business, and domestic life and relationship—men of courage, genius, and nobleness of soul and nature,—become weak and puny slaves,—submissive, pliant vassals to an unholy and base mastery,—the indulgence in that which has destroyed more of human life and happiness than all the bloody wars of time, and the pestilences, famines, floods, fires, and destructive agencies that have visited earth's surface since the day when the juice of the first apple was tasted by the woman in Eden's garden.

It is fearful to contemplate the vast number of men badly damaged in purse and person by the use of alcoholic and malt beverages. The practice is almost universal, especially among certain classes of working people, who make "swill-tubs" of their stomachs through weakness in themselves to regulate and control an insatiate appetite for drink. The man of strong muscle and sinew arm becomes a feeble, pliant, moral coward, daring not to assert and exercise the noble prerogative of a man, even over the one little string in his make-up—a perverted taste for alcoholic or malt liquors. It is shameful and painful to see so many men bend and give way to a habit which curses always; blesses, never. Its blight is seen in nearly every workshop where the hardy sons of toil meet to labor, and in all assemblages where they gather to discuss questions relating to their labor rights and interests; and the contentions and disagreements that so often arise in such connections are stimulated and promoted by the disordered conditions of mind produced by the use of fluids not found in the laboratory of natural things, except by and through the manipulations of mankind, in changing and producing from the (in themselves) harmless, health-preserving, and life-sustaining fruits, cereals, berries, and products of the earth, to produce poison for souls as well as bodies. And still sadder, the shadows of the same curse darken the homes, the citadels where love, devotion, and sacred peace alone should be found,—of millions of families, rending and sundering ties, and casting down in sorrow and discomfort, if not in positive misery and debasement, wives, sons, and daughters, and making him who should be loved and honored as the strong support and defense of the home circle, a creature to be unloved, if not shunned and despised, as much as pitied. For he who, by willful, continuous, unmanly submission, yields to temptations and practices full to overflowing with evil, and destitute of any and every attribute of goodness, places himself in the attitude of a willful transgressor, and merits not those considerations due, or which it would be reasonable to extend to those who err, repent, and forsake their errors.

Whether so much so in other cities as in San Francisco, we are not prepared to say; but the fact with us is that, admitting the theory of St. Paul to be correct, that "a little wine for the stomach's sake," is good, the thing is overdone. Tens of thousands of men who devote their lives to manual labor, to keep within the measure prescribed by the apostle, "a little," would require food and drink receptacles as large as the pouch of the unfortunate Jumbo; and in far too many cases, the masters are but little behind the servant. Nor does the evil stop at these limits, but is found among those not wearied by hard strain upon the muscular forces; among men devoted to intellectual and professional pursuits, where the mind is in continuous exercise with subjects and matters which should inspire refined thought and develop control over every wrong doing, and every disposition and feeling calculated, if exercised, to work a moral or individual injury.

It may "do no good" to thus refer to this monster evil, but it affords conscious satisfaction that we have performed a simple duty, and that—from purest motives toward the large number of men in all pursuits, with whom business relationships enforce contact.

FRENCH POLISHING.—The surface of woodwork, if the woods are valuable, is furnished by French polishing. A solution of shellac is put on a rolled wooden rubber, which is then covered with linen, and a drop of linseed oil is applied to the outer surface. The solution is rubbed in with a circular motion in successive fine coats, until a glossy and air and waterproof surface is obtained. French polishing preserves woods liable to split, such as oak, from the too rapid action of the air.

A Library of Wooden Books.

ONE of the most curiously original collections of books in any library is said to be a botanical collection at Warsenstein, in Germany. At first sight, the volumes appear like rough blocks of wood; but, on closer examination, it is found that each is a complete history of the particular tree which it represents. At the back of the book the bark has been removed from a space large enough to admit the scientific and common name of the tree, as a title. One side is formed from the split wood of the tree, showing its grain and natural fracture; the other shows the wood when worked smooth and varnished. One end shows the grain as left by the saw, and the other the finely polished wood. On opening the book one finds the fruit, seeds, leaves, and other products of the tree, the moss which usually grows upon its trunk, and the insects which feed upon the various parts of the tree; to all this is added a well-printed description of the habits, usual location, and manner of growth of the tree.—*Decorator and Furnisher.*

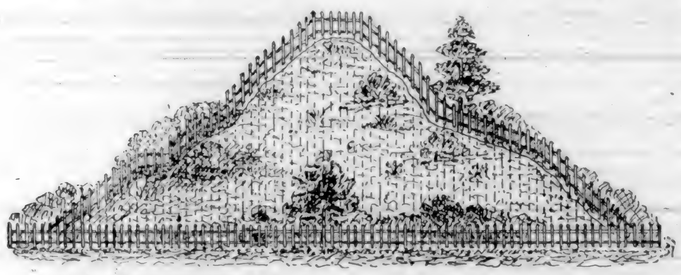
Picket Fence over or Through a Hill.

EDITOR OF CALIFORNIA ARCHITECT: Will you please decide, in your journal, the following dispute. A says that it takes no more pickets to build a fence over a hill than it would to build a level fence in a tunnel running through the same hill.

B contends that it will take as many more pickets in the over-hill fence as there is number of feet greater than at a level line; that is, if the distance from two given points is 500 feet through the hill, and it requires a rope or line 1,000 feet long to go over the hill from and to the same points, the number of pickets will be double, the pickets being spaced the same in both cases.

PICKET.

Answer.—A is right. The same question has repeatedly been asked of this and other journals, and in a former issue we exemplified the problem by the following cut:



As will be noticed, the pickets being put on vertically in both cases, spacing them the same distance, the pickets of the hill fence occupy the same relative position as those in the level fence, as far as the horizontal distance is concerned. It matters not how abrupt or high the hill may be, the vertical lines and spaces being observed—say three inches apart—the same number of pickets would be required in either case. The confusion arises from the fact that the measurement over a hill is greater, and at first thought any one not posted is likely to arrive at the conclusion that, with two pickets to each foot, 1,000 feet must necessarily require 2,000 pickets, while 500 feet on the level measurement would require but 1,000 pickets. The longer measurement *over* the hill applies to *rails* only, which in either case must be equal to the measurement from point to point.

Ventilation of Schools.

BOSTON, March 1, 1886.

TO THE EDITORS OF THE AMERICAN ARCHITECT—*Dear Sirs:* I did not intend to intrude upon your paper again, although, when I read your comments of my communication on the above subject, I began to think that the study I have made of the subject of heating and ventilation of school-houses had not been very profitable, or else your comments were not in accordance with the facts in the case.

We cannot tell what architects could or *would* do, but only what they *have* done; and I still contend that to Mr. Vinal, City Architect of Boston, belongs the credit of the best ventilated schools in New England, with the exception of Mr. Brigg's school, which I consider to be a fine example of scientific ventilation. You speak of the Worcester High School as an example of a well-ventilated building. The following is what Dr. Lincoln has to say about that school-house:—

"*Worcester High School.*—A large and pretentious building of brick and stone on prominent rising ground. The rooms are very high. The doors opening to the rooms are kept open to the very wide halls, and the air is not distinctly bad, though somewhat close. There is a considerable number of flues *not heated.* There is a large room used for drawing by fifty scholars, and once a week by ninety, which has *no ventilation,* and is *probably close.* The hall in the upper story is rather dark, owing to the lowness of the windows. The chemical library is neither well lighted nor *well ventilated.* The cellar is very large, and badly lighted. It is too wide for lighting. It is used by the boys for play, and is not a very desirable place. The same want of light is found in the water-closet in the cellar. The room for the boys' clothes, also in the cellar, is very neat and convenient, but has *no ventilation.*"

Those who have made a study of scientific ventilation know that a lot of foul-air flues in a building do not of necessity secure ventilation, and, to say that considerable attention has been paid to ventilation, often means nothing more than that a lot of tin pipes or flues have been placed in a building to carry off the bad air, if it is disposed to go that way.

I do not think any ventilating engineer or practical man would care to provide for more than thirty cubic feet of air per minute per scholar, in the *winter time,* at least, as to produce more than that would be a needless waste. In regard to using fans for ventilation purposes, there are fans and fans, and the writer has only to say that those now in use in five of the Boston schools are not likely to be stopped, either on the account of expense or the neglect of the janitor. Regarding the expense of fan ventilation, Professsr Trowbridge, of Columbia College, is authority for the statement that a given amount of air can be moved cheaper, at all times of the year, by means of a fan than by an aspirating shaft.

EXPERIENCE.

[We are not yet convinced that Mr. Vinal and "Experience" are the only architects in New England who have made "a scientific study" of school-house ventilation; but we leave the matter for those who have done so, if there are any, to come forward and defend themselves against "Experience's" imputations. In regard to the Worcester school-house, it is, however, only fair to Mr. Richardson to say that the drawing-room and chemical laboratory are probably placed in positions not intended for any such purpose, and it is not necessary to infer from Dr Lincoln's description that the architect did not intend to have some means provided for securing a movement of air through his flues, whatever may be the present method of carrying on the building.—EDS. *American Architect.*]

San Francisco Chapter of Architects.

THE regular monthly meeting in March, was held on the 5th, with President Curlett presiding, B. E. Henricksen secretary, and a good average attendance of members present. After roll-call, reading and approval of minutes, and reports of committees, a general discussion ensued upon several matters of interest.

1. The necessity of the Chapter knowing its actual strength in paying membership. This point was dwelt upon as one of great importance to the welfare, and usefulness of the Chapter. A number of names of practicing architects appear on the roll, who never put in an appearance at the meetings, and who as much neglect the payment of yearly dues. This throws increased responsibilities upon the active, interested members, and, for the time being at, least, thwarts and hinders carrying into practice the many grand objects and purposes contemplated in and by the organic laws of the institution.

2. The necessity of having a room devoted to the special uses and purposes of the Chapter. As to the importance of this, there was no dissenting opinion. Beyond question, a head-quarters, a "home" for the Chapter would be a strong link in the chain of its future usefulness. But to procure a suitable room, furnish and equip it in such shape as to make it a pleasant, agreeable, and instructive place of meeting for personal resort, etc., will require more money than the present resources of the Chapter will furnish. The question then, under such circumstances intervenes, How shall the funds be raised to meet the emergencies? Shall the few dip deep into their pockets to furnish the required coin? More generous and more creditable to a time-honored profession would it be, that every reputable architect upon the Pacific Coast—especially those in San Francisco and California—unite in membership and bear an equal part of the financial burden, by the payment of such amounts of yearly dues as may be necessary to carry on and out the Chapter work, objects, and purposes.

3. The constitution provides among other things, that in cases where students employed in offices of members of the Chapter, who travel through our own or foreign lands for the purpose of perfecting themselves in the higher studies and practical observations of the science of architecture, the Chapter may, in its discretion, extend to such students financial aid and assistance, requiring in return that such student consider himself, to a certain extent, the *protege* of the Chapter, and make regular reports of all such matters and objects coming under his observation as might be of interest to the profession on this coast.

In this connection is the case of Mr. Stone, a San Francisco student, who has made for himself a most enviable reputation as an earnest, persistent, and determined worker, with every energy taxed to its utmost to prepare for reputable, honorable, and successful future practice. Mr. Stone is about to leave for the East and Europe, and is the first to offer the Chapter the opportunity to carry into practical effect the provisions of its own laws. A committee, consisting of the class teachers and the president, was appointed to consider the matter and report.

THE APRIL SESSION OF THE CHAPTER

Was held on the 22d instant, and was largely attended, President Curlett presiding, and B. E. Henrickson, Secretary.

The proceedings were marked with more than usual interest. After disposition of minutes and reports of committees, propositions for membership as fellows were received from Messrs. C. I. Havens and David Salfield, and referred to proper committees.

Mr. Macy suggested the propriety of the Chapter adopting a form of diploma, or certificate of membership, suitable for framing, to be distributed to such fellows of the Chapter as may desire to possess that form of evidence of ho orable membership. The matter was referred to a committee consisting of Messrs. Macy, Sanders, and Whittemore.

THE GIRDER.

At this point, Mr. Sanders occupied the floor for the purpose of reading a paper relating to the matter of girders. The theme reviewed and discussed in Mr. Sanders' reading was not exclusively the girder, but a range of thought embracing much of interest in an architectural and civil engineering sense. Mr. Sanders presented a number of hastily prepared sketches of girders, simple and compound, which explained themselves at a glance to those present, as to their generally understood and common uses and applications.

We had hoped that Mr. Sanders would have been able to prepare a set of girder sketches, such as might have been reproduced in the columns of this journal, and a treatise on the same for publication. But press of business engagements prevented this, and we have one less valuable article and exhibit for this issue than we fondly anticipated. Mr. Sanders was requested to pursue the subject and entertain the Chapter at an early subsequent meeting.

An animated general discussion followed the reading, in which many good and practical suggestions were made bearing upon girders, building construction, sidewalk beams, the lateral and compressive qualities of wrought and cast iron respectively, and other pertinent matters.

FROM LONDON.

Mr. Smith, from London, being present, was invited to participate in the talk, which he did with profit and pleasure to those present. Among other things mentioned by the gentleman in reference to girders was that, owing to the well-known fact of the expansion of iron by heat, iron girders are rendered less desirable in building construction, and the greater the length, the greater the objection; while wooden girders, unprotected, burn out as do other parts of the inflammable material, and in both cases walls are thrown down, or so badly sprung or damaged by conflagrations as to require being taken down, which would have remained good and sufficient for reconstruction purposes, but for the girder difficulty.

CASING WOOD GIRDERS WITH SHEET IRON.

As a remedy for the two evils mentioned, Mr. Smith stated that in his part of the world, wooden girders were more generally used in the class of buildings not constructed as a whole or generally of indestructible materials; but to render them pref erable, a casing of sheet iron is applied, which makes them practically imperishable in cases of fire.

PIT PROTECTION FOR SAFES.

The gentleman also alluded to the fact that in the great metropolis of the English nation, as an absolute fire and burglar-proof protection to safes, pits are sometimes constructed of the required depth, with hydraulic attachments, of suitable power, presumably similar in action to the hydraulic ram elevators in use in San Francisco; and after the business of the day is over, the safes are secured and then let down into the pits, below the desired level of floor or ground, to remain until lifted again for purposes of business. In this way, all the securities afforded in first-class fire-proof safes are enjoyed, with the additional protection of being virtually buried up in vaults or pits below ground, so as to prevent the slightest effect from fire, and certainly largely increasing the impossibilities of burglarizing.

Altogether, the April session of the Chapter was one of the most interesting and profitable that marks its history.

If the honorable members of the profession, as a whole, would join in the Chapter work, and unite and co-operate heartily and unselfishly for its advancement and building up, in a very short period of time San Francisco Chapter would rank high among the many organizations working in scientific and professional interests; and, as far as its special object is concerned—the science of architecture—it would be regarded as the one great authority in that direction. Its doors are open, and its approach crowned with the word *welcome,* to every worthy and honorable member of the profession upon the Pacific Coast.

Literary Notes.

THE March 6th issue of *Building* contains the second paper on "Slow-burning Construction," by W. H. Dabney, Jr., architect to the Mutual Factory Fire Insurance Companies, of Boston; the continuation of Mr. Warren R. Briggs' excellent series of articles on "The Planning and Construction of School-houses," with plans and perspectives of a model suburban school. Mr. Wm B. Tuthill, architect, continues the discussion in his articles on the "City Residence, Its Design and Construction," of various plans for apartment houses, including what is known as the Duplex system. Various plans of apartment houses are given in the text. Mr. J. Pickering Putnam, well-known through his "Lectures on the Principles of House Drainage," speaks of the necessity of thorough ventilation for soil pipes and waste pipes, and of the evils and objections to special trap ventilation, in his article on "Improved Plumbing Appliances." There is also an illustrated article on the Street Memorial, in the Royal Courts of Justice, London, a Book Review Department, the Weekly Report on the Real Estate Market, a trade supplement reviewing the industrial progress, and a four-page supplement of the Building News of the week, besides editorial comments on the topics of the day. In the illustrations, sketches are given for small laborers' cottages, for a country church, details of a staircase hall, for a city house, finished in oak, and the perspective view and plans of the new Club House for the Elmira Athletic Association.

THE March number of *Art and Decoration,* an illustrated monthly devoted to interior and exterior ornament, contains some very interesting articles on colors, imitation stones in ornamentation, interior sketches and decorative Japanese work, and many short articles, valuable and interesting. This journal should be in the hands of every one interested in art decoration. Subscription price, $2.50; single copies, 25 cents. Published by Art and Decoration Company, No. 7 Warren Street, New York.

Brick, Tile, and Pottery Gazette, heretofore appearing as *clay,* comes to hand in new dress and arrangement, with fourteen pages of interesting reading matter, and a range of advertisements comprehending all machinery used in the working of clay, and the manufacture of drain pipes and pottery devices. Subscription price, $1.00 per annum. Ottawa, Ill.

Be Thorough.

"A LICK and a promise," is the way the botch calls it. "That will do for the present," is what the procrastinator says as he half does some job. Young man, you are not to live for the present, but you are to build for the future. If you would be a success, be thorough. Are these school days with you? Get your lessons thoroughly. You will not only be better prepared for what follows by getting the lesson of to-day thoroughly, but you will acquire a habit that will be valuable all your life. If you are a mechanic, or farmer, or clay-worker, remember that whatever is worth doing at all is worth doing well. Be thorough!—*The Clay Worker.*

Good Houses.

EVERYBODY who builds, either for resident or rental purposes, wants a *good house;* a something which to obtain is worth a certain sum of money, and generally more than the amount appropriated and fixed upon in the mind of the owner as the sum to be expended. No one is wise who invests his money in any other than a good building. It may be plain and small, but the quality of material and workmanship should be considerd in the light of permanency. Houses are seldom built to last for a short period; they are generally supposed to be a permanent affair, to last not one, but several generations. And if from motives of present economies, an imperfect and shoddy structure is reared, the continuous necessities to keep it in repair but demonstrate the unwisdom of not making it good and perfect at first. The old saw, of penny wise and pound foolish, applies forcibly in such cases.

But the rule is that but few owners calculate to pay the actual value of a *good* building, leaving any profit to the man who builds. There is never an objection to the *goodness* proposition, but there is to paying the price necessary to obtain the result. The allowance for profits to the builder is seldom equivalent to the actual cost, with compensation to him who gives his time and mechanical skill to the work of construction. No one "*wants the builder to lose anything,*" yet but few are so earnest in this regard as to be willing to add enough to the amount fixed upon, to insure profit to the builder.

In building houses, as in the purchase of goods and merchandise, he who builds or buys cares but little about the real cost; it is the economies of the bargain that influence the transaction. Consequently, architects and builders, to meet this economy feature, must shave the *good* idea down as thin as possible, and mix in only so much of the desired ingredient as may be absolutely necessary to give tone and color to the structure. Hence the majority of buildings are less than *really good,* and some that have been predicated upon the *good* basis are mere—comparative shams. Yet the deceptive allurement of having obtained a building within certain limits of cost, very often satisfies the conceit of *goodness* and bad defects pass unnoticed.

This is a common experience, relieved only by the occasional cases in which owners in reality stand by the proposition of goodness, and supply the necessary funds to pay full value for a *good* thing.

OBSCURE HEAT.—At the Albany meeting of the National Academy of Sciences, Professor Langley reported on the progress of remarkable researches with the bolometer, by which he has so greatly extended our notions of the invisible spectrum. This time he dealt with the lunar spectrum, and estimated the heat derived from the unillumined moon. Rosse has estimated the temperature of the moon's surface as from 200° to 500° Fahr. By studying the moon at its full, with a rock-salt prism obtained only after repeated failures, and which from its nature had already required repolishing seven times, each time necessitating a new determination of its constants, he had succeeded, on repeated occasions, in securing a spectrum which showed two curves—one according with that previously obtained in the infra-red region beyond the visible portion of the solar spectrum, clearly due to reflection, and another, lying entirely beyond that, as clearly due to the moon itself, and revealing its real temperature. This, as shown by studying the spectrum of frigid masses, is colder than the temperature of melting ice. By comparing the mean of the spectra obtained in summer with that of those obtained in winter, it is evident that a much greater amount of heat is obtained from the moon in winter than in summer. This may simply be due to the greater amount of aqueous vapor in our own atmosphere in the summer as contrasted with the winter clarity. By directing the bolometer to the zenith and the horizon, the temperature of space has also been measured by direct experiment for the first time, and the amazing transparency of our earth's atmosphere to radiation of the earth's heat revealed; for his experiments show that our atmosphere transmits the earth's heat more readily than the sun's.

SOME of the famous staircases described by travelers and historians, in dimensions and general magnificence, so far excel anything to which designers and builders ordinarily have access that it is almost impossible to picture to the imagination the features of the work. Some staircases which are specially noteworthy on account of their dimensions, occur in the palace of Persepolis. One staircase leads from a plain in the beautiful valley of Bendamir to the summit of a terrace, out of which it is taken. It consists of two sets of two flights of stairs, each with a broad landing stage between them; the two lower flights diverge to the level of the foundation; the two upper converge to a common landing place at the top. The shallowness of the pitch, each stair being only 3 or 4 inches in height, constitutes an ascent so easily graduated that horses may be ridden up and down, while the width of 22 feet admits of a cavalcade of 10 abreast. Less noble in size, but distinguished by the character of its ornamentation, is the next staircase which opens to the view, somewhat out of line, when that just described has been mounted. It conducts to the summit of the central terrace, and is composed of four single flights, two of them being central and facing each other, the other two standing on either side of these at about 21 yards distance from them. The entire length is 212 feet, the width 16 feet, and there are 31 steps in an ascent of 10 feet. It is flanked by an immense parapet wall, surmounted by a massive rounded coping of elegant carved work, which overlaps the wall on the inside; the ends and the entire face are covered with sculptures, and exhibit a long procession of colossal guardsmen armed with spears.—*Carpentry and Building.*

A LITTLE white oak tree, growing in an ordinary flower-pot, makes a very pretty ornament for a window or front yard. It is very easily grown. Select a sound white oak acorn in January or February, plant in rich earth in a flower-pot, keep it in a warm place and well watered. In the spring, the little oak will make its appearance, and will require no care, except watering, and will withstand the winter if not too exposed to hard freezes. If the tap root is cut off in the early part of the next spring, it will continue to grow and put out new limbs, but will not get much taller, and by cutting back the central roots that will spring from the base of the tap root every spring; a few years will produce a diminutive little oak, a fac-simile, in appearance, to the lord of the hard woods. Some enthusiastic lovers of nature make veritable pets of these dwarf oaks.—*Southern Lumberman.*

WILLIAM T. BLUNT, C. E., representing the Dunham House Drainage Company, of New York, has opened an office at 413 Montgomery Street. He extends an invitation to all interested to call at above address and examine a full-size model. He gives personal supervision of all work. The pipe used in this system of drainage is all wrought iron, with screw joints and special cast-iron fitting. The whole is asphalted inside and out, presenting a smooth inner surface without depression. Send for illustrated pamphlet.

ARCHITECTURAL STUDIES, Part IV.

SEASIDE AND SOUTHERN HOUSES,

BY F. A. WRIGHT, Architect.

Contains twelve plates of designs, 11x14 inches, for cheaply built houses, with ample veranda room suitable for a warm climate or summer use. With one or two exceptions, these houses will not much exceed $2,000. Cost, however, will vary in different localities, according to the price of material and labor.

Price, $1; sent by mail free of postage to any part of the world. W. S. COMSTOCK, Publisher. Can be ordered through this office at same rates.

COTTAGE PORTFOLIO,

CONSISTING OF 12 FINELY LITHOGRAPHIC PLATES,

Containing 12 Designs of Low Cost Houses, with 43 Illustrations and Explanations. By D. S. HOPKINS, Architect.

Published by FRED. A. HODGSON, New York. PRICE, $1.00.

MIND IN NATURE.

A POPULAR JOURNAL OF PSYCHICAL, MEDICAL, AND SCIENTIFIC INFORMATION.

Published monthly by the COSMIC PUBLISHING COMPANY, J. E. WOODHEAD, Manager, 171 West Washington St., Chicago, Ill.

Contains much valuable matter from the pens of a long list of D. D.'s, M. D.'s, and LL.D.'s of national reputation. The bound volume before us contains 112 pages, 7x10½ inches, in which there is a fund of ideas and matter that cannot fail to interest minds seeking truth and advanced thought reduced to printed pages.

THE AMERICAN BUILDER,

A WEEKLY JOURNAL IN THE BUILDING INTEREST,

Published at Cleveland, O., by the AMERICAN BUILDER CO.,

Is a new candidate for patronage among architects and builders. Subscription price, $2 per annum. F. HOUGHTON, Managing Editor.

Its first numbers are neatly printed, and the assurance held out that improvements will be made in rapid succession with the increase of patronage.

Building and Improvements for Woodland and Yolo County for the First Quarter of 1886.

EDITOR OF THE CALIFORNIA ARCHITECT: Owing to frequent storms and continued bad weather, the building interest has experienced a set-back, and but few engagements of importance have been set in operation. Nevertheless, public feeling is buoyant, and good hopes are entertained for the coming of spring and pleasant weather to usher in the usual amount of activity.

Material men and solid mechanics of all branches are sanguine as to the ultimate result of the future, although we can hardly expect the amount of last year to be duplicated. The opinion of those competent to judge says the advance in lumber will materially retard building in this vicinity during the season.

The following record presents the amount and number of engagements for January, February, and March:—

City, 25 frame buildings; value	$28,800
1 brick building	2,000
15 improvements	6,200
Total, 41 buildings and improvements; value	$37,000
County, 10 frame buildings; value	$23,000
1 brick building	5,000
Total, 11 buildings; value	$28,000
Total for city and county, 52 buildings; total value	$65,000

Total aggregate for corresponding three months of 1885, 44 buildings; value of same, $102,500. Increase in buildings, 8; decrease in capital, $37,500.

Yours truly,

Woodland, March 30, 1886. GILBERT & SON.

Market Report.

Pine, Rough	per M feet,	$15 00
" " No. 2	" "	12 00
" " " 2 in lengths	" "	13 00
" " 40 to 50 feet lengths	" "	17 00
" " 50 " 60 " "	" "	18 00
" " Selected	" "	20 00
" " Clear	" "	25 00
" " Fire Wood	" "	8 00
T. & G. Flooring, 1 x 6	" "	27 00
" " 1¼ x 6, 1 x 4, 1¼ x 4, 1½ x 3, 1 x 3, and narrower	" "	30 00
" " No. 2	" "	22 00
Sepping	" "	35 00
" No. 2	" "	27 50
Furring, 1 x 2	per lineal foot,	00¾
Redwood, Rough	per M feet,	18 00
" " No. 2	" "	14 00
" Surfaced	" "	30 00
" T. & G. 6 in. 12 ft. and over	" "	28 00
" " " 7 to 11 feet	" "	25 00
" " " under 7 feet	" "	20 00
" Rustic	" "	30 00
" " No. 2	" "	26 00
" T. & G. Beaded, 12 ft. and over	" "	30 00
" " " 7 to 11 ft	" "	25 00
" " " under 7 ft	" "	20 00
" Siding, ½ inch	" "	22 50
Pickets, Fancy	per M,	25 00
" Rough Pointed	"	16 00
" " Square	"	14 00
Battens, ¼x3	per lineal foot,	00¾
Shingles	per M,	2 00
Laths, 1¼	"	3 25
" 1½	"	3 75
NAILS—Rates were recently reduced to:—		
200 keg lots		3 00
100 keg lots		3 05
Smaller quantities		3 10
PAINTS AND OILS:—		
Pioneer White Lead (local factory)		6½c @ 6½
Cal. Linseed Oil, raw (single bbl lots)		45½
" " boiled " " "		47
Turpentine, per gallon		58
BRICK—California Building Description, soft, per 1,000		5 50
" " " red, " "		6 50
" " " hard, " "		7 50

Buildings Intelligence.

Where owners name is left blank it is so done by special request.

A

Austin, bet. Larkin and Polk. Repairs.
O.—Capt. Taylor.
Day work.
$2,000.

B

Bryant, cor. Kate. Three story frame.
O.—C. R. Sploralo.
Day work.
$5,000.

Battery, bet. Bush and Pine. Alterations.
O.—Schweitzer & Co.
A.—M Dougall & Son.
C.—A.G. Fitzpatrick.
$4,000.

Broadway, bet. Gough and Octavia. Two-story frame.
O.—Capt. Raimond.
A.—B. E. Henriksen.
C.—Thos. H. Day.
$8,650.

Bush, bet Baker and Lyon. Two-story frame.
O. and B.—T. F. McGraw.
Day work.
$3,500.

Bush, cor. Hyde. Three-story frame, store and two flats.
O.—J. S. Hand.
A.—Eisen & Pierce.
C.—J. Bruce.
$7,000.

Bush, cor. Leavenworth. Additions.
O.—
C.—Geo. Lang.
$1,000.

Bush, bet. Polk and Larkin. Repairs.
O.—Capt. Taylor.
A.—W. Mooslar.
C.—A. Jackson.
$5,000.

Bush, bet. Franklin and Gough. Two-story frame and basement.
O.—W. A. Piper.
A.—H. D. Mitchell.
C.—Trotter & Harmon.
$10,000.

Bush, nr. Franklin. Two three-story frames.
O.—Capt. Samuel Blair.
A.—John J. Clark.
C.—Chas. H. Ackersen.
$15,000.

C

Clinton Park, bet. Guerrero and Dolores. One and one-half-story frame.
O.—T. L. Hill.
A.—M. J. Welch.
C.—A. Klahn.
$2,000.

California, bet. Fillmore and Webster. Four two-story frames, stores, and four flats.
O.—A. Borell.
A.—W. F. Smith.
C.—Gray & Stiver.
$25,000.

California, cor. Pierce. Two two-story frames.
O. and B.—Thos. Rendell.
Day work.
$5,500.

California, cor. Laguna. Two and one-story stone and frame.
O.—E. Hopkins.
A.—Clinton Day.
C.—D. B. Chisholm.
$25,000.

Cumberland, bet. Guerrero and Dolores. One-story frame.
O.—B. Collier.
C.—I. Brown.
$1,500.

Church, bet. Twenty-first and Twenty-second. Additions.
O. and B.—A. McLeod.
Day work.
$700.

California, nr. Front. Alterations.
O.—Selby Estate.
Day work.
$7,500.

California, bet. Pierce and Scott. Three two-story frames.
O.—H. Wardenby.
C.—H. B. Hosmer.
$12,000.

D

Devisadero, cor. Eddy. Two-story frame.
O.—H. Paulsen.
A.—M. J. Welch.
C.—Theo. Von Borstel.
$3,600.

Dolores, bet. Twenty-second and Twenty-third. Two-story frame.
O.—
C.—F. W. Kerns.
$2,700.

Dupont, cor. Geary. Four-story and basement brick.
O.—Davis Bros.
A.—Copeland & Banks.
C.—Brick and granite work, Geo. Richardson.
$19,500.

Dupont, nr. Post. Additions.
O.—Jos. Musto.
A.—P. R. Schmidt.
C.—R. McCann.
$9,000.

E

Eddy, bet Laguna and Buchanan. Four two-story frames.
O.—M. & W. Maher.
A.—C. J. I. Devlin.

Carpenter—J. W. Smith,	$12,175
Plumbing—Sweeney & Kearns,	1,499
Painting—T. McCarthy,	1,035
Grading and brick work, Jos. Smith,	967
Total,	$15,676

Eleventh, bet. Howard and Folsom. Alterations.
O.—John Dolan.
A.—C. J. I. Devlin.

Carpenter—C. N. Mason,	$1,705
Painting—T. McCarthy,	205
Plumbing—T. Bertram,	300
Total,	$2,210

Eddy, cor. Octavia. Two and one-half story frame.
O.—A. Welch.
A.—Clinton Day.
C.—Mahoney Bros.
$30,000.

Eighteenth, nr. Castro. One-story frame.
O. and B.—H. Eigler.
Day work.
$1,000.

Eighteenth, bet. Mission and Valencia. Three-story frame.
O.—H. Rodgers.
A.—M. J. Welch.
C.—R. Sinnott.
$5,000.

Eleventh, cor. Natoma. Additions.
O.—F. Ash.
C.—J. McCann.
$2,000.

Eleventh, bet. Mission and Natoma. Two-story frame.
O.—Mrs. Kehoey.
A.—Jas. E. Wolfe.
C.—Wm. Sherline.
$6,000.

F

Fillmore, bet. Pine and California. Two-story frame, store and flat.
O.—H. Nowbaur.
A.—P. R. Schmidt.
C.—Wickersham & Farrell.
$5,500.

Fair Oak, cor. Twenty-second. One-story frame.
O.—C. W. Eckstein.
C.—T. H. Lufkin.
$2,500.

Ford, bet. Sanchez and Noe. One-story frame.
O.—J. H. Carrah.
Day work.
$2,000.

Fell, bet. Polk and Van Ness. Six two-story frames.
O.—Jos. S. Spear.
C.—F. A. Brown.
$18,000.

Fulton, near Webster. Additions.
O.—Chas. Hansen.
Day work.
$1,500.

Franklin, cor. Laurel Avenue. Two-story frame.
O.—Mrs. Mandge.
A.—W. Schrof.
C.—W. Pluns.
$5,000.

Filbert, bet. Larkin and Polk. One-story frame.
O.—Robert Locher.
Day work.
$1,000.

Filbert, bet. Larkin and Polk. Two-story frame.
O.—P. Matthews.
C.—A. Nelson.
$1,500.

Filbert, bet. Hyde and Larkin. Eight two-story frames.
O.—J. A. Whelan.
Day work
$20,000.

Filbert, bet. Jones and Leavenworth. Two-story frame, two flats.
O.—G. Cazlieri.
C.—G. Voca.
$3,000.

Fillmore, bet. Clay and Sacramento. Two-story frame, store and flat.
O.—J. R. Crossley.
A.—H. D. Mitchell.
C.—W. E. Lewis.
$7,000.

Fillmore, bet. Pine and California. One-story cottage.
O.—M. Costello.
A.—J. T. Kidd.
C.—A. Jackson.
$1,400.

Fillmore, bet. Golden Gate Ave and McAllister. Two-story and basement frame.
O.—Geo. Beanston.
A.—Curlett & Cuthbertson.
C.—I. P. Kincaid.
$4,500.

Fulton, between Buchanan and Webster. One-story frame.
O.—R. Giesen.
C.—G. Knopf.
$1,000.

Fulton, bet. Fillmore and Steiner. Two-story frame.
O.—Thos. N. Furlong.
A.—Huerne & Everett.
Day work.
$3,500.

Fair Oaks, bet. Twenty-third and Twenty-fourth. Two-story frame.
O.—H. Munier.
A.—T. J. Welch.
C.—G. W. Hansbrough.
$8,000.

G

Guerrero, nr. Twenty-fifth. Two-story frame.
O.—L. Petersen.
A.—W. F. Smith.
C.—W. N. Concannon.
$2,200.

Gough, cor. Sacramento. Two and one-half story frame.
O.—C. Josselyn.
A.—Clinton Day.
C.—R. P. Hilbert.
$22,000.

Gough, bet. O'Farrell and Ellis. Two-story frame.
O.—Dr. Warner.
A.—J. Marquis.
C.—J. Robertson.
$6,000.

Greenwich, nr. Powell. One-story frame.
O.—F. Seipp.
A.—Salfield & John.
C.—J. Klein.
$1,650.

Grove, northwest cor. Broderick. Two-story frame.
O.—John McKenzie.
A.—H. D. Mitchell.
Day work.
$9,000.

Geary, bet. Scott and Devisadero. One-story frame.
O.—P. Hartnet.
A.—T. J. Welch.
C.—J. J. Dunn.
$2,800.

H

Hayes, cor. Broderick. Two-story frame.
O.—John Glover.
A.—H. Geilfuss.
C.—Theo Von Borstel.
$3,600.

Howard, cor. Lafayette. Two-story frame.
O.—W. Alfs.
C.—H. J. Weiss.
$4,500.

Haight, bet. Octavia and Laguna. Two-story frame.
O.—W. Felter.
A.—J. Gash.
C.—T. Worden.
$7,500.

Haight, cor. Devisadero. Two-story frame.
O.—T. W. Bogart.
A.—E. R. Swain.
C.—J. Campbell.
$6,000.

Haight, nr. Stanyan. Two-story frame hotel.
O.—Mrs. Lewis.
C.—W. F. Lewis.
$3,700.

Haight, nr. Stanyan. Additions.
O.—C. Damon.
Day work.
$1,500.

Hyde, bet. clay and Washington. Three-story frame.
O.—R. C. Hooker.
A.—Clinton Day.
C.—Ingerson & Gore.
$8,000.

Howard, bet. Fifth and Sixth. Additions.
O.—C. Ruppel.
C.—W. Jarman.
$600.

Haight, bet. Steiner and Pierce. Two-story and basement frame.
O.—J. Livingston.
A.—W. Moosier.
C.—P. Laherty.
$5,600.

I

Ivy Avenue, nr. Van Ness. Two two-story frames, four flats.
O.—Mme. Sorbbeir.
C.—J. Dutton.
$2,500.

J

Juniper, nr. Bryant. One-story frame.
O. and B.—H. Münster.
Day work.
$1,000.

Jones, nr. Filbert. Two two-story frames, four flats.
O. and B.—G. Knopf.
Day work.
$5,000.

Jones, cor. Valparaiso. Two-story frame.
O.—Miller & Knopf.
A.—Geo. E. Voelkel.
C.—Gott Knopf.
$6,500.

L

Larkin Avenue, bet. Ellis and O'Farrell and Hyde and Larkin. Three-story frame.
O.—J. Frank & B. Morrbrink.
A.—M. J. Welch.
C.—J. Klein.
$2,700.

Lafayette, bet. Mission and Natoma. Two-story frame, four flats.
O.—Sarah Falk.
C.—Doyle & Son.
$3,000.

M

Mission, bet. Fifteenth and Sixteenth. Three-story frame.
O.—F. Straub.
A.—W. Schrof.
C.—W. A. Knowles.
$5,050.

Mission, cor. Twenty-first. Five two-story frames.
O.—H. Ebbinghauser.
A.—H. Geilfuss.
Brick work—John McCarthy.
Carpenter—A. Miller.
Painting—J. Quatt.
Plastering—J. McNamara.
Plumbing—Fritz & Kean.
$22,000.

Market, cor. Fourth. Five-story and basement brick.
O.—Jas. C. Flood.
A.—A. Laver.
Grading—A. C. Buckman.
Wrought iron work—Simms & Morris.
Cast iron—R. Llewellyn.
Brick work—McGowan & Butler.
Carpenter—C. C. Terrill.
$

Montgomery, nr. California. Alterations.
O.—I. O. O. F.
A.—Wright & Sanders.
C.—Terrill & Slaven.
$50,000.

McAllister, bet. Fillmore and Steiner. Two-story frame.
O.—B. Conway.
A.—T. J. Welch.
C.—M. Lynch.
$5,000.

Market, nr. junction of McAllister. One-story brick.
O.—L. & M. Sachs.
A.—P. R. Schmidt.
C.—R. Mitchell.
$3,000.

Market, nr. junction of McAllister. Three one-story bricks.
O.—D. Callaghan.
A.—F. R. Schmidt.
C.—R. Mitchell.
$4,500.

Mission, bet. Seventh and Eighth. Three-story frame and basement brick.
O.—J. Tuckers.
A.—Daily & Praun.
Brick and iron work—J. J. O'Connor, $3,000; total cost, $10,000.

Market, cor. Franklin. Five-story frame.
O.—J. Nightingale.
A.—A. J. Barnett.

Carpenter work—R. McCann,	$28,475
Patent chimneys—L. E. Clawson,	2,560
Total,	$31,035

Mission, bet. Fourth and Fifth. Four-story and basement brick store.
O.—D. Swett.
A.—H. T. Bestor.

Brick work—O. E. Brady,	$11,230
Carpenter—A. Jackson,	8,512
Total cost,	24,000

Market, cor. Sixteenth. Five one-story frame stores.
O.—W. J. Houston.
A.—C. I. Havens.
C.—F. Klatt.
$4,000.

N

Natoma, bet. Tenth and Eleventh. Two story frame, two flats.
O.—Mrs. Mack.
A.—Geo. H. Miller.
C.—McDonald Bros.
$2,800.

Natoma, nr. Second. Alterations.
O.—P. Healey.
A.—John J. Clark.
C.—J. Kelly.
$1,600.

O

Oak, bet. Fillmore and Steiner. Two-story frame.
O.—Thos. O'Neil.
A.—Geo. H. Miller.
C.—Doyle & Son.
$3,300.

O'Farrell, nr. Buchanan. Alterations.
O.—Mrs. Barendt.
A.—P. R. Schmidt.
C.—W. H. Wickersham
$3,000.

Oak, bet. Gough and Octavia. Eight two-story frames, twelve flats.
O.—Jos. McDonald.
A.—Townsend & Wyneken.
C.—John McGarry.
$18,500.

Oak, cor. Buchanan. Two-story frame.
O.—M. E. Church Society, Bishop's res.
A.—J. Marquis.
C.—Gray and Stover.
$10,000.

O'Farrell, bet. Hyde and Larkin. Three-story frame.
O.—J. Franks.
A.—M. J. Welch.
C.—J. Klein.
$2,800.

P

Pine, bet. Devisadero and Broderick Two-story frame.
O.—A. Ruisches.
A.—P. R. Schmidt.
C.—T. C. Riddell.
$7,500.

Pacific, bet. Webster and Buchanan. Additions.
O.—J. J. Scoville.
C.—J. Drury.
$2,000.

Pacific, bet. Fillmore and Webster. Two-story frame.
O.—Mrs. J. Sellons.
A.—Daily & Praun.
C.—F. Klatt.
$5,000.

Powell, nr. Post. Three-story frame.
O.—Mrs. Burnett.
A.—Copeland & Banks.
C.—Treadwell & Thompson.
$6,500.

Powell, near Union. Additions and alterations.
O.—G. Hilderbrand.
C.—J. J. Cummings.
$2,000.

Powell, bet. Francisco and Chestnut. Additions.
O.—
C.—H. Johnson.
$1,000.

Post, bet. Broderick and Baker. One-story frame.
O.—J. J. Driscoll.
A.—C. I. Havens.
C.—A. N. Nelson.
$2,500.

Pine, nr. Buchanan. Two-story frame.
O.—N. W. Griswold.
A.—Edward R. Swain.
C.—Ingerson & Gore.
$4,100.

Pine, bet. Baker and Lyon. One-story frame.
O.—Chas. Hewett.
A.—C. I. Havens.
C.—A. N. Nelson.
$2,300.

S

Sutter, bet. Baker and Lyon. Alterations.
O.—H. Levy.
C.—F. Klatt.
$1,500.

Stanyan, cor. Fell. One-story frame.
O.—J. Lanarath.
C.—C. E. Johnson.
$2,000.

Scott, bet. Oak and Fell. One-story frame.
O.—Mrs. Nichols.
A.—H. Geilfuss.
C.—W. P. Grace.
$1,500.

Steiner, cor. Fulton. Two-story and attic frame.
O. and B.—John Hinkle.
Day work.
$10,000.

Seventeenth, bet. Castro and Diamond. Two and one-half-story frame.
O.—C. Barto.
C.—W. F. Muller.
$4,000.

San Jose Avenue, cor. Army. Two-story frame.
O. and B.—J. M. Cummerford.
Day work.
$3,000.

Steiner, cor. Haight. Two-story frame stable.
O.—J. Winter.
C.—J. McCann.
$500.

Sutter, bet. Broderick and Baker. Two one-story frames.
O.—Chris A. Buckley.
A.—Chas. I. Havens.
C.—A. N. Nelson.
$4,800.

Sixteenth, cor. Harriet. Two-story frame.
O.—Jas. Madden.
A.—Geo H. Miller.
C.—C. Christy.
$2,600.

Sacramento, bet. Van Ness and Franklin. Two-story frame.
O.—Mrs. A. Cooley.
A.—S. & J. C. Newsom.
C.—J. McKay.
$7,000.

Sutter, cor. Baker. Additions.
O.—L. Crossley.
C.—S. T. Green.
$3,500.

Seventeenth, nr. Sanchez. Two-story frame, two flats.
O.—P. Hallahan.
A.—John J. Clark.
C.—P. J. Brennan.
$3,500.

Scott, nr. Page. Two-story frame.
O.—J. Hess.
A.—H. Geilfuss.
C.—J. H. McKay.
$4,800.

Sacramento, bet. Leavenworth and Hyde. Two-story frame.
O. and B.—John Hinkle.
Day work.
$4,000.

Sacramento, bet. Leavenworth and Hyde. One-story cottage.
O. and B.—J. Hinkle.
Day work.
$3,500.

Sacramento, nr. Polk. Additions.
O.—J. W. Davis.
A.—P. R. Schmidt.
C.—R. McCann.
$3,000.

T

Tenth, nr. Bryant. Additions.
O.—Thos. Grace.
Day work.
$1,000.

Tenth, nr. Bryant. One-story frame.
O.—O. Linehan.
Day work.
$900.

Twenty-fourth, northeast cor. Folsom Additions.
O.—Magnels Bros.
Day work.
$5,000.

Twenty-third, cor. Capp. Two-story frame.
O.—F. Edwards.
C.—W. W. Stecker.
$2,500.

Twenty-second, cor. Shotwell. Frame church.
O.—German Evangelical Church.
A.—J. M. Curtiss.
C.—F. W. Kerns.
$2,500.

Twenty-first, above Valencia. Two-story frame.
O.—W. Doan.
Day work.
$4,000.

Third, nr. Folsom—Three-story frame store and two flats.
O.—N. Hanley.
C.—A. G. Fitzpatrick.
$5,000.

Turk, nr. Laguna. Two-story frame, two flats.
O.—R. Fenking.
A.—Salfield & John.
C.—A. Miller.
$6,000.

Turk, nr. Buchanan. Three-story frame, three flats.
O.—F. Attinger.
A.—Salfield & John.
C.—A. Miller.
$6,500

Turk, bet. Franklin and Gough. Additions.
O.—B. Pfarrer.
C.—A. Bramah.
$1,700.

U

Union, bet. Octavia and Laguna. Two-story frame, store and flat.
O.—D. Dezerello.
C.—G. Walker.
$2,600.

Union, bet. Octavia and Laguna. Three two-story frames. Three stores and three flats.
O.—Geo. Werner.
C.—G. Walker.
$8,000.

V

Valley, south side, above Dolores. One-story frame.
O.—Mrs. J. E. Fast.
Day work.
$900.

Valley, south side, above Dolores. One-story frame.
O. and B.—J. M. McDermott.
Day work.
$1,200.

Valencia, bet. Twenty-first and Twenty-second. One-story frame.
O.—Mrs. S. Ross.
A.—G. P. Ashton.
C.—F. A. Williams.
$2,500.

Valencia, cor Twenty-third. Three-story frame, store and two flats.
O.—G. Schwartz.
C.—J. H. Thom Wohrden.
$6,500.

Valencia, nr. Sixteenth Three-story frame, three flats.
O.—E. Miles.
A.—J. Marquis.
C.—F. O. Bergman.
$8,000.

Valencia, cor. Eighteenth. Two-story frame.
O.—R. W. Coffin.
A.—A. J. Barnett.
C.—Terrill & Slaven.
$6,145.

Vanderwater, bet. Powell and Mason. Two-story frame.
O.—W. Fautz.
A.—Geo. H. Miller.
C.—A. Gilbert.
$2,500.

W

Waller, cor. Webster. Four two-story frames, eight flats.
O.—Fred Huber.
A.—W. Schrof.
C.—H. Weiss.
$14,000.

Waller, cor. Steiner. Two two-story frames, stores and two flats.
O.—J. H. Scannon.
C.—M. V. Stevens.
$5,000.

Webster, cor. O'Farrell. Four two-story frames.
O.—D. T. Cole.
C.—J. V. Fish.
$15,000.

Washington, cor. Steiner. Two-story frame.
O.—Geo. Mann.
A.—S. & J. C. Newsom.
C.—J. McKay.
$7,500.

Turk, north side, nr. Taylor. Three-story frame. O., M. Englander; A., H. Kenitzer; C., C. Chisholm; $15,000.

MISCELLANEOUS.

San Jose—Santa Clara cor. First. Two-story frame. O., B. F. Mills; A., Theodore Lenzen; C., G. E. McDougall; $5,000. On The Alameda. Additions. O., S. F. Leib; A., Theodore Lenzen; day work; $1,000.

San Mateo—Two-story frame and stable. O., John Parriott; A., Clinton Day; C., Mahoney Bros.; $20,000.

San Rafael—Additions and alterations. O., J. G. Kittle; A., Clinton Day; C., Hansen & Co.; $13,000.

OAKLAND.

West Eighteenth, cor Chestnut—2-story fr; o, Mrs. Amelia Peterson; a, J. J. & T. D. Newson; c, Biglow & Son; $2,000.

Near Mills Seminary—Alterations; o, C. Nelson; a, G. A. Bordwall; day work; $3,000.

ALAMEDA.

Alameda Avenue, bet Oak and Walnut—5 1-story frs; o, Mme. C. Moustier; a, B. E. Henriksen; c, A. Walker; $10,575.

THE CALIFORNIA ARCHITECT AND BUILDING NEWS.

VOLUME VII. ENTERED AT POST-OFFICE, SAN FRANCISCO, AS SECOND-CLASS MAIL MATTER. ESTABLISHED JANUARY, 1879. NUMBER 5.

THE

California Architect & Building News.

A MONTHLY JOURNAL,

Devoted to Architecture, Decorating, and Furnishing.

PRICE, $2.00 PER ANNUM.

The official organ of the Pacific Coast Association of Architects. Published by the SAN FRANCISCO ARCHITECTURAL PUBLISHING CO. No. 240 MONTGOMERY STREET, Rooms 11, 12, 13.

Subscribers will please notify us promptly of any failure to receive this journal, and also of any change in their address.

Advertisements inserted at reasonable rates.

SAN FRANCISCO, CAL., MAY 10, 1886.

CONTENTS.

GENERAL:—

What is the Difference?—New Device in Blinds—Luck, "Good and Bad"—Liens on Public Buildings—New York Court of Appeals—New Zealand Insurance Company's Offices.

MATERIAL FACTS FOR OWNERS' CONSIDERATION 65
BUILDING REVIEW 65
BAY WINDOWS OVER STREET LINES 66
QUEER SUIT AGAINST AN ARCHITECT 66
GREAT INFLUX OF STRANGERS 66
GROWTH OF SAN FRANCISCO 67
SCIENCE OF ARCHITECTURE 68
HARD AND EASY STAIRS 69
MARION ARTICLE 73
S. F. CHAPTER OF ARCHITECTS 77
TRANSPARENT COLORS 77
MISTAKES IN BUILDING 78

Material Facts for Owners' Consideration.

GOOD buildings are sometimes erected without the professional services of an architect. But whether as good and as complete as they would have been under the planning and superintendence of a competent architect, is a question. The proposition suggested is reasonable. For the incessant and perpetual study of an architect is to discover and develop new ideas, to determine and mature better plans, to overcome difficulties encountered in prior experiences, to provide against defects and errors which may have occurred, and in a word concentrate the entire energies of his mind and brain to producing improved results; and it is not reasonable to suppose that among men of equal intelligence, education, judgment, industry, and advantages, those who devote their time, and employ their mental and physical energies in special pursuits, can properly understand and practice their selected avocation, and, by incidental application, also understand as proficiently those specialties which. others, their equals in all intellectual and physical senses, have made matters of constant study and daily application. Men generally master not more than one thing or calling, and as the "old saw" goes, "They that are jacks at all trades master none." We admit that there are a host of contractors who would have become most excellent architects had they so applied themselves. But a reasonably perfected knowledge of architecture can only be obtained by the possession of the natural qualifications of mind and judgment, and constant practice and study. Incidental scholastic and superficial knowledge does not, by any means, qualify men to assume the practice of a profession, than which no other requires the more intense exercise of every mental and intellectual faculty. Hence, we find men calling themselves architects who are simply pretenders, mere frauds, aspiring to be what they can never become, through fatal defects in their natural or acquired qualifications. But mistakes sometimes occur even with the best and most careful architects, and generally when no architect is employed, and most always when buildings are ntrusted to the manipulations and control of parties whose presumption is only equaled by their fearful lack of judgment, and complete ignorance of every correct principle of architecture.

Building Movements.

BUT little of more than ordinary interest has developed during the past month in building circles. Yet our monthly report presents a more favorable showing than has either of the preceding months of the present year. Our January report showed a gain over the same month for '85 in the sum of $45,535, which was followed by a falling off in February and March of $608,218. But May furnishes returns in building facts which places it $320,781 ahead of May of previous year, and so far recovers the lost ground of the two prior months.

The architects' offices generally in this city have been, and are well filled with engagements, so much so that we have not been able to find competent draughtsmen to fill the many orders sent to this office for help. The offices in San Francisco are well supplied, with but occasional applications for draughtsmen, and then always for *first-class, competent men*. From other parts of the State orders have been received, but in every instance with, "send us a good man," thus indicating that the tendencies are such that it requires the best of architectural and draughtman skill to meet the demands of clients. But the supply has not been, and is not at present equal to the demand.

The prices of building materials and labor remains in favor of owners, and the fierceness of competition—if the recklessness illustrated by the figuring done by some contractors is worthy to be so denominated—removes all liability of contracts being let for more than a fair value on the transaction; and as often as otherwise the contract amount falls short of paying one hundred cents on the dollar at completion. So that, as a rule, gains and advantages are mainly with owners.

Some of the amounts given in our building intelligence list are but partial. Those on the Nightingale building, of $8,926, and on the Davis Bros.' building, of $34,185, being sums in addition to partial statements heretofore made on the same structures. The $249,500 on J. C. Flood's building includes only the carpenter work, $102,000; cast-iron work, $49,000; wrought-iron work, $45,000; grading, $5,500; and brickwork, $48,000. There are several contracts yet to be let. The summary for the month shows:

119 frame buildings	value,	$496,126
4 brick "	"	312,870
18 alterations and additions	"	78,050
141 Total for current month		$887,046

CORRESPONDING MONTH OF 1885.

147 engagements	total value,	$566,265
Gain in May, 1886, over same, 1885		$320,781

THE exigency of getting a living, and this is especially true in large towns and cities, compels many children to begin work when they ought to be at school. This is unpleasant, but it is nevertheless a fact. As labor makes the wealth which pays taxes, it is no more than an act of justice that children thus compelled by circumstances to work through the day should be provided with facilities for pursuing in the evenings the studies they have dropped. To this end evening schools, including those equal in every respect to the "high schools," now a part of the school system of most towns and cities, should be established. This would enable many an ambitious young man to do with greater dispatch and less labor what he will probably do anyway, viz., acquire a fair education of the kind attained in schools. In these times the need of education is pressing, and every facility for its acquirement should be provided. As previously intimated, a young man of the right quality is likely to learn anyway, but as the labor of those who are obliged to work in years when they ought to be at school goes to enrich the community, they have a right to demand that the way be smoothed for them. —*American Machinist.*

THE State Department at Washington has issued a pamphlet belonging to its series of U. S. Consular Reports, entitled "Scouring of Wool in Belgium, Great Britain, and Germany." The pamphlet illustrates three machines used in Belgium for this purpose.

Bay Windows over Street Lines.

SAN FRANCISCO has been, and not inappropriately, styled the city of bay windows. Within the past twenty years or more, but very few—safe to say not more than two and one-half per cent—of all dwelling and tenement houses erected within the county limits, other than those in the erection of which the closest economies have been practiced, that one or more bay windows have not been added. When attached to buildings sitting back from the street lines, the number and sizes are always regulated by the pleasure or caprice of the owner or architect. But when projecting over the lines of streets, the sizes are supposed to be regulated by the "fire limit laws," which prescribe both width or spread, and projection beyond the face of the walls.

Until recently, the limitations as to sizes have been a source of annoyance and vexation to both architects and the fire warden's department of the city government. The limit of spread across the front has heretofore been entirely too restricted and arbitrary in all cases; so that an architect in preparing plans was allowed no greater privilege in proportions in a frontage of twenty-five feet, than he would be entitled to apply in one of eighteen feet, with the restricted width of eight feet no greater than would be proper for the eighteen feet front. Consequently, buildings of greater cost, size, and pretensions were denied the proportionate necessary increase of spread.

CORNER BAY WINDOWS,

Until the recent amendment, were also prohibited by the ordinance. But the ordinance being so framed that parties with *sufficient influence* might, and often have danced through its loose meshes by securing permits of privilege *not common* to all, except through channels not understood by some, who recognize ordinances passed by the proper authorities as *general and conclusive* alike upon all. Hence the iniquitous *special permit* practice worked injustice; for even if two parties applied for like privileges, the one being in good favor or possessing the necessary influence outside the true merits of the case, and the other having in some way rendered himself obnoxious, or gained disfavor in certain directions, the one might, and in cases has been denied privileges granted to the other. This sort of thing has been done in this city in many cases of "special permits," other than bay windows.

THE ORDINANCE AMENDED.

The universal objection to the restrictions enforced by the original ordinance, and the numerous conflicts encountered by the guardians of the law in the matter of bay windows—architects and builders generally disregarding the limits prescribed, and exercising their individual judgments in the matter—the amendments following have been passed by the Board of Supervisors, and are the law in the case until changed by subsequent municipal legislation.

ORDER No. ——.—Amendatory of Sections 27, 36 and 38 of Order No. 1,752, to define the Fire Limits of the City and County of San Francisco and making regulations concerning the erection and use of buildings in said City and County.

The People of the City and County of San Francisco do ordain as follows:—

SECTION 1. Section 27 of Order 1,752 is hereby amended so as to read as follows:—

[Bay or Oriel Windows—Swell Fronts.]

SECTION 27. No person shall build a bay or oriel window which shall project over the line of any street more than three feet, or more than nine feet in width, nor shall the bottom of said bay or oriel window be less than thirteen (13) feet from the sidewalk. No bay or oriel window shall be constructed upon any street, lane, alley or place which is less than thirty-five feet in width. No swell front shall be erected unless the walls are entirely of fire-proof materials, and no bay or oriel window shall project from any swell front. Bay or oriel windows constructed in frame buildings shall have piers or spaces of not less than five feet in width between them. Bay or oriel windows constructed in brick buildings shall, for a two-story building, have piers of not less than six feet in width between them, and for a four-story building, the piers separating said windows shall not be less than eight feet in width; and no bay or oriel window shall be more than four stories in height above the sidewalk. No bay or oriel window shall be erected on the corner of any brick building. The joists of bay windows in brick buildings shall be supported on lintels of iron at each story, said lintels to be the full width of the wall and rest eight inches on each jamb, and the top of the openings shall be covered with a brick or stone arch. The exterior framework of such bay or oriel windows constructed in brick buildings shall be covered with fire-proof material.

SECTION 2. Section 36 of Order 1,752 is hereby amended so as to read as follows:—

[Scuttles and Skylights in Roofs.]

SECTION 36. All store buildings over one-story in height in the City and County of San Francisco, whether already erected or hereafter to be built, shall have scuttle frames and covers or bulkheads and doors made of or covered with some fire-proof material; and all scuttles shall have ladders leading to the same; and all such scuttles or bulkheads shall be kept so as to be ready for use at all times, and all scuttles shall not be less in size than two (2) feet by three (3) feet; and if a bulk head is used or substituted in any building in place of a scuttle it shall have stairs with a sufficient guard or handrail leading to the roof. The door in the bulkhead or any scuttle, shall at no time be locked, but may be fastened on the inside by movable bolts or hooks.

All skylights of buildings outside of the fire limits where placed less than three feet in height above the roof shall be enclosed with a substantial railing not less than three feet in height. Within the fire limits all skylights exceeding twenty superficial feet shall have the frame and the sash formed with iron, and if not glazed with glass, three-sixteenths of an inch in thickness, shall be covered with protecting screens of No. 10 (or heavier) wire with meshes of not more than one and a half inches, said screens to be secured to the iron frames at least three inches from the glass.

SECTION 3. Section 38 of Order 1,752 is hereby amended to read as follows:—

[Removal of Dangerous Walls, Buildings, Chimneys, Smokestacks or Other Appurtenances to a Building, Sheds or Fences.]

SECTION 38. Whenever, in the judgment of the Board of Fire Wardens, any building, wall, chimney or smokestack, or other appurtenance to a building, shall, from any cause whatever, be in a situation to be dangerous to persons or property; or when any wooden building within the fire limits shall, in the judgment of the said Board, be damaged by fire or decay to the extent of forty (40) per cent of its actual value, to be estimated above the line of sidewalk in front of said building, the Board of Fire Wardens shall immediately give notice to the owner or owners of such building, wall, chimney or smokestack, or other appurtenances to a building, sheds or fences, or to his, her or their agent, or the person having the control thereof, if the owner cannot be found, to remove the same forthwith; and the person receiving such notice shall, within forty-eight hours after receiving the same, comply with the requirement thereof. In the event of a dispute as to the amount of damage caused by fire between the owner and the Board of Fire Wardens, said dispute shall be determined by arbitration of competent mechanics, the owner to select one arbitrator, the Board of Fire Wardens the other; and in case that the arbitrators so chosen cannot agree, they shall select a third, and the decision of the majority shall be final and conclusive—all expenses of the arbitration to be paid by the owner.

Heretofore, corner bay windows have not been allowed, and still are forbidden in the erection of brick buildings. But Section 27 as amended, omits frame buildings from this restriction. Consequently, those who desire them, can erect corner bay windows at the intersection of any two streets, over the sidewalk, where the distance from the sidewalk to soffit of the bay is not less than 14 feet.

A Queer Suit against an Architect.

THE story runs thus: Some year or more ago, a lady called on Mr. T. J. Welsh, architect, and entered into an arrangement for plans, specifications, etc., for two buildings, to cost $10,000. The agreement for compensation was fixed at five per cent for full professional services, and two and one half per cent should the buildings not be erected. They were not, and the architect allowed his claim to remain unsettled until—to save an "out-law"—suit was commenced in a justice's court for the sum of $250, being the agreed sum for plans, specifications, etc. Rather than meet the case in court, the lady, by her attorney, proposed a compromise, and the claim was settled for $150, and receipt in full passed. No demand at the time of settlement was made by the client for possession of the plans, etc., but a few days afterward, the architect was asked to surrender possession of the papers. This he refused to do upon the ground that all plans, drawings, and specifications were the property of the architect producing the same, and that the client had no right to their possession, beyond the uses to be made of them in case the work went on.

The lady client not being satisfied with this, upon advice of her attorney, commenced an action against the architect to recover the plans, etc., and also the money paid him, claiming that he had not performed his contract with her. The case occupied about a full day of the time of the court, and the testimony adduced by the architect proving conclusively, that by the rules of architectural practice in this State, and generally throughout the United States and in Europe, the plans and specifications made by an architect are his, and not the client's possessory property, beyond the uses for which they are intended to be applied in the progress of the work proposed to be done under them. Judgment was rendered in favor of the defendant.

This decision, as far as it goes, establishes the rights of architects and owners in reference to the ownership and possession of plans, etc., even if paid for by the client. An architect is not supposed to sell his plans, drawings, and specifications, but simply to embody and delineate on paper his own and his client's thoughts and ideas, shaping and utilizing them to best advantage; and the compensation received for services goes no further than payment for his professional knowledge and skill in producing the desired results, to be exemplified in actual construction in case the work goes on.

This may appear to some as a hardship upon owners, but it has another bearing of great importance to architects, who, as a rule, suffer injustice every time they part possession with plans, etc., worked out by them, as thereby they lose control over the results of their studies, and make it possible for others to reap the benefits which should be enjoyed by the men who conceive and shape the form of thought, and mechanical and professional ideas which might never have been conceived by others in the same form. It is simply retaining possession of the thing legitimately owned.

Great Influx of Strangers.

AS the result of the railroad war and low fares, very many thousands of people, representing nearly every section of the United States, have "come to see California" generally, and San Francisco in particular; some from motives of pleasure and curiosity; others uniting with these, business objects and interests, and possible permanent abiding in this State or city; and a large number of working people inspired by the hope that the demand for labor upon this coast would be such as to give employment to all wage-earners who might avail themselves of the unprecedented opportunities afforded by the railroad people of crossing the Continent "for a song." Of the latter,—those who have come to California with no other expectation or purpose than to find work as journeymen mechanics, artisans, or laborers,—a very large proportion must meet disappointment; as

the labor market was well supplied before the commencement of the great rush of visitors or immigrants which has within a few weeks added so many thousands to the number of strangers "within our gates."

The people of California would only too gladly welcome that condition of things which would give employment to tens of thousands of the hardy sons of toil, other than those whose homes for years have been in this city and State; but with no new special developments in business enterprise, nor any unfolding in any direction demanding an increase of skilled or unskilled labor, over and above the resident supply, it is impossible that more than a limited number of the more persevering and diligent seekers should find employment.

New discoveries, requiring large forces to operate them, or offering inducements to those willing to risk the uncertainties of fortune in pursuit of prospective results; the expansion of great interests and improvements demanding a large amount of manual labor, and the employment of thousands of working people to prosecute them, present inducements and justify the concentration, and gathering together at available points of a sufficient number of men to meet and supply the demand. But a rush of people to a given center, where none of these exigencies exist, and all the conditions are normal, with supply fully equal to demand, disappointment must result to some.

A CHANCE FOR EARNEST MEN.

Although what we have written expresses the general condition of things in California, as far as any considerable number of wage-earners recently arrived are concerned, there are nevertheless, reasonably well sustained good prospects for a goodly number if *really competent and qualified men* to find employment. This of course will depend largely upon the earnestness with which each in his respective calling shall seek to secure an engagement. The chances for the competent and skillful men are fair, but those who are not will find it difficult to obtain more than incidental opportunities to labor as per diem workmen.

This however may be added—that the element of versatility and progressiveness abounds in California, and there are doubtless very many as yet undeveloped means, methods and channels of business successes and enterprises possible of introduction in this State; so that those who may fail in the realization of their first conceived purposes, may, by the exercise and practical application of that genius so universally accorded to the descendants of the Pilgrim Fathers, lead to results of—at present, unthought of magnitude. Necessity is said to be the mother of invention, and it is to be hoped that many who have come, not finding openings ready made for them, nor grooves run, into which without effort they may settle, will go to work and make openings and plow new grooves in which to operate, alike with profit to themselves and benefit to the general interest. The resources of California are by no means exhausted, but remain awaiting further developments which, we hope, will, in many directions, be stimulated by the massing of so many new people on this coast at the present time.

The Growth of San Francisco.

VIEWED from the early days—the time when the briny ocean tides ebbed and flowed over nearly every foot of that portion of the city now occupied by substantial brick buildings in which the great bulk of importing and mercantile business

is at present transacted; the days when steam-ships of three, four, and five thousand tons lay at anchor, or securely moored to piers and wharves, three and four blocks in-shore-ward from the present eastern bulkhead or water front; when the block upon which the present post-office and appraisers' building was so deep in mud and tide water that the bottom could not be reached by the longest pile possible of being driven for foundation purposes; when the entire site of the city was subdivided into valleys, by high hills of natural formation, or ridges of sand ground, and thrown up by the ocean upon the western shore of the peninsula, and by the winds driven across land and piled up in sand hills and dunes, to altitudes towering above the tallest buildings,—San Francisco rightly stands as a marvel of energy and enterprise.

The amount of money expended in cutting and filling to produce the present contour of the city's surface, would be sufficient to purchase the land out and out, and to erect substantial buildings for a city of twenty-five thousand inhabitants in any other new and promising section of country.

The present and prospective greatest business street of the city, Market Street, as late as 1858, was, west of Third Street, a continuous sand hill diverging northerly after passing Fourth Street, thereby forming "St. Ann's Valley," including the site of the present Baldwin Hotel and Theater, with the location of which California tourists generally are familiar.

Golden Gate Park, now ranking well, and destined in time to be second to but few in the United States as a public park, was, but a few years ago, a barren, desolate waste, covered with sand drifts and dunes, and stunted growths, seemingly ashamed to claim membership in the tree family.

But with all these drawbacks and disadvantages, the city now spreads itself over many square miles of territory, and the expansion still continues; while the vacant places within the older limits are being filled up with permanent structures, many of them being in pretensions and cost, "good enough" for the better parts of the metropolis of the United States.

From time to time there existed the spirit of complaining and business grumblings that things were not better, and money making less easy than in the early days of California's existence. Still the car of progression has rolled on and is still advancing, and even many of those who have complained most, have become rich or well to do. And taking in the entire situation, it is reasonable and altogether likely, that within a generation from the present time, San Francisco will spread to fully twice its present size, and double, if not triple its present number of inhabitants.

As far as its building improvements are concerned, about one-tenth of the city is included within the fire limits, within which brick, stone, iron or other indestructible material alone is permitted in the erection of buildings. But beyond these limits, wood is used exclusively, except for business structures. The most costly residences are, with a single exception, wood constructions, including the private residence of Senator Leland Stanford; that of the late Mark Hopkins, costing about $1,000,000; the residence of Chas. Crocker; Senator Herst; Porter Ash; and many others of the millionaire class.

J. C. FLOOD, BANKER,

Being the only notable exception; his city residence now in course of completion being of imported stone, brick, etc. No small amount of reflection has been cast upon Mr. Flood, in view of the fact that his great fortune has been drawn mainly *from the pockets of the people of this city and coast*, and the universal sentiment is that it would have been but a small act of justice on his part to have confined his expenditures to and among those, and the community in and from whom and which he has gathered his great fortune.

The street and section of the city where the Stanford, Hopkins, Crocker, Flood, and other mansion residences stand, was, as late as 1860 or later, a rough, ungraded hill-top, covered with sand and shrubbery, and by no means desirable, being over 300 feet altitude above tide level, and adjudged unsuitable for practical life, owing to the difficulty of assent. But the grand view afforded from this elevation, taking in the whole scope of country over land and water, from all parts of the compas, was indescribably inviting and fascinating, and by degrees the tax upon limbs and muscle to make the ascent, yielded to the magnificence of the prospect when home was reached.

THE CABLE-STREET RAILROADS.

When this device as a street-car motor became a certainty, a demonstrated fact, hills no longer bore a forbidding aspect. When it was made sure that the ascents up steep grade could be made with the same ease and personal comfort, and a great deal more of scenic and romantic luxury than on level roads, the hill-tops so far as traversed by the new mode of travel, soon gained favor, and advanced in value more than double within a single year.

These cable roads have not only helped and improved hill property, but in every direction where they are operated, prop-

erty has advanced in value, and thousands of people of moderate means have been enabled to secure comfortable homes with ample grounds, long distances from business centers, yet rendered practically not far away by the splendid means provided in almost all directions, of traveling by cable road at the rates of five to eight miles per hour, at a cost of five cents for a distance of three or four miles—more or less.

LOOK WELL AHEAD.

With all that has been accomplished, with all that is, and with all that appears in the future, it must be conceded that great things have been achieved in San Francisco; that with all the vices, immoralities and cosmopolitanism permitted within her borders; with all that might have, but has not been done for her greater improvement and prosperity, she presents a record in fact unequaled by but few cities in the Union.

Science of Architecture.

[Special for this Journal. By F. HILLERT, Architect and Mechanical Engineer.]

(Continued.)

TO make a reliable scale, and to measure the same temperature felt everywhere alike, two cardinal points are selected and fixed, depending on the invariability of the freezing and evaporating point of the water; those points carefully fixed, then the space obtained by expansion, being divided in respectively 100 parts for Celsius and 80 parts for Reaumur, called the positive or + degrees of temperature, negative or – degrees below the solidification of water, used for the measurement of cold temperature. On the continent of Europe these scales are most in use, for all days and scientific purposes; for the last are the most convenient and best adapted. We here and in England use Fahrenheit scale. The zero point is the freezing point of quicksilver; 32 degrees of the same correspond to the zero point of the other scales, and the temperature of the boiling water at respectively 80° and 100° corresponds to 220° of Fahrenheit. Are Fahr., R., and C., the respective scales above named, then are, comparatively, Fahr. $= 32 + \frac{9}{5}$C. $= 32 + \frac{9}{4}$R.; C. $= \frac{5}{9}$ (Fahr. – 32) $= \frac{5}{4}$R. R. $= \frac{4}{9}$ (Fahr. – 32) $= \frac{4}{5}$ C.

Metallic thermometers are used for the measuring of temperature, and the action of them depends on the different expansive capacity of the different metals to be used. When two or more strips of different metals of different expansive tendency are fastened together, the action of heat will bend them; caused by the different expansion of the metals joined, giving hereby means to ascertain the temperature existing. They are used for measuring high temperatures up to 900° Celsius, when quicksilver thermometers cease to be reliable.

The term "absolute heat" is used to scale the expansive capacity of gases, and begins with 273° below zero of the centidegree scale. It is the point where the expansive capacity of the air form bodies ceases. (Is it the freezing point of air?)

The absolute temperature for 20 centidegrees is equal to $273 + 20 = 293$ absolute.

The metric system retained, is adopted by Federal law, besides our scales in use. It originated during the French first Revolution, and was intended for general adoption. The spirit of the social French Revolution was extended and made serviceable to science. It was acknowledged as necessary to change the old system of weight and measure, and substitute for it a natural unit of measure, *i. e.*, one existing in nature, which, when lost, could be found, and used again. The leading French savants, Borda, Lagrange, Laplace, Monge, and Condorcet, used the proposition as means for the measurement of a European geographical degree, to recommend the establishment of a universal unit of measure, which was found to be an aliquot part of the earth's meridian. After the completion of extensive labors by a commission, was, on the 9 frimaire VIII. (29 Nobr. 1800) as result of this measurement, the 10,000,000 of a meridian quadrant—443,296 old Parisian lines as the true and definite meter—proclaimed and adopted. In the meantime it has been acknowledged, and the impossibility to find a natural measure, to which the experiment with a pendulum, swinging seconds, has considerably added. The metric system has been established in France, Belgium, the Nederlands, Italy, Portugal, Greece, and Roumania and made obligatory in Germany and Austria. The change requires extensive labors to change measures, formulas, and calculations to the metric system, of which nations shrink, having not the taste and time for scientific progress.

1 meter is equal to			3.23 feet
1 square meter is equal to			10.76 square feet
1 cubic "	"	"	35.31 cubic feet
1 foot	"	"	1.305 meter
1 square foot	"	"	0.092 square meter
1 cubic foot	"	"	0.028 cubic meter
1 inch	"	"	2.54 centimeter
1 square inch	"	"	6.45 square centimeter
1 cubic inch	"	"	16.38 cubic centimeter

To measure the velocity of the air, anemometers are used. The instruments in practice, therefore, are Rotatory Anemometers, consisting of a very small, light-winged wheel, made of aluminum, and being propelled by the pressure of the air. An indicator, attached to the spindle of the wheel, furnishes the number of revolutions made in a certain time, from which the velocity of the air, with the aid of a constant, found for each instrument separately, can be obtained.

The common Rotatory anemometers are used to find the mean average velocity, but do not give any variations in the velocity of the current during the operation; if not, special arrangement (not frequently found) of the electric and acoustic kind, are attached. These apparatus are best fit for longer periods of observation. By them can only be found the mean quantity of air passing through a channel of a certain section during a certain period of time, *i. e.*, one hour under given conditions; for example: for the examination of the effect of a ventilation arrangement for the contracted and guaranteed quantity of air to be furnished.

Since the velocity of the air in the different places of the channels in general will not be the same; since, farther, by the introduction of the anemometer in the channel a small decrease in the same and a consequent deviation in the direction of the current is made; also the constant of the instrument to be reliable after a certain time, must be found anew and from other causes, those measurements of velocity can only give approximate results, with which we must be satisfied, since means are wanting and have not been found up to this time for a complete and correct measurement of the velocity of the air.

Another kind of anemometer is the statistic, *i. e.*, those which give the momentary velocity of the air, to be seen direct on a scale. They are best suitable for a controlling apparatus, and for the correct working of the ventilation system.

The above described instruments are only fit to measure the velocity of the air when the same is neither too hot nor too much soiled, and are unfit to measure the draft in a chimney, or heating arrangement. Other instruments are therefore constructed. To regulate the current of air in the channels, throttle valves, slide valves are used.

To measure the degree of moisture contained in the air, hygrometers are used. These instruments have not the purpose to give the value of the moisture, but only the proportion between the moisture contained in the air at present to that contained in it of the same temperature, when the same would be in a saturated condition. This ratio is designated "the relative moisture."

The point of saturation (thaw point) is different with the different temperatures, and the following table furnishes the quantity of moisture contained in 1 cubic meter of air at the state of saturation.

– 20 °C	1.06	gr water	+ 15 °C	12.81	gr. water	+ 60 °C	129.80 gr. water
– 15 "	1.39	"	+ 20 "	17.23	"	+ 70 "	177.41 "
– 10 "	2.39	"	+ 25 "	22.95	"	+ 80 "	290.88 "
– 5 "	3.36	"	+ 30 "	30.23	"	+ 90 "	420.52 "
+ 0 "	4.89	"	+ 35 "	39.51	"	+ 100 "	591.92 "
+ 5 "	6.81	"	+ 40 "	50.95	"	+ 112 "	860. "
+ 10 "	9.38	"	+ 50 "	82.72	"	+ 120 "	1,120. "

According to the present state of investigation, a degree of saturation of the air of from 40 to 60 per cent is the most favorable for the human health.

There are two different kinds of hygrometers. The first kind is based thereon, to decide for the moisture presently contained in the air, the temperature of the thaw point, and from the same under assistance of the actual existing temperature of the air to find the percentage of saturation; the second kind of instrument uses the changes of a delicate hydroscopic body produced and conditioned by the moisture of the air for the direct finding of the percentage of saturation. The last kind of hygrometer is for use the most recommendable, and are those of Saussure, and others. The first kind are those of Daniell, August, and Regnault.

Apparatus for moistening the air. With air heating the moistening is mostly done by placing open vessels filled with water in the heating chamber. The filling of the pans (arranged for a variable water surface) and the control over the same must be done from outside of the heating chamber.

This method of moistening the air is incomplete. An improvement can be made when the water pans are so arranged that the air warmed by the heater is compelled to pass over the surface of the water. For this purpose the heating chambers in a certain height are divided into two compartments, in one of them water pans are placed (arranged with overflows), one on top of the other, with spaces between them, compelling the heated air to pass over the water surfaces. The effect of moistening is certainly increased with the increase of water surfaces. Approximately can be taken, for each square meter of the channel, 15 square meters of water surface.

A self-regulating apparatus may be constructed which will fulfill the condition that when a certain desired state of moisture is passed, the apparatus will discharge, self-acting, the wanted quantity of water. A hygrometer of a separate construction closes an electric current, which opens a valve by means of an electric magnet, discharging steam or water spray so long, until the desired degree of moisture is regained, when the interruption of the electric current will close the valve and stop the flow.

The reason of writing the above was a displeasure felt by the passing and enforcement of certain municipal laws—and other matters—which are and were erroneous, having no basis. They create displeasure in society and do not give the comfort and protection which a beneficial law should. Once begun, one subject leads to another on the same scientific matter; it is inexhaustible, and may be proceeded with by abler men.

Practice was the forerunner and the foundation of the sciences in the course of progress of human culture. The fire made by friction by the primitive man, to prepare his food and to warm himself when cold, compared with the making of steam for preparing all raw material by mechanical process for the protection and comfort of men; and with chemical process by decomposition, etc., for explosives and thousands of other things, is only a slight illustration.

There has been a cry by practical men against theory, when hardly anything can be and is done by them without using the intellect, either direct or indirect. The men, for instance, attending to a shaping machine; the Chinamen, attending to the loom, work under and use the spirit and genius the inventor placed in the machine, requiring of him only the mechanical labor as attendant. They do not wish to acquire, and have not the scientific knowledge; hence criticise and condemn what they do not understand-

"Hard" and "Easy" Stairs.

THERE is no feature in house and building construction which should be more carefully considered, or receive greater attention from architects, than the stair work; as the stairs are a part and portion of the edifice used by every one, young and old, in passing from story to story, and a sense of fatigue or comparative comfort follows each successive assent.

The architect may not, and is not supposed to understand as fully as the skillful stair builder, the many practical details of construction, gained and made perfect by daily and incessant application; or the science of obtaining the numerous intricate lines, cuts, bevels etc., involved in stair-building; but he should understand most perfectly every requirement necessary to produce stairs that will afford the greatest amount of comfort to those who may use them.

Stair builders are never to blame for "hard" or uncomfortable stairs, *when controlled by plans made by another.* Whether "hard" or "easy" depends altogether upon the allotment of space for construction. The limitation of horizontal distance for run, to vertical height from floor to floor for rise, at once determines results; for if the run is made less than it should be, as compared to the height or rise, no amount of money that might be expended, nor the skill of a thousand stair builders, could pos-

sibly prevent the curtailment of comfort resultant from the lack of sufficient horizontal space.

The rise, height from floor to floor, is absolutely arbitrary, admitting of no concession or compromise; and upon this fixed factor, all other calculations in stair building must be based; so that ease and comfort, or hardship and fatigue, depend wholly upon the proper accommodation of run to rise. Hence, if the architect restricts the space within which the stairs are to be built, to less than what is necessary for the purpose, he thereby establishes an insurmountable obstacle to *easy*-stair construction; and in every case where the ascent of a flight of stairs is not comparatively comfortable, the responsibility rests upon the party designing and planning the same, whether stair builder or architect—if an architect is engaged, and his plans limit the space of run and rise for the stairs, he alone is responsible for the results. No stair builder, however skillful he may be, can possibly make easy stairs where the horizontal and vertical distances are not proportionately correct.

PROMOTERS OF AILMENTS AND DISEASE.

The importance and materiality of the subject-matter under notice is much greater than most people suppose. "These stairs do tire me so;" "It puts me all out of breath to go up these stairs," etc., are perpetual and incessant expressions, particularly with the feeble and aged; and frequently smart and active people find themselves well out of breath by going up-stairs a little lively; all of which goes to set up the fact that a vast amount of physical force and energy is required and expended in the ordinary use of stairs—millions of people the world over, being every moment of time in the act of ascending or descending these indispensable house conveniences. And the fact is well known, especially among the medical fraternity, that "climbing stairs" is a most injurious exercise to weakly and ailing persons—those not blessed with strong physical frames and sound lungs. The doctor's prohibit is placed upon multitudes, and untold numbers of prostrations upon beds of suffering have origin in too much stair exercise. And this being true, that ascending stairs is hurtful to those who are not strong, is it not an extra tax upon the strength and energies of every man and woman who is required or compelled to pass from floor to floor by means of stairs? It is more tiresome to even the strongest and stoutest of men to ascend stairs to the height of fifty feet, than to walk on level ground twenty times that distance. Although a man might, and very possibly could, "walk all day" without exhaustion, it is doubtful whether a human being could be found, capable of enduring the fatigue of one single hour's continuous ascent of stairs, particularly of those denominated "hard" to ascend. The strain upon the muscular and physical forces would be far too great for human endurance. It is questionable whether in the entire population of San Francisco a single individual exists who would be able to perform the feat, and if found, the condition at the ending of the performance would be

EXCEEDINGLY DILAPIDATED.

All this serves to verify the common every-day experiences and aversions in families and among business men and people generally to the use of stairs. The ever-present disinclination in this regard remains unexpressed from the force of circumstances,—the compulsory ascent of stairs as the only means of reaching the upper stories. People do not "go up-stairs" for any pleasure found *in the act* of going up. There may be pleasures reached through and by the act, but not *in* its performance. And it is safe to say that if necessity, curiosity, or some other special incentive never existed, rendering the use of stairs more or less compulsory, they would remain unused.

Stair building is one of the necessities created by the huddling together of communities of people, in cities, towns, and villages within limits which require structures of more than one story in height, to furnish appartments sufficient for the purposes of business and domestic life. When mankind dwelt in tents, and spread their dwelling-places over large tracts of land, the stair builder was unknown. But the centralizing and contracting effect of civilizing brought about the necessity for buildings with multiplicity of stories, to utilize which, stairs became an indispensable requirement as a means of reaching the several levels placed above one another; and for ages they have been submitted to as an evil without remedy. But during later years,

NUMEROUS DEVICES IN PASSENGER ELEVATORS

Have been invented and brought into practical use to relieve and obviate the fatigues and exertions of "stair climbing." And hundreds of thousands of persons who are "*afraid of elevators*," and speak of them as "*dangerous*," are nevertheless willing to "*risk their lives*" upon these "*dangerous contrivances*," to avoid the discomforts of reaching upper stories by means of stairways.

All this goes to show that stairs, while a common necessity in house construction, are more a source of enforced convenience than of comfort and healthfulness. And being so, their most perfect apportionment of run and rise should receive the most skillful and careful consideration, as no amount of expenditure of money, nor all the elegance and beauty of design or workmanship, can relieve the extra hardships imposed upon those compelled to use stairs not built in conformity with the best understood rules productive of "easy stairs."

What Is the Difference?

SOME of our readers may think that too frequent reference to the subject of sewer gases, is made in the columns of this journal. If health and life are immaterial considerations, then it is true. If they are important and valuable, then too much cannot be written or said. There is no intelligent person who will presume for one moment to dispute or deny, that where those poisonous vapors are breathed day and night, sickness and death must ensue. Their fatal character is beyond controversy, and the rapidity of their work depends only upon the quantity inhaled.

Reader, permit us to suggest the following: If a man should fell his wife, mother, child or friend to the floor by a blow, and he or she should die from the effects of the blow, would not a death be caused by the hand of him who struck the blow? Or if either should be pushed into the waters of the bay, and were drowned, would not he who did the pushing be responsible for the death? In either case, it would be murder, homicide, or manslaughter. Now then, if a man builds a home for his family, and its construction, appointments, and defects are such that the sewer gases are admitted, and loved ones die from the effects of those gases, is it any less a death? The blow caused death, the drowning caused death, and the gases caused death. The only difference is in the manner and circumstances of the cases. We shall not presume to say that there is the same degree of guilt in either case, but that the result is the same is certain. A man, woman, or child when killed, is *killed*, the only remaining question being the means and manner of producing the death. And when death occurs, whatever may be the cause thereof, the usual stereotyped notice occurs, "*In the providence of God, etc., it pleased the Lord to call him or her away*," thus making the Almighty responsible in all cases, while in so many instances in this connection sickness and deaths are caused by men assuming to know a great deal, yet possessing but a small amount of proper, practical knowledge in many important respects in the erection of homes for their families; doing, or permitting things to be done, at variance with all right rules and principles familiarly known to all intelligent physicians and architects to involve dangerous risks, if not fatal consequences. If the Almighty Being has anything to do with such cases, he simply makes fools of men, causing them to build imperfect and incomplete houses, and employ incompetent men to plan them, and others to execute the blundering work, so that he may kill off some loved one. We hold that God is not responsible for the bad judgment of men in the erection of their homes, nor does he require the blunderings of either architects, plumbers, sewer layers, or any other to work out his purposes. If he uses these means in any way it is to punish those who fail to observe the natural laws of creation and life, and bring upon themselves bereavements and sorrows.

A New Device in Blinds.

IN answer to several inquiries concerning Hill's Patent Inside Sliding Blinds, now being introduced on this coast, and whose advertisement appears on page 80, we give the following short description.

These blinds are made by machinery specially constructed for this work, from the best material; they are finished by hand, and are very neat, economical, and convenient. Although constructed of light material, it possesses more durable qualities than a hinged shutter. It can be closed with the window raised, and will not blow open or rattle.

As inside blinds are an important feature in most every building, too much care cannot be exercised in selecting that system and style of blinds whose general qualities are simplicity and convenience. Considerable objection has been raised against the inside folding blinds now in ordinary use, many people preferring to be without any rather than be bothered with their curtains continually catching when folding in and out. Many also object to the pocket at each side of the frame, as it forms a receptacle for dirt and dust.

The Hill Blinds are formed in compartments or sections, and are made to run in grooves, each section sliding past the other with secreted springs to hold them in position at any point. They are very easily managed, and are entirely out of the way of

any article upon the window-sill; they do not in any way interfere with the curtains or draperies, and by pressing the blinds to the right, they can be instantly removed, and taken from the room and cleaned.

Wherever introduced, these blinds have given entire satisfaction. They are very popular in the Eastern States. And, as they are handsome in appearance, neat and durable, and cost considerable less than the folding blind, we think it would be advantageous to those interested, to call on Edward B. Hindes, 330 Pine Street, room 55, who is agent for the association on this coast, and see full size models.

Luck—"Good" and "Bad."

THERE are but few words in the English language more bandied and misapplied than the term, Luck; which is used to express some unknown, invisible, undefined something, having no tangible existence or application other than a speculative, convenient sentiment, utilized to fill endless numbers of gaps in the experiences and vicissitudes of life,—a substitute for the less acceptable idea of destiny; for if a man possesses in his moral, mental, or physical nature, or is specially surrounded with an influence or controlling principle or element which entitles him to the common appellation of a lucky or unlucky individual, then his fortunes or misfortunes must be the result of an agency not under his control, and not the result of clear discernment, good judgment, and prudent and discrete action; but is the enforcement of success or non-success by a power or principle which is wholly above and beyond the control of the recipients.

Those who pass through life enjoying its common comforts and successes without any specially noticeable occurrences, are considered simply good, careful business men, in nowise indebted to freaks of either good or bad luck. But those who by acts of shrewdness, cunning, or unscrupulous boldness make big strikes, and gather in great fortunes—perhaps millions—are regarded as "lucky;" "every move they make *wins*," while others of equal integrity and caliber would fail of like success under similar opportunities, because restrained by broader and more liberal views of justice and right beyond themselves.

The extravagant and reckless, as well as the weak-spirited, and those frequently out of work, alike draw their qualifications and consolations from the same source—"luck."

Those who have swamped fortunes in wild speculations, attribute their adverses to "ill luck." The criminal with the blood of his fellow creature upon his hands, and those guilty of lesser crimes, unite to patch up treaties with conscience by persuading themselves they have been the victims of circumstances—*unlucky*.

For all the faults and failures of men, their positive sins and culpable short-comings, "luck" is the antidote.

The Greeks and Romans fully accepted the theory of "luck," calling it destiny. Alexander the Great depended upon this pretext for human failures. Pliny says, "Some people refer their successes to virtue and ability, but it is all *fate*." Napoleon believed in his "star." Cromwell and Lord Nelson had similar ideas.

There are such things accredited as happy and unhappy accidents and happenings. We read of a painter who produced a long-sought effect by throwing his brush at the canvas in a fit of rage. Franklin ascribed his turn of thought and conduct through life, to the finding of a copy of Cotton Mather's essays.

It must, however, be admitted that very many most singular things occur. One man may seek to extract the juice from an orange, and perhaps meet his death by choking from the lodgment of a single seed in his throat, while another may have an iron bar run through his body and survive; another may but pierce his flesh with a thorn and die, despite the efforts of the best medical treatment, while another may swallow a jack-knife, pass it, and live on the full period of life unharmed by the event.

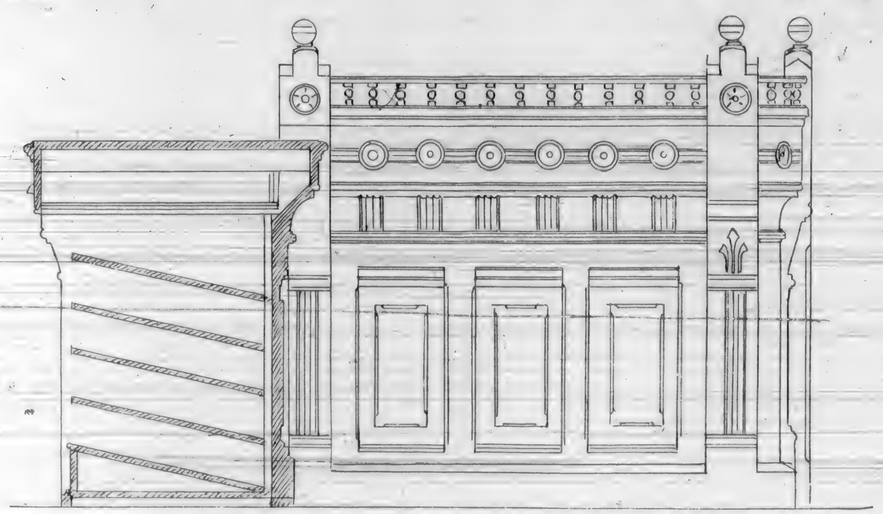
The thing called "luck" is but a bugbear—a delusion for the unphilosophical, spiritless, and indifferent to rest upon. The successful of human kind are those who do the right thing in the right way and at the right time. Those called "lucky fellows" are no more nor less than men who have been quick to utilize opportunities, and persistently follow up advantage, hunting for additional agencies and sources of wealth, and handling and protecting their gains in the one direction of profit and increase.

Luck as a doctrine or theory is demoralizing, delusive, and mischievous, and a cloak and covering for human faults and weaknesses. The things attributed to luck and chance as commonly understood, are but combinations of events, coming and going like all things in life, which, if seized upon at the right time, and successfully manipulated, yield their reward; while if neglected and allowed to pass by unimproved, they are but as the fleeting winds, those securing advantages being called "lucky," and those who do not, because they failed to succeed, through indolence or inactivity, are awarded the royal plume of "unlucky dogs."

THE New York Court of Appeals has recently decided a case involving a building contract, confirming the decision of an inferior court. The New York *Daily Register* gives a rather meager report of the case, but there are several interesting points in the decision. The circumstances seem to have been that a certain builder contracted in the usual form to erect a house under the direction of a firm of architects, and with the ordinary stipulation that no payment should be made until a certificate of the architects that the payment was due had been presented to the owner. There was another provision in the contract to the effect that disputes concerning the construction or meaning of the plans should be decided by the architects, but that any other difference between the parties should be submitted to the arbitration of two competent and disinterested persons, to be selected in a specified manner; and a forfeiture for delay in completion was also agreed upon. The house was not completed for four months after the contract time, but the owner then moved in. The builder applied to the architects for a final certificate, but was told that the owner had instructed them to give no more certificates. He then went to the owner, who pointed out some little matters still remaining unfinished, and told him that when those were done he would pay at once the balance due, after deducting the amount of the forfeiture for delay. It would seem that this promise was not fulfilled, for the builder subsequently brought suit for his money. The defense claimed that the certificate of the architect was agreed to be a necessary prerequisite to obtaining payment, so that the owner was not bound to pay anything until this had been produced; and as the builder failed to bring the certificate, he had no right of action against the owner for refusing to pay.

Many decisions show that under ordinary circumstances this is an unanswerable argument but in the present case it was not disputed that the owner had instructed the architects to give no more certificates, and the court held that the owner, who had introduced the stipulation in regard to certificates into the contract for his own benefit, might waive it, and that, "if he accepted the house as under a completed contract, the plaintiff would be entitled to recover, although no certificate had been given, and even if the architect was not satisfied." Another point was made by the defense, that, as the contract provided that all differences not relating to the construction of the plans should be decided by arbitration, this stipulation should have been complied with before bringing suit. In regard to this the court held that it was no more the duty of one party than of the other to resort to arbitration, and as the defendant, so far as was shown, took no steps toward the selection of arbitrators, it was unnecessary to consider this defense. The questions which the jury was called upon to consider were two in number, the first being whether the owner accepted the house as a completed building under the contract; and whether, if it was so accepted, the delay in its completion was caused by the owner's fault. What was the jury's decision we do not know, but the Court of Appeals held that these questions were properly submitted to it, and confirmed the verdict. The case is called Smith *versus* Alker, and seems to have been decided some time in March last. It is worth observing that the ground on which the jury decided that the owner had virtually accepted his house as complete seems to have been rather his promise to pay the contract price when certain small alterations had been made, than his occupancy of the building. It has been decided more than once, we think, that the owner's moving into a new house does not constitute an acceptance of it, but in the present case the fact of his moving in, coupled with the assurance to the builder that he would pay the balance of the price, less deductions for delay, as soon as some small matters had been attended to, seems to have been regarded as a virtual acceptance from which he could not retreat without good reason.—*American Architect and Building News.*

CARPETS AND DECORATION.—It is a great point in house decoration to secure carpets that accord with wall and ceiling tints and patterns, where these have been already put on. Irregular patches of color in carpet do not show well where wall and ceiling have methodical and carefully considered designs. The carpet, too, should be responsive to warm, or brilliant, or delicate tones in these. Many a decorator suffers in reputation from the incongruity of a carpet introduced after he has done his work. As a general rule we are inclined to think that any recurrence of geometrical patterns, inclosing compartments of large size, is fatal to the success of a carpet design. The best patterns are neither up and down, nor "all over," but are evenly distributed over the whole area, or arranged with reference to a center toward which the accessories work. Some excellent combinations are those in which, on a field or ground of some secondary shade, the pattern consists of some small repeats, touched slightly with primary colors in various tints, relieved or edged with gray.



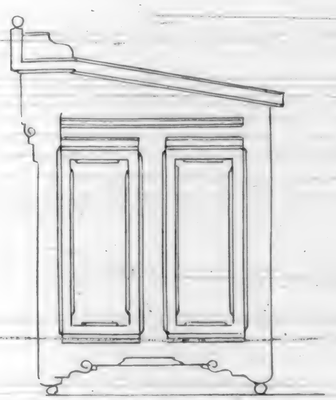
SECTION OF MAIN COUNTER AND ELEVATION OF SIDE DESK.

New Zealand Insurance Company.

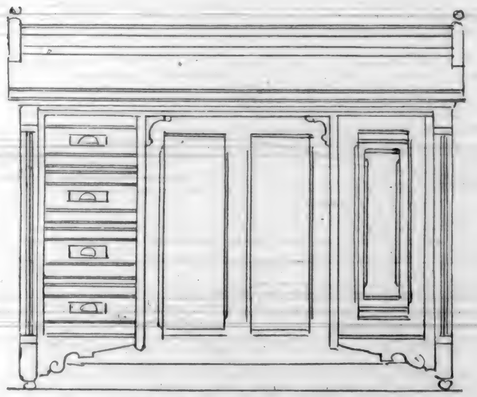
IN November, 1883, we illustrated the proposed new building of the New Zealand Insurance Company, to be erected in this city on their property, 310, 312, 314 California Street. The Pacific Coast manager, Mr. Hugh Craig, has lately returned from a trip to the head office, Auckland, New Zealand. The company, for the present, have decided to let the old buildings remain and fit up for their own convenience No. 312. To carry out this idea Messrs. Wright & Sanders were employed to prepare designs for the interior fittings. How well their instructions were carried out may be seen by a visit to the company's new quarters between the hours of 9 A. M. and 5 P. M.

The contract for the carpenter and mill work was given to Mr. W. A. Knowles, of Oakland. The interior decorating is the work of Cook Bros., 108 and 110 Post Street.

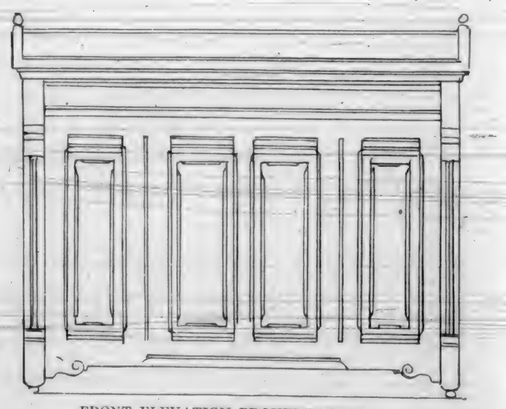
A general idea of the arrangements may be gathered from the accompanying desk elevations and interior perspective on following pages. All the woodwork is in solid Eastern oak. The wainscot is surmounted by a band of Lincusta Walton 15 inches in width. The frieze and cornice are frescoed in ocel, light greys, producing a very pleasing effect, and displaying excellent taste in this style of decorating. A vault of solid brick and cement 18 feet 6 inches by 9 feet 9 feet has been built across the rear of the room. The area of the office is 18 feet 6 inches by 68 feet 6 inches, and is only sufficient for the City Fire and Marine Departments.



SIDE ELEVATION BROKER'S DESK.



REAR ELEVATION BROKER'S DESK.



FRONT ELEVATION BROKER'S DESK.

We note from the last quarter's report of the Underwriters' Fire Patrol of San Francisco, that there are ninety-six fire companies operating in this city, and that the receipts of the New Zealand Insurance Company are neither least or last. The New Zealand has, since its advent upon this coast in 1875, taken a prominent position in the matter of receipts, as well as figuring in every large fire, and many of the smaller ones, from which our city has suffered during the last eleven years.

The property upon which the offices are located was purchased from Sir Robert Burnett, Aberdeen, Scotland, the Newhall heirs, and M. Rosenbaum of this city. The frontage of the three properties is 60 feet on California Street, with a depth of 124 feet, with a rear frontage on Halleck Street of 60 feet 6 inches.

When foreign capital, represented by companies of this standing, comes among us and identifies itself with our citizens, we cannot do better than give it our earnest support. Had the above investment been made by a company hailing from London, we would not have been at all surprised, because we can give them a much greater return than can be obtained in the United Kingdom. But it has remained for the most progressive and youngest of Britain's daughters to come to us and put New Zealand money, which brings a higher rate of interest at home, into property in San Francisco.

We wish them continual prosperity, and hope the receipts of this bold and conservative company will so far exceed the losses and expenses as to justify them in soon erecting the large building and spacious offices for which Messrs. Wright & Sanders have already prepared plans.

The following brief history, showing the progress of this company, was handed to us by Mr. Hugh Craig, Manager for the Pacific Coast:—

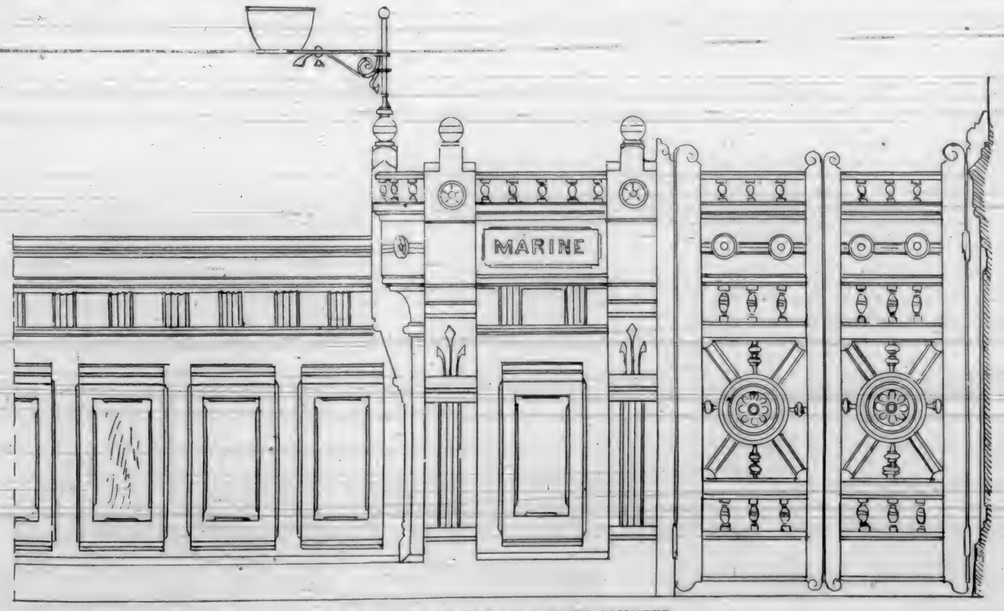
"The company was established in Auckland, New Zealand, May, 1859, with a paid-up capital of $24,225. In 1862 its paid-up capital had increased to $75,000; in July, 1863, to $150,000; in July, 1864, to $225,000; in January, 1865, to $250,000; in 1871, to $375,000; in 1873, to $500,000; and to-day the paid-up capital stands at $1,000,000; assets, over $2,750,000, with unlimited liability of shareholders."

TO IMITATE BLACK ROSEWOOD.—The work must be grounded black, after which take some red lead well ground and mixed in the usual way, which lay on with a flat, stiff brush in imitation of the streaks in the wood; then take a small quantity of lake, ground fine, and mix it with brown spirit varnish, but not with more color than will just tinge the varnish, and if still too red, add a small quantity of Vandyke brown. If the work is well done, the surface, when varnished and polished, will scarcely be known from rosewood.—*Painters' Magazine and Coach Painter.*

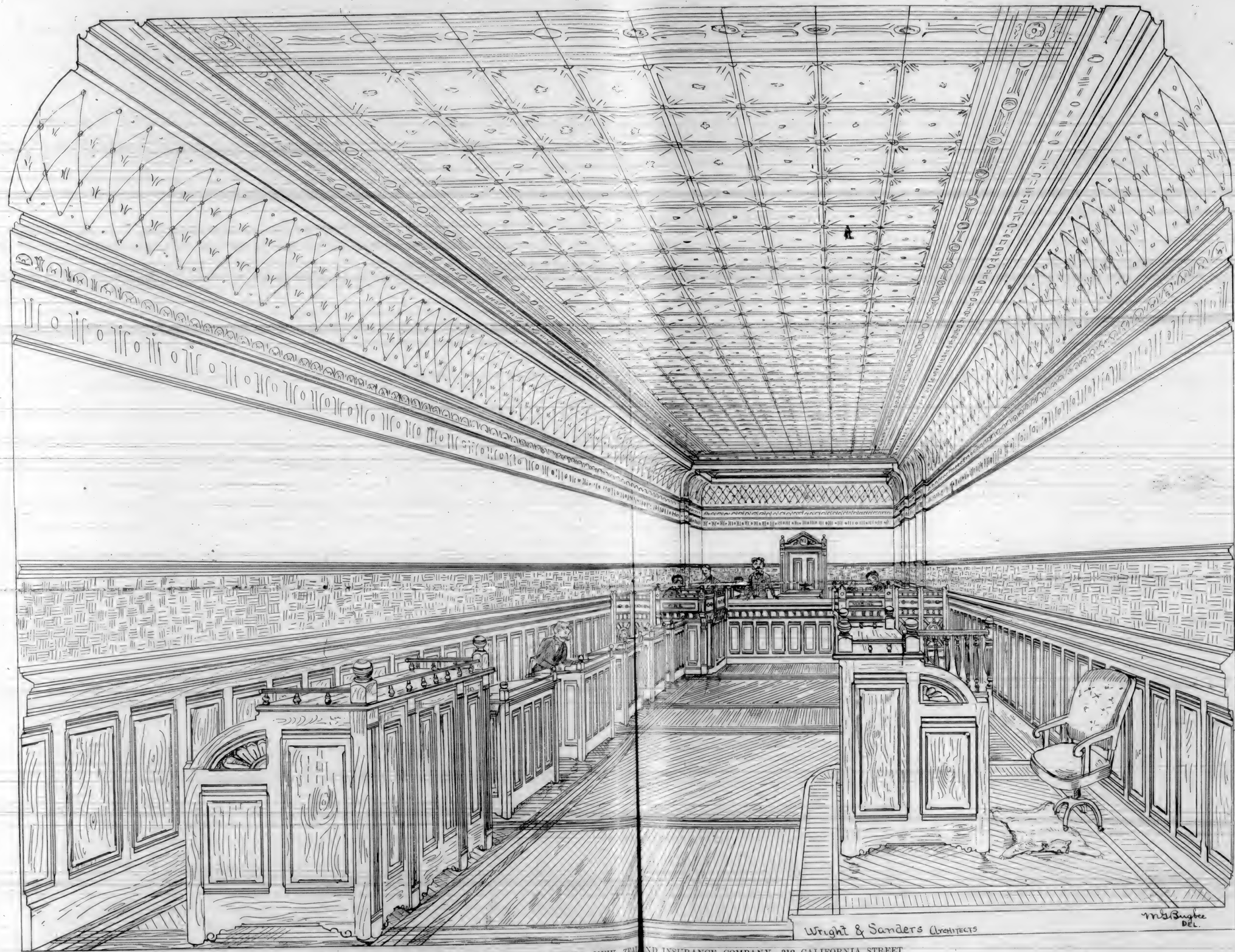
SHINGLE ROOFS SHOULD BE WELL PAINTED.—There is no portion of a building of greater importance, and none subject to greater "wear and tear," than the roof. And as a general rule, no part which receives so little attention after it is on. Owners seldom trouble themselves about the roof so long as it keeps out the rains, and no effort is made to preserve it, until it begins to leak; by which time the decay assumes such magnitude, that patching and repairs simply prolong for a year or two, the time when the putting on of a new roof will become inevitable. All exposed portions of buildings require constant attention and care, and this is supremely true in reference to roofs, whether laid of shingles or metal. Shingle roofs may be preserved for a lifetime, by being properly painted when new, followed by additional coats at proper intervals. The preservative advantages of painting shingle roofs have not attracted general attention from either owners or architects, although there is no place in the known world where the necessity is greater than in California, particularly in San Francisco, where as an almost universal rule none but thin redwood shingles are used. The severe and sudden changes to which roofs are subjected, of hot suns, heavy fogs and dews, drying "north winds," occasional spells of "scorching heat," heavy rains, etc., etc., are very severe upon so light a roof covering as the fragile redwood shingles. It is, therefore, wise to protect them by painting, which increases durability, adds largely to appearances, and if a really *good fire proof paint* is to be found, and is used, gives security from fire to a considerable extent; as burning embers falling on a roof so painted, will not ignite the shingles.

EDITOR CALIFORNIA ARCHITECT—*Dear Sir:* How few there are who give credit to the architect, or appreciate his many perplexing studies. He is expected to furnish, off-handedly, all information demanded of him, by whomsoever asked, whether the inquirer be a tailor, a shoemaker, a hatter, a blacksmith, or even a full-blown flower of femininity—an old maid. Even the judicial mind makes demands upon the mental resources of the architect, and but little credit is given for the numerous and varied experiences and studies necessary to all this. The professional architect is looked upon as one whose mind is equal to a common library.

If *duly qualified* as such, he stands at the head of all the professions. He must be a good geometrician; must be skilled in the art of writing up contracts and bonds; must be fully conversant with the strength of all building materials—wood, iron, stone, bricks, cement, etc.; also the market value of lumber of all grades—hardware, wrought and cast iron, glass, paints, slate, plumbing



ELEVATION OF ONE-HALF MAIN COUNTER



INTERIOR OF NEW SAN FRANCISCO OFFICE, NEW ZEALAND INSURANCE COMPANY, 312 CALIFORNIA STREET.