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MR. CLARENCE COOK, in his essay in the *North American Review*, makes the assertion, that "The general excellence which marks the dwellings of any people is a proof of the non-existence of professional architects among that people," and further, that "where architects abound the art of building always deteriorates." In support of this he cites the structures of colonial and revolutionary days, in many of which, as he truly says, "there is a sense of proportion, of picturesqueness, and of comfort," in which the dwellings of the present time "are particularly wanting;" and he calls attention to the fact that all those structures were the work of "simple builders, who knew their trade, and never cared to give themselves a finer name." Continuing his argument, he says that "Architects may have designed the bad houses of Venice, but never the good ones," a statement which, to say the least, seems to need qualification, and refers, this time with justice, to the Swiss chalets, as examples of a kind of building which owes nothing to culture, science, or archæology, and yet exhibits in its direct and skilful satisfying of the conditions imposed by local circumstances and taste, a degree of that beauty of fitness known as "style" which no other modern architecture can surpass. Mr. Cook is not the first to make such observations; in one form or another they have been repeated a score of times within as many years; and although the form which they have generally taken, of more or less ignorant and foolish abuse of architects, has prevented them from receiving much consideration, it may be worth while to reflect a moment on the subject, to see, if we can, whether there is real ground for them, and if so, whether something may not be done to remove such an imputation from a profession equal to any in the ability, industry and devotion of its members.

THAT the buildings of the Colonial period often possess a character of picturesqueness, proportion and comfort, which we find it easy to appreciate, but not to reproduce, must, we think, be acknowledged; but that this is more the fault of the architects than of the modern habits of life we venture to doubt. One who studies Colonial architecture is apt to be constantly surprised, not at the simplicity with which the problems of house-building were met, but at the sacrifices of convenience which our forefathers made for the sake of external effect. Fond as we profess to be of picturesqueness in the design of houses, we doubt whether any architect of the present day could persuade a client into reducing the height of his kitchen at one end to four or five feet, as was often done a hundred years ago, apparently with the sole object of including it with the rest of the house under that broad sweep of roof whose beauty we seek in vain to reconcile with modern requirements; or whether he could plan a building with ceilings crossed by beams less than six feet from the floor, or steps at unexpected intervals in the passages, such as we admire so much in our ancestors' houses, without forfeiting the esteem of his contemporaries. Moreover, the architects of the present day, in endeavoring to give to their designs the air of substantial comfort which characterizes the mansions of the Revolutionary period, are confronted with an insurmountable difficulty, in the form of the duty now imposed upon them of attaching piazzas or porches to their houses. It is useless to upbraid a man for

failing to give to a structure surrounded by piazzas the look of pleasant solidity which a square building may have without them; the problem is not perhaps insoluble, but at least it has never yet been solved; and those proprietors who wish to be comfortable in hot weather must consent to a sacrifice of the architectural dignity of their mansions at other times.

CONCERNING the superior beauty of proportion often shown in the early houses Mr. Cook speaks with more reason, and we freely confess that the details of wood-work were as a rule much better designed and executed a hundred years ago than they are now. For this there are several reasons, of which the principal one is that in those days only one style of architecture was in use, and every one who undertook to manage a moulding plane was obliged to learn by heart, out of Sir William Chambers's, Batty Langley's, or Peter Nicholson's books, or from his master during his years of apprenticeship, the forms and proportions of frieze, cavetto, bed-mould, corona, cymatium and fillet, until a well-designed dentil cornice or pulvinated frieze was an easy task for every carpenter. The correct proportions of doors, windows, architraves, pilasters, pediments and panels were in the same manner duly laid down in the books and committed to memory by all intelligent builders, to be applied in practice on occasion. There was no demand for originality, and design consisting in the repetition of a set of well-known details, it was only natural that the execution of these details should reach a remarkable perfection. The constant contemplation of classical examples and the practice of classic work brought with it that sense of proportion and elegance which the study of ancient art never fails to develop, and so long as the style remained in fashion it was practised with increasing success. Not long after the outbreak of the Gothic crusade in England the fever reached our shores, and this event proved the signal for a rapid decline in taste. The bonds of the classical rule were broken; there was nothing, and has been nothing since, either to restrain the aberrations of importunate vulgarity or to serve as a basis for the progress of those who possess taste and skill. That it will be always so we do not believe: sooner or later the vagaries of our present architecture will resolve themselves, by the survival of the fittest, into an accepted style, upon which the genius of successive generations can work effectually to purify and animate, until it is fitted to be the noblest expression of that great American art-impulse of which the first signs are unmistakably visible among us.

DR. J. C. PETERS, of New York, seems to have taken up earnestly the discussion as to the sanitary condition of Newport, where his family have spent many summers, and publishes in the New York papers some letters of severe, but apparently honest condemnation of the slovenly ways which still prevail in the town. His strictures, as he explains, are not intended as volunteer criticisms on matters in which he has no personal interest, but are published in the hope of promoting a reform which will benefit his immediate family as well as others. His own cottage, which is on Church Street, near Bellevue Avenue, was this year, as he says, in almost perfect sanitary condition, but that did not save him from being much annoyed by the vicinity of premises of a very different character. The next house to his was occupied by the Newport Club, which maintained what he calls "five outrageous nuisances" during most of the season; less than a hundred feet away was a filthy cabstand, which no attempt was ever made to clean; and at about the same distance was the open man-hole of a sewer catch-basin full of a liquid so offensive as to have made the nearest house unhealthy for many years. Some of his family took their meals at a celebrated restaurant on Bellevue Avenue, near Kay Street, and here he found a huge privy which had not been emptied, much less cleaned out, for two years, and will not be for several years to come if its owner continues in his present frame of mind; while his pleasure excursions in the harbor, and even his walks to and from church, were disturbed by various offenses to his eyes and nose. Dr. Peter's attitude in regard to such things is one with which many persons will sympathize. He acknowledges that he always makes a sanitary inspection of the neighboring premises on arriving at Newport, and says that if his neighbors will keep their stench and nuisances on their own grounds, and not allow any of them to

come into his, he will be content, but that he resents stench coming over into his premises just as he would if those responsible for them were to throw their filth and garbage over his fence. If every one had the same conception of his rights, there might be more quarrelling among neighbors, but the public health would gain. That Newport is bad enough in these matters most persons familiar with the old town can testify, but there are very many other cities which are little better.

THE competition of designs for the Capitol of the State of Texas, which took place a year or two ago, seems to have had a sequel which, though disagreeable to those interested in the building, was perhaps not so far from what might have been expected. We remember little of the terms of the competition beyond the amusement which they excited among architects, but our impression is that the profession was expected to contribute a large number of complete sets of working drawings, specifications and estimates, worth, if made with any approach to the necessary skill and care, at least twenty thousand dollars apiece, and from among these one was to be chosen for purchase by the State, at the lavish expense of twelve hundred dollars, if our memory serves us; and with the additional proviso that payment should be made out of the proceeds of some future sales of public lands, these very public lands being then in litigation, and likely to remain so for an indefinite period. It is marvellous that even an apology for a design should have been received in response to such an invitation, but it would seem that more than one was sent in, for the commendable step was taken of inviting the aid of Professor Moser, of Atlanta, as an expert adviser in deciding among them. No doubt his counsel was good, and it is only to be regretted that more of it was not asked for. However, the construction of the building was begun, and carried on rapidly—or would have been had not a portion of the walls unexpectedly fallen down just as the roof was ready to put on. The people who lived near were naturally alarmed, and an investigation was made by experts into the causes of the catastrophe. According to the account in the New Orleans *Picayune*, the report of these experts passes lightly over the circumstances which led to the accident, but makes the tolerably sweeping recommendation that "the entire north and west walls be taken down and strong ones substituted," and that "the entire roof be condemned;" supporting their advice by the prediction that if the present construction is allowed to proceed the building "will in five years be unsafe, and dangerous to persons passing near." We had thought that the spectacle of the Minnesota State-House blazing like a heap of straw, with the frightened legislators crawling for their lives out of the windows, must have been one of the most humiliating that the citizens of a self-respecting community could witness; but even a state-house of laths and furring is a creditable object compared with one whose roof, supported with difficulty on its tottering walls, daily threatens to collapse over its occupants, while the passers-by move in a wide circle around it, not out of respect for the seat of government of a State nearly as large as the whole of France and Italy combined, but from fear lest the masonry which encloses it should suddenly bulge in one direction or another and tumble on their heads.

THE great strike of the iron-workers in the Pittsburgh district has ended, the men returning to their places at the old rates, after a voluntary suspension of business for one hundred and eleven days, and a sacrifice of more than ten millions of dollars in wages. Although the strike has been one of the longest on record, it has been conducted on the part of the men with moderation, and, latterly, with good sense. The formal ending of the struggle was decided by the vote of delegates from all the districts interested, who, as it was understood they would do, voted by a majority of three to one to return to the old scale. It is reported that certain manufacturers, elated by their victory, propose, while paying substantially the wages asked for, to reject the sliding scale altogether, and refuse any recognition of the Amalgamated Association. This, it seems to us, would be an action more foolish than any which the striking workmen have been guilty of. Even if it were desirable to destroy the Association, which is, to say the least, doubtful, the way to do so is not to declare open war against it on a trivial pretext, and if masters and men would only think so, both classes might, with advantage, be joined in a body whose object ought to be the promotion of the best and most economi-

cal methods of conducting that great industry, with a view to the prosperity of all concerned in it.

ACCOUNTS of damage to property from electric-light wires have become almost too common to attract notice. Within a few weeks the Paris Opera-House has been set on fire in this way; two incipient conflagrations in the Boston & Albany Railroad Station in Boston have been checked just before they became uncontrollable, and the telegraph apparatus at two New York police stations has been destroyed by the crossing of the line with that of an electric-light. It seems almost time that some steps were taken to guard the public against the carelessness of the electric-light companies in running their lines. It is probably true, as they assert, that fires caused by electricity are far less frequent than those caused by gas-lights; but that does not excuse them for exposing other people even to a small danger, and the risk from electric currents has the unpleasant quality that it is usually impossible to guard against it. A careful man can turn out all the gas-lights and cover up the fires in his house for the night, and sleep in tolerable security until morning, but if he has a telephone or telegraph connection in the building he can never know how soon the current from an electric-light wire a mile or two away may descend upon him, and without warning set his dwelling in a blaze. This risk, with that from lightning, has done much to restrict the use of telephones in suburban and rural districts, where help in case of fire is at a distance, and it would be for the interest of the numerous telephone companies to devise some effectual means for guarding against both forms of danger.

M. AUGUSTE BARTHOLDI, a sculptor whose reputation interests Americans almost as much as his own countrymen, is mentioned in the French journals as having been recently advanced to the grade of officer of the Legion of Honor. This new distinction is probably connected with the completion of his very successful statue of Rouget de l'Isle, just inaugurated at Lons-le-Saulnier, an important manufacturing town in the Department of Jura. His greatest work, the statue of Liberty to be presented to the city of New York, will, when it is finished, probably earn for him still higher honors from his countrymen, although the persons upon whom it is to be bestowed have thought fit to accept it in a manner as churlish and contemptuous as the intention of the givers was delicate and generous.

A TERRIBLE engine of war has been invented, and has already been tested with success in England, in the shape of a moving submarine torpedo which can be controlled and directed from the shore. All those interested in such subjects know something of the Whitehead and Lay torpedoes, which are driven through the water by the action of compressed air stored up in their interior, and if directed with accuracy will explode upon coming in contact with the hull of the vessel to be attacked; but they have the serious fault of being beyond control after they leave their starting point, so that if a current should deflect their course to one side or the other of their intended victim, they keep on indefinitely, and are lost, or may even inflict injury upon friends instead of enemies. The new machine, on the contrary, can be turned in any direction at the will of the operator, and is readily stopped at any point, started again or drawn back, the explosion being effected only when the torpedo has reached a satisfactory position. All this is accomplished by very simple means. The torpedo, of cylindrical shape, and pointed at each end, is furnished with two small propellers, geared to cross shafts, around each of which is wound a fine wire rope of great length. On the shore is stationed a light windlass, driven by a steam-engine or any other motor, and having a velocity at the periphery of the drum of about one hundred feet per second. On placing the torpedo in the water, and starting the windlass so as to pull in the line wound about the shafts, a rapid movement is imparted to the propellers, and the machine, instead of being instantly hauled backward out of the water, is driven forward at a speed of fifteen or twenty miles an hour as long as the windlass continues to turn. The duplication of the ropes gives an opportunity for steering, and a light insulated wire affords the means of sending an electric spark to fire the dynamite or other explosive contained in the torpedo. The weight of the wire would limit the effective range of this formidable weapon, but it has been sent a third of a mile successfully.

## PERIGUEUX.



noted for its celebrated *pâtes de Périgueux*, which tickle the stomach of the gourmand, — strong enough to walk to a county fair and register themselves, and which form quite an article of export.

We arrive there late one beautiful Saturday afternoon just as the sun is sinking over the hills, throwing deep shadows against the old walls and buildings and bringing out in deep relief the towers and turrets which seem to crop out from above the old tiled roofs. The river flows dreamily along its course, while the three bridges, old and moss-covered in places, cast their long deep shadows against the black stream, the whole scene a picture of lazy independence. Streams of workmen clank along the streets in their wooden *sabots*, women with huge bundles on their heads and the same huge wooden *sabots* on their feet are taking away their wares for the night, while along the *quai* the better class of peasants sit at the little open café, sip their wine, and discuss the latest topic of interest.

Such, in short, is the impression upon our minds. Suppose we sit down at one of the little tables which overlook the river, and under the influence of a bottle of *vin ordinaire* become one of the people: a half-hour here will show us more of the character and condition of the people of these little provincial towns than the reading of a dozen books. We are in a sort of annex to a large and beautiful château, which is now in a state of neglect, and of which a sketch is made later; before us are two huge wooden columns holding up the roof of our balcony, and over which clamber vines in rich profusion. Below is the river, and immediately at the right is one of the old bridges. Our neighbors, meanwhile, are talking excitedly together, — evidently a little politics has entered into the conversation, and the name of Napoleon calls forth from one a shrug of the shoulders, or a spontaneous "*vive la République*." While talking,



away in the distance we hear the notes of the bugle calling the soldiers to their barracks: nearer and nearer it comes, until at last the bugle passes under the balcony and his notes grow more and more distinct as he recedes. His figure has recalled to our minds, both in color and pose, the charming breath of life to set out of sight, his call

pieces of *Détaille* which seem only to need the whole scene in action. But our bugler has died away in the distance, and the bottle is empty: this half-hour's scene has become indelibly fixed in our minds, and we return to the hotel for dinner. The next day is Sunday, clear and warm. It seems as if it might be interesting to hear the service in huge St. Front cathedral, and in order to reach the church it is necessary to pick our way through a half-dozen narrow little streets lined with picturesque bits of architecture. There stands an octagonal tower, off from which springs a circular turret: evidently a strongly-fortified dwelling of ancient date, and well secured against attack. Peering around a corner, guarded by a high stone-wall overgrown with moss and grass, another high tower comes full into view. Unlike the former it has no cornice whatever, but the roof of the building to which it is attached projects with its locked tiles far out, and forms a huge balcony, under which at one time was a huge circular arch of noble dimensions. Conjure up now a romantic bit of fancy, even a Romeo and Juliet scene if you please, and this old balcony becomes extremely interesting. Another old fortified house has been turned over to grape-culture, and a charming garden-terrace it makes, too. This tower is square, and fully half of it overhangs into the street below, and is held by a beautiful corbel and a couple of stone brackets. Just look at the huge battering wall, pierced with a single

slit window; look up above and you will see a little scene which we saw: half hidden by the vines are two French dames, peasants or ladies of high degree it matters not: they are laughing and talking to a youth below, who seems to have given up all thought of business and turned his whole attention to the fair ones before him; now turn on the pale light of the moon, together with any poetic effusion you may chance to know, add all the *amour* it is possible for you to imagine, and the romance of this old tower, like the other one, is complete. Shake yourself together again, you've been

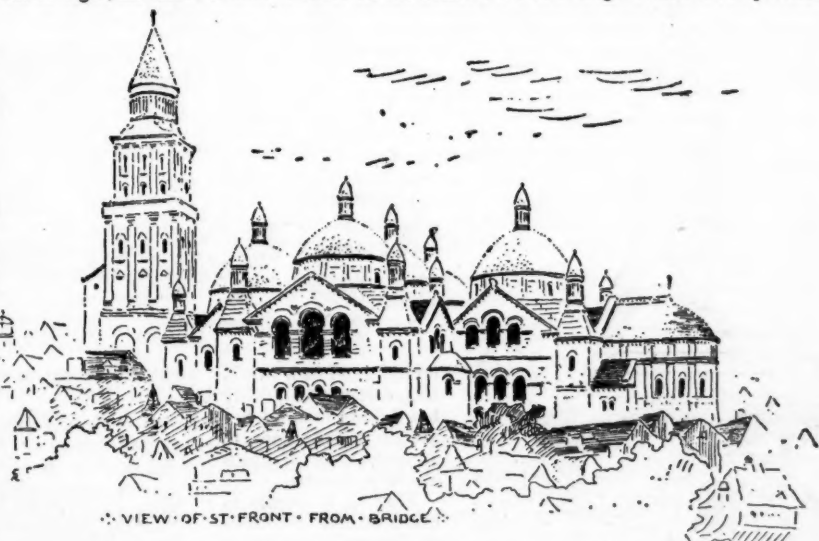
dreaming, I guess, for before you go two hundred feet you are in the dirtiest part of Périgueux, picking your way very carefully over cobble-stones, dirty puddles, filth of all kinds, — almost swearing, — and wondering how you could ever have worked yourself into such a



PERIGUEUX.

state of imagination as to conceive of a love-scene in such a place as this. But picturesque it is on all sides, and very likely if the wheels of time could turn back at our will it would reveal just such romances of real life. But meanwhile we have been winding out of this labyrinth of alleys, and are down near the river-bank. When half-way across the bridge the old bell of St. Front

peal for. Look quickly around and you will get what struck us as being the best and most impressive view of the old cathedral: rising out of the mass of tiled roofs, which are counted by hundreds, of all kinds, shapes, and states of preservation, the old church looks majestic and grand, and shows off to good effect the peculiar Byzantine character of the stone dome-work. Five cupolas, capped each with a stone turret, each cupola flanked by low gables, and each gable flanked by two turrets; from the west end springs a huge square tower made up of three stories, very dignified in design, and capped by a circular turret similar to those on the domes. . . . such in general is the impression



VIEW OF ST. FRONT FROM BRIDGE

at a distance. The large sketch of the turrets shows their construction, and the interest is increased when we know that all the columns of which they are composed are remnants of Roman buildings, and

are part of the original structure. But pass along now, we will enter the church when we return. Crowds of peasants pass us, each leading



TOWER OF  
ST. FRONT

we stop and question him a moment. . . . on the other hand he stops us and desires the loan of a sou. He is an old resident, takes quite an interest in the antiquity of the town, and can remember



when St. Front had on its old garb of dull natural antiquity, and like a true antiquarian bemoans the restorers' efforts, which have given its whole interior a new surface, and obliterated every vestige of age. We mentally pat the old man on the back, inform him that "his head is yet level," while we slip a half-franc into his withered palm. While examining the certain huge grandeur of the interior, the construction of its arches and domes, a jaunty young peasant-girl clatters by with the curious little head-dress



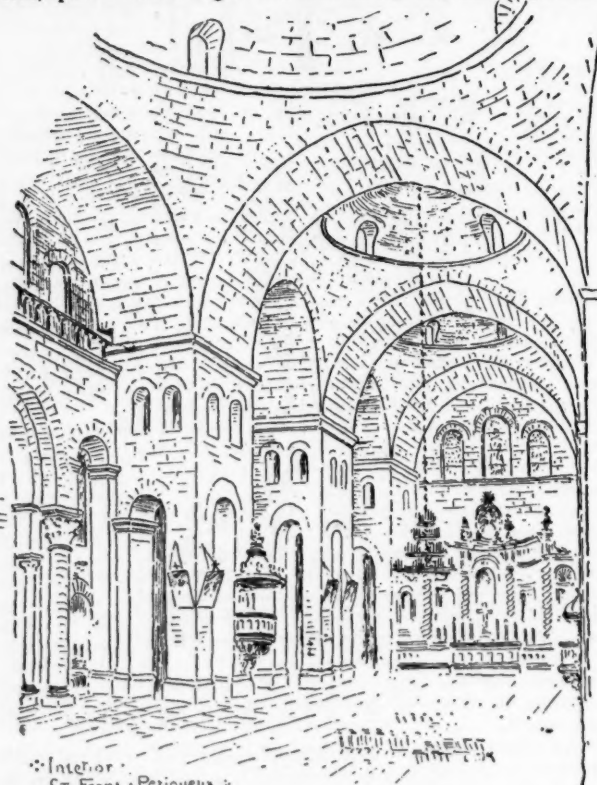
that is much worn throughout the centre of France. Down she kneels upon a chair, but is n't thinking a bit about her prayers or her beads, for she bobs around and is anxious to be off. If I don't hurry I shall lose my sketch. A saucy little pug-nose occupies the centre of the picture, and above are two just as saucy black eyes; the head is covered with a little puffed white cap with a ruffled rim, and set above this and at an angle of 45° exactly is a little black felt hat about four inches in diameter and held on by a ribbon running around behind. Suddenly she bobs



Enlarged  
Turret  
St. Front

of mind we leave the church and retrace our steps over the bridge, in order to sketch a charming old château which had caught our eye many times. It was certainly worth a better sketch had there been time. A priest and half-a-dozen boys, however, take up the time

that should have been occupied in sketching, and who, upon finding that we are real red-Indian Americans from the other side of the world, spare no effort to give and take all the information possible.



Interior  
St. Front - Perigueux

A charming feature of the building before us is the massive balcony hung out on huge brackets of simple but effective design, and looking strong enough to hold up for ever and ever. Whether the roof which runs over this balcony is a part of the original structure it is impossible to tell, but at present the balcony is covered with a picturesque (?) assortment of mattresses, dirty cream-colored sheets and quilts, while above on lines hang towels, handkerchiefs, and a host of unmentionables in every conceivable shape and condition. Overhead four gables pierce the roof, those on the main building being of beautiful design and proportion, with stone-mullioned windows, and a heavy carved frieze, hardly defaced at all. To the



PERIGUEUX

up and is off in a twinkling, but not so quickly but I have secured her sketch to take back to America, a fact of which she little dreams.

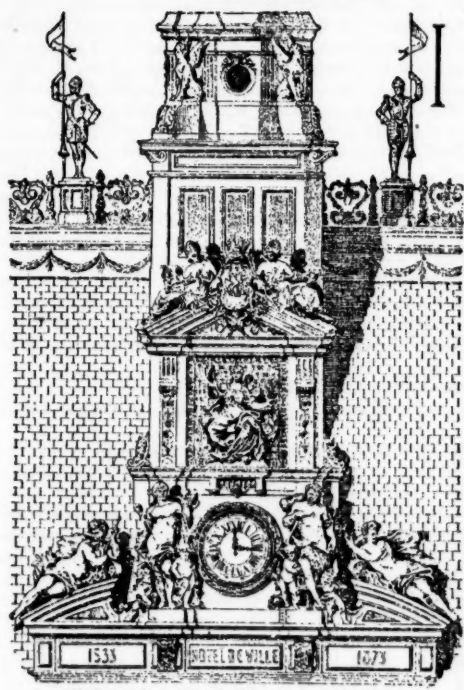
Finding it unsafe to carry on our devotions any longer in this frame

right of the château is the little annex with the columns on the balcony where we talked and laughed with the Frenchmen and drank our bottle of wine on Saturday eve. A good place to stop, isn't it? Very well, we will sit down in the calm of the evening, and again await the sounds of the bugle, which shall send us to our hotel and to bed for the night.



PERIGUEUX

GIRDERS.<sup>1</sup>—I.



is the object of this essay. Those conversant with the subject will readily see what may be new and original in the method of treatment here employed.

The demonstrations of elementary formulæ and graphical methods will not be given, but reference made to the text-books, where they may be found.

The girders are supposed to be supported at each end, since this is almost invariably the case in practice, with the loading arranged upon them in different ways.

The general problem is naturally divisible into three parts.

1. Having given the length of the girder, and the amount and mode of arrangement of the loading, to determine the strains caused by this loading at any point of the length of the girder.

These strains consist of the following:—

a. The bending moment, which tends to produce flexure and eventually transverse breaking of the girder.  
b. The shearing strain which tends to produce transverse shearing of the girder.

2. Having obtained the strains acting at any point of the girder and knowing the material of which it is to be composed:

a. To determine the stiffness of the girder required to safely resist the bending moment acting at that point.  
b. To determine the additional area which must be added to the cross-section of the girder, to safely resist the shearing strain acting at that point.

3. Having obtained the stiffness required for the girder at any point, also the additional area for resisting shearing, and the form of cross-section of the girder being given, to design the section required at that point, and at as many other points in the length of the girder as may be necessary.

With the latter portion of the subject will necessarily be connected the consideration of the different forms of section, which are usually employed for wooden, cast-iron, wrought-iron, and compound girders, and also the usual methods of fastening together the different parts of the girder and of connecting the floor joists and beams with it.

I. TO OBTAIN STRAINS ON GIRDER: GIVEN, ARRANGEMENT OF LOADING AND LENGTH OF GIRDER.

The loads are here taken in net tons of 2,000 lbs. each; the lengths are in feet: consequently the bending moments will be in foot-tons, and the shearing strains in tons. This will materially lessen the number of figures required in the calculations and will also be found to simplify the formulæ.

The following examples will be found to comprise all possible modes of arrangement of the loading.

In all the examples, the length of the girder is assumed to be 28 feet in the clear between the supports.

Case I. Load concentrated at centre of girder (Fig. 1). A load of 8 tons is located midway between A and B. Draw a horizontal line A-B to represent the girder, making it 28' in length to any convenient scale, and also verticals through A, B, and the location of the load at C.

Commencing at 1, anywhere on the vertical through A, make 1-2

It is the belief of the writer that a full treatment of Girders will be of value to the profession, and will also supply a want which is frequently felt in practice, since this subject is generally treated in a fragmentary manner in the text-books, and it is often difficult to find and properly apply these detached formulæ to a special case.

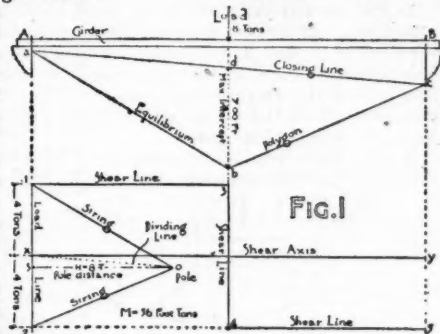
To collect these formulæ and methods, show their relation to each other, and to put them in convenient form for the use of the architect or draughtsman, using the simplest possible methods,

equal to 8 tons, at any convenient scale. Select any point 0, at the right of this line, and join 0-1, 0-2.

The line 1-2 is called the "load line," the point 0 the "pole," and the lines 0-1, 0-2 are termed "strings."

Commencing at any point a, also on the vertical through A, draw a-b parallel to 0-1, intersecting the vertical through the point of action of the load at b; b-c parallel to 0-2, and intersecting the vertical through B at c; join a-c, and draw parallel to it through 0, the line 0-x, cutting 1-2 at x.

The broken line a-b-c is called the "equilibrium polygon," the line a-c the "closing line," the line 0-x the "dividing line," and x the "dividing point," because the load line 1-2 is there divided into the two segments 1-x and x-2; 1-x always equals that part of the loading supported at the end A, and x-2 that at B.



Let fall the perpendicular 0-s from 0 on 1-2, and which is called the "pole distance."

Through 1 draw a horizontal line 1-3 to intersect the vertical through the load at 3; through the point x, the horizontal x-y, which is termed the "shear axis;" also through 2, the horizontal 2-4-5, intersecting the load vertical at 4, and that through B at 5.

The broken line 1-3-4-5 is termed the "shear line."

For determining the strains at any point of the girder, caused by the loading, we have the four following general principles, which are applicable to all modes of arrangement of the loading:—

1. The part of the loading above the dividing point equals that part of the load supported at the left-hand end of girder, or the reaction at that support: similarly, that portion below the dividing point equals the reaction at the right-hand support. (Ott's Graphic Statics, p. 11. Clarke's Graphic Statics, p. 22.)

2. The bending moment acting at any point of the girder will equal that portion of a vertical drawn through that point and intercepted between the equilibrium polygon and its closing line, and which may be termed the "intercept," multiplied by the pole distance 0-s. (Ott, p. 12; Clarke, p. 54; Dubois's Graphical Statics, 33.)

(N. B.—The intercept must be measured in feet at the same scale as that used for laying off the length of the girder, and the pole distance in tons, at the same scale as the load line. Their product will therefore be a moment and will be in foot-tons.)

3. The shearing strain at any point will equal that part of the vertical drawn through the point and intercepted between the shear line and shear axis, measured in tons, at the same scale as the load line. This may be called the "ordinate," to distinguish it from the "intercept." (Ott, p. 11; Clarke, pp. 51, 53.)

4. The maximum value of the intercept, and consequently of the bending moment and the zero value of the shearing strain will always be found together at the same point of the girder; also the maximum shear and zero bending moment will always be found together and at one end of the girder.

Since the load is at the centre in the present case it is evident:—

1. That the two reactions at the supports are equal, and are each equal to 4 tons, which will be the maximum shear.

2. That since the product of the intercept and pole distance equals the required bending moment, and the pole distance is a constant, the bending moments at the different points will vary directly as the values of the corresponding intercepts. Consequently the maximum bending moment will be found at the maximum intercept, which is here at the centre of the girder and under the load.

The intercept measures just 7' and the pole distance is here 8 tons, hence the maximum bending moment = 7 x 8 = 56 foot-tons.

When the girder is made of uniform cross-section from end to end, as is usually the case, except for cast-iron girders, only the maximum bending moment will be required, though the bending moments

may be found at any number of points, by merely multiplying the corresponding intercepts by the pole distance.

The shearing strain equals 4 tons and is uniform from each end of the girder to its centre. (N. B.—It makes no difference whether this shear is measured upwards or downwards from the shear axis, since only its numerical value is required.)

FIG. 2

<sup>1</sup>By Professor N. Clifford Ricker.

**Case II. Load concentrated at any other point (Fig. 2).** A load of 8 tons is placed at a point 12' from the left end.

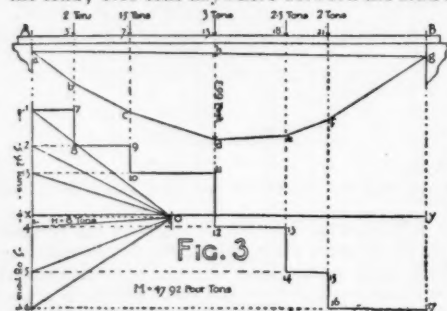
Lay off the load line 1-2, select a pole 0, draw the strings, the equilibrium polygon  $a-b-c$ , and the closing and dividing lines  $a-c$  and  $0-x$ , as in the last case; also draw the shear line 1-3-4-5 and the shear axis  $x-y$ .

The following results are obtained:—

1. The vertical reaction at left support  $= 1-x = 4.57$  tons; at right support  $= x-2 = 3.43$  tons, the two being unequal in this case.

2. The maximum intercept is found under the load and measures 6.88'. As the pole distance here  $= 8$  tons, the maximum bending moment  $= 6.88 \times 8 = 55.04$  foot-tons, which is nearly 1 foot-ton less than was caused by the same load in the last case. It is therefore evident that the bending moment will be greatest if the load be concentrated at the centre of the girder, the amount of the load being the same in both cases.

3. The shear is 4.57 tons at any point between the left end and the load; 3.43 tons anywhere between the load and right end.



**Case III. Loads concentrated at different points. (Fig. 3.)**

At 3' from left end is placed a load of 2 tons; at 7', 1.5 tons; at 13', 3 tons; at 18', 2.5 tons; and at 21', 2 tons.

Commencing as before, on the vertical through A, at any point 1, lay

off downwards the loads in regular order from left to right along the girder, making 1-2, 2 tons; 2-3, 1.5 tons; 3-4, 3 tons; 4-5, 2.5 tons; and 5-6, 2 tons. Select any pole 0 and draw the strings 0-1, 0-2, 0-3, 0-4, 0-5, and 0-6, to the ends of each load.

Then, commencing at any point  $a$  on the vertical through A, draw  $a-b$  parallel to 0-1, intersecting the first load vertical at  $b$ ;  $b-c$  parallel to 0-2, etc. Complete in this manner the equilibrium polygon  $a-b-c-d-e-f-g$ ; draw closing and dividing lines  $a-g$  and  $0-x$ , and the shear axis  $x-y$ .

Produce the load verticals and draw horizontals through the ends of the loads, thus obtaining the shear line, which will here be the broken line 1-7-8-9-10-11-12-13-14-15-16-17.

1. The reaction at left end  $= 5.92$  tons; at right end  $= 5.08$  tons. 2. The maximum intercept falls under the load at  $d$  and measures 5.99'. As the pole distance here  $= 8$  tons, the maximum bending moment  $= 5.99 \times 8 = 47.92$  foot-tons.

3. The maximum shear will be found between the left support and the nearest load and  $= 5.92$  tons; between the first and second loads the shear is reduced to 3.92 tons; between the next pair to 2.42 tons, etc.

**Case IV. Load uniformly distributed along the girder. (Fig. 4.)**

In this case the intensity of the loading is assumed to be .4 ton per lineal foot of girder. The load may therefore be represented by a rectangle, of which the altitude represents the intensity of the load per lineal foot, to any convenient scale.

The total load on the girder  $= .4 \times 28 = 11.2$  tons.

As this loading really consists of an infinite number of concentrated loads, infinitely near each other, the method previously employed cannot be directly used without some modification, which will not affect the accuracy of the results.

1. Let the rectangle which represents the loading be divided by vertical lines into sections of equal or unequal length.

2. The weight of each section is represented by its area and may be readily found by calculation.

3. Assume that the weight of each section is concentrated at its centre of gravity, acting like a load concentrated at that point.

The preceding method may then be applied and the equilibrium polygon and shear line obtained.

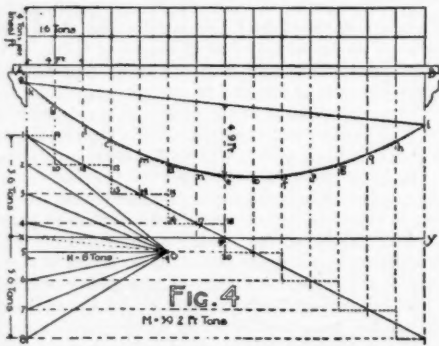
(An error is evidently introduced by the assumption of the manner in which the load acts, but it will be seen that this error is finally eliminated and the true result obtained.)

The loading is here divided into seven equal sections of 1.6 ton each.

Lay off load line  $= 11.2$  tons, and divide into seven equal parts.

Choose a pole 0, draw strings, equilibrium polygon, shear line and axis, as in the preceding cases.

Produce the verticals, which separate the sections into which the



loading is divided, to intersect the sides of the equilibrium polygon at  $k, l, m, n, o, p$  and  $h$ . This curve is termed the "equilibrium curve," since it is the true form of equilibrium polygon which corresponds to the actual distribution of the loading, and the required correct values of the intercepts are measured between the curve and the closing line. It is evident that as the length of the load sections is diminished, the equilibrium polygon approaches the curve, which will be its limit, when the sections are made infinitely short. The equilibrium polygon is here only employed as a convenient means of obtaining the curve.

2. Join by right lines the points 1, 11, 12, etc., where the shear line is intersected by the end verticals of the load sections. These evidently form a continuous straight line 1-9-10, which will be the true shear line, since the shear must equal half the loading at each end, diminishing uniformly to zero at the centre of the girder. This true shear line differs materially from the broken line first obtained.

The following results are obtained in this case:—

1. The reaction and maximum shear is the same at each end and  $= 5.6$  tons.

2. The maximum intercept is found at the centre and measures 4.9'; as the pole distance here  $= 8$  tons, the maximum bending moment  $M = 4.9 \times 8 = 39.2$  foot-tons.

(When the loading is uniformly distributed along the girder the equilibrium curve will be a parabola, whose middle or maximum intercept will be one-half the vertical from the closing line to the intersection of the first and last sides of the equilibrium polygon, or the tangents at the ends of the equilibrium curve. Hence the maximum bending moment  $M$  will be just one-half that caused by the same load if it were concentrated at the centre of the girder.)

(N. B.—For concentrated and uniform loads, the values of the maximum bending moment and shear can be found by calculation, without the necessity of drawing the equilibrium polygon or curve.)

Let  $W$  = total load on the girder in net tons.

Let  $L$  = length of girder in the clear, in feet.

1. Load concentrated at centre of girder.

Maximum bending moment  $M = \frac{1}{4} WL$ .

Maximum shearing strain  $= \frac{1}{2} W$ .

2. Load uniformly distributed.

Maximum bending moment  $M = \frac{1}{8} WL$ .

Maximum shearing strain  $= \frac{1}{2} W$ .

#### LEGAL NOTES AND CASES.

##### Contract for Roof-Cresting. — Architect's Plans.

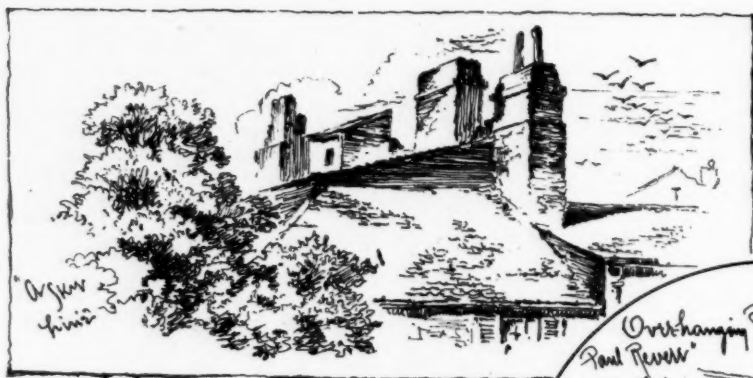
THE Supreme Court of Texas, in June, in the case of *Harry vs. Radkey*, was asked to decide that a mechanic who had contracted to furnish the materials for, and put the roof on a building, was bound to place thereon the cresting, it having been shown that the plans of the architect had the cresting. The plaintiffs sued for a balance of \$400, they having received \$3,200 of the sum they were to get, \$3,600 for furnishing all the tin, galvanized iron and slating, and all the labor and material necessary to be used and placed upon the building, to be constructed according to the plans and specifications of F. E. Ruffini, architect and superintendent thereof. The plaintiffs claimed to have furnished the material and done the labor required by the contract, and alleged that the work had been inspected and received by the architect. The defence was made that the money demanded was not due the plaintiffs, as they had not put on the cresting, which, it was claimed, was a part of the work contracted for; the cost of the cresting was \$400, the money retained therefor.

Judge Hart, in deciding in favor of the plaintiffs, said:—

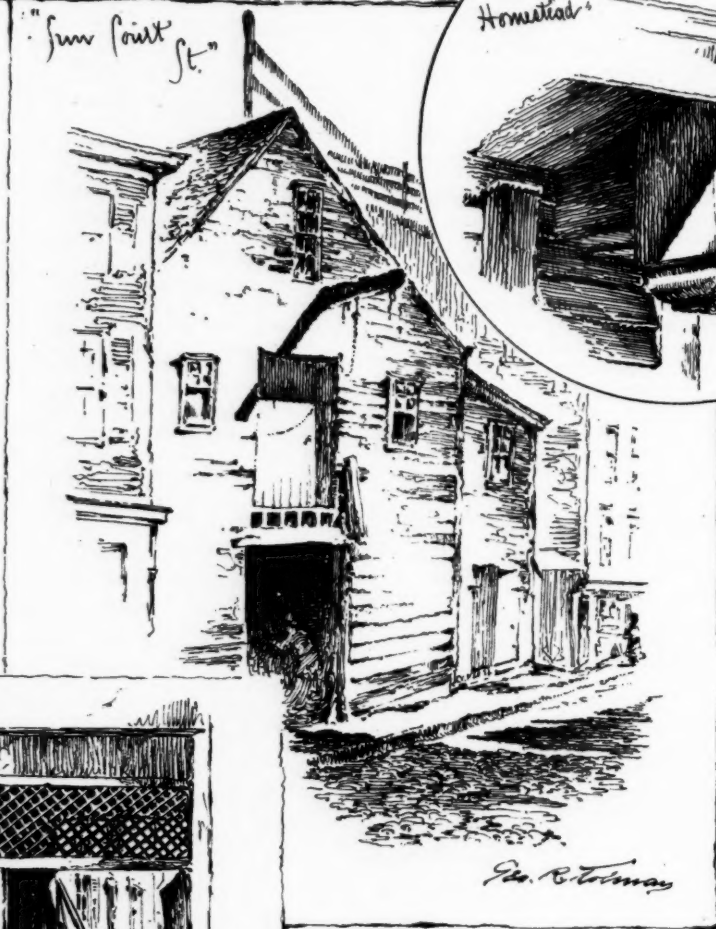
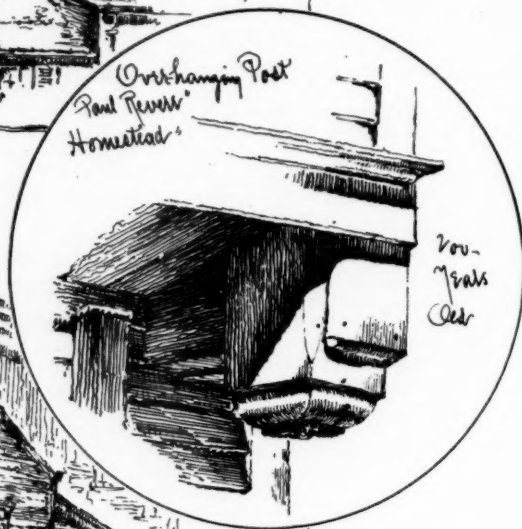
The contract required the plaintiffs to do all the tin, galvanized-iron and slate work on the roof of the building, according to the plans and specifications of F. E. Ruffini, the architect. The evidence showed that the cresting was an ornament intended to be fitted on the tower of the building, and was to be made of pressed zinc or cast-iron, not galvanized iron, tin or slate, and the pressed zinc and cast-iron are both distinct metals from either tin or galvanized iron. It was also proven that the specifications did not show the cresting; that it was shown on the plans, and the architect testified that if he had drawn full and minute specifications of all the work required on the roof of the building, he would have put the specifications for cresting under the head of galvanized-iron work. This was the substance of all the testimony on the disputed point. The court below held that the cresting was neither tin, slate nor galvanized-iron work; that it was nevertheless covered by the contract, and that it was the duty of Harry Bros. to have placed it on the building. In this the court erred. The contract between the two parties was specific and unambiguous; it required of the plaintiffs that they should do the tin, galvanized-iron and slate work according to the plans and specifications of the architect. This much they were required to do, and this much they did. The plans and specifications of the architect were part of the contract, in so far as concerned the tin, the galvanized-iron and slate work, but no further.

This work Harry Bros. obligated themselves to do "according to the plans and specifications;" but the contract cannot be extended, by construction, so as to require of appellants any other duty than that specified in the contract. To hold that they should have put

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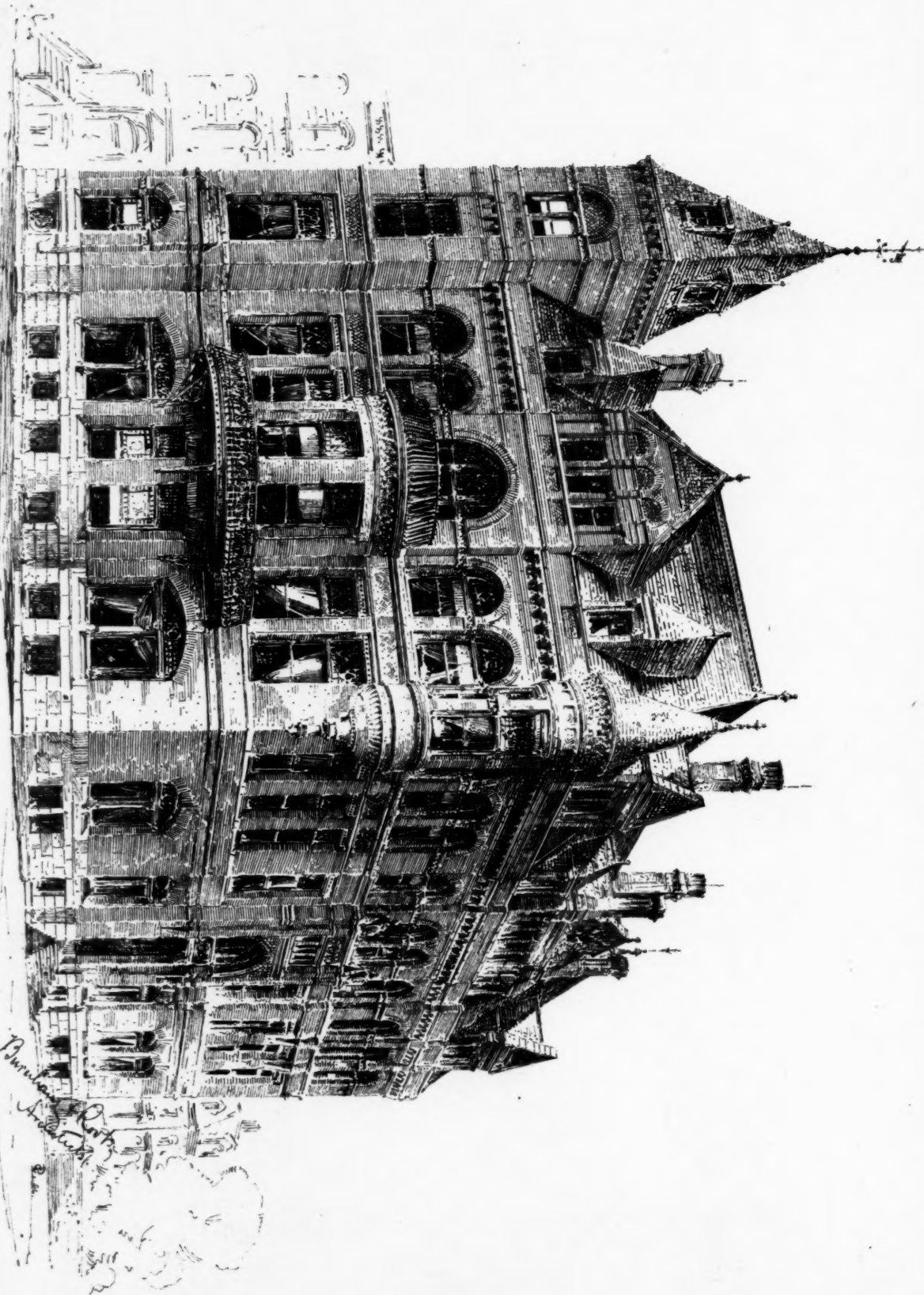
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"OLD BOSTON"  
SKETCHES.

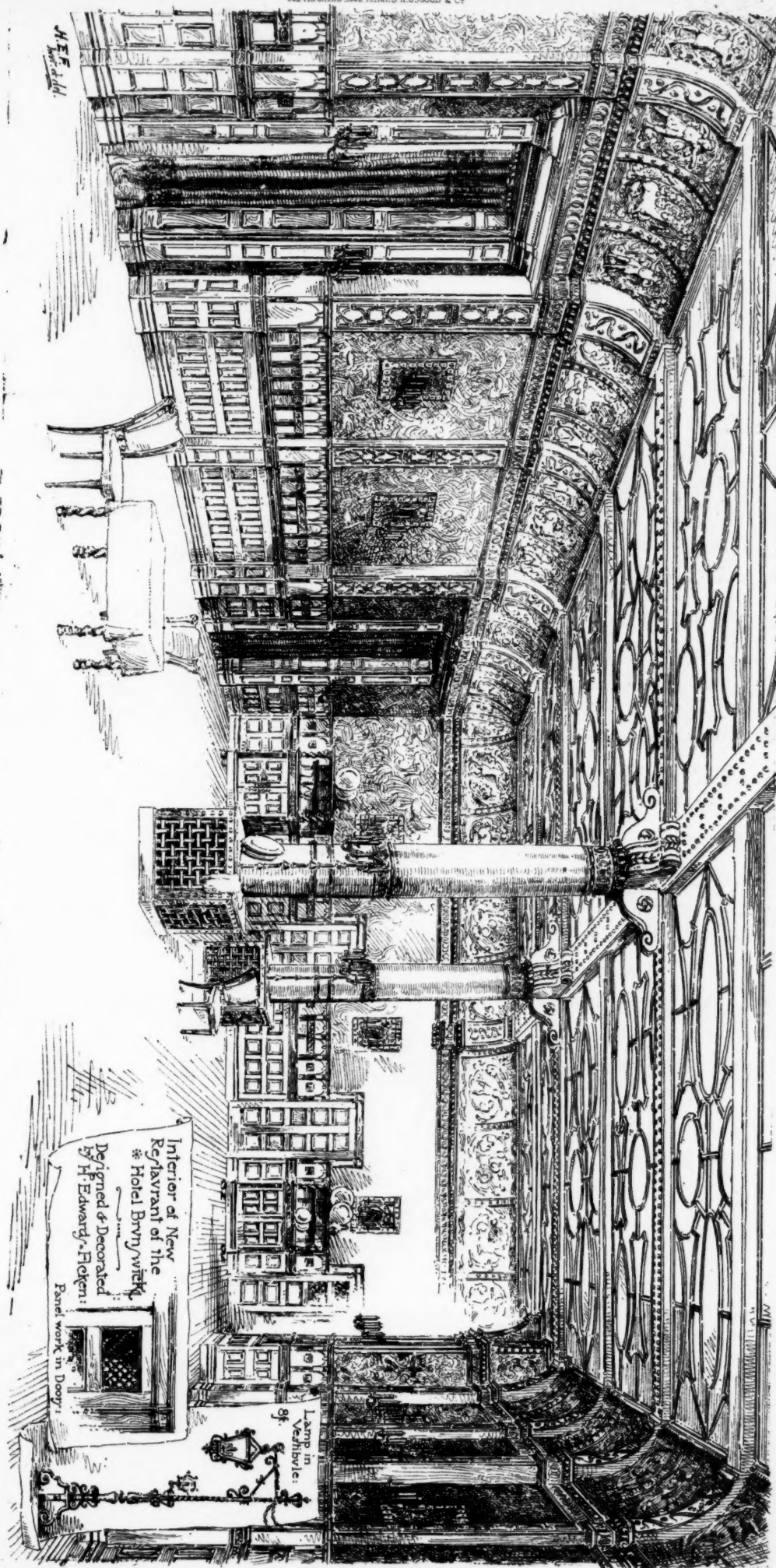


CLUB HOUSE. CHICAGO.

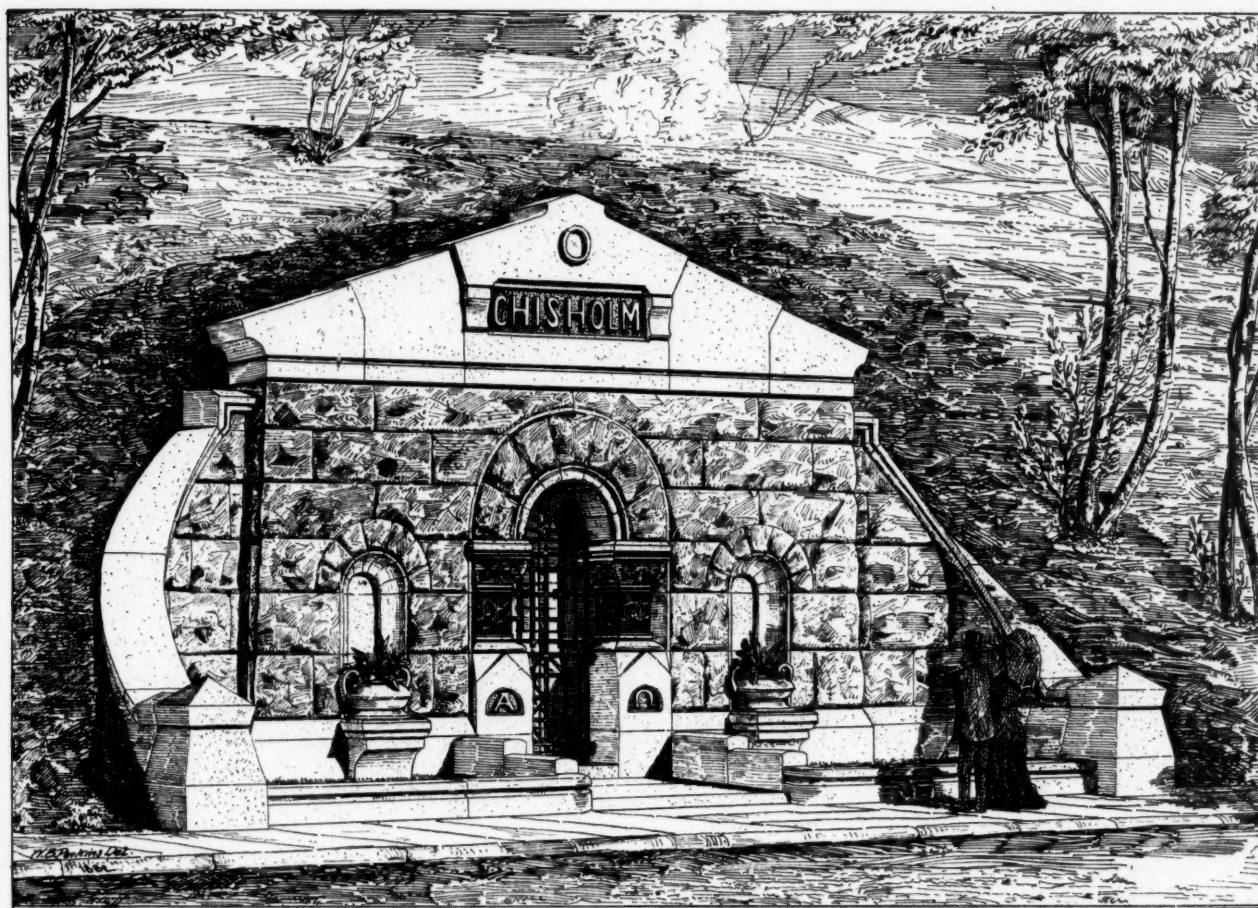


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Tomb at Cleveland Ohio

Wm. Lewis Archt.  
Boston Mass.



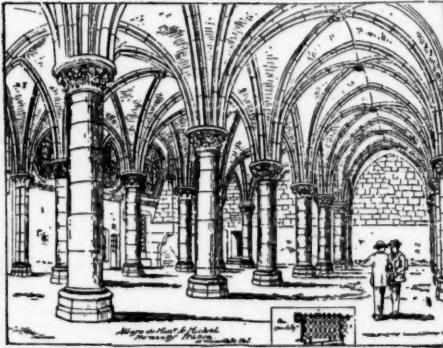
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on the "cresting," which was to be constructed of a different metal, merely because it appeared in the plans, or because the specifications for erecting would have properly come under the head of galvanized-iron work, would be to make for the parties a contract they had not made for themselves.

H. E.

## ARCHITECTS' SPECIFICATIONS.



THE practical qualifications of an architect may be gauged by the specification he writes. We do not mean a crude list of works to be performed and materials supplied, but a properly prepared description of what is wanted, and plain directions how the work is to be done. There are set, or skeleton, specifications, those written after a kind of form, the only thing required being to fill up the blanks by inserting the materials and special requirements. A large number of specifications are of this kind; but there is always something about such documents which reveals their weakness, and which induces builders not only to neglect them, but disrespect them. Such specifications are generally taken by the contractor and thrown aside on his desk as worthless whenever a bill of quantities has been supplied. It is worth noting that since the introduction of quantity-taking the specification holds a less dignified and important place in the architect's and builder's estimation. It has become less essential as a guide to the builder, and as the items and descriptions in the quantities are practically the same as those of the specifications, the latter is disregarded. We do not see the carefully-prepared and detailed specification now that we used to twenty years ago, the reason being that the art and practice of the quantity surveyor has rendered the more venerable document less necessary. As our readers know, the surveyor now not unfrequently prepares the specification himself as well as the quantities for important works, and the former is made to agree with the latter, instead of, as formerly, becoming the leading authority. It cannot be a matter of surprise, therefore, that the specification has so fallen from its original estate as to be held in less repute. It is of some interest to inquire whether the loss of supremacy, or, rather, the substitution of bills of quantities for specifications, has been beneficial or otherwise. Before the era of contracting had commenced, and when builders' work was measured and valued, an architect took a pride in writing a clear and comprehensive specification of work. The builder had no object in trimming or evading it, as everything done was measured and paid for. Now, of course, evasion is the policy—we will not say of the scrupulous contractor, but of the greater number of that class. Again, the specification was a carefully-prepared description of the work to be executed: it is now looked upon as a trade bill. The items were only described: now they have to be priced. In this manner the builder is ready to charge for any details which are omitted: formerly only the intent and spirit of the clauses were accepted.

Recent decisions have, however, maintained the right and original principle: that a specification is not necessarily a perfect list of what is required in a contract to finish and complete a building. Details which are implied, or which are clearly known to be necessary for carrying out the work, though not described in the specification, cannot be charged for, as every builder who contracts impliedly undertakes to furnish everything necessary for completion. In a case tried some time ago (*Armstrong vs. Jones*) the plaintiff sought to recover damages for neglect in preparing the specification. The quality of the work executed was admitted to be not up to the specification standard, and it was contended by the defendant that no architect bound himself to a specification. Sundry alterations were made by the plaintiff himself. Evidence given proved that the work was not executed with sufficient care, and damages were given. In another case, there were specified certain joists, but no mention was made of the flooring, and it was held that the builder could not recover for the flooring as an extra, because it was included in the contract. At the foot of the specification the builder signed a memorandum agreeing "to do all the works of every kind mentioned and contained in the foregoing particulars, according in every respect to the drawings furnished"—the house to be finished and fit for occupation by a certain time. The specification also stated that the whole of the materials mentioned or otherwise in the foregoing particulars necessary for the completion of the work was to be provided. On another occasion a contractor claimed compensation on the ground that the defendants had warranted the work could be built according to specification and plan; the engineer stated in the contract that the plans and specification were "believed to be correct," and it was held there was no express warranty. If a certain specified performance is impossible a contractor is still liable for not being able to perform it.

From all these cases it is seen that an architect or engineer is not held to his specification as containing the whole amount of the contract work, though it is well to be on the safe side and to insert protecting clauses in the contract by which the builder agrees to be accountable for the full performance of the contract, and admits that the drawings and specifications are sufficient for their intended purpose, and that the work is to be done in all respects according to the intent and meaning of the specification, allowing a liberal construction. We here quote a very good precedent for the conditions of a specification. "The specification and drawings are to be construed according to their full intent, meaning, and spirit, when taken either separately or together. The drawings and specifications taken conjointly shall be deemed to explain each other, and be descriptive of the necessary works to be performed under the contract. But should there be any discrepancy or disagreement between the drawings and specification, or between the figuring on the drawing and the scale, or between the larger and smaller scale drawings, or between the descriptive writing on the drawings and the coloring, the wording of the specification shall take precedence in all cases; the figuring on the drawings shall be taken in preference to scale; the detail or larger drawings shall be followed in preference to the smaller scale drawings, and the descriptive writing in preference to the coloring. And should there be anything shown on the drawings, and not described in the specification as the converse thereof, the work shall be fully executed and carried out as if drawn, shown, or described in both." Much unpleasantness and angry recriminations would be saved between architect or clerk of works and builder, if such a clause as the foregoing were used in specification conditions. The composition of that document also would be more perfect, and written with more facility, if the preliminary of each trade and general directions were in every case introduced, and the abstracts of the bill of quantities referred to in every trade. These objects can only be properly attained by writing the specification by the aid of the quantities—a plan which, however much it may be deplored, has certain advantages which every architect will at once acknowledge. As long as surveyors continue to incorporate the clauses of the specification in their quantities, and to combine in one the two documents, the art of specification writing will deteriorate in quality.—*Building News*.

## THE ILLUSTRATIONS.

RESTAURANT OF THE HOTEL BRUNSWICK, NEW YORK, N. Y. MR. H. EDWARDS FICKEN, ARCHITECT, NEW YORK, N. Y.

THE general tone of color in the room is light, without being obtrusive, and the different parts of the scheme are carried out in harmony, with none of the "swearing at each other" effect so often noticeable in decorations of large interiors. The architect has had the good fortune to be allowed full sway, and therefore by modifying the color in the carpets subordinated it to its proper relation. Its small old gold and yellow patterns upon a dark-blue ground are modest instead of glaring, and therefore pleasant and restful. The wainscoting is in ash, above which is a narrow dado in relief of panels continuing the color of the ash, but composed of a cement, and each containing a design for a tile. The body of the walls is covered with canvas, instead of the usual heavy stamped paper, and upon this are painted designs, the motive of which was taken from old tapestries. The background is of a bluish coloring, against which the delicate lines of the designs in old gold gleam with especial beauty in the gas-light. Above, the canvas is terminated by a raised moulding of a color to correspond with the wainscoting, and then comes the wide cove or arching frieze which gives the ceiling as a whole the appearance of barrel vaulting. This concave frieze, of gilded *pâpier maché*, spiritedly represents the scenes of a boar hunt. These are moulded in low relief: the moulding having been done by the architect himself, and the flying animals, hounds and hunters are repeated in the various panels forming the cove. The background of the ceiling is light, relieved by wavy water lines in old gold. It is panelled throughout. In the centre are two pillars with steam-radiators at their base. These have been colored of a light reddish hue, with circles of light gilding above to correspond with the colors generally employed, and at the top four corbels branch out from the shaft to support the girder above. This heavy iron girder, running longitudinally through the centre of the ceiling, has been left uncovered and turned to good account by being gilded. The bolt-heads thickly studding its surface show to especial advantage. There are five girders of wood and iron on each side of the central beam, running at right angles to it. All are colored of the same light yellow, hardly pronounced enough for gilding, and somewhat more lustrous than old gold. The office that these perform in breaking up the ceiling is carried out for the walls by projecting piers or broad pilasters, four or five of which are on each side. A wavy gilded scroll at the top of each relieves the stiffness of its vertical lines. The sconces on the walls with backgrounds of what seems embossed brass set in frames of blue glass tiles, the stained-glass windows very finely leaded and with coloring to blend with that in the interior, and the chairs, were from the architect's designs.

OFFICE-BLOCK, TOPEKA, KANS. MESSRS. HASKELL & WOOD, ARCHITECTS, TOPEKA, KANS.

This building, containing thirty-six offices, each with a fire-proof

vault, is built of brick with cut-stone finish. It measures 65' x 150', and will cost \$50,000.

TOMB OF THE CHISHOLM FAMILY, CLEVELAND, O. MR. W. W. LEWIS, ARCHITECT, BOSTON, MASS.

OLD BOSTON SKETCHES. BY MR. GEORGE R. TOLMAN, ARCHITECT, BOSTON, MASS.

THE CALUMET CLUB-HOUSE, CHICAGO, ILL. MESSRS. BURNHAM & ROOT, ARCHITECTS, CHICAGO, ILL.

#### JAPANESE GOLD LACQUER-WORK.



A REPORT has been prepared by Mr. J. J. Quin, Acting Consul at Hakodate, on the lacquer industry of Japan. It is intended chiefly as a description to accompany a collection of illustrative specimens, tools, and products at the Economic Museum at Kew. The cultivation of the lacquer tree and the manufacture of the various kinds of lacquer is described, the woods used for the production of lacquer ware, and the various processes of

lacquering, from the ordinary plain work to the treatment of gold lacquer. In drawing up the report it was found that a number of Japanese terms had to be employed which necessitated a somewhat detailed explanation, so as to be intelligible to any one not acquainted with the language and not familiar with the technicalities of the trade. The *Architect* makes the following extracts on the gold lacquer work, describing the mode of treatment, which are of interest:—

**Mode of making Gold Lacquer.**—A description is given first of *Togi-dashi* (bringing out by polishing). The article, having been already subjected to twenty-two processes of ordinary lacquering, is then treated as follows: The picture to be transferred to the article is drawn on thin paper, to which a coating of size made of glue and alum has been applied—that known as *Mino-gami* is best. The reverse is rubbed smooth with a polished shell or pebble, and the outline very lightly traced in lacquer, previously roasted over live charcoal to prevent its drying, with a fine brush made of rat's hair. The paper is then laid, with the lacquer side downwards, on the article to be decorated, and is gently rubbed with a whalebone spatula wherever there is any tracing, and on removing the paper the impression may very faintly be perceived. To bring it out plainly it is rubbed over very lightly with a piece of cotton-wool, charged with powdered white whetstone or tin, which adheres to the lacquer. Japanese paper being peculiarly tough, upwards of twenty impressions can be taken off from one tracing, and when that is no longer possible, from the lacquer having become used up, it only requires a fresh tracing over the same paper to reproduce the design *ad infinitum*. This tracing does not dry, owing to the lacquer used for the purpose having been partially roasted, as previously mentioned, and can be wiped off at any time.

The next process is to trace out the veining of the leaves, or such lines to which in the finished picture it is desired to give the most prominence, and these lines are powdered over with gold-dust through a quill. The qualities called *Mijin*, *Koma-kame-mijin*, and *Aragoku* are generally used; either finer or coarser qualities cannot be used. The article is then set to dry for twenty-four hours in the damp press. The outline is now drawn carefully with a rat's-hair brush over the original tracing line with a mixture of black and branch lacquer, called *Rō-sé*. The whole is then filled in with *Rō-sé* applied with a hare's-hair grounding-brush. Gold-dust of a slightly coarser quality than *Mijin* is scattered over the lacquered portion, and the article is set to dry for twenty-four hours. Another thin coating of *Rō-sé* lacquer is again given to the gold-powdered portions, and the article set to dry for twelve hours. Next a coat of *Rō* (black lacquer) is applied over the whole surface of the article, which is set to dry for at least three days. It is then roughly ground down with magnolia charcoal, the surface dust being constantly wiped off with a damp cloth till the pattern begins to appear faintly. Another coating of *Rō* lacquer is then given and the article set to dry for thirty-six hours. It is again ground down with magnolia charcoal as before, this time till the pattern comes well out. The ensuing processes are the same as described in black lacquer.

In making *Togi-dashi* on hard woods, transparent lacquer is used instead of *Rō*.

**Flat Gold Lacquer.**—For this method, called *Hira-makiye*, the article having been thoroughly finished, either in black or red, etc., a tracing is applied to the surface as in *Togi-dashi*, the outline is carefully painted over with a fine brush of rat's hair, and then filled in with a hare's-hair brush, using *Shitamaki* lacquer (branch lacquer and red oxide of iron). Over this surface, gold-dust, of the quality called *Aragoku* being generally used, is scattered with a brush of horse's hair (*Kebo*) till the lacquer will not absorb any more. The

article is then set to dry for twenty-four hours. A thin coating is next applied over the gold of transparent lacquer or *Yoshino* lacquer, and set to dry for twenty-four hours at least. It is then most carefully smoothed with camellia charcoal and finally polished off with *Tono-ko* and a little oil on the point of the finger, till the ornamented portion attains a fine polish. The veining of leaves and the painting of stamens, etc., of flowers, or such other fine work is now done with a fine rat's-hair brush charged with *Ke-uchi* lacquer, over which fine gold-dust (*Goku-mijin*) is scattered from a brush of horse's hair (*Kebo*) as before and the article set to dry for twelve hours. Some *Yoshino* lacquer is then applied to a piece of cotton-wool, and rubbed over the whole surface of the box or other article, and wiped off again with soft paper. It is set to dry for twelve hours, after which it is polished off with deer's-horn ashes and a trifle of oil. When very high-class work is desired *Yoshino* lacquer to which a little water has been added, is applied and polished off a second time, and a very brilliant surface is attained.

More ordinary "flat gold lacquer" differs in the manufacture as follows: the tracing is accomplished in the same manner, but *Shitamaki-nobe* lacquer (branch lacquer, red oxide of iron, and camphor) is used for filling in the pattern with a hare's-hair brush. The article is then set to dry in the press for ten to twenty minutes, during which time the lacquer has begun to harden and less gold will adhere. Then gold-dust (*Goku-mijin*) is applied with cotton-wool thinly, and the article is set to dry for twenty-four hours. The whole surface is then smeared over with *Yoshino-nobe* lacquer (*Yoshino* lacquer and camphor) on a piece of cotton-wool and wiped off again with soft paper. The reason is that it is less trouble to smear over the whole surface thinly, and it is, moreover, not necessary to give a thick coat of lacquer to the decorated part, as the gold-dust has been very thinly applied. It is set to dry for twelve hours, and ground smooth with camellia charcoal, and polished with powdered whetstone and oil on the point of the finger. The fine lines are then drawn with a rat's-hair brush charged with *Shitamaki* lacquer and sprinkled with gold-dust (*Goku-mijin*) from a brush (*Kebo*), and the articles set to dry for twelve hours. The whole is again smeared with *Yoshino-nobe* lacquer and carefully wiped off again with paper, and set to dry for twelve hours. The article is then polished with powdered whetstone and oil on the point of the finger, and a second application of *Yoshino-nobe* lacquer with a little water, wiped off with soft paper, set to dry for twelve hours, and finally polished off with deer's-horn ashes and oil on the finger finishes the operation.

Should it be required to make any dark spots or lines such as bird's eyes, or to draw human hair, etc., or other shading, this is done last of all with *Kuma*, "bear" lacquer, and *Jō-hana* and lamp-black.

For a more common kind of flat gold lacquer painting, instead of tracing the design in roasted lacquer, it is done with a mixture of powdered *Tono-ko* (burnt clay from Mount Mari) and water, and the impression is transferred to the articles with the whalebone spatula as before. The reason for only using *Tono-ko* instead of lacquer is that the ground-work being inferior it cannot be ground or smoothed afterwards, and the edges of the pattern would not be clean nor stand out clear, should any lacquer get smeared outside the tracing line. The outline is then filled in with *Shitamaki-nobe* lacquer with a coarse hare's-hair brush and the article is set to dry for twenty minutes, or till a thin skin has formed on the lacquer, and then the half-dry surface is wiped over with cotton-wool charged with *Keshi-fun*, the finest gold powder, and set to dry for five or six hours. The whole surface is then smeared with *Yoshino-nobe* lacquer, which is carefully wiped off again with soft paper, and the article set to dry for half a day. The surface is then rubbed over gently with deer's-horn ashes and soft paper to give it a polish, and to get rid of any of the last coat of *Yoshino-nobe* lacquer.

The fine lines are now drawn with a fine hare's-hair brush charged with *Shitamaki-nobe* lacquer, and the articles set to dry for twenty minutes or so; then *Keshi-fun* is applied with cotton-wool and again set to dry for five or six hours. No further process takes place.

**Raised Gold Lacquer.**—In the method *Taka-makiye* the ground-work may be either black or colored lacquer, *Nashiji* (pear basis of gold-dust), or the plain wood. The outlines of the pattern are transferred to the surface of the article in the same manner as in *Togi-dashi* or "flat lacquer." The outline is then painted over with *Shitamaki* lacquer, and this is covered with powdered camellia charcoal. If the outside is to be higher than the inside a broad margin is painted and covered with the charcoal powder, leaving the centre untouched, and *vice versa*; if the centre is to be higher a faint line only is painted outside and the inside is given a thickish coating, which is sprinkled with the charcoal-dust and the article set to dry for twelve hours. When taken out of the press it is well dusted to get rid of any loose charcoal powder and is also washed, using a brush made of human hair (*Hake*) to clean out all crevices and bring out the lines, etc. Some *Yoshino-nobe* or "branch lacquer," with camphor, is now rubbed on with a piece of cotton-wool and carefully wiped off with soft paper, and the article set to dry for twelve hours. The raised parts are next carefully ground smooth with a piece of magnolia charcoal and a second coat of *Yoshino-nobe* or "branch lacquer" is applied as before and dried.

If a well-raised pattern is required, one, two, or even three coats of *Sabi* ("branch lacquer" and *Tono-ko*) are applied, the outside edges being painted with a brush of deer's hair (*Menso*), and the inside lacquer applied with a small *Sabi* spatula, the article being

set to dry between each application for twelve hours. For coarser work it is then ground smooth with a white whetstone, and for finer work with a yellow whetstone. Over this some "branch lacquer," mixed with camphor, is rubbed with cotton-wool and wiped off with soft paper, and the article set to dry for twelve hours.]

If the pattern is not to be very high the operations described between the brackets are omitted. A coating of *Takamaki* lacquer is now given, the outside edges being carefully drawn with a rat's-hair brush, and the inside of the pattern filled in with a hare's-hair brush, and the article set to dry for thirty-six to forty-eight hours. When taken out of the press the surface is ground smooth with magnolia charcoal, and then partly polished with powdered camellia charcoal on a cotton cloth. A little oil is now rubbed on, and a further polishing takes place with powdered "whetstone" on a cloth. Next "branch lacquer" is rubbed over the raised parts with cotton-wool and wiped off with soft paper, and the article set to dry for twelve hours. It is next polished with deer's-horn ashes and a little "rape seed" or "sesamum" oil applied on the point of the finger. Up to this point the formation of the pattern, whether mountains, waves, trees, men, birds or animals, has been gradually completed.

If small squares of gold foil (known as *Kiri kane*), or of colored shell, are used in producing the pattern, they are now applied one by one on the point of a bamboo stick (*Hirame fude*), the spot where they are to be affixed having been smeared with a little *Rô-sé* lacquer to make them adhere. When all that is required has been affixed, a piece of soft bibulous paper is spread over the freshly-done parts and pressed very carefully with the finger. This is to get rid of as much as possible of the *Rô-sé* lacquer as is not covered by the gold squares; the article is set to dry for twelve hours, and then the portion where the gold has been applied is gently polished with a little camellia charcoal on the point of the finger, to get rid of the remainder of the *Rô-sé* lacquer. Shell patterns and the coarser kinds of gold-dust that may be required are applied in the same manner. The finer kinds of gold-dust are applied next, over a coat of *Shitamaki* lacquer, and the article set to dry for twelve hours. The remaining processes of polishing, drying, etc., are the same as in first-class "flat gold" lacquer.

For making raised lacquer patterns on plain wood the whole surface is covered with tin-foil, stuck on with rice paste, to keep the wood quite clean, and then the place only where the pattern is to come is cut out. In making all high-class lacquer the edges of every article are pasted over with tin-foil to prevent their being rubbed or injured by the workman, and the same is done over each portion as it is finished.

The above is the ordinary method of making best raised lacquer, but there are such innumerable modifications of one process or another, according to the object to be produced,\* that it is manifestly impossible to do more than give the above cursory sketch. Nearly every piece of good lacquer made exhibits a specimen of each kind, viz.: *Nashiji*, *Togi-dashi*, *Hira-makiye*, or *Taka-makiye*.

In making raised lacquer on inferior articles the methods do not vary much from the good kinds: the work is merely less carefully executed. The saving is in the quantity and quality of the gold-dust used, and the absence of minute after-work, or in the use of silver and tin instead of gold dust. In the very cheapest kinds burnt tin-dust is used instead of charcoal over the first coat of *Shitamaki*. This is burnished bright, and over it a thin coating of lacquer and gold-dust is applied. At first it looks well, but loses its color in a year or two. By using tin powder the same height is attained in one coat that would necessitate at least three coats of lacquer and charcoal-dust. This kind of work is, however, only used for cheap articles for foreign export, and has been quite lately introduced.

**Lacquering on Metal.**—For lacquering on iron or copper, brass or silver, the metal is smoothed and polished, and then given a coating of "crude lacquer" or "black lacquer;" the article is put over a charcoal fire, and the lacquer is burnt on to the metal till all the smoke ceases to escape. The fire must not be too fierce, and the metal must not be allowed to get red-hot, or the lacquer turns to ashes. After the lacquer has burnt quite hard the surface is rubbed smooth with *Largerstramia* charcoal: these operations are repeated three or four times, till a good foundation of lacquer has been obtained. Then the same operations exactly are repeated as in making best "black lacquer," *Togi-dashi*, "flat gold lacquer," or "raised gold lacquer," only that the lacquer is burnt dry over the fire instead of being dried in the press. The lacquer is thus rendered quite hard and very durable. After the first two or three coats have been burnt on, the subsequent drying processes can be carried on in the damp press, should it be so desired.

In winter, or when any article is required in a hurry, the workmen sometimes put a charcoal-fire in the press, over which a pan of hot water is placed. The steam which is thus generated helps to dry the lacquer in an hour or two, which would take twenty-four hours to harden ordinarily, but the lacquer thus dealt with loses its strength and is never very hard. "Black lacquer" turns a rusty brown, the coloring virtue of the iron being apparently lost, and therefore this plan is never adopted for good work, and in second-rate work only for under coats.

The style of ornamentation *Nashiji*, occupying an intermediate position between plain and ornamental lacquer, is therefore treated of last. Till the opening of Japan to foreign trade it was in the

hands of workers in gold lacquer, but now for the most part all *Nashiji* on articles intended for exportation is applied by the workers in plain lacquer. In making best *Nashiji*, as in *Togi-dashi*, the first twenty-two processes are identical. A coating of *Rô-sé* is applied and the gold-dust is sprinkled over this surface through one or other of the bamboo tubes, according to the fineness required. The article is set to dry in the press for forty-eight hours, and is then given a thin coating of pure transparent varnish. This is set to dry for three or four days, when it is roughly ground with magnolia charcoal, and a second coat of transparent lacquer given. The article is set to dry for forty-eight hours, and then ground with magnolia charcoal till a perfectly smooth surface is obtained. Transparent lacquer is then applied with a piece of cotton-wool, and wiped off again with soft paper, and the article set to dry for twenty-four hours. It is then polished with a mixture of *Tono-ko* and camellia charcoal powder and a little oil. Next a coating of *Yoshino* lacquer is given, and wiped off with paper; the article is set to dry for twelve hours, and then it is polished with deer's-horn ashes and oil. This is repeated three times to finish the article.

The same processes are gone through when using silver instead of gold dust. For cheap qualities tin-dust is used, and the powder is scattered on glue immediately above a coating of *Kanoji* (whiting and glue). When the article is dry it is burnished with *Tokusa* (*Equisetum*), and as soon as it presents a bright surface a coating of pure transparent lacquer with gamboge, is given to it. It is set to dry for a day in the press, and then ground with *Magnolia* charcoal. Over this a coating of *Shu-urushi* (transparent varnish containing oil) is applied, and another drying for twenty-four hours completes the process.

### ONE-STORY HOSPITALS.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Sir,—The average destruction by fire in the United States for several years past has been something over one hotel per day; one church per week, and one hospital, almshouse or asylum per month. For the last year or two the average has been somewhat higher, especially in respect to hotels and hospitals.

The Mutual underwriters have been lately consulted upon a subject somewhat foreign to their customary work, to wit: the right construction of hospitals and asylums with a view to safety from loss by fire; and it has occurred to us that a few very crude suggestions upon a subject entirely outside our usual work may have some value.

It may be considered conclusively proved that a factory building consisting of a basement sufficiently high to secure a free circulation of air, and of one story or main floor devoted wholly to machinery, lighted and ventilated mainly from above by monitors or lanterns, can be kept more uniformly warm in winter without the use of any excess of fuel; more uniformly cool in summer if the roof is constructed in the right manner, and can be furnished with a more adequate supply of pure air all the time, than any other description of building suited to factory use of two or more stories in height.

It may also be considered conclusively proved that when a given amount of floor-surface is required on a considerable scale, it can be provided in a thoroughly substantial way at as low a cost, per square foot of floor, of available floor-surface as can be provided in any other form of building of two to seven stories in height.

It has also been proved in practice in one very complete example, namely, the great one-story mill of the Willimantic Linen Company, that if what might be called a continuous flower-pot is constructed on the inside around the whole of the enclosed floor-space, forming, as it were, an offset from the wall, in which plants and flowers may be cultivated, that the humidity imparted to the atmosphere by the watering of the plants and by the aqueous vapors thrown off in their growth, makes the best atmosphere for spinning cotton, and also one admirably suited to the health of the operatives.

It has also been conclusively proved in certain basements of mills and in buildings having brick or stone floors, that the heat may be much better diffused, and the feet kept warmer, by hanging the steam-heating pipes overhead rather than by placing them low down at the sides of the rooms. This effect, however, has only been observed in rooms in which machinery is in operation; further observations would be required before it would be considered a matter fully proved in rooms in which there is no mechanism by which the circulation of air may be affected.<sup>1</sup>

Bearing in mind the preference expressed by surgeons and physicians for tent and cottage hospitals, it has occurred to me that a one-story hospital or asylum constructed upon the one-story factory plan and divided into wards either by solid partitions or by hangings or curtains which could be removed and washed, might be worth consideration.

The advantages might be as follows:—

1st. A solid three-inch plank floor covered either with one thickness of mortar and a top floor of hard wood, or else covered with concrete made of Val de Travers asphalt, either of which surfaces might be kept perfectly clean and sweet, would be impervious to dampness, either from below or from above; while the great thickness of non-conducting material would make such a floor very warm to the feet even if no artificial heat were distributed in the well ventilated basement underneath.

<sup>1</sup>In the proposed one-story hospital, the basement can be used for heating apparatus of any kind.

2d. The thick roof of not less than three-inch plank covered upon the outside, first with roofing felt, and then with cotton duck painted with a light color, would reflect the heat of summer and retain the artificial warmth imparted to the air in winter in the best manner. The monitors or lanterns prove to give the very best possible means for promoting the circulation of air, which circulation may also be improved by special arrangements of the side windows such as are now adopted in weaving sheds.

3d. The walls may be constructed either of porous brick (advocated I believe by some practitioners), or of brick vitrified on the inner surface so as to be kept perfectly smooth and clean. It will be apparent that such a building, if divided into wards or apartments in a proper way, may be kept perfectly clear of concealed spaces, free from vermin, free from solidified hospital smells, and might in many respects be a building in which the attendance could be most easily conducted under the pleasantest supervision.

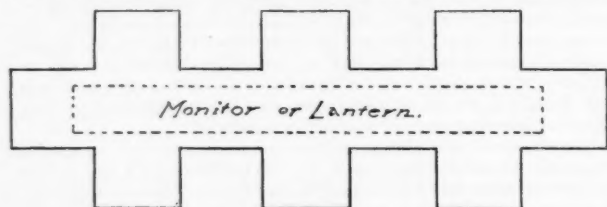
There might also be an advantage in the absence of any necessity for carrying patients up and down stairs. The level of the entrance can be adjusted to the level of the floor of the ambulance so as to render the carrying of the sick or wounded to the ward or bed as easy as possible.

It goes without saying that such a building is vastly safer from danger even if fire occurs, than a high building of any sort can be. It will also be apparent that divisions may be made almost at will, with a view to dark rooms, very warm rooms, etc. The main cost is in the shell and floors, and within whatever space is enclosed any distribution of apartments can be made in such a way that alterations can be had at any moment, almost without cost.

Perhaps these suggestions may have no practical value; but I think the points developed in the mill practice affecting the health of the operatives might well be observed by architects who must consider the health of the patients or other occupants of the buildings planned by them. I may add as a matter of detail that, given a level piece of ground and a good foundation, a one-story factory building of the most substantial kind can be constructed in the manner named in this communication, at a cost of about forty thousand dollars an acre of floor surface.

It would perhaps be worth while for architects who are called upon to plan college recitation-rooms, laboratories, reading-rooms and drawing departments, to consider this method of construction, when the means at their disposal are very limited. A good example of this work may be found at Jamaica Plain, in the one-story factory now being constructed by Mr. M. D. Ross, near the Jamaica Plain station, from plans made by Mr. W. H. Dabney, Jr., upon the method devised by our Mr. W. H. H. Whiting.

Mr. Whiting suggests that the plan of a one-story mill in the shape of a Greek cross, or in the following form would be best suited for a hospital, but the latter would cost more per foot of floor. It will be observed that as the main source of light and air is in the monitors,



annexes can be built on to the sides or ends of a one-story hospital in any way to serve special purposes. When such a plan as this is rightly carried out in the details, all the timbers and plank can be ordered of such lengths and sizes as to be interchangeable.

I hope that these suggestions may provoke some discussion and thereby develop the weak points in our method from the standpoint of the architect. As yet our structures have received but little attention except from the underwriter and the mill-owner. E. A.

#### BOOKS ON EGYPTIAN ARCHITECTURE.

WASHINGTON, D. C., September 15, 1882.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Will you gentlemen be kind enough to inform me where I could obtain the book of the order of Egyptian architecture? Must be perfect and pure: no other will do but the best. Please let me hear as soon as possible, with price of same.

Yours, etc., J. GERMUILLER,  
Care of F. W. Miller. 513 Seventh Street, n. w.

[ROSILLINI, "Monumenti dell' Egitto e della Nubia;" Mariette Bey, "Monuments of Upper Egypt;" Lepsius, "Denkmöler aus Ägypten und Äthiopien;" Dénon, "Description de l' Egypte." Inquire price, etc., of J. Sabin & Sons, Nassau Street, New York.—Eds. AMERICAN ARCHITECT.]

#### NOTES AND CLIPPINGS.

THE LION OF LUCERNE.—Thorwaldsen's famous lion at Lucerne, which has till now been the property of the Swiss family of Pfyffer, is about to pass into the possession of the town of Lucerne. The citizens hope to preserve it more effectually than has hitherto been the case from those vicissitudes of the weather to which the monument is necessarily exposed.

DETAILS OF THE PANAMA EARTHQUAKE.—The Panama *Star and Herald* of September 7 gives the following details of the earthquake there on the previous day: "That the shocks this morning were of exceptional violence appears to indicate a terrible calamity in some of those districts—and in all probability in the North—rather than a possibility that the old-time freedom of the Isthmus from earthquakes is about to disappear and that henceforth we are to be subject to such dangerous and fearful visitations as those which this morning threatened the city with ruin. The amount of damage done cannot as yet be estimated, but it must amount to at least \$250,000. The Municipal Building and Assembly Rooms, under which the Cascada is situated, were much damaged. The whole of the massive balcony fell bodily into the square, dragging with it the roof and all adjacent timber. The Cathedral also suffered severely. Almost the whole of the ornate pediment, composed of heavy blocks of masonry, fell through the roof or on the steps leading to the principal entrance. Every arch in the nave is cracked and split, and large stones and pieces of cement have fallen from them. The side aisles are also seriously damaged, and an expenditure of at least \$50,000 will be required to restore the building. The roof of the Assembly room will be repaired by the evening, Governor Borbua having acted with remarkable celerity and commenced work at once in order that the archives and furniture may not be exposed to damage from rain. Private houses damaged are innumerable, and owners as yet fail to form a correct idea of the losses they have incurred. The walls of the Canal Office are cracked in several places, and the edifice requires strengthening. No estimate of damage can be made, but an expenditure of several thousand dollars must be incurred to render the building as safe as it was before the shock. The ruins of buildings destroyed by fire are unfortunately too conspicuous in the centre of this city. Their danger has frequently been pointed out, and the earthquake has now accentuated the peril consequent on their being allowed to remain as at present. Masses of these ruins have fallen down, and gaping cracks prove that it will be necessary that some of them should be torn down. Outside the city a number of houses have suffered. One of the towers of Malambo Church has fallen, and a piece several yards square of the roof of Santa Ana Church has tumbled in."

THE SHRINE OF SIDI AB DULLAH.—Here nearly twelve hundred years has slumbered a personal friend of the founder of the faith of Islam, who lived, died and was buried, wearing always as a symbol of devotion a portion of the Prophet's beard on his breast. The chamber is about 21' square, and lofty. Its walls are covered with a geometrical pattern worked out in black and white marble. Four lengthy inscriptions are imbedded in them, and the room is dimly lighted by four small windows of rose-colored and blue glass. From the cupola of fret-work hangs a grand old chandelier of twisted Venetian glass. Below this is the tomb itself, surrounded by a high grating of bronze, shut in by four marble columns about 7' high. From a rod on a line with the grating hang festoons of ostrich eggs and golden balls. The catafalque above the grave is covered by two elaborately-embroidered palls: the first, of black and white velvet adorned with Arabic inscriptions of silver, was the gift of the late Ahmed Bey; the second, of pink and blue brocade, was a votive offering from Muhamed of Sadek. Over these hung thirteen banners, rich in gold, silver and needlework, the tribute of the successors of Hussein Ben Ali to the sanctuary of the Sidi Bou Awib. Our visit was certainly unexpected, for at least a dozen fine Arabic manuscripts rested on as many lecterns of mother-of-pearl and tortoise-shell in front of the screen. The guardian of the *zaouia* could hardly realize the fact of Christians desecrating by their presence such holy ground. Running his amber chaplet through his hands with feverish haste he suddenly threw himself upon his face and probably prayed to be forgiven. Some Algerian soldiers who had followed us prostrated themselves before the tomb and eagerly kissed the edge of the palls through the metal lattice-work. Looking at the bright white marble pillars of the cloister my eye fell on one remarkable capital: at either corner a bird supported a Greek cross in the centre. The spoils of some fair Byzantine church had evidently been brought to honor the resting-place of the "Friend of the Prophet."—*Tunis, Past and Present.*

SEARCHING FOR THE EMPEROR TRAJAN'S ASHES.—A Signor Gennarelli has applied to the Minister of Public Instruction for permission to excavate around the base of Trajan's column, where he expects to find nothing less than the sepulchral chamber containing that emperor's ashes preserved in an urn of gold, and in a letter addressed to the papers he sets forth the grounds on which he confidently bases his expectations. He quotes how Dion, Cassius, Eutropius, Cassiodorus, Lampidius and others narrate that Trajan's ashes were brought to Rome and deposited in a costly urn of gold beneath the column still standing untouched in its place. But he adds, the column was erected some years previously, and therefore the urn could not have been buried beneath its pedestal. The chamber in which it was placed must have been situated immediately below the level on the one side or the other, and that the chamber so situated has never been violated in the course of centuries that have elapsed, and that the golden urn is safe within it, Signor Gennarelli undertakes to prove.—*London Times.*

AN INVALIDS' ROOM IN A CHURCH.—In every congregation there are a few chronic invalids who would gladly attend worship for at least a portion of the service. For such is prepared in at least one church that we know of, on one side of the recess in which stands the pulpit, a room, with a window (invisible to most of the audience) which looks directly down on the preacher's desk. This apartment is divided by a thick wall from the main audience-room, and entered by a private door. In it are tables, chairs, lounges, and other conveniences. The inmates may sit or stand, lie or walk, cough when disposed, and leave the house at their pleasure, without disturbing the congregation. And to any building committee with a new church to erect let us say, Go and do ye likewise.—*The Advance.*

## BUILDING INTELLIGENCE.

(Reported for The American Architect and Building News.)

[Although a large portion of the building intelligence is provided by their regular correspondents, the editors greatly desire to receive voluntary information, especially from the smaller and outlying towns.]

## BUILDING PATENTS.

[Printed specifications of any patents here mentioned, together with full detail illustrations, may be obtained of the Commissioner of Patents, at Washington, for twenty-five cents.]

- 264,438. ELASTIC DOOR-CHECK.—Horace H. Burrill, Washington, Ind.  
 264,444. TRAVELLING CRANE.—Henry Davies, Newport, Ky.  
 264,460. MILK-HOUSE.—George W. Kennedy, Garrettsville, Mo.  
 264,463. FILTERING AND PURIFYING WATER IN WELLS.—George Koepf, Alma, Wis.  
 264,469. HOISTING APPARATUS.—William B. Moore, Millsborough, Pa.  
 264,479. SCREW-NAIL.—Charles D. Rogers, Providence, R. I.  
 264,482. FLEXIBLE MATCHING AND VENEERING.—Levi S. Shreffler, Elmira, N. Y.  
 264,492. CLAW-HAMMER AND SCREW-DRIVER.—John A. Thayer, Somerville, Mass.  
 264,505. ORNAMENTATION OF BRICKS AND TILES.—James C. Anderson, Highland Park, Ill.  
 264,539. SASH-FASTENER.—Eleanor Kempshall, New Britain, Conn.  
 264,561. COMBINED DOOR-PLATE, LETTER-BOX AND BELL-PULL.—Charles H. Farmer, Oakland, Cal.  
 264,565. HEATING-FURNACE.—Jeremiah J. Richardson, Brooklyn, N. Y.  
 264,568. FURNACE FOR PRIVIES.—William S. Ross, Madisonville, Ky.  
 264,575. LOCKING-LATCH.—John Simon, New York, N. Y.  
 264,577. SCAFFOLD.—George W. Smith, Harlansburg, Pa.  
 264,593. WATER-CLOSET.—James Hay and Robert H. Lecky, Allegheny, Pa.  
 264,700. DRYING FLOOR FOR MALT-KILNS.—William H. Hughes, Philadelphia, Pa.  
 264,706. PIPE-CONNECTION.—Patrick Kelt, Brooklyn, N. Y.  
 264,715. COMPRESSION-COCK.—Robert H. Lecky, Allegheny, Pa.  
 264,717. AUTOMATIC GEAR FOR PNEUMATIC SEWERAGE-CONDUITS.—Charles T. Liernur, Haarlem, Holland.  
 264,745. ELEVATOR.—George R. Pearce, Lynn, Mass.  
 264,794. AUTOMATIC ELEVATOR.—George C. Tewksbury, Newark, N. J.  
 264,834. FIRE-ESCAPE.—Jacob C. Horton, New York, N. Y.  
 264,835. HEATING APPARATUS.—Jonathan Johnson, Lowell, Mass.

## SUMMARY OF THE WEEK.

## Boston.

- BUILDING PERMITS.**—*Brick.*—Exeter St., opposite St. James Ave., Ward 11, for Massachusetts Institute of Technology, one-story hip drill hall, 51' 8" x 138' 6"; Jas. Fagin, builder.  
*Trinity Pl.*, near St. James Ave., Ward 11, for Henry B. Williams, conservatory, 20' x 30'; Arthur E. Rendle, builder.  
*Wood.*—Gore Wharf, Magazine St., June. Jeffries St., Ward 2, for Abel Gore, mechanical, 17' x 30'; Abel Gore, builder.  
*Beane Ave.*, cor. Butler St., Ward 24, for J. G. Grossman, two-story dwell., 21' x 26'; J. H. Grossman, builder.  
*La Grange St.*, rear of, near Centre St., Ward 23, for Steone Morse, poultry-house, 10' x 40'; A. E. Byrne, builder.  
*Edgewood St.*, cor. Southwood St., Ward 21, for Geo. A. Smith, two-story dwell., 20' x 30'; A. D. Gould, builder.  
*Dorchester Ave.*, Nos. 151, 153, 155, Ward 13, for Wm. Peard, 3 two-story dwells. and stores, 20' 8" x 42' each; Wm. Peard, builder.  
*Orient Ave.*, near Elm St., Ward 1, for John Riley, dwell., 20' x 27'; Thomas Yeomans, builder.  
*Florence St.*, rear, near Poplar St., Ward 23, for Walter E. Whitmore, one-story mansard stable, 24' x 30'; Alex. H. Rogers, builder.  
*Medford St.*, nearly opposite North Mead St., Ward 1, for Henry Woods, Son & Co., two-story stable, 20' x 24'; Ira Hammond, builder.  
*Tremont St.*, No. 1680, rear of, Ward 22, for T. Quincy Browne, carriage-house, 19' x 45'; L. M. Burgess, builder.  
*Tremont St.*, near Oak Sq., Ward 25, for Hannah Long, two-story dwell., 20' x 28' and 28' x 37'; J. E. Burke, builder.

## Baltimore.

- CHURCH ADDITION.**—Addition, 20' x 66', to St. John's (R.C.) Church, cor. Eager and Valley Sts.; also, new marble altars; cost, \$8,000; Mr. E. F. Baldwin, architect; Mr. Jno. Stack, builder.  
**BUILDING PERMITS.**—Since our last report twenty-three permits have been granted, the more important of which are the following—  
 James Fox, 2 three-story brick buildings, East St., bet. Douglass and Low Sts.  
 A. J. Gettler, 2 three-story brick buildings, s w cor. Oregon St. and Cemetery Lane.  
 J. S. Farren & Co., two-story brick packing house, 60' x 60', Boston St., e of Concord St.  
 James Carrigan, 3 three-story brick buildings, Baltimore St., bet. Central Ave. and Lloyd St.  
 Geo. W. Hildebrand, 2 two-story brick buildings, Chestnut Alley, in rear of No. 217 Franklin St.  
 Henry Totte, two-story brick stable, in rear of Townsend St., bet. Oregon and Republican Sts.

Michael McDonnell, two-story brick building, Chestnut St., s of Douglass St.  
 John Ream, Jr., & Co., two-story brick shop, and one-story foundry, Wicomico St., s of Cross St.  
 Mrs. E. Hornig, two-story brick building, 16' x 26', in rear of s w cor. Charles and Randall Sts.

## Brooklyn.

- BUILDING PERMITS.**—Union St., n s, 95' w Seventh Ave., 2 three-story brownstone dwells.; cost, each, \$7,000; owner, Caroline Zang, 98 Willoughby St.; architect and builder, Wm. Zang.  
 Nineteenth St., n s, 200' e Third Ave., three-story frame tenement; cost, \$4,400; owner, John Fey, Twelfth St., near Third Ave.; architect, F. Ryan; builder, D. Ryan.  
 Court St., w s, 50' s Third Pl., two-story brick store and dwell.; cost, \$2,800; owner, Mary E. Solomon, 96 Third Pl.; architect and builder, John W. Bailey; mason, J. J. Cody.  
 Pearl St., e s, 77' s High St., four-story brick factory; cost, \$12,000; owner, B. T. Harris, 53 Murray St., New York; architect, Mercein Thomas; builders, A. Rutan and L. W. Seaman, Jr.  
 Myrtle Ave., No. 1239, w s, near Evergreen Ave., three-story frame store and tenement; cost, \$4,000; owner, H. Steffens, 1251 Myrtle Ave.; architect, F. Holmberg.  
 Judge St., e s, 127' n Powers St., 2 four-story frame tenements; cost, each, \$7,000; owner, Henry Kinn, Judge St.; architect and carpenter, Wm. Snowdon; mason, E. Buchelt.  
 Seventeenth St., No. 12, s s, bet. Fourth and Fifth Aves., three-story brownstone dwell.; cost, \$7,000; owner, Henry W. Bisch, 171 Seventeenth St.; architect, J. F. Wood; mason, J. J. Cody; carpenter, not selected.  
 Adams St., 350' s e of Broadway, two-story brownstone dwell.; cost, \$4,500; owner, Albert Houdlett, Puiski St.; architect, F. E. Lockwood; builder, Fred. Herr.  
 Sterling Pl., n s, abt. 350' w Seventh Ave., 2 two-story brick stables; cost, each, \$4,000; owners, John Francis and Norman L. Munro, Seventh Ave. and Lincoln Pl.; builder, J. B. Stringham.  
 Furman St., w s, fourth pier n Montague St., Wall St. Ferry, one-story frame storage shed; cost, \$18,000; owners, Phelps Bros. & Co., 54 Broad St., New York; architect and builder, Warren Rosevelt.  
 Magnolia St., n s, 50' w Hamburg Ave., three-story frame tenement; cost, \$4,000; owner, Fred. Kaiser, 148 Magnolia St.; builders, Fred. Platz and A. Hofgesang.  
 Conselyea St., n s, 200' e Ewen St., three-story frame tenement; cost, \$4,500; owner, O. H. Doolittle, 255 South Third St.  
 Jefferson St., n s, 170' e Marcy Ave., 4 two-story brownstone dwells.; cost, each, \$4,500; owner and builder, Harman Phillips, Brooklyn; architect, J. D. Reynolds.  
 Monroe St., n s, 225' w Franklin Ave., 7 two-story brownstone dwells.; cost, each, \$5,000; owners, Lambert & Mason, 277 Carlton Ave.; architect, A. Hill.  
 Lynch St., n s, 125' from Broadway towards Harrison Ave., four-story brick factory; boiler-house and engine-room; cost, factory, \$14,000, and other two, total, \$1,800; owner, August Moll, 181 Hewes St.; architect, A. Herbert; builder, Th. Gibbons.  
 Marion St., n s, bet. Rockaway and Hopkinson Aves., three-story frame tenement; cost, \$4,000; owner, Henry Ekoff, Marion St.; builder, Nicholas McCormick.  
 Troutman St., No. 15, three-story frame dwell.; cost, \$4,200; owner, Charles Mills; architect, John Platte; builder, Henry Loefler.  
 Myrtle Ave., s s, 125' e Broadway, three-story brick cigar factory; cost, \$6,000; owner, Charles Vogt, Broadway, near Myrtle Ave.; architect, John Platte; builder, T. Donlon.  
 Waverley Ave., w s, 143' s Myrtle Ave., two-story brick carriage house; cost, \$4,636; owner, Charles E. Dingee, 326 Washington Ave.; architects and builders, Mills & Bush.  
 Ferris St., bet. Dikeman and Partition Sts., one-story brick boiler shop; cost, \$7,000; owner, Lidge-wood Mfg Co., 96 Liberty St., New York; architect, J. V. Beekman; builders, P. Kelly & Son and Jas. Martin.  
 Lewis Ave., w s, 50' s Floyd St., two-story frame dwell.; cost, \$4,000; owner, Weis Ketel, Meserole St., near Ewen St.; builders, Geo. Straub and J. Rueger.  
 Warren St., s s, 75' w Smith St., four-story brick flat; cost, \$11,000; owners, architects and builders, M. Freeman's Sons.
- Chicago.**  
**PRICES.**—No change in the prices of material this week. Brick is a little scarce and somewhat stiffer, otherwise remains the same.  
**APARTMENT-HOUSE.**—Mr. Harvey Gault will build a two-story apartment-house on Wabasha Ave., near Lincoln St., to cost \$7,000. Mr. W. J. Brookes, architect.  
**HOUSE.**—Mr. H. T. Monroe will build a fine residence on Park Ave., to cost \$18,000. Mr. J. D. Ellis, architect.  
**BUILDING PERMITS.**—Mrs. L. Starr, three-story stores and flats, 42' x 64', 903 Madison St.; cost, \$12,000.  
 Adam Press, two-story dwell., 25' x 59', 66 Lincoln Ave.; cost, \$6,000.  
 A. H. Uphoff, 2 three-story dwells., 49' x 50', 3544 Wabash Ave.; cost, \$12,000.  
 C. F. Gunther, six-story store, 25' x 100', 200 State St.; cost, \$18,000.  
 S. M. Kelly, 3 two-story dwells., 50' x 60', 2965 Groveland Park; cost, \$10,500.  
 Robert Law, six-story store, 99' x 150', Madison-st. Bridge; cost, \$150,000.  
 D. Quill, 4 two-story stores and dwell., 58' x 102', Van Buren and Aberdeen; cost, \$15,000.  
 A. Grannis, two-story dwell., 30' x 55', 2914 Indiana Ave.; cost, \$12,000.  
 J. Cooney, 13 two-story flats, 40' x 260', Tallman and North Ave.; cost, \$40,000.  
 D. G. Schwartz, three-story store, 536 North Clark St.; cost, \$5,000.  
 S. C. Pardee, two-story dwell., 25' x 50', 402 State St.; cost, \$6,000.  
 John Heron, two-story flats, 38' x 105', 117 S. Paulina St.; cost, \$12,000.

- B. & O. R. R., two-story passenger depot, 33' x 125', Michigan Ave.; cost, \$15,000.  
 Henry Corwith, six-story store, 96' x 150', 124 Market St.; cost, \$80,000.  
 Warder, Breshnell & Glasner, five-story warehouse, 80' x 200', Adams and Jefferson Sts.; cost, \$70,000.  
 Gottfried Brewing Co., two-story barn, 36' x 100', Alexander & Stewart Aves.; cost, \$5,000.  
 F. Kraenka, two-story dwell., 22' x 56', 694 Eighteenth St.; cost, \$3,500.  
 D. Harry Hammer, two-story flats, 22' x 44', 3534 State St.; cost, \$3,000.  
 Moses A. Naber, three-story dwell., 20' x 40', 47 Peck Ct.; cost, \$5,000.  
 Jerome Beecher, 8 two-story dwells., 17' x 70', 2431 Forrest Ave.; cost, \$30,000; W. A. Furber, architect.  
 Lutheran School, two-story school-house, 24' x 46', 683 Loomis St.; cost, \$2,900.  
 P. McNally, two-story dwell., 21' x 56', 753 Loomis St.; cost, \$4,000.  
 Aug. Schlechte, two-story dwell. and store, 24' x 50', 902 Milwaukee Ave.; cost, \$3,500.  
 Board of Education, three-story school-house, 79' x 122', cor. Wendell and Wells Sts.; cost, \$55,000.  
 John C. Fitzgerald, two-story dwell., 20' x 50', 3647 Dearborn St.; cost, \$3,700.  
 F. Schofield, two-story dwell., 20' x 38', 924 Jackson St.; cost, \$2,500.  
 L. Z. Leiter, 6 one-story stores, 142' x 200', State and Van Buren Sts.; cost, \$12,000.  
 Henry Corwith, three-story store and dwell., 25' x 85', 522 West Madison St.; cost, \$10,000.  
 John C. Fitzgerald, two-story dwell., 20' x 50', No. 3647 Dearborn Ave.; cost, \$3,500.  
 F. Schofield, two-story dwell., 20' x 38', No. 924 Jackson St.; cost, \$2,500.  
 John Campbell, two-story dwell., 20' x 60', No. 16 Laflin St.; cost, \$5,000.  
 Louis Hirsch, two-story dwell., 20' x 50', No. 210 W. Division St.; cost, \$3,500.  
 Mrs. Ruth A. Young, two-story dwell., 20' x 50', No. 1262 Harrison St.; cost, \$3,000.  
 Wm. J. O'Brien, three-story dwell., 20' x 80', No. 2765 Archer Ave.; cost, \$14,000.  
 Charles Matthias, 2 three-story stores and dwells., 40' x 60', No. 467 N. Clark St.; cost, \$15,000.  
 Gus. Knight, 2 three-story dwells., 40' x 58', No. 62 Lincoln Ave.; cost, \$11,000.  
 J. K. Bowie, three-story dwell., 23' x 63', No. 706 W. Jackson St.; cost, \$5,000.  
 P. J. McGinnis, two-story dwell., 24' x 40', No. 1069 N. Halsted St.; cost, \$5,000.  
 C. W. Division R. R., two-story car-house, 128' x 162', Park and Western Aves.; cost, \$30,000.  
 C. W. Division R. R., two-story stable, 114' x 162', Park and Western Aves.; cost, \$30,000.  
 J. V. Farwell, two-story residence, 60' x 70', s w cor. Pine and Pearson Sts.; cost, \$100,000.  
 H. Fleutz, three-story flats, 23' x 80', No. 608 La Salle Ave.; cost, \$10,000.  
 J. P. Dale, 4 two-story dwells., 21' x 48' each, No. 1216 and 1222 Jackson St.; cost, \$12,000.  
 J. Hutelman, two-story dwell., 22' x 54', No. 27 Howe St.; cost, \$3,000.  
 Aug. Muller, two-story flats, 24' x 48', No. 11 Granger St.; cost, \$5,000.  
 A. Wells, two-story dwell., 20' x 60', No. 13 Groveland Park; cost, \$6,000.  
 Jacob Derubach, four-story store and dwell., 25' x 80', No. 397 W. Chicago Ave.; cost, \$14,000.  
 A. S. Watkins, 4 one-story cottages, 20' x 42', No. 3751 La Salle St.; cost, \$3,200.  
 Jas. Griffin, two-story addition, 25' x 80', No. 3307 State St.; cost, \$3,000.  
 J. C. Schumacher, one-story cottage, 20' x 50', No. 686 Twenty-second St.; cost, \$2,500.  
 A. Newell & Co., three-story factory, 40' x 125', Garfield and Racine Aves.; cost, \$12,000.

## Cincinnati.

- LACK OF BRICKLAYERS.**—The demand for bricklayers far exceeds the supply. This can probably be accounted for by the fact that all the buildings are being pushed in order that they may be got under roof before the winter sets in. The union price for bricklayers is \$4.50 per day, but some bosses are offering \$5 per day. This will no doubt lead the men to strike for \$5 all along the line on or before the first of next year, and thus business will receive another set-back. Cincinnati really needs about 100 more brick-masons.  
**BUILDING PERMITS.**—Keume & Rosenthal, three-story brick dwell., cor. Myrtle Ave. and Madison Pike; cost, \$5,000.  
 John Donnetta, four-story brick factory, Harrison Ave., near Western Ave.; cost, \$9,000.  
 Aug. Heistman, addition to three-story brick dwell., Baymiller St., near Clark St.; cost, \$3,000.  
 Mr. Otto Sniger, two-story brick dwell., State Ave., near Warsaw Pike; cost, \$3,000.  
 Fred Otte, three-story brick dwell., 539 Race St.; cost, \$5,000.  
 C. G. Van Zant, 5 two-story brick dwells., John St., near Betts St.; cost, \$8,000.  
 H. Haverbush, two-story brick dwell., State Ave., near Stabler St.; cost, \$5,000.  
 Nathaniel Ropes, four-story brick dwell., Main St., near Ninth St.; cost, \$15,000.  
 Folding Hat-Rack Co., four-story brick factory, 201 Front St.; Chas. Crapsey, architect; cost, \$8,000.  
 J. G. Buddeke, addition to three-story brick dwell., Linn St., near Clark St.; cost, \$3,200.  
 Wm. Ickoff, two-story brick dwell., Brown St., near Eliza St.; cost, \$4,000.  
 Aug. Weisgerberg, two-story brick dwell., Harrison Ave.; cost, \$1,000.

## New York.

- BUILDING MATERIALS.**—There have been but few changes in the prices of building material lately, and the figures prevailing being fairly low in conjunction with the settled rates of wages afford a good opportunity to build at reasonable rates.  
**RESIDENCES.**—At the c. of Fifty-fourth St. and Broadway, 4 brick and stone houses, five-story, are to be built at a cost of about \$65,000; from designs of Mr. A. B. Jones.  
**BUILDING PERMITS.**—Second Ave., e s, 25' 6" s One Hundred and Sixth St., four-story brick store and tenement; cost, \$19,000; owner, Charles F. Helms,

Second Ave., s e cor. One Hundred and Sixth St.; architect, A. Spence; builder, not selected.

**East Eighty-fifth St.**, No. 326, five-sty brick and brownstone tenement; cost, \$12,000; owners, Emeline and Elizabeth Johnston, by Wm. Johnston, agent, 445 East Eighty-fourth St.; architect, A. B. Ogden.

**Railroad Ave.**, s e, 300' s One Hundred and Eighty-third St., 2 three-sty frame dwellings; cost, each, \$2,750; owner, Caius V. Folin, Fordham, N. Y.; architects and builders, C. V. Folin & Son.

**Forty-first St.**, s s, 130' e Fourth Ave., four-sty brick building; cost, \$25,000; owner, Manhattan Storage and Warehouse Co., 2 Exchange Ct.; architect, J. E. Ware; builder, Richard Deever.

**Broadway**, Nos. 600 and 602 and 134 and 136 Croby St., six-sty iron and brick store; cost, \$150,000; owner, Elizabeth W. Aldrich, 210 Madison Ave.; architect, S. A. Warner; builders, J. H. Masterton and McGuire & Stone.

**Ninth Ave.**, n w cor. Seventy-first St., 3 five-sty brownstone tenements; cost, each, \$18,000, and \$36,000, and \$36,000; owners, Noble & Post, 1238 Third Ave.; architect, F. T. Camp.

**Private St.**, cut through from St. Nicholas Ave., s s, 15' above One Hundred and Sixtieth St., 20 two-sty frame cottages; cost, each, \$3,000; owner, Jas. E. Ray, 322 East One Hundred and Twentieth St.; architect, G. Robinson, Jr.

**Grand St.**, No. 385, five-sty brick store; cost, \$15,000; owner, James Barclay, 64 West Thirty-eighth St.; architect, J. Boekell.

**West Thirty-eighth St.**, Nos. 431 and 433, 2 five-sty brick tenements; cost, each, \$14,000; owner, Ernst Von Au, 149 Adams St., Brooklyn; architect, J. Hoffman.

**Forty-second St.**, s s, 100' w Second Ave., five-sty brick tenement; cost, \$18,000; owner, Max Schreff, 298 East Eighty-first St.; architect, Charles Baxter.

**Ninety-seventh St.**, s s, 300' w Second Ave., 8 four-sty brownstone tenements; cost, each, \$15,000; owner, Samuel Simons, 13 Sheriff St.; architect, Chas. Baxter.

**Seventy-eighth St.**, s s, 110' e Third Ave., 5 four-sty brick and brownstone tenements; cost, each, \$18,000; owner, Jacob Jenney, 114 East One Hundred and Tenth St.; architect, Chas. Baxter.

**Third Ave.**, s s, 20' s proposed One Hundred and Fifty-fifth St., three-sty brick tenement; cost, \$5,000; owner, Henry Lerch, One Hundred and Forty-fifth St., near Brook Ave.; architect, A. Reiffer; builder, not selected.

**Eighty-first St.**, s s, 203' 4" w Third Ave., five-sty brick tenement; cost, \$16,500; owner, Mrs. Lottie Seebald, 1517 First Ave.; architect, J. C. Burne; builder, Peter Seebald.

**Willis Ave.**, No. 311, w s, 25' n One Hundred and Fortieth St., three-sty brick tenement; cost, \$9,000; owner, Carl Sotschek, on premises; architect, J. F. Burrows.

**Seventy-eighth St.**, s s, 175' w Tenth Ave.; Seventy-eighth St., s s, 515' e Tenth Ave., 6 four-sty brownstone dwellings; cost, each, \$10,000; owner, Walter F. Shibley, 20 Nassau St.; architect, Wm. Baker.

**Ninety-third St.**, s s, 175' w Eighth Ave., three-sty brick and brownstone dwell.; cost, \$10,000; owner, Mrs. Robt. M. Reynolds, 333 West Ninety-second St.; architects, D. & J. Jardine.

**Pier, foot of Sixty-eighth St., North River**, one-sty frame freight shed; cost, \$16,000; owner, N. Y. C. & H. R. Co., Grand Central Depot; architect and builder, Joseph Richardson.

**Wooster St.**, Nos. 42 and 44, six-sty brick and stone store; cost, \$35,000; owner, Edward N. Teller, 11 Washington Sq.; architect, J. M. Slade; builders, A. G. Bogert & Brother.

**East Eleventh St.**, No. 808, three-sty brick factory and stable; cost, \$7,000; owner, George Elbert, Fourth Ave., s e cor. Ninety-fourth St.; architect, J. Kastner.

**Carmine St.**, No. 37, five-sty brick tenement; cost, about, \$23,500; owner, Lawrence Van Wart, 314 West Fifty-sixth St.; architect, J. Stroud; builders, Alex. Brown and D. Mitchell.

**East One Hundred and Nineteenth St.**, Nos. 347 and 349, 2 four-sty brick and stone tenements; cost, each, \$9,000; owner, Thomas B. Tappen, 2279 Third Ave.; architect, J. S. Wightman; builders, J. and W. C. Spears and L. S. Daly.

**Avenue A**, w s, 95' 4" s Seventy-first St., five-sty brick tenement; cost, \$16,000; owner, Thomas McMahon; architect, John C. Burne; builder, not selected.

**Lexington Ave.**, n e cor. One Hundred and Nineteenth St., three-sty brick stable; cost, \$17,000; owner, William H. McCarthy, 33 East One Hundred and Thirty-third St.; architect, J. C. Burne; builder, not selected.

**Broadway**, s w cor. Fifty-fourth St., 4 five-sty brick dwellings; total cost, \$64,621; owner, Victor B. Depierre, 234 West Fifty-fourth St.; architect, A. B. Jones; builders, Jno. Banta and Bartell Smith.

**Ninth Ave.**, n e cor. One Hundred and Twenty-fifth St., 5 four-sty brick stores and tenements; cost, each, \$17,000; owner and architect, Silas M. Styles, 143 West One Hundred and Thirtieth St.

**Madison Ave.**, No. 721, three-sty brick school; cost, \$6,000; owner, Henry B. Chapin, 1076 Madison Ave.; architect, J. E. Terhune.

**Seventy-third St.**, s s, 250' e Tenth Ave., 5 four-sty brownstone dwellings; cost, each, \$22,000; owner and builder, George J. Hamilton, 278 Fifth Ave.; architect, M. V. B. Ferdon.

**One Hundred and Eighth St.**, s s, 100' e Third Ave., four-sty brick and brownstone tenement; cost, \$9,000; owner, Wilhelmine Juch, First Ave., n w cor. One Hundred and Fourth St.; architect, Fr. S. Barus; builder, W. Juch.

**One Hundred and Eighth St.**, s s, 115' e Third Ave., 9 four-sty brick and brownstone tenements; owner, architect, and builder, same as last.

**One Hundred and Tenth St.**, s s, 75' e Second Ave. and One Hundred and Eleventh St., s s, 75' e Second Ave., 11 five-sty brick tenements; cost, each, \$10,000; owner and builder, same as last.

**Elton Ave.**, s s, 25' n One Hundred and Fifty-seventh St., four-sty brick tenement; cost, \$7,000; owner, John Paul, One Hundred and Fifty-seventh St. and Elton Ave.; architect, A. Pfund.

**One Hundred and Fifth St.**, n s, 323' e First Ave.,

two-sty brick stable; cost, \$3,500; owners, Nathan & Dreyfus, 92 Liberty St.; architects, H. J. Schwarzmunn & Co.; builders, List & Lennon and John F. Moore.

**One Hundred and Thirty-second St.**, s s, 175' e Eighth Ave., 10 three-sty and basement brownstone front dwellings; cost, each, \$14,000; owner, Saml. S. Hinman, 413 Pleasant Ave.; architects, Cleverdon & Putzel.

**Third Ave.**, w s, 125' s One Hundred and Fifty-eighth St., three-sty frame tenement; cost, \$4,000; owner, Mathilde Kromm, 781 North Third Ave.; architect, Theo. Dieterlen.

**Willis Ave.**, s e cor. One Hundred and Forty-seventh St., four-sty brick tenement and store; cost, \$6,000; owner, Wm. Dougherty, Willis Ave. and One Hundred and Forty-seventh St.; architect, Arthur Arcander.

**West Thirtieth St.**, No. 530, three-sty brick factory; cost, \$5,000; owner, John Dawson, 505 Tenth Ave.; architect, C. F. Ridder, Jr.; builder, not selected.

**ALTERATIONS.**—**Broadway**, s e, bet. Reade and Chambers Sts., extending about 225' on each st., raised from five and six stories to uniform height of seven stories, and all the buildings joined into one, and altered for offices; owner, Mrs. Cornelia M. Stewart, Fifth Ave., n w cor. Thirty-fourth St.; architect, E. D. Harris.

**North William St.**, Nos. 26 and 28 to be connected, four-sty brick extension, etc.; cost, \$5,000; lessee, New York Star Newspaper Co., on premises; architect, J. B. Snook; builder, not selected.

**Tenth Ave.**, Nos. 477 and 479, six-sty brick extension; cost, \$25,000; owner, Franklin E. James, 54 East Fifty-seventh St.; architect, S. D. Hatch; builder, not selected.

**Warren St.**, Nos. 32 and 102 Chambers St., add one sty, new cross walls, etc.; cost, \$10,000; owner, Elizabeth W. Aldrich, 200 Madison Ave.; architect, S. A. Warner.

**East Seventieth St.**, No. 2, raise stable roof, etc.; cost, \$5,000; owner, J. M. Fiske, Fifth Ave., s e cor. Seventieth St.; architect, S. D. Hatch.

**Third Ave.**, No. 390, interior alterations, etc.; cost, \$3,000; owner, Daniel D. Gassner, 2 Neilson Pl.; architects, Babcock & McAvoy; builder, not selected.

**Mott St.**, No. 35, raised two stories, also four-sty brick extension; cost, \$3,500; owner, James Naughton, 40 Mott St.; architect, A. Spence; builder, not selected.

**Mott St.**, No. 37, four-sty brick extension; cost, \$10,000; owner, architect, and builder, same as last.

**Monroe St.**, No. 291, through to No. 386 Madison St., repair damage by fire; cost, \$12,250; owner, Joseph M. Stuart, Princeton, Mass.; architect and carpenter, Henry Wallace; masons, Fellows & Cary.

**Forsyth St.**, No. 209, raised one-sty; cost, about \$3,000; owners, George and Valentine Fischer, 60 and 62 Second Ave.

**Madison Ave.**, s e cor. Fifty-fifth St., two-sty brick extension; cost, \$25,000; owners, Panorama Co., Paris, France; architect, J. M. Carrere, Jr.; builder, Gustave Humbert.

**East Seventy-fifth St.**, No. 25, s w cor. Madison Ave., one-sty brick extension; cost, \$3,500; owner, W. S. Maddock, 231 Broadway; engineers, MacLay & Davies.

**Fifth Ave.**, Nos. 485, 487, 489 and 491, and East Forty-second St., No. 2, seven-sty brick extension, alterations for apartments and show-rooms; cost, \$125,000; lessees, Pottier & Stymus Mfg Co., Lexington Ave., Forty-first and Forty-second Sts.; architect, S. D. Hatch; builders, A. A. Andruss & Son and James Elgar.

**West Forty-ninth St.**, Nos. 618 to 638, add one sty; cost, \$5,000; owners, Hardman, Dowling & Peck, 232 West Fiftieth St.; architect and builder, A. Gibbins.

**East Fifty-third St.**, No. 162, add one sty; cost, \$5,000; owner, Amanda Fallhee, 149 East One Hundred and Fifty-third St.; builders, Nason & Hollister.

**First Ave.**, No. 417, four-sty brick extension; cost, about \$15,000; owner, George Matthews, 135 East Seventy-first St.; architect, A. F. Oakley.

**Baxter St.**, Nos. 149 and 151, set boiler in basement, and build new chimney; cost, \$3,500; owner, Joseph H. Didier, 117 East Twenty-fourth St.; architect, William Jose.

**East Seventeenth St.**, No. 113, new front stoop, new front and vestibule doors, etc.; cost, \$3,000; owner, Wm. S. Livingston, on premises; architect, Emanuel Gandolfo; builders, John Kelly, and John T. Smith.

#### Philadelphia.

**MATERIAL MARKET.**—Quotations represent present prices obtained in this market, prices firm in lumber, brick, etc.

**FACTORY.**—At Front St. and Lehigh Ave. B. F. Thompson is having the following manufacturing buildings erected: Main building, (three-sty and basement), 40' x 107'; dye-house, 29' x 47'; boiler-house, 15' x 44'; engine-house, 12' x 32'; weave-shed, 45' x 80' 4"; J. F. Stuckert, architect.

**BOILER-HOUSE.** s e cor. Seventh and Dickinson Sts., three-sty brick building; 60' x 154' 4"; engine and boiler-house, 29' x 94' 6"; J. F. Stuckert, architect.

**BUILDING PERMITS.**—**Eight St.** n w cor. Morris St., 2 two-sty dwellings, 18' x 40'; D. W. Campbell, owner.

**Sixty-fourth St.**, cor. South St., two-sty factory, 32' x 60'; Jacob Zell, contractor.

**Erie Ave.**, cor. Trenton Ave., one-sty shed, and three-sty factory, 100' x 115' and 43' x 250'; Einwechter & Sons, contractors.

**Ripka St.**, n of Winchester St., 4 three-sty dwellings, 13' x 30'; Sturges & Heath, contractors.

**Fifth St.**, e s, n of Oxford St., four-sty warehouse, 55' x 96'; Thos. Little, contractor.

**Willard Ave.**, s s, w of Emerald St., 3 two-sty dwellings, 17' x 30'; J. M. Buchanan.

**Adams St.**, n s, w of Thompson St., 3 two-sty dwellings, 18' x 29'; J. M. Buchanan.

**Cumberland St.**, s s, e from Salmon St., 9 two-sty dwellings, 14' x 42'; Chas. Spier, owner.

**Collins St.**, e s, 107' n of Huntington St., one-sty storehouse and stable, 40' x 42'; Bernard McSloy.

**Main St.**, e s, s of Sharpnack St., three-sty store and dwell., 20' x 65'; H. H. Buzby.

**Cambria St.**, s s, bet. Stanton St. and Frank'd R'd, two-sty dwell., 17' x 36'; Jno. Pattor, owner.

**Twenty-second St.**, cor. Wright St., s e, two-sty stable, 24' x 28'; A. Sandberger, owner.

**Fairhill St.**, e s, n of Lehigh Ave., 2 two-sty dwellings, 17' x 38'; W. Barnes, contractor.

**Twelfth St.**, cor. Susquehanna Ave., one-sty carshed, 22' x 200'; Citizens Pass. Ry., owners.

**Lawrence St.**, Nos. 1512 and 1514, 2 three-sty dwellings, 16' x 37'; Geo. Kessler.

**Germanstown Rd.**, cor. Tenth St., one-sty meeting-house, 38' x 58'; Wendell & Smith.

**Broad St.**, w s, s of Dickinson St., 33 dwellings; W. R. Matchett, owner.

**Eustis St.**, n a, bet. Fourth and Fifth Sts., 8 two-sty dwellings, 15' x 30'; A. M. Greene, owner.

**Taylor St.**, No. 3862 (Nictown), two-sty dwell., 14' x 28'; W. Wagstaff, owner.

**Twenty-eighth St.**, cor. Fletcher St., three-sty stable, 16' x 60'; Saml. Stewart, contractor.

**Dickinson St.**, n s, w of Broad St., 16 three-sty dwellings, 16' x 50'; W. R. Matchett, owner.

**Dickinson St.**, s s, e of Fifteenth St., 11 three-sty dwellings, 16' x 50'; W. R. Matchett, owner.

**Freedland St.**, s s, near Penn St., 5 three-sty dwellings, 16' x 32'; Wm. Rainn, owner.

**Second St.**, e s, n of Greenwich St., 2 two-sty dwellings, 16' x 32'; Chas. H. Clark, owner.

**Sixtieth St.**, cor. Hazle Ave., two-sty dwell., 16' x 32'; Jos. Addison, owner.

**Wharton St.**, n s, 66' e of Fifteenth St., 2 three-sty dwellings, 16' x 70'; Jas. McVicker, contractor.

**Swanson St.**, n w cor., Moore St., two-sty factory, 41' x 126'; L. J. Hirst, contractor.

**Woodland Ave.**, s s, e of Seventy-first St., three-sty dwell., 29' x 34'; Michael Bernard, owner.

**Westmoreland Ave.**, n e cor. Kensington Ave., two-sty store and dwell., 19' x 56'; Thos. Gormley, owner.

**Ontario St.**, s s, e of Eighteenth St., 2 three-sty dwellings, 18' x 44'; H. A. Miller, contractor.

**South Thirteenth St.**, No. 1210, three-sty dwell., 19' x 44'; C. E. Paine & Son, contractors.

**Sharp St.**, n w cor. Adams St., three-sty dwell., 19' x 46'; McIlvain & Cunningham, contractors.

**Green St.**, No. 715, warehouse and office, 20' x 34'; Myers & Campbell, contractors.

**High St.**, s s, e of Morton St., three-sty dwell., 17' x 44'; McLaughlin & McNamara.

**Twenty-third St.**, e s, s of Norris St., 2 two-sty dwellings, 17' x 45'; Jno. Klebe, contractor.

**South Sixteenth St.**, No. 767, three-sty dwell., 16' x 48'; W. S. Williamson, contractor.

**York St.**, n a, e of Frank'd Road, two-sty store and dwell., 18' x 48'; A. T. Richards, contractor.

**Leverington Ave.**, s s, bet. Ridge Ave. and Mitchell St., 2 two-sty dwellings, 16' x 39'; Jacob Shingle, owner.

**Twentieth St.**, w s, e Woodstock St., 4 three-sty dwellings, and 3 two-sty dwellings, 12' x 35' and 12' x 36'; Henry Freeman, owner.

**Powellton Ave.**, w s, bet. Thirty-first and Thirty-second Sts., 16 three-sty dwellings, with 4 stores, 15' x 57' and 18' x 57'; Wendell & Smith.

**Girard Ave.**, s s, bet. Palmer St. and Montgomery Ave., two-sty store and dwell., 15' x 48'; A. Hetzel & Son.

**Sloane St.**, Nos. 134 and 136, w s, 2 two-sty dwellings, 15' x 30'; D. R. Bering, owner.

**Thirteenth St.**, w s, s of Diamond St., 3 three-sty dwellings, 17' x 69'; J. M. Sharp, owner.

**Park Ave.**, s e and s w cors. Diamond St., 10 three-sty dwellings, 16' x 69'; J. M. Sharp, owner.

**Frankford Ave.**, Nos. 4417 and 4419, two-sty stable and carriage house, 36' x 40'; R. B. Burns, owner.

**Wissahickon Station**, one-sty railroad station, 21' x 70'; Tourison Bros. contractors.

**Orkney St.**, w s, n of Cumberland St., 2 three-sty dwellings, 15' x 26'; Jno. Mitchell, contractor.

**Emerald St.**, n e cor. Huntington St., three-sty addition to dry-house, 18' x 25'; Einwechter & Sons, contractors.

**Thirty-seventh St.**, n e cor. Aspen St., 14 two-sty dwellings, 14' x 30'; Lewis Smith, contractor.

**Dickinson St.**, three-sty factory, 56' x 151'; Wm. Steel, contractor.

**Dickinson St.**, engine and boiler-house, 27' x 90'; Wm. Steel, contractor.

**Howard St.**, e s, s of Susquehanna Ave., three-sty dwell., 20' x 45'; Wm. Steel, contractor.

**Thirty-eighth St.**, s e cor. Sycamore St., 3 two-sty dwellings, 18' x 42' and 24' x 46'; H. Grace, contractor.

**Pulaski Ave.**, w s, bet. Seymour St. and Fisher's Lane, three-sty dwell., 45' x 68'; Kinneer & Sons, contractors.

**Hancock St.**, s w cor. Coulter St., three-sty dwell., 30' x 50'; Kinneer & Sons, contractors.

**East Somerset St.**, Nos. 7 and 9, 2 three-sty dwellings, and alterations, 16' x 40'; Charles Roth, contractor.

**Venango St.**, n s, w of Delaware Ave., 2 fertilizing buildings, 20' x 54' and 62' x 122'; M. L. Shoemaker & Co.

#### St. Louis.

**PLASTERERS' UNION.**—The journeymen plasterers have organized a national union, with Michael Mulvihill, of Cincinnati, President; John Carter, of St. Louis, Vice President; Joseph Kennedy, of Cleveland, Secretary, and Jacob Mathias, of Indianapolis, Treasurer. The next meeting will be held in Cincinnati on the 21st of July, 1883.

**BUILDING PERMITS.**—Thirty-seven permits have been issued since our last report, of which nineteen are for unimportant frame houses. Of the rest, those worth \$2,500 and over are as follows:—

Henry Kohring, two-sty brick dwell.; cost, \$3,000; architect, May; contractors, Forweg & Wanhoff.

August Krome, two-sty brick dwell.; cost, \$3,500; contractor, F. Shuermann.

Thomas Noonan, two-sty brick dwell.

J. M. Ghio, two-sty brick dwell.; cost, \$14,000; architect, Grable; contractor, J. H. Dunlap.

E. J. Gay, four-sty warehouse; cost, \$29,000; contractor, J. L. Guedry.

Vane & Calvert, three-sty brick store and dwell.; cost, \$21,000; architect, J. D. Fitzgibbons.

J. Boehmann, two-sty brick dwell.; cost, \$4,500; architect, Beinke; contractor, J. Boehmann.

#### General Notes.

ANDOVER, O.—G. H. Merrill, frame dwell.; cost, \$4,000; S. W. Foulk, architect.