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AN amendment to the Building Law of Massachusetts was passed before the adjournment of the Legislature, by which the construction of elevators is placed under the care of the Inspectors of Buildings, in localities where such officers exist, and elsewhere under special inspectors, who are to satisfy themselves that all elevators within their several districts are fitted with effective safety-catches, for checking the descent of the car or platform in case of the breaking of a shipper or hoisting rope. It is certainly not too soon to interpose the arm of the law for the purpose of preventing those accidents which, considering the number of trustworthy safety-catches now in the market, are becoming scandalously frequent. It is only the other day that an elevator fell in New York for the third time within two years, and not a week passes without half-a-dozen casualties of this kind. We hope that the Massachusetts inspectors will, in preparation for their duties, be authorized to make thorough tests of all the safety appliances in the market. The investigation should be public, as well to secure fairness as to enlist in the subject the interest of tenants, customers, and others who use elevators. An intelligible report upon the construction and effectiveness of the various safety-catches would be eagerly read, and the nervousness which vertical locomotion inspires even in those most accustomed to it would serve to create an army of amateur detectives to second the inspectors in their investigations.

THE officers of the electric-lighting companies seem to be on the verge of another pandemonium of veracity,—if we may be permitted such an expression,—in relation to the new storage batteries, very similar to that excited by the occurrences of the Electrical Exhibition at Paris. It seems that the steamer Labrador, which recently arrived in New York from Havre, brought two agents of the company which controls the patent for the Faure accumulator, with materials and appliances for introducing the batteries in this country. Among these were one hundred and forty-five accumulators, which were charged with electricity from a dynamo-electric machine just before the steamer left port; the total quantity of electricity so stored being calculated, according to the *Scientific American*, at thirty thousand ampères; that is, thirty thousand times the amount which would pass in one second from one Daniell's cell through a copper wire two hundred and fifty feet long and one twentieth of an inch in diameter. Fifty of the batteries were placed in the engine-room and used to supply eight incandescent lamps, of the Swan, Maxim, and Edison patterns, six of which were of eight candle-power, one of six, and the remaining one of fifty candles. All these lamps were kept lighted throughout the voyage, and on the arrival of the steamer in New York it was found that less than five hundred ampères of force had been consumed, the rest being still available for use. As might have been predicted, no sooner

had Faure's agents reached this country than a claim was set up by a rival electrician to the effect that he had used a secondary battery, similar in all essential respects, some months before the issue of M. Faure's original patent, and a long and costly litigation is likely to follow between the two claimants, unless, as is very possible, some third inventor should bring forward an accumulator so much superior to any now known as to render all others worthless.

AFTER a long trial the experiment of propelling street cars by steam-power has been definitely abandoned in Paris. On theoretical grounds it was supposed that a considerable economy would result to the proprietors of the railway from the substitution of a simple mechanical motor for the traction of horses, but this anticipation has not been fulfilled. On the short lines, particularly those with sharp curves and steep grades, the superiority of horse-power was soon shown; but on the long, straight routes, particularly those which were apt to be overburdened at certain hours on certain days, the reliability of steam gave it an apparent advantage, and it is only after three years' trial that a comprehensive summing-up has proved that this advantage is gained at an increased expense. The cost of fuel is indeed much less than that of maintaining horses enough to develop the same amount of power; but to this it was found necessary to add a certain extra expense of attendance, a rather heavy total of items of repairs, and last, but not least, a constant drain of money paid as compensation for losses caused by accidents, either to passengers unfamiliar with the operation of the cars, or to other persons, particularly those whose horses, as often happened, were frightened by their steam and smoke. Time did not seem to diminish the frequency of these occurrences, and the influence of the police authorities seconded that of self-interest to secure the withdrawal of the motors, at last successfully; and the "chemin-de-fer américain" will know them no more.

MR. KEELY has so far yielded to the mandate of the court of equity which decreed that he should reveal the secret of his motor as to present a statement to the effect that the mechanical force on which it depends for its action has not yet been brought into any practicable use, but that he hopes in time to make it of such utility as the patent laws require. It hardly seems to have been worth while for the stockholders to prosecute a suit to learn these facts, which were evident enough before, and it is a pity that their principal, having so little to offer them, could not have let them have it cheaper, in view of the benefits which he has enjoyed for so many years at their expense. It is said, whether truly or not we do not know, that Mr. Keely himself has honestly sunk a large sum in the pursuit of his chimera, and that the exhibitions before distinguished admirals and generals, with other similar performances, have been conducted by a small number of speculators, who have enriched themselves at his expense as well as at that of those who have bought stock in the company innocently. Whether this is true or not, it seems clear that Mr. Keely must have known the imposition which was being practised, and it is difficult to understand how he can explain his failure to expose it.

MR. RUFUS PORTER, of New Haven, makes in the *Scientific American* a suggestion for deepening the Mississippi River which seems to have considerable value. Observing that the silt deposited by the river, although so abundant as to keep the water-level, and with it the necessary height of the levees, constantly rising, is extremely light and soft, he conjectures that a mechanical disturbance of the bed of the stream at any particular spot would serve to prevent the mud from accumulating, by throwing it again into suspension in the water; and proposes that a series of endless chains, running over pulleys at various distances, sunk in the stream, should be kept in motion by wind-mills on the bank, so as to scrape a continuous furrow, a thousand miles long, in the mud, which would, he thinks, be rapidly deepened and widened by the action of the water. The total cost of the chains and machinery he estimates at one and a quarter million dollars, and is convinced that they would infallibly "so enlarge the channel that there will be no occasion for levees anywhere upon the river." Although the

apparatus which Mr. Porter describes seems to be a rather cumbersome one, the idea upon which it is founded appears good, and it might be worth while to experiment, not with wind-mills, but perhaps with some revolving dredge, turned by the current like the spinning bait used in trolling for pickerel, and secured by chains to anchors dropped in the mud. Some care would be needed in adjusting the weight of these rotating dredges, so that they might neither float to the surface nor bury themselves in the silt, but it seems as if this might be controlled.

THE Military Committee appointed by the British Government to examine and report upon the expediency of allowing England to be connected with France by a tunnel has already prepared its reply, which is to the effect that the tunnel can be adequately defended, but with the recommendation that the terminus should be moved further inland, in order to give more room for fortifications. Whether this will serve to reassure the insular mind sufficiently to allow the work to proceed is doubtful, the "great majority of Englishmen," according to the assertions of those who oppose it, being decidedly averse to the undertaking; but perhaps the energy of Sir Edward Watkin and his associates may, now that the excuse for Government interference seems to be removed, triumph over popular prejudice. It is a little singular that the French, a nation warlike by instinct, and in far greater danger of invasion from England than England would ever be from the Continent, have apparently not thought of fortifying their end of the tunnel. That this omission does not spring from habitual disregard of needful military precautions, any one who has seen the tremendous fortifications which bristle along the eastern frontier of France can easily understand, and it is worth inquiring whether the French view of the case, regarded as a question of strategy, may not be quite as prudent as the other. It is, no doubt, very gratifying to the feelings to have all preparations made for shooting, drowning, and mangling one's fellow-creatures by wholesale at a moment's notice, but it must be remembered that cannon can be pointed in more than one direction, and that a heavily armed *tête de pont*, such as it is proposed to establish at the English end of the tunnel, would, if it were to fall by treachery or surprise into the hands of an enemy, by simply turning the guns around, give the best possible opportunity to an invader for landing at his leisure an army of any size, with munitions of war, in defiance of all the power of Great Britain, while a single hostile brigade could not emerge from the unprotected French end before it would be helplessly overwhelmed by troops summoned from all parts of the Republic.

DR. CARL HUMANN, the explorer of Pergamon, is about to commence excavations on the site of the ancient city of Ancyra, in Galatia, which is known to contain many interesting remains. Although visited by Texier and other travellers, the place still presents almost a virgin field for archaeological investigation, while, as at Assos, an immense quantity of the most valuable antique material has been preserved from barbarian lime-burners and hut-builders by being used in the construction of the triple walls which surround the mediæval citadel, and contain a large part of the sculptured blocks from the Grecian and Roman buildings in perfect condition. Galatia was in Roman times a district of peculiar ethnological interest, from having been settled by a colony of Celts, who, either driven forcibly from their homes in Western Europe, or diverted from their course in some prehistoric migration, came to find a dwelling-place in the midst of races totally different in origin and character. Whether this circumstance will be found to have affected the art of the country within the historical age remains to be seen, but it would appear to be at least probable. In another portion of Asia the researches of Mr. Hormuzd Rassam at Sippara, near Bagdad, have been recommenced with energy. We have before mentioned the discovery of a series of subterranean chambers on the site of this ancient Chaldean city, containing an enormous number of engraved cylinders and tablets. Five thousand of these have already been sent to London, and the inscriptions on them are now being deciphered. Instead of containing the annals of the world before the deluge, written by the historians of the period and deposited with the patriarch Noah for safe-keeping, they prove to be mostly memoranda of contracts for the sale of corn or other merchandise, and to date back only to about the seventh century before the Christian era.

AN interesting investigation has recently been made by Professor Langley, Director of the Allegheny Observatory, who conducted a scientific expedition in August last to the summit of Mt. Whitney, in Southern Colorado, the highest peak within the territory of the United States. The top of the mountain is about fifteen thousand feet above the sea-level, and the object of the journey was to make new determinations in regard to the solar radiation in the upper regions of the atmosphere, and to extend the present limits of knowledge of the invisible heat-rays of the spectrum. This subject is of great importance to meteorology, since it is well known that the warmth of the earth does not depend directly upon the rays received from the sun, but on that portion of them which is retained from being radiated back again by the atmosphere, which is far less pervious to the reflected than to the direct rays. Moreover, it is ascertained that certain portions of the spectrum are transmitted less readily than others, and it is a matter of the highest interest to determine the quality of the rays which affect the outer layers of the atmosphere, but do not reach the earth's surface. Professor Langley found by delicate experiments with the galvanometer that the invisible heat-rays of the spectrum at this high elevation extended through a distance about eight times as great as the length of the visible spectrum, the heat diminishing from the red band to a point at which its effect abruptly ceased, showing, as it would appear, the actual boundary of the spectrum within the limits of the atmosphere. The experiments also showed the existence of bands and lines in the invisible spectrum, corresponding to those of the visible portion, where the galvanometer momentarily swung back to zero, indicating intervals of cold. The position of these lines was accurately plotted, and the map of the spectrum is thus enriched with new material, which may prove to be of the utmost importance.

No prophet was needed to predict that the discovery of Koch in regard to the parasitic origin of tuberculosis would be seized upon by charlatans and converted to their own benefit, and an article in the *Scientific American* indicates how this may be done. It seems from the article that "some persons" regard the *bacillus tuberculosis* as simply the "protoplasmic seeds" of "vinegar yeast," or "mother of vinegar," which "growing on animal soil, has as one of its results the so-called tubercle." This improvement on the deductions of Dr. Koch is supported by the evidence of experiments, which for boldness throw his completely into the shade. As it appears, a certain Dr. J. H. Salisbury so long ago as 1858 discovered the embryonic form of the yeast plant in the blood and secretions of consumptive patients, and ascertained its action in the production of tubercles by "making the red corpuscles sticky," so that they formed "emboli" or plugs, which blocked up the capillaries; this "in conjunction with the chemical action of the acetic acid" causing the ultimate destruction of the tissues. To make sure of the correctness of his theory, Dr. Salisbury fed two hundred and forty-six hogs on farinaceous food in a state of fermentation, and found that they all died, and on examination their lungs proved to be "broken down" as if from consumption. The next series of experiments, though even more convincing, can hardly be viewed with full approval, and the antivivisection society should have its eye on Dr. Salisbury for the future. According to the account, this enthusiastic investigator "took men in companies of six, all healthy, and put them also upon farinaceous food containing alcoholic and vinegar fermentations," and, to cut the story a little short, in three months from the time of beginning the experiments, "the men had consumption of the lungs." The experienced reader will infer that this relation forms a prelude to the mention of Dr. Salisbury's method of treating consumption, which, as he says, is caused by "fermenting food, alcoholic yeast, alcohol, carbonic acid gas, embolism and interference with nutrition." Particulars are unfortunately withheld; but in brief the Salisbury mode of cure consists in "getting the system in splendid condition;" a plan so obvious that it is strange that no one should have thought of it before, particularly as it would seem to be equally applicable to all diseases. The simplicity of the explanation strikes the *Scientific American* with an admiration which we cannot quite share; but if abstinence from "alcoholic yeast" will serve to put consumptive patients into "splendid condition," and keep them there, we can do no less than to mention the fact.

WASHINGTON PORTRAITS.¹

The heliotype illustrations taken from black and white originals are good enough, but those taken from color pictures are generally unsatisfactory, as all sun reproductions of color must be.

The present volume is the fourth extensive work that has been published in this country, devoted to the likenesses of him who was "first in war, first in peace, and first in the hearts of his countrymen." Henry I. Tucker, that accomplished essayist and well-known dilettante led off with his monograph which was issued in a limited edition of one hundred and fifty-six copies, by Putnam, in 1859, and illustrated with impressions from the twelve plates engraved for Irving's *Life of Washington*; this was followed two years later by *The Medallion Memorials of Washington in the United States Mint*, by Colonel James Ross Snowden, and embellished with a large number of engraved plates of the more important ones. At distant intervals after this several brochures appeared on the same general topic: notably Sherwin McRae's on the *Houdon Statue*, and the writer's *Letter on the Wright Portraits*; but these performances, including the present work, all pale for exhaustive thoroughness and thoughtful discrimination before Mr. William S. Baker's important volume, entitled *The Engraved Portraits of Washington, with notices of the originals and brief biographical sketches of the painters*, Philadelphia, 1880. Any one who really wishes to make a study, either historical or personal, of the subject of Washington portraits must take Mr. Baker's treatise for a guide and it will be found an unerring one; its value is fully attested by the free and constant use Miss Johnston has made of it in compiling her work, and had she only followed it more extensively she would not have fallen into so many blunders as now appear throughout her book.

In the very start we have to find fault with the misleading title of the volume, *Original Portraits of Washington: an original portrait of a person means but one thing, a portrait taken of the original from life, so that a replica painted by an artist from the study originally made from life is not, strictly speaking, an original portrait, although in common parlance called so. Now the only well-authenticated portraits of Washington answering this description, in either its broad or narrow sense, are those by Charles Willson Peale, Pierre Du Simitière, Dunlap, Joseph Wright, Houdon, Madame de Bréhan, Gölager, Savage, Trumbull, Archibald Robertson, Ceracchi, Williams, Folwell, Wertmüller, Stuart, Rembrandt Peale, James Peale, Sharpless, and Saint Memin. There are in addition, the miniature Washington mentions in his diary (October 3, 1789) as having been painted by Ramage, but which is entirely unknown, and the shadow profiles drawn by Eleanor Parke Custis and Samuel Powel. Miss Johnston not only gives all of these, but adds every other artist who copied any of the above and some who do not pretend even to have gotten that near the original. Thus we are given Copley, Fullerton, Labatut, Robert Fulton, Miss De Hart, Barbière, William Birch, Field, Walter Robertson, Mrs. Sharpless, Benjamin H. Latrobe, not Henry B. Latrobe as given in the book, Kemelmeyer, Fraser, Lommelbourg, Peticolas, Alexander Campbell, Kisselman, Patience Wright, Eccleston, Echstein, William Rush, Canova, Chantrey, Greenough, Crawford, Clark Mills, Bartholomew, H. K. Brown, Ball, Powers, Valentine, Joseph Bailey and John Q. A. Ward. The last dozen names alone show the impropriety either of the title of the book or of including these names in it, for unless through some spiritual manifestation, it seems to us it would be rather difficult for our friends Joseph Bailey and John Q. A. Ward to have produced original portraits of Washington in their monumental memorials at Philadelphia and Newburyport. If the volume had claimed merely to record the different effigies of the Father of his Country, then of course, the works of all these persons and as many more again could have been with propriety included.*

Miss Johnston brings out her book as a historical work, and therefore makes it subject to the severe canons of historical criticism; this we regret to say it will not bear, for many of its statements are inaccurate and contradictory, and its deductions illogical and erroneous. The first artist whose work is mentioned is Copley, and to his pencil is attributed the Portrait of Washington at twenty-five, engraved by De Mare for Irving's *Life of Washington*, a heliotype of the print being given. Now that Copley may have painted Washington we will not deny; but if he did, all authentic trace of the portrait,

be it on ivory or be it on canvas, seems to have been irretrievably lost. Until recently this print by De Mare was universally accepted as from a miniature by Copley, upon the current rumor to that effect which somehow got attached to it, and the original painting from which it was taken has been inquired after and sought for in vain. Within the last year, however, it has turned up, having been sent from Virginia, to S. P. Avery, of New York, the well-known expert, for sale. Of it, Mr. Avery who sold it to William H. Huntington, of Paris, an enthusiastic Washington collector who now has it, writes, "From the works I have seen by Copley, I should rather think it more likely to have been done by Peale." This was the verdict of Rembrandt Peale upon it, about the time that it was engraved for Irving's Washington, and to any one at all familiar with the respective styles of Copley and Peale in their miniature work, there could be no mistake as to which hand produced it. In addition to this expert testimony we have the conclusive evidence given by the picture itself, which settles the question. Miss Johnston thus describes (page 2) the uniform: "The coat is blue with buff trimmings and there is a buff vest with embroidery." If Copley painted Washington at all, and the time this portrait is ascribed to him, 1757, it will be remembered, he was but in his twentieth year and had of course, made no reputation: it was in colonial days when his uniform was "blue coat with scarlet facings," (page 5) and the fact that the portrait in question represents him in blue coat with buff trimmings—the Continental uniform—shows that it cannot be the work of Copley. It is, therefore, most likely, as claimed by Rembrandt Peale, the work of his father, Charles Willson Peale, who painted so many miniature portraits of Washington. It is a pity too, that when the original miniature was accessible—it hung in the Metropolitan Museum for nearly a year—an unsatisfactory print from it should have been used for reproduction.

We pass over Charles Willson Peale to mention for a moment the two names which follow his as given by Miss Johnston—Nathaniel Fullerton and Alexander Campbell. These two individuals, so far as having delineated Washington is concerned, are absolute myths. The portrait ascribed to Fullerton and here reproduced from a recent engraving, which is indeed the only evidence of the existence of such a picture, is an exact copy of the profile by Joseph Wright, to be mentioned hereafter; and that by Campbell is fictitious in the fullest sense of the word, Washington saying in acknowledging one of these fierce portraits, sent by Joseph Reed to Mrs. Washington, at Cambridge, that he had never seen Mr. Campbell, who pretended thus to depict him from life. Following these comes Pierre Eugène Du Simitière, who was a native of Switzerland, but early in 1766 adopted Philadelphia as his home, where he made those remarkable collections of revolutionary and anti-revolutionary broadsides and manuscripts now in the Philadelphia Library, so well known to historical students. He was endowed with considerable artistic talent, and a series of thirteen profile portraits of illustrious Americans from his drawings were published in London in May, 1783. Among them was a characteristic head of Washington. This was most probably made about 1779, Washington having passed the greater part of the winter of 1778-79 in Philadelphia, and is only preserved through the engravings, as no original is now known to be in existence. Miss Johnston says, however, page 24, "He painted one or more profile military portraits of Washington; but the only one known to exist is now owned by Mr. J. P. McKean, of Washington, D. C. . . . There is no evidence that this painting was drawn from life, save the assertion on the engravings by Prevost and Reading. . . . Only through these two engravings is it yet possible to identify the authorship of the portrait owned by Mr. McKean. . . . Mr. McKean has published a full-size colored lithograph of his portrait." It is difficult to comprehend how any one at all acquainted with the subject could make statements like these; we will do Miss Johnston the justice, however, to believe that she has trusted to others and taken the statement of the resemblance of Mr. McKean's picture to the engravings by Prevost and Reading at second-hand, and does not give it upon her own inspection and comparison. The fact is that they bear no possible resemblance to each other. The McKean portrait, judging from the "full-size colored lithograph," is another one of the profiles by Joseph Wright, the features being exactly like his, with the body turned full, instead of in profile, like the face. A similar judgment must be passed upon the silhouette cut by Miss De Hart (page 27), from which it is said the engraved profile in *Wansey's Excursion to the United States* was made. A reproduction of this silhouette is not given, but it is familiar through the cut in Irving's Washington. A comparison of the two profiles will show that they are wholly unlike, that in *Wansey* closely resembling Folwell's profile.

The name of Robert Fulton is included among the painters of original portraits of Washington; yet the writer says "no portrait has been discovered" and no facts to show that there ever was one. Why then include his name in the book? Several of the artists who are set down as having made original portraits of Washington—that is from life—are shown by their own works, as reproduced in the present volume, to be merely copyists of Stuart. Such are the miniatures by William Birch, Robert Field, Labatut and Peticolas, the first two from Stuart's earliest portrait facing right, and the last two from his later picture facing left. The miniature by Barbière is doubtless of the same character, as there is no respectable authority for his ever having painted Washington from life.

Among the most interesting of the unfamiliar portraits of Wash-

¹ *Original Portraits of Washington, including Statues, Monuments and Medals*, by Elizabeth Bryant Johnston. Boston: James R. Osgood & Co., 1882. Folio, pp. xxii., 257. Illustrations.

ington are those by Joseph Wright, who was a son of Mrs. Patience Wright, celebrated in her day as a successful modeller of profile likenesses in wax. Wright, who inherited much of his mother's talent, was a native of Bordentown, New Jersey, where he was born July 16, 1756. When about sixteen he accompanied his mother to London, where she became quite famous in her peculiar line of art. Joseph received instruction in painting from West and John Hoppner, the latter eminent portrait-painter having married his sister. After passing some time in Paris, where he seems to have enjoyed the protection of Franklin, he returned to this country late in the year 1782, bringing with him a letter from Franklin to Washington. The autumn of the following year Washington had his headquarters at Rocky Hill, near Princeton, N. J., and here, at this time, Joseph Wright painted the Commander-in-Chief. This is a particularly valuable likeness, for the reason that, while it is strangely unlike the accepted portraits of Washington, it has received from Washington himself unmistakable signs of approval. Soon after the original study, which is now in Philadelphia, the prized possession of a lineal descendant of Francis Hopkinson, was made at Rocky Hill Washington ordered two enlarged copies, one of which he sent to the Count de Solms, a distinguished officer in the Prussian service, who solicited it to place in his gallery of military characters; and the other he presented to his friend Mrs. Samuel Powel, a daughter of Thomas Willing of Philadelphia, and it is now in the possession of her grandson, Samuel Powel, Esq., — not John Hare Powel, as stated in the book, — at his summer home in Newport, R. I. This last is a full half-length, cut off below the knees, in military costume, and gives the face in full view. It is signed and dated "J. Wright, 1784." One marked characteristic of these Wright portraits is the short-cut hair. They have not much pretension to artistic merit, but their historical interest is, perhaps, greater than any other portrait of Washington, from having received from him the stamp of his approbation. Yet, with this standing prominently forward, and with the additional fact that the Powel portrait has never been engraved, it is not reproduced for Miss Johnston's book — the portrait of all others that should have been delineated in a work of this kind, and there is no doubt but that the present accomplished owner would have accorded permission, had he been properly approached on the subject.

The Wright portrait that is well known among collectors is the profile, to which reference has already been made. The likeness was stolen while Washington attended service at St. Paul's Church, New York, during the residence of the government in that city, between April 30, 1789, and August 17, 1790. From the sketch he thus made he etched the profile on copper and printed it on small cards, which, although probably very plenty at the time, have become so scarce that Mr. Baker knows of but three impressions. It is one of these etched profiles that came into the hands of Benjamin Goodhue, a member of Congress from Massachusetts, upon which he endorsed "This was done in New York in 1790, and is acknowledged by all to be a very strong likeness. — B. Goodhue." This impression, in a very dilapidated condition, came into the possession of a Mr. Nichols, of Salem, Mass., who, in 1862, had a crayon drawing made from it by the well-known Boston artist, Joseph Ames. This drawing, which was not a close copy of the etching, Mr. Nichols had photographed and circulated extensively with the endorsement by Mr. Goodhue, transferred in fac-simile from the etching, where it was originally placed, to the reproduction of Ames's drawing, made nearly three-quarters of a century later. This drawing by Ames, made in 1862, Miss Johnston curiously sets down as an original drawing by Wright, accompanied by a Munchausen story to account for how it came into Mr. Nichols's possession. Of course Miss Johnston has been ruthlessly imposed upon by some one in this matter, but had she exercised more care and investigated deeper this would have been impossible, and we should have had, too, a more satisfactory illustration of a Wright profile than a copy of a print by O'Neill, from a photograph of a drawing by Ames of the Wright etching.

Miss Johnston seems to have gotten particularly mixed up on the Wright question. In a subsequent portion of her volume (page 152) she ascribes a profile modelled in wax, as original, to the mother, Patience Lovell Wright, although Mrs. Wright never returned to this country, and Washington certainly never visited England. She considers that "all doubt in regard to Mrs. Wright's having made portraits from life of Washington seem dispelled by this certificate on a photograph," and then follows an advertisement printed on the back of some photographs made by Taylor & Brown, Philadelphia, in 1865, from a wax profile made, either by Joseph Wright, who also modelled in this material, or by his mother, from one of his etchings or models. Of all the careless and illogical portions of this book, that treating of the Wright portraits is the most careless and most illogical.

To come to Robert Edge Pine, we are told on page 41 that "the portrait [of Washington] painted for Mr. Hopkinson was engraved by Longacre for the American Portrait Gallery." Here are three errors in fifteen words. Pine did not paint Washington for Francis Hopkinson, and the portrait engraved by Longacre for the National Portrait Gallery was Pine's portrait of Hopkinson and not of Washington. A notably good heliotype is given, opposite page 44, of the portrait painted by Edward Savage for Harvard University. This picture deserves to be wider and better known, for it bears within itself the evidence of being a good and strong likeness, while the

general lines of the head and face accord closely with those of the Houdon bust, which must be accepted as the most accurate rendering we have of the great original. Some of the mistakes in this book are very droll. On page 64, in speaking of Trumbull, we are told that "he retired into private life in 1777. During some portions of the next three years he was the pupil of Copley. It is humorously related that the young officer having seen the luxury and state of Copley in Boston in 1775, was more than ever determined to be an artist." The italics, of course, are ours. That Copley left Boston and this country in June, 1774, never to return, is almost too well known to bear repeating. On page 68 sundry extracts are given from Washington's diary, relative to sittings given to Trumbull, and among them "March, 1790, Monday, 1st. Exercised on horseback this forenoon, attended by Mr. John Trumbull, who wanted to see me mounted." The reader is then told, "Illustrative of the interest bestowed by Washington on those paintings is the fact that he was induced to put on the long-disused Continental uniform and ride out upon a spirited horse with Mr. Trumbull, that he might take a sketch for his painting of the 'Capture of the Hessians at Trenton,' on which occasion his warlike appearance is said to have produced a sensation in the quiet 'City of Brotherly Love.'" This is, doubtless, a very pretty story, but in March, 1790, when Washington and Trumbull rode out together, as noticed in the *Diary*, they were in New York, or nearly an hundred miles from the City of Brotherly Love. Such carelessness is distressing.

Having, on two occasions, in the *American Art Review*, expressed so fully our views and opinions upon Stuart's portraits of Washington, we will refrain, in view of the space already occupied, from repeating them here; and we will close our critical analysis of the volume by pointing out an amusing contradiction, on page 134, in regard to St. Memin's portrait of Washington, the last authentic one taken from life. "It is not known whether St. Memin had a sitting from the General, or whether he made his own opportunity when Washington appeared in public; but he certainly produced a likeness full of vigor and of strong individuality. The perfect outline he gave of Washington's head indicates that it was taken by an instrument adopted by this artist by which he secured the features with mathematical precision." The italics are ours. Comment is hardly necessary. How the physiognotype by which all of St. Memin's portraits were taken, could have been used without a "sitting from the General," passes our comprehension. This instrument was invented by a Frenchman named Chretien, not Queney, as stated by Miss Johnston. Queney was merely a follower of Chretien, as St. Memin was also.

We part from this book with regret that so rich a field should have been so poorly reaped. What a noble subject and what a grand opportunity to have reared a monument, not only to the Father of his Country, but to the humble hands that raised it, had they only been equal to the task! Its failure is doubly to be regretted. A work of the scope of the present one was much needed, but now all chance of its being properly done is lost; for there is not room for two such works in the field. We can hope, therefore, only that a second edition of the work some day may appear, entirely remodelled and re-written, and we cordially offer our notes and corrections to the authoress if she will use them for the purpose. If we have seemed ungallant in the way we have spoken of a woman's work, it must be remembered that all stand on an even plane in the domain of letters. There is no sex there: it is neither man nor woman that is dealt with, but a book and its author.

CHARLES HENRY HART.

THE CAMERA IN THE OFFICE.



ARCHITECTS, engineers, and doctors, — including in this last term men of science generally, — have probably derived more benefit, intellectual and pecuniary, from the invention of the photographic camera than, after the photographers themselves, any other classes of society. To the rest of the world photographs are an amusement, a distraction or a nuisance, according to the temperament of the individual and the character of the contents of the portfolio, to the inspection of which some kind host has inveigled the man of only average interest in those subjects which

most commonly are found in collections of photographic prints. But to the three classes of men we have mentioned photographs are more than an amusement: they are a means of education, and consequently have their due rank as aids in achieving a livelihood, which is, after all, the main thing that most of us accomplish in this life. To the architect they are the most valuable, and many an artist-architect would sooner part with all his books than with his collection of photographs. The engineer probably finds them less valuable, for though they recall the outward record of engineering

¹ The Amateur Photographer. Rochester, N. Y.: W. H. Walker & Co. How to Make Pictures. New York: Scrivell Manufacturing Co.

achievements, yet the fact that there is no diagram of strains, no equations, no figured dimensions, no apparent scale, none of that merciless and unattractive exactness which forms the essence of things valuable to an engineer must make sun-prints less valuable and less interesting to him than even the same views would be to an architect, whose trained perception can take in and enjoy the intention and proportion of the structure unassailed by the harrassing doubts that must trouble the more exact professional.

The advances made in the art of photography have been enormous, and the industry of the various practitioners incredible, so that a complete photographic library would, if one could possibly be gathered together, require a sizeable building for its mere storage, and it would contain—what would it not contain? To what part of the globe has not some photographer, professional or amateur, penetrated and brought back his addition to the general sum of human knowledge? We suspect the photograph is a much better educator than most people suppose. However vivid a description may be—and there are wofully few to which this adjective can be applied—the traveller who afterwards visits the scene described will find that the mental picture he obtained through the aid of words is anything but correct: he finds he has gone out of his way to see something quite unworthy of the time spent in getting there, or he finds that the scene and its impressiveness are beyond the power of any one to adequately describe.

What if photographs do foster eclecticism: the eclecticism of the moment need be but a transition state leading to a truer and purer architecture of the future.

Now and then we find some young men, and more older, who scoff at photographs and assert that they are an injury to the profession in that they remove the necessity of acquiring that manual dexterity which makes the sketch-books of the older school of travellers such a treat to look over; but the loss of training in this particular is immaterial: the travelling student who can now obtain photographs at every point he visits can cover ten times the ground—if he have the means—that he could formerly, when in order to benefit by his trip he had laboriously to transfer to his note-book such architectural devices as he thought would in the future prove serviceable. He can, moreover, now travel more as a scientific and reasoning observer, his mind no longer being mainly intent on making the greatest number of sketches.

We fear that those adherents to the old school will hardly welcome as they deserve the efforts that many of the makers of photographic supplies are making to provide "amateur outfits" which are just what no student about to travel should set out without, as we think. Modern invention has, within a few years, done much to lighten the labor of the architect burdened with a large practice, by providing him with the "copying-pad," "copygram," "hektograph," or by whatever other name it may go, and about the same time introducing to him another most useful ally in the method of reproducing drawings by the ferro-prussiate method. Nowadays no office is well equipped which does not have one or more boys trained in the careful manipulation of those labor-saving devices, and we can safely predict that in a few years there will be in most large offices some draughtsman or office-boy who has charge of a "dark-closet" and its simplified equipment of chemicals, and it will be found, moreover, that this fortunate youth will have his hands full to attend to the legitimate routine work of the office. Routine work! Any one will admit that on occasion the camera in the office might be a valuable aid, but that it should play an important rôle in the daily office-life is not so clear at first sight. Let us see how well chosen the word is. In the preparation of duplicate drawings for bidders it might take the place of the ferro-prussiate process in certain cases where a reduction in scale is either not a disadvantage or a positive advantage. At any rate it could produce duplicate copies of competitive designs to be furnished to each member of a building committee. In the preparation of specifications it could play an important part in preventing any misconception of the architect's real intention as regards fixtures: a little photographic print of a certain water-closet, gas-fixture, sash-lock, faucet, door-furniture, or any of the ordinary trade fixtures that the architect or owner may desire to have used, would, if pasted in the margin of the specification in place of the usual more or less unintelligible pen-and-ink sketch, entirely prevent the annoying mistakes that builders often make, even when they have really made a hunt through the market for the article they suppose the architect wishes to have used. These prints could be struck off by the quantity and used as occasion demands.

The smallest size of amateur camera, which can go into an ordinary hand-bag, may come into play on the architect's first visit to the building site: photographs of the site and of the several outlooks from it will go far to enforce the personal recollection of the necessities of the problem he is called upon to solve; this in the country, while in the city the camera will preserve for him the style and proportions of the adjoining buildings, conditions which have the greatest weight with a true architect. The building fairly begun, the camera in the hands of an intelligent draughtsman or clerk of works will save the architect from many a wearying and time-consuming visit, which too often proves to have been quite unnecessary. With the successive—say weekly—prints before him, explained by his intelligent substitute, the architect can follow the work, in simple instances, with equally good results by making a half or a quarter of the usual personal visits, and with the aid of the prints he and the builder can talk more understandingly when the latter comes to the

office in search of the solution of some conundrum. If in addition to the camera the architect enlists the aid of that greatest of modern inventions, the telephone, and has one at his office and another at the building in course of construction, his office will have become a true "chapel of ease,"—the obstinacy of the mountain will have softened and it will make visits to the architectural Mahomet as often as summoned.

In cases of building accidents that befall either one's self or another a photographic view made before the wreck is touched may be both valuable and interesting.

Again, what architect finds his building result exactly as he had anticipated? Are they not always worse or better, or in some way wholly different from what his own drawings had led him to expect? and would not photographs of all completed work form an invaluable *aide memoire*, a beacon to prevent similar shipwrecks, a buoy to guide him through the devious channels to the safe haven of success? Particularly would this be the case with interiors, which are usually less carefully studied, and consequently the office-records of success or failure are less complete. With portfolios stored with interesting photographs in interminable duplication, the natural thing for an architect to do would be to inaugurate a system of exchange not only with his neighbors but with architects known to him only by their works and reputation in all parts of the country, or even world, thus doing much to establish a feeling of intimacy and strengthen the bonds of common interest between the widely-scattered members of the profession, as well as doing much to harmonize and improve the architecture of the country; for what is more stimulating to greater effort than to find that your neighbor, presumably not more than your equal in capacity, yet from a certain quality of boldness and daring in taking advantage of every possibility the occasion offers, is undoubtedly executing work on a higher architectural plane?

But to maintain a photographic establishment in the office must be very troublesome, expensive, and above all malodorous and dirty! Not at all. A dark-closet four feet by five, a few simple non-poisonous chemicals and a copious water-supply is all that is needed beyond the camera and plates, the cost of which can be kept within very moderate bounds, if one elects to regard usefulness before style of finish in his apparatus. As for dirt and odor, there are none where the "dry-plate" process is used, as of course it would be.

We think that the profession owes much to the makers of the amateur photographic outfits, and as we entertain little doubt that many architects will equip their offices as we suggest, it is quite likely we may act on this assumption and give a few papers on photographic practice as applied to architecture, in order that, simple as the processes are, the shoals that hem in the course of success may be avoided.

PRACTICAL LESSONS IN ARCHITECTURAL DRAWING.¹



EVERYTHING should have a sufficient reason for its existence" is a bold statement with which to begin a preface: a more explicit challenge to the critic to discover reasons for the thing's non-existence could hardly be devised, and for the moment we will pick up the gage and assume a hostile attitude.

In the first place the author has given to his work a title which is quite misleading, even if it be not an entire misnomer, for of lessons in drawing, practical or other, there are almost none; an introductory chapter enumerating the necessary drawing utensils and giving directions how to stretch a sheet of paper, with a concluding chapter explaining how working-drawings are tinted, and the conventional meanings attaching to the various colors commonly used are really all there is in the book about drawing.

Having disposed thus summarily of the declared subject-matter of the book the author at once turns to the description of the construction of different classes of buildings, and begins his task by defining some of the technical terms most commonly in use, and as we think succeeds but ill in his attempt, though we say this with diffidence, as we know that different terms are applied in different parts of the country to the same portions of the building, or the same operations of construction. Still we can hardly think that the terms vary so much between Boston and New York that our author is right in defining jack rafters as "short lengths of worked rafters, sometimes of smaller dimensions than the main rafters, spiked to the feet of the latter" to give a different inclination to the eaves. Such pieces are in this part of the country usually called false rafters or furring rafters, while we understand jack rafters to be the short rafters running from the hip-rafter to the plate, or from a valley-rafter to the ridge, but all in the same plane with the main rafters of that portion of the roof. "Sills," we find, mean to the author what "partition feet" mean to some other people, while what we understand by sill the author terms, perhaps more correctly, "sill-plates." But these differences are probably due to variations of local practice. What cannot, however, be excused on this ground is calling a tenon on the head of a bracket in Plate IV a "mortise," for a tenon is always a tenon, and no local usage can convert it into a mortise.

These points are trivial and would have been overlooked in books even less praiseworthy than this, had not the author's certainty that

¹ *Practical Lessons in Architectural Drawings, or How to make the Working-Drawings and write the Specifications for Buildings.* Illustrated by 33 full page plates and 33 wood-cuts. By William B. Tuthill, A. M., architect, 1881. New York: William T. Comstock.

his work had a right to exist made us somewhat sceptical. We find, however, that the little book before us is one of the most serviceable and workmanlike, as it is one of the most creditable ever issued by its publisher. The detail of all the buildings given is better than is usually found in similar publications, and is very fully explained by the drawings, which are sharper and clearer than published drawings of their class are wont to be.

Although it would be possible to find fault with some of the methods of building, the construction indicated is so much better than that commonly followed, that the book may without misgivings be placed in the hands of the beginners for whom it was intended. The author shows, too, that he is acquainted with some of the niceties of construction, as is evidenced by the sketch showing how stair-treads are keyed up to their housings by hard-wood wedges.

The chapter on specifications is not what it should have been. The writer disclaims the intention of furnishing a complete specification which the student is to copy, — and certainly the memoranda given would be wholly inadequate for such a purpose, — but has striven to provide a suggestive skeleton or guide, which will enable the student to write out a specification applicable to a given case. He has, however, unfortunately adopted the rôle of an old-fashioned teacher, and has set his readers a lesson to be learned by rote, instead of following the wiser course of more modern instructors by presenting each precept he would inculcate together with the reasons for his suggestions.

INTERIORS AND INTERIOR DETAILS.

THE same publisher has intrusted to the same hand the preparation of a much more elaborate and interesting book,¹ the character of which is sufficiently set forth in the crowded title-page which this publisher affects.

The book is the more interesting that the designs appear in the characteristic handiwork of their separate authors, — for they have been contributed by ten different architects of New York, one each of Chicago and Providence, and three of Boston, — and have not had all the vitality taken out of them by the unintelligent interpretation of the ordinary lithographic draughtsman. This, of course brings it about that according as the author of a design is clever artist and cunning draughtsman, or the reverse, his designs obtain greater or less meed of praise than their actual architectural deserts warrant. Perhaps in a book which is presented to the public for them to make a selection from for the fittings of their own houses, the old-fashioned way of having all designs translated by the same hand is the one most likely to do even justice to the several authors; but when a book is expected to find a place on the book-shelves of the profession the present diversity of treatment is but an added value.

With one or two exceptions we recognize in the authors of the designs before us frequent contributors to our own pages. Purchasers of the book will find in it specimens of the vigorous and artistic work of Mr. Bruce Price, of New York; a few details of the neo-Gothic work affected by Messrs. Burnham & Root, of Chicago; several designs by Messrs. Gould & Angell, of Providence, rectangular and rather inartistic in rendering, but not without a very evident attempt at refinement which is as often successful as not; almost as many plates from the hand of Mr. Dewson, of Boston, which set forth in his usual delicate and "niggled" rendering a greater variety of interior work, often over-elaborated to be sure, than is contributed by any other designer; and the vigorous and interesting plates contributed by Messrs. Rossiter & Wright, of New York, the best examples of architectural drawing in the book. Other contributors have furnished only two or three plates each, and with the exception of the designs by Mr. L. B. Wheeler, of New York, do not call for special mention.

As an exposition of modern architectural practice and the better knowledge with which architects manage wood-work, the book affords an interesting contribution to the literature of the profession. The book itself is a very admirable example of modern book-making excellently printed on fine paper, and attractively bound.

ADVICE ON THE SEWERAGE OF TOWNS AND SMALL CITIES.

MR. JAMES F. GARDINER, Director of the State Survey of New York, and a member of the State Board of Health, was recently commissioned by the Board to examine the various systems of sewerage in use in this and other countries with a view to the preparation of a report which should serve as a guide to the officials of the smaller cities and towns in arranging plans for disposing of house-refuse. So many applications are made to the Board for advice in such matters that Mr. Gardiner's report has now been separately printed for distribution. Like Mr. Latrobe of Baltimore, who was recently commissioned on behalf of that city to inquire into the most effective and economical means for securing a thorough sewerage system, Mr. Gardiner has formed an opinion very strongly in favor, for towns with a public water-supply, of the separate, or as it can be called, the "Memphis" system, in which house and factory wastes are collected and carried off in small glazed pipes, quite independ-

ent of the conduits which serve to relieve the streets of storm-water. For villages which still depend upon well or cistern water, he advises the use of the pail or tub system, which, as he truly says, can be introduced into most villages half a century before sewers would meet with any consideration. His only fear is that ignorant or parsimonious village authorities may neglect to provide for the removal and proper cleaning of the tubs, and he suggests that in such cases isolated groups of houses could easily arrange to have the work done for themselves. The net cost of removing and disposing of such refuse is very slight where it is economically done. In Rochdale, England, about four-fifths of the expense is reimbursed by the sale of manure, and the balance which the town has to pay amounts to nine and one half cents per annum for each inhabitant.

Among us there would be little difficulty in introducing the Rochdale system in sparsely settled villages north of Mason and Dixon's line. Already many sensible and intelligent farmers have adopted a modification of it, using barrels which slide on strips of wood, and can be readily exchanged and transported, and a proper arrangement for cleaning out vaults is rather the rule in New England. The great difficulty would be to enforce it in manufacturing villages, and the smaller cities, — just the places where it is most needed. To expect the foreign population of such places to take any pains to keep themselves or their surroundings clean is out of the question: nothing but constant attention from better-instructed persons will serve to keep their filthiness within bounds, and the higher class of the inhabitants of such places need to be taught that their own safety depends much upon the care which they take of their humbler neighbors in this respect.

THE ILLUSTRATIONS.

THE WELLES BUILDING, BROADWAY AND BEAVER STREETS, NEW YORK, N. Y. MESSRS. G. R. & R. G. SHAW, ARCHITECTS, BOSTON, MASS.

THE Welles Building has a frontage of ninety feet on Broadway and fifty-two feet on Beaver Street, and is at present divided into large rooms which are to be sub-divided as tenants may require. The floor-beams are iron, fifteen inches deep, spaced five feet on centres, and carried over spans of about thirty feet on brick walls which are three feet four inches thick in the basement and sixteen inches thick at the roof. There are no columns or piers in the building. The ceilings are plastered onto hollow-brick arches between the beams, and the same material is used to line the exterior walls. The door and window finish and the bases are of Portland cement. The fronts are Jonesboro' pink granite. The pitches of the roof are copper, and the flat of the roof is covered with Neuchatel rock laid as a pavement. There are four steam elevators, three plunger sidewalk-elevators, four boilers, four feet in diameter and fifteen feet long, two steam pumps and two compression tanks.

DESIGN FOR A PUBLIC SCHOOL-HOUSE AT CHATHAM, N. Y. MR. FRANKLIN H. JAMES, ARCHITECT, ALBANY, N. Y.

This is of brick and oak timber with brick filling, Portland cement, rough faced finish, shingle roof. To cost \$18,500.

DINING-ROOM FOR MR. JAMES GORDON BENNETT, NEWPORT, R. I. MR. WILSON EYRE, JR., ARCHITECT, PHILADELPHIA, PA.

The wood-work is in mahogany and the walls are in rough plaster, with a sunk pattern in bronze.

PAVILION ON FRIAR'S HEAD, CAMPOBELLO, N. B. MR. W. G. PRESTON, ARCHITECT, BOSTON, MASS.

SCOTTISH SKETCHES: CORNER IN THE HIGH STREET, INVERKEITHING, FIFESHIRE; PRESTON HOUSE, CUPAR, FIFESHIRE. BY MR. J. W. SMALL, F. S. A. SCOT.

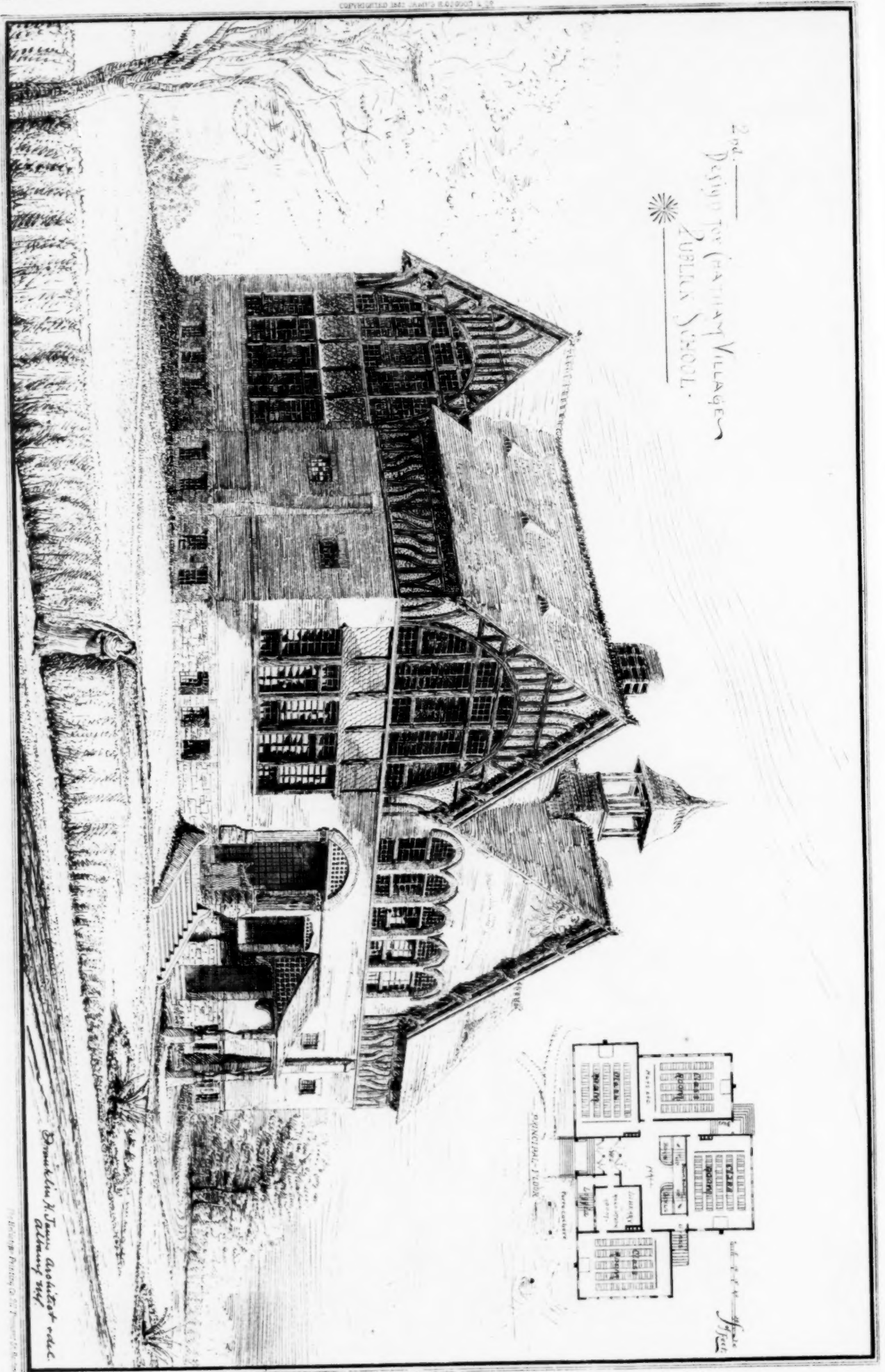
THE DESTRUCTION OF AN EXHIBITION BY FIRE.



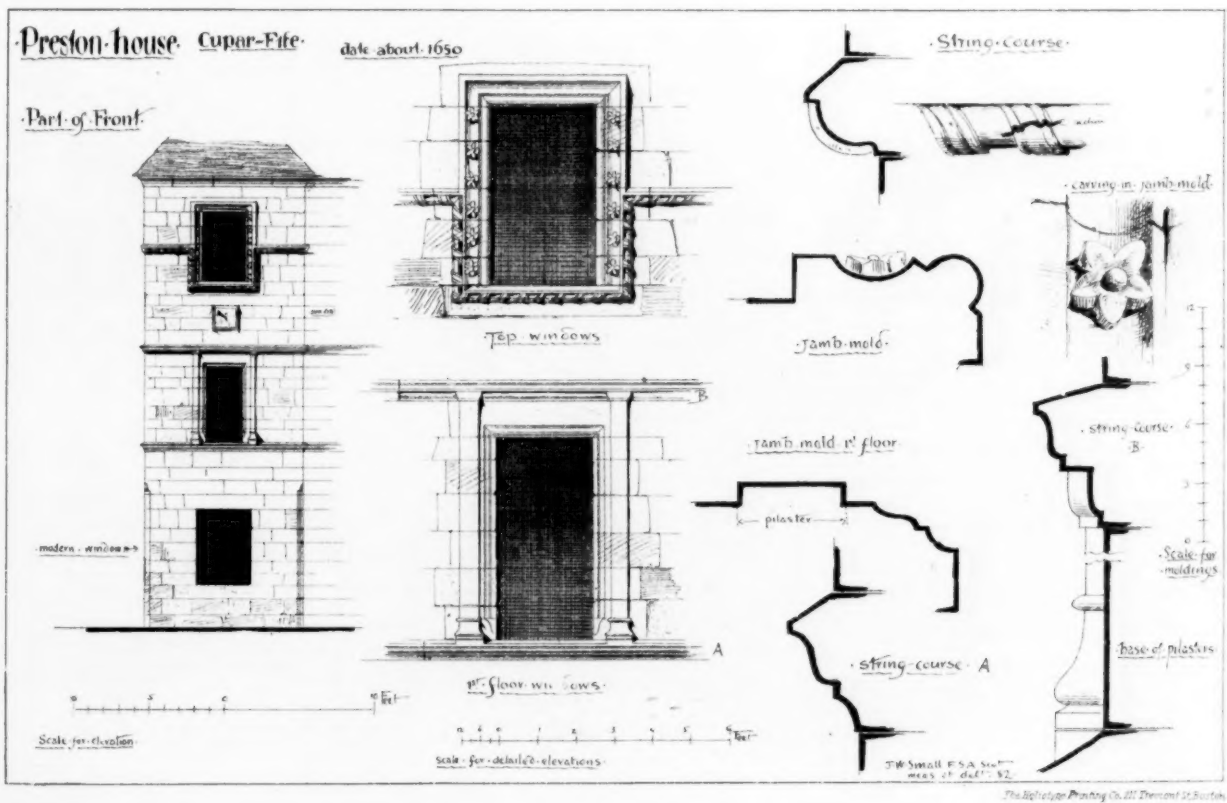
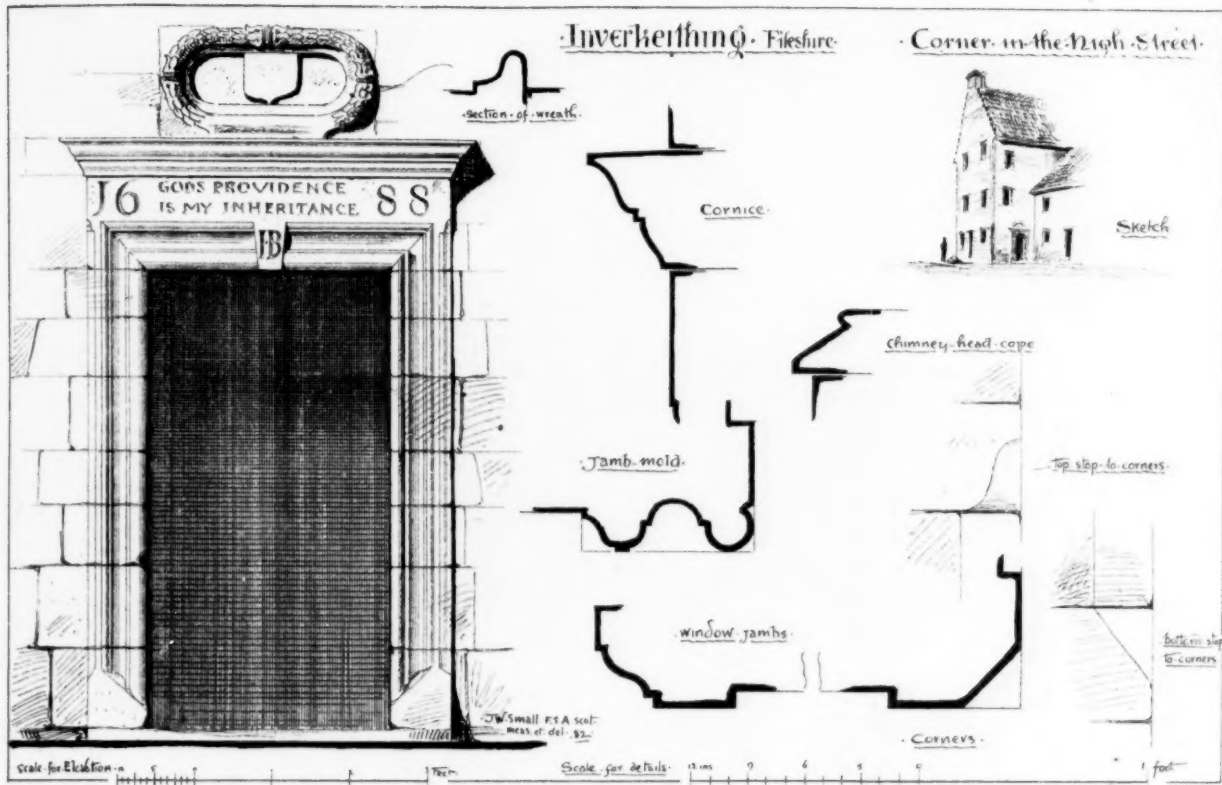
NE of the most extraordinary acts of vandalism known in modern times was perpetrated a few weeks ago at Porto Alegre, a town in the southern part of Brazil. In the last quarter of 1881 an exhibition was opened in the place in question, the contents being partly Brazilian, but mostly German. The German population in that quarter is numerous and influential, and the exhibition was got up by a German firm of Porto Alegre, in conjunction with a Berlin society, who induced many German firms to send samples of their goods to the exhibition. The name of this society is the

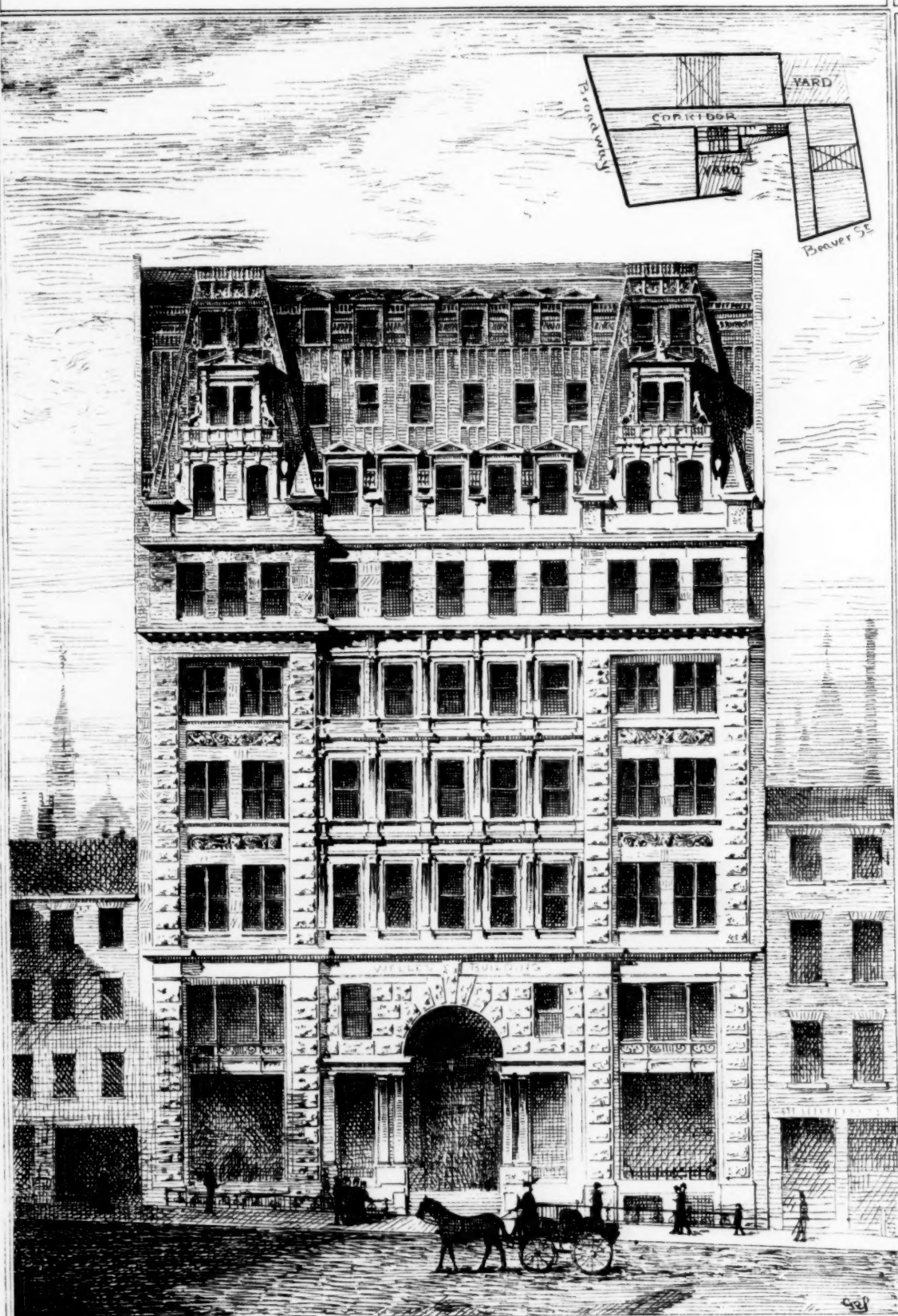
Berlin Association for Commercial Geography. Its objects are to promote German foreign trade and German colonization. The exhibition was got together and opened under very favorable auspices. It remained open several months, and fifteen contos were received in admission-money. Unfortunately, two days after the close, the whole building, with all its varied contents, was totally destroyed by fire. Worst of all, the fire was due to a wanton series of acts of incendiarism on the part of a drunken mob. In addition to the ad-

¹ *Interiors and Interior Details*. Fifty-two large quarto plates comprising a large number of original designs of halls, stair-cases, parlors, libraries, dining-rooms, etc., with an introduction, description of plates and notes on wood finish. By William B. Tuthill, A. M., architect. 1882, New York: William T. Comstock.









G. B. & R. S. Shaw
11 Congress St.
Boston

WELLES — BUILDING

Broadway & Beaver St.
New York City

The Building is being built by J. H. B. & Co.

mission fees, the rents of stands, and a grant from the Provincial Government of Sao Pedro do Sul, the expenses of the enterprise were to be defrayed in part by a lottery. This last-mentioned source of revenue played an unexpectedly important part in the final catastrophe. The reason assigned for the populace setting fire to the building is their indignation at the paltry value of the prizes given to the winners in the last series of drawings in the lottery. The first explosion of the popular dissatisfaction took place the day before the exhibition was burnt down. Knots of men assembled in the refreshment establishment connected with the show, and manifested their dissatisfaction with the affair by helping themselves to liquor without payment, by smashing the windows, and by pouring spirits on the curtains and setting fire to them. Nothing more serious, however, occurred until the following day, when the mob re-assembled and resumed the same conduct as on the first day. The officials and attendants managed, however, to ward off any danger of fire, although the curtains were again soaked with alcohol and set fire to. At about half-past five in the evening the mob turned its attention to the packing-court, which at the time was filled with wooden boxes and cases, and hay and straw. These were close to a number of sheds used as stables, and the sheds adjoined the exhibition-building itself. It occurred to some of the rioters to set fire to the straw in this department. Even after this had been done, it was some time before the flames assumed any serious proportions. Throughout the proceedings the authorities—the soldiers and the police—rendered no assistance in checking the excesses of the mob, or in preventing the spread of the fire, all that was done in this way being effected by the officials and the servants. A member of the committee addressed the crowd, and endeavored to persuade it to disperse without doing any further mischief. In this he seemed likely to succeed, but some person crying out that his hearers were “a disgraceful drunken rabble,” the crowd refused to listen any longer, and the riot was resumed.

From this moment the fate of the exhibition-building and the whole of its varied and valuable contents was sealed. After the failure of the attempt to pacify the mob with words, and while the fire was beginning to gather force in the packing-court, the rioters again poured spirit on some of the curtains and set fire to them, and began to throw stones enveloped in lighted paper through the broken windows into the exhibition-building. It was not by these attempts, however, that the ultimate catastrophe was brought about, but, as already described, by the rapid spread of the flames from the packing-court and sheds. After one of the towers of the building had been caught by the flames, the progress of the conflagration was terribly rapid. In the course of half an hour the whole of the building and its contents were consumed. The fire was a terrible spectacle, and was witnessed by an immense crowd of citizens.

The difficulty which this act of vandalism has left behind is a serious one. The goods and building were insured, but no insurance company is likely to pay if the statements of the German settlers in Porto Alegre are correct. The *Deutsche Zeitung*, published in that town, throws the whole blame on the shoulders of the police and local authorities. After the first day's tumult, it is stated that the chief officials connected with the exhibition had applied to the provincial authorities for a sufficient force of police and soldiers to protect the property; but their representations remained unheeded. Moreover, the few police who were on the spot at the time of the renewal of the disturbances on the second day are said to have remained almost passive spectators of the excesses of the mob. They made no exertions to restrain the rioters or to put out the fire, all that was done in that way being the work of the officials, attendants, and waiters connected with the exhibition. “The Government,” says the journal just mentioned, “was informed through its agents, beforehand, of the danger that threatened, but it did nothing towards warding it off. The Government, therefore, must be held responsible for the damages. There may have been failings in several quarters, but the duty of preserving public order is not the business of private persons, but of the State. Disturbances had taken place on Wednesday, although, in spite of the police putting in a very late appearance, they did not lead to serious consequences, but every one knew the tumult would be renewed on the following day. Even at nine o'clock in the morning more windows were smashed. When, therefore, the crowd increased in the afternoon and recommenced its work of destruction and plunder, was it not the duty of the police to interpose with energy, and even eventually to demand the assistance of the military? Instead of this, the *gendarmes* not only tolerated the scandal, but even encouraged it. One who was present reports that he heard a soldier saying to one of the rioters, ‘Go ahead! Our orders are not to interfere with the people.’ And so, in the presence of the soldiers, windows were smashed, stones were thrown at porcelain wares and lamps, and everything drinkable was fetched out and drunk, the soldiers joining quite cordially in the carouse. This is surely a perfectly intolerable state of things. The mob treated the entire affair as an excellent joke, and the authorities did not interfere with them. It is now proved that the Commissioners on the fatal day, Thursday, February 23, asked everywhere for the assistance of the military. They asked the President of the Province; they asked the police; but all in vain. More the Commissioners could not do. The authorities are therefore responsible for the losses suffered. The exhibitors will require compensation, and the entire sum may amount to hundreds of contos, perhaps £40,000 or £50,000.” “This outrage,”

continues the writer, “is moreover an insult to all the Germans here living. This alone will be reason enough for the German Government not to remain a passive spectator in the matter. Complications of all sorts may be the consequence.” We hope, however, that the affair will be treated with calmness and good sense, and that no further trouble may arise out of it.”—*The Builder*.

THE PROPOSED INTERIOR DECORATION OF MILAN CATHEDRAL.¹



IN the course of last November I received an invitation to visit Milan, and to give an opinion on the decoration of the cathedral. I must say that I was surprised, on the one hand, at the invitation, and on the other, at the fact that the decorative restoration of the cathedral was to be taken in hand. The committee appointed to deliberate consisted of the following members: Claudio Bernacchi, architect and professor at the Academy; Cesare Cantù, historian; Forcellini, architect and city engineer of Venice; Gerolamo Induno, painter; and myself. I must notice here something, perhaps unknown to you, but highly interesting, and probably unique in the history of architecture. This is the fact that the *Amministrazione del Domo* has existed from the year 1302, when it was instituted as an independent body, up to the present day. All gifts had to be handed over to this body, which had to decide

also in all other matters connected with the building. It selected, appointed, and dismissed all architects, concluded contracts, and it does so still. The most interesting part is that the minutes of proceedings of this administration exist in an uninterrupted series, and it may be learned from them how far German art influenced the constructive form of Milan Cathedral. It has been affirmed formerly, with great emphasis, that the cathedral was built by German masters. This is not correct. It is, in its present form, nothing else but a good Lombard church, with all its constructive advantages and defects. Its forms remind us more of German, sometimes of French, but never of Italian architecture; but the truth seems to be that the men who drew up the plans were Lombards, while, perhaps, Germans or Frenchmen were called in to assist in carrying out the details.

As long as the construction of the colossal outer walls was quietly proceeded with, little notice was taken of the question how the vaults ought to be formed; for those Lombard architects relied much on their mode of keying and fastening with grappling-irons. Later, however, some anxiety may have been felt on account of static proportions, and German architects were called in and consulted at various times, and even officially appointed. They were of opinion that the building could not be completed as it had been begun; that some parts would have to be walled up in order to complete the vaulting according to static laws. The Milanese did not take the same view, and the result was that their cathedral was finished in accordance with the original plans, such as we generally find in Lombard churches. The last time German architects assisted was when Master Fernach built the cupola. In 1858 I was desired by the late Emperor Maximilian to draw up plans for an isolated clock-tower for the cathedral. I complied with the wish and submitted two designs. Political events intervened, and I believed my drawings lost, until I found out the contrary during my recent stay in Milan. To my great joy, my drawings had been well taken care of in the archives.

A colossal building like Milan Cathedral experiences in a marked degree the least movement made by the earth's surface, as well as the influence of temperature, so that it appears improbable that the roof, consisting of marble slabs, could be kept water-proof. Notwithstanding the most careful execution and preservation, the joints of the pavement will open imperceptibly, water entering the small fissures and finding a way down. It is a fact that in the course of time perfect ditches have formed in the spandrels over the vaults: the vaulting has become damp, and pieces of plaster have dropped in various places. Now, the vaults are, as is well known, painted in a peculiar manner, that is to say, with panels of open-work tracery, which, in deed, are excellently executed, but cannot be brought in harmony with our static views of the function of a vault. Although this has perhaps been recognized at Milan, no one thought of undertaking a change in this direction, until large patches of plaster began to de-

¹ Abstract of a lecture delivered by Ober-Baurath Frd. Schmidt before the Austrian Society of Engineers and Architects, Vienna, and published in the *Builder*.

tach themselves, and thus brought the question into the foreground, with the choice of either effecting renewals on the old system and mending the existing frescoes, or of breaking with it and adopting a new system of decoration.

The Amministrazione del Domo decided, quite correctly, for the latter alternative, and a limited competition was opened, four Milan artists being invited to submit their designs for this decoration. As soon as these designs had been found generally acceptable, they were severally commissioned to execute a pattern on an escutcheon of the vaulting. Those executions were highly interesting, displaying entirely different conceptions. One of the artists—the cathedral architect—introduced the old system of a blue ground, gold stars, colored margins, etc. His treatment showed great taste, but was not austere enough for Milan Cathedral. A second proceeded from the principle that only gold ought to be applied in contrast to the natural color of the marble of which the fabric of the cathedral consists, and that everything required in the form of color to enliven the space is conveyed to it in abundance by the painted windows. The two remaining competitors adopted a similar principle in their treatment, but they employed entirely different means of decoration. One made the vaults appear as if constructed of pieces of marble, adding rich ornamental leaf-work along the ribs, the same style of decoration being also used for the keystone. The fourth artist followed a similar system; but he painted those ornaments in gold and color. The ground was a plain chamois tone. These were the four systems on which we had to decide. As regards myself, I was in favor of the design of the second artist, which I considered the only true solution, and by which the architectonic lines of the arch are traced with gold; this view I advocated before the committee. The result was that these principles were adopted as fundamental for the decoration of the cathedral, the only difference of opinion existing between us being that, while I urged that the artist who had come nearest to the true solution of the problem should be charged with the execution of the work, the other members of the committee thought that the one who had obtained almost the same effect should likewise be asked to submit a second design. We also arrived at the conclusion that it would be advisable to break the great monotony of the vaulting of the nave by figure subjects. As far as I know, work is being proceeded with on this basis, and I have no doubt but that it will be carried out in a rational manner.—*The Builder.*

TOWER-SYSTEM FOR ELECTRIC-LIGHTING.



SAN JOSE, Cal., has just completed a very interesting electric-light tower. It is some 200 feet in height and is composed entirely of gas-pipe. It is just such a piece of engineering as might be expected from a country which has given us the most extraordinary pipe-lines, flumes and other hydraulic works that have ever been erected. A reflector above the lamps throws the light downward, and prevents the large loss of illuminating power by radiation into space. The *Mining and Scientific Press*, of San Francisco, gives the following description of the tower:—

The electric-light tower, 200 feet high, which has been erected at the intersection of Santa Clara and Market Streets, San José, Santa Clara County, in this State, commences at the four corners of the streets with 4-inch gas-pipe, which size is used for a distance of 100 feet, then 50 feet of 3-inch, followed by 50 feet of 2-inch, the

diagonal and circular braces being of smaller-sized pipe. It has a width of 75 feet at the base and 4 feet at the top, and is crowned by a shield which acts not only as a protection for the lamps, but also serves as a diffuser of light.

There are six lamps of 4,000 candle-power each, furnished by the California Electric-Light Company, and driven by a No. 6 Brush dynamo-electric machine with an expenditure of 9 horse-power. The effect produced is very much like bright moonlight, the lights being so high that none of the direct rays reach the eye. For a distance of half a mile from the tower, in all directions, the light is brighter than would be produced by an ordinary gas-lamp every 75 feet, while on the two streets over which the lights are placed there is sufficient light for ordinary purposes for a distance of two miles.

About a year ago the subject of lighting the streets of cities by means of powerful electric-lights placed at high altitudes was first agitated in the East, and a few months thereafter a practical test of the matter was made at several points, the most noted one being that of the tower constructed at Akron, Ohio. This was erected from the street, of boiler-iron, in the form of a mast, 207 feet high, 36 inches at the base and 8 inches at the top. It is held perpendicular by iron cables in the form of guys, and the lamps are raised and lowered by machinery. In other places experiments were made

by placing the light on the spires of public buildings and other high elevations; but to Mr. J. J. Owen, editor and proprietor of the *San José Mercury*, belongs the credit of conceiving this, the most beautiful, effective and suitable erection for the illumination of a city by the electric-light, and the success of the experiment has exceeded the most sanguine expectations of the projector. Some time since, the city council ordered all the gas-lamps extinguished, in order that the merits of the tower-light might be tested. The result was that one-third of all the gas-lamps in the whole city will remain extinguished, the tower-light being adopted in their stead, and it is now running permanently. It was never expected that one tower would light the whole city. At first five or six were thought necessary, but it is now decided that four will be all that will be needed, and that number will give a much greater light than could possibly be obtained from other methods of illumination, and the tower-system will have the advantage of casting the light on the suburbs, where no gas-lamps were erected, but where the property is taxed for their maintenance.

A company just organized will proceed to erect other towers to light the whole city, as well as to furnish lights for stores and other large buildings, and San José may justly feel proud of being the first city on the Pacific coast to be lighted by electricity. The *Press* concludes its account with a letter from Mr. J. Park Alexander, President of the City Council of Akron, Ohio, in which he says:—

"After a six months' trial of the 'tower-system' for city lighting, I am more than ever impressed with its superior merits and adaptability as a means to light all parts of a city. Our two stations (towers) displaced 325 of our 800 lamps, and have cost us, upon an average for all-night lighting, less than sixty cents per post per month. The same labor and steam capacity would run four more stations (towers), and thus make the aggregate cost but a trifle more for the displacement of 600 or 700 more lamps. A very important feature of the tower-system is the fact that it lights up the whole area—alleys, back streets, vacant lots, etc.—that with any other system are not lighted, and must be the hiding-places for those of evil intent. In this feature alone, as a governmental aid, it is worthy of much commendation. I am confident that I express the candid judgment of our best citizens when I state that, day by day, the opinion has gained accessions as to this system here, where it has been in constant use since its adoption. The higher the better: not less than 200 feet, and better 500. With either height, streets within 1,000 feet of each station receive about equal benefit, and when the stations are favorably situated, both sides are equally light from one or the other stations. Foliage is a source of shadows in the tower system; but with stations within 2,000 or 3,000 feet of each other, the objection is of little weight."

That there is, however, a "gas-light" side to this question of tall towers for electric-lighting may be seen by perusal of the newspapers. In respect to the tower at Akron, Ohio, above referred to, some extracts from a letter published a short time since in the *Gas-Light Journal*, dated at Cleveland, O., and signed "Harry Caldwell," are of interest in this connection:—

"A few days ago I sent you a copy of the Akron (Ohio) *Daily News*, containing expressions of opinion, by citizens of Akron, adverse to the Brush tower-lights in use in that place. Thinking a personal observation of the light might interest your readers, I concluded to write to you. I went to Akron not so much for the purpose of finding what was the cost of operating the nine lamps (that has been publicly demonstrated, I believe, to largely exceed the cost of the gas previously used), but to see how the tower-system lighted the town. The sum of my observations is that the town cannot be said, as a whole, to be lighted at all. No gas is used for street lamps, and the oil lamps are burned only in parts of the town. The towers only give a light of practical value within a range of less than three short squares in the streets on which the lights are situated. The cross streets running into those on which the lights are situated are 'as dark as Egypt,' the electric-lights only illuminating the tops of the houses on one side of these streets. While the Brush lamps are brilliant at the burning point (painfully so to the eyes) the distance to which they will cast a good light seems surprisingly small, even when we remember that the ranges, in a direct line, of different lights are not directly proportional to their intensities, but only to the square roots of their respective candle-powers.

"To show how short the range of the tower-light is, at the intersection of Howard and Market Streets is a wrought-iron tower 208' high, on top of which are four lamps, said to be of 4,000 candle-power each. Now for a test of what this light can do. Desiring to cross the street three short squares from the tower on the same street (Howard), I could not see far enough in front of me to find whether there was a stone crossing there or not (my eyes are good ones, 31 years' old), and on the fourth square from the tower, and in a direct line with it, the oil lamps were burning—they ought to have been burning on the third square.

"At the engine-house there was one 4,000-candle Brush lamp which threw a good light on the spot where I was standing with a friend on the sidewalk opposite the engine-house. The shadow of the building extended over the sidewalk, across the way, and into the street a few feet. Now, although the street is rather narrow, on looking across it the shadow of the engine-house was so black that we could not see the figure of a man, or any other object in the shadow.

"Even a short distance from the big tower-light the shadows were extremely black. The light does not seem to diffuse at all. After the shop-lights are out a footpad could lurk unobserved in any doorway, or behind any projection, and strike you down before you saw him. The shadows are so deep that even within a short distance of the tower you cannot see the faces of persons coming toward you from the town.

"A prominent manufacturer of Akron, whose name and character are widely and favorably known, in conversation with me pronounced this system for street-lighting a 'humbug'; and, although he uses one of their machines in his factory, operating it with the same engine that he uses to run his machinery, says he only put it in because he was too far away from the gas mains to get gas, which he would greatly prefer, at moderate prices.

"An old citizen of high standing laughingly remarked to the writer that the Brush people were 'lightning' for smartness, and that it was always when the moon was about a week old, and its light sufficient to help out the electric-light that they brought village councilmen and other inspectors to Akron.

"As the expressions of all the citizens to whom I talked were adverse to the present system of lighting the town, I cannot think it will be very long

until the sovereign voter will make himself heard, and Akron will abolish the present ghastly glare and return to her 'old love,' the soft, beautiful, diffusive, always reliable gas-light."

This communication is evidently from a man committed to the gas interests. Of late the gas men find nothing too trivial or ridiculous to urge against the introduction of the electric-light. The deep shadows mentioned in this letter, and the weakness of the light at distant points, show very clearly that the methods of handling the electric-light at the present time are by no means perfect. But even with gas-light in the streets, dark corners can everywhere be found. All this shows that the science of the distribution of illumination needs to be studied. Progress will be necessary before cities will be successfully lighted up either by the use of gas or electricity.

A NEW PROCESS FOR DEALING WITH SEWAGE.



From the *British Architect*.

THE difficulty of dealing with the deposit technically known as "sludge" which has always and everywhere been a source of great trouble and inconvenience in treating town sewage by precipitation, has, it is claimed, been overcome by the Rivers' Purification Association, Limited, at the Coventry Sewage Works at Whitely. The various processes, which have been tried by the Association during the five years they have had the disposal of the Coventry sewage in their hands, have hitherto yielded anything but satisfactory results. The Association tried, in succession, methods of drying the sludge by heat, and also by continuous rotary filtration. These processes, however, besides being costly, did not dispose with sufficient rapidity of the 25 or 30 tons of sludge which are precipitated at the works daily, and they were therefore abandoned, being succeeded by the present system of "pressing." Some two years ago a model press was erected at the works, and although this description of press failed to fully answer the purpose for which it was intended, it has been very aptly described as the egg from which the process now adopted was hatched. The presses now in use were manufactured by Messrs. S. H. Johnson & Co., of Stratford, and the manager is Mr. E. F. Cuddington. The sewage flows through a rotary sieve, by which the solids are extracted. The rotary motion of the sieve causes the solids to fall to its centre, from whence they are conveyed by an archimedean screw. The sewage, now free from heavy suspended matter is chemically treated, and the precipitated matter called "sludge" is pumped into an iron trough, which supplies two cylinders, and is forced from these into the presses by one of Johnson's patent air-compressors. Once within the presses, the pressure is kept constant and uniform, and the water of which the "sludge" is chiefly composed pours out in continuous streams, leaving, at the conclusion of the process, the "sludge" in the form of dry, firm sewage cakes, 3' x 3', 1 1/4" in thickness, and smelling faintly of ammonia. Thus, it is said, is performed in a few hours a task which was previously but imperfectly done in many months, and the "sludge," which was before an almost unsaleable commodity, now meets with a brisk demand, being readily purchased by farmers, one large cultivator of the soil having recently ordered a thousand tons.

THE SHONE SYSTEM AT EASTBOURNE.



Old House
Dagger Lane
Hull
England

THE Sanitary Engineer quotes the following account of the pneumatic sewerage system at Eastbourne, which is more technical than the one we lately published.

The town of Eastbourne, a watering place on the south coast of England, has just carried out a scheme of sewerage on what is called the Shone system, which was quite fully reviewed in our issue of January 1, 1881. The following description is given by Mr. J. Sturgeon, C. E., the Mechanical Engineer of the Shone Company:—

"At the point opposite the Archery Tavern a penstock is fixed which separates the sewer through the Crumbles from the town sewer, so that the latter is not affected by the rise of the tide. The outfall from the town sewer is then diverted to three large Shone's patent pneumatic

ejectors placed below the surface of the ground. These ejectors consist of iron cylinders each four feet six inches internal diameter, and having each a discharging capacity of 500 gallons per stroke. The guaranteed maximum discharge from the three ejectors was

1,250 gallons per minute; but their actual performance has reached 3,800 gallons per minute during high tide. The discharge takes place through an iron main leading into the sewer through the Crumbles on the sea side of the penstock. The vertical lift from the ejectors against full tide is about 22 feet. The power employed to eject the sewage from the ejectors is compressed air, generated by means of a pair of Sturgeon's patent trunk air-compressors situated about 350 yards distant. These engines comprise two air-compressing cylinders, each 14 inches diameter by two feet stroke, driven by two steam cylinders each 10 1/2 inches diameter by two feet stroke, fitted with Parsons's patent adjustable expansion gear, and with condensers. The air is compressed into four large air reservoirs, each 6 feet diameter by 18 feet long. From these receivers the air is conveyed through a 6-inch main to the large ejectors at the Archery Tavern, which we may call the outfall ejectors. Another main 4-inch diameter, conveys the air to the Wish Valley, about two miles distant, where it works a pair of ejectors placed under the street, opposite the Devonshire Park. These ejectors are each 3 feet diameter by 8 feet long, and take all the sewage from the houses in the Wish Valley lying too low for direct connection to the main sewer, and lift it (a height of about 22 feet) into the main sewer which flows by gravity to the outfall ejectors. The discharging capacity of each of these ejectors is 350 gallons per minute. The air is supplied from the receivers to the outfall ejectors through a reducing valve, regulating the air-pressure to the varying height of lift, and averaging about 7 pounds per square inch of pressure, and to the Wish Valley ejectors through a similar reducing valve which maintains 12 pounds pressure for the Wish station, no matter how much higher the pressure in the receivers may be. This enables the receivers, which are capable of holding 6,720 cubic feet of air, to be charged up for night work to say 45 pounds pressure, which is sufficient to provide for 60 discharges of the Wish Valley ejectors during the night or more than sufficient for any possible night flow—thereby avoiding the necessity of keeping the engines running during the night. I have been asked as to the cost of working the system at Eastbourne. At present we are not in a position to obtain a fair estimate of the cost of working, as we should have to debit the whole cost to the one ejector station, which has been working for six months. The new station just opened will favorably affect the cost, which will ultimately be divided between several stations."

AMERICAN ARCHITECT COMPETITION.

OWING to the illness of one of the members of the jury of award we have not been able to publish the finding of the jury upon the last competition until this week. We are sure that the competitors who have so thoughtfully withheld all complainings at the unavoidable delay will realize by the aid of this explanation that no one more regrets it than the unwilling cause.

The three equal prizes of fifty dollars each have been awarded to the authors of the following designs:—

"Comet," by Mr. Cicero Hine, Ottawa, Canada.

"Pegasus," by Messrs. Wilford A. Norris and Francis Minot, Boston, Mass.

"Paul Kieff," by Mr. J. W. H. Watts, Ottawa, Canada.

MONTHLY CHRONICLE.

- May 6. Burning of a large part of Racine, Wis. Loss, \$250,000.
- May 7. The court-house of Allegheny County, at Pittsburgh, Pa., with some of the county records, is destroyed by fire.
- Miller Bros.' Opera-house at Nevada, Mo., is burned. Loss, \$40,000.
- County jail at Brook Haven, Miss., burned, together with three colored prisoners, who probably fired the building themselves.
- May 8. A wind-storm destroys a school-house at Lakefield, Minn., badly injuring the teacher and her eleven pupils.
- Heavy wind-storm visits McAllister, Indian T., killing seven people and injuring fifty.
- Mound City, Mo., is also visited by a wind storm.
- May 9. Wind-storm wrecks the Central Wesleyan College building at Warrenton, Mo.
- Wind-storm at Robinson, Ill.
- May 10. Wind-storm in Mountain Township, Pike County, Ark. Four persons killed, sixteen buildings destroyed.
- May 11. Wind-storm at Cherokee City, Kan. Two persons killed, thirteen wounded; forty houses destroyed.
- Death of François Guessard, a French archæologist of note, aged sixty-eight.
- May 18. Jail at Westminster, Md., is burned. No lives lost. Cause, defective flue.
- Death of J. P. Sims, architect, Philadelphia, Pa., of apoplexy, aged thirty-two.
- Born's warehouse at Lafayette, Ind., gives way under a load of 9,000 bushels of wheat on an upper floor.
- May 19. A wind-storm passes over the central part of Edwards County, Kan., destroying some buildings.
- May 23. Scott County Court-house at Waldron, Ark., and all the records are destroyed by fire.
- May 24. The Cherokee County Court-house at Center, Ala., is burned with all the county records.
- Explosion at the Ko-hi-noor colliery at Shenandoah, Pa. Six men killed.
- May 25. The business portion of Tombstone, Arizona, is destroyed by fire. Loss \$400,000.

May 26. Fire destroys a large part of the fortified Russian city Kioff.

May 27. Fall of the frame of a Dunkard meeting-house at Master-sonville, Pa. Three persons killed; many fatally injured.

May 28. Destructive wind-storm in northwestern Massachusetts, in Greenfield and adjacent towns. One man killed.

Fall of the floor of a public hall at St. Octave, Quebec, with 200 persons. One life lost.

May 29. Destructive wind-storm visits Monroe, Jackson, and Maumee townships, Ind. No lives lost.

May 30. Professor William B. Rogers, late President of the Massachusetts Institute of Technology, Boston, Mass., dies while delivering the valedictory address to the graduating class.

THE STRENGTH OF PHILADELPHIA FACE-BRICK.

PHILADELPHIA, June 6, 1882.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Having read with much interest the tabulated statement of the crushing strength of bricks as published in your issue of June 3, I am at a loss to understand the alleged inferiority of the so-called "Philadelphia face-brick," their average resistance, as stated, being so much below that of the ordinary straight hard brick now being used in the walls of our new City Hall, and which I had tested at the Watertown Arsenal on July 5, 1881, with the following result:

Test No. 1087.—Sectional area $8.20'' \times 4'' = 32.8 \square''$. Snapping sounds first heard at 140,000 lbs. Cracks appeared at 260,000 lbs. Test discontinued after the specimen had sustained five minutes the load of 500,000 lbs. = 15,240 lbs. per $\square''$. Brick considerably disintegrated.

Test No. 1088.—Sectional area $8.45'' \times 3.90'' = 33 \square''$. This brick has a very poor appearance. Cracked under 175,000 lbs. Net strength, 338,000 lbs.; 10,240 lbs. per $\square''$. Signed,

T. T. S. Laidley, Col. of Ordnance Commanding.

The two bricks referred to are now on the table in the office of the Commissioners for the erection of the new City Hall, and with the exception of some scaling around the edges do not look very much the worse, considering their searching ordeal.

Very respectfully, JOHN McARTHUR, JR., Architect.

LIGHT STEAM-ENGINES.

BOSTON, June 6, 1882.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—The three-cylinder "Brotherhood" engine driving the screw propeller of the "Whitehead" torpedo weighs only thirty-five pounds, developing forty horse-power. This apropos to "Max Hausman's" inquiry.

FRED. POPE.

NOTES AND CLIPPINGS.

THE ANDRÉ MONUMENT AT TAPPAN.—Owing to the extensive chipping of the base of the André monument at Tappan, it has toppled over and fallen to the ground.

STOLEN PAINTINGS.—The four paintings recently stolen from the palace of the King of the Belgians at Brussels were cut out of the frames. No trace that remained promised to lead to the finding of the robbers. The stolen pictures were these: "La Dispute au Cabaret," by Madou; "Un Café Arabe de la Haute Egypte," by Robie; "Une Vue d'Asouan," also by Robie, and "Un Vieillard et une jeune Fille tenant au Perroquet," by Van Regenmortel.—*Philadelphia Bulletin*.

TUNNEL VENTILATION.—A "chemical lung" is the latest thing proposed for the ventilation of tunnels. It was lately tested in London by fourteen scientists. A room $15' \times 18'$ was kept for an hour at a temperature of 82 degrees, and the air was loaded with impurities. The men of science were now called upon to enter, and the air was made still more impure by burning sulphur and carbonic-acid gas. Then the "chemical lung," or punkah, so-called, measuring $4' \times 2' 6''$, was set in motion. The temperature was soon reduced to 65 degrees, and the air freed from all impurities. Then fat was burned, to test the machine for organic substances, and the "lung" was started up just in time to prevent the examining gentlemen from running out for fresh air. It is proposed to use the invention during the construction of the channel tunnel.—*Exchange*.

DUTCH HOUSE BUILDING.—Allow me to correct a statement in your issue quoted from the *Gardener's Magazine*. 1. The land is not sand, i.e., in the parts to which that article refers, but rich alluvial mud. The only very small strip of sand in Amsterdam is that on which the so-called "Old Church" is built, which stands in close contiguity to the "Bible" Hotel. 2. The King's Palace is not built upon 70,000 piles, but upon 13,659 piles. 3. It is not built of marble, but of Benthem freestone, except the bottom part, which is of brick. 4. Some of the houses, especially those leaning over towards the street, are purposely so built, the principal reason for which appears to have been that the window-glass should be less easily dirtied by the falling rain. 5. The principal pumping stations are worked by steam-power. The secondary canals and ditches are drained by wind-mills. With these few corrections the article leaves nothing to be desired, though perhaps we might query the statement so boldly made that the people enjoy good health.—*F. B. Simons, in The Builder*.

THE CORINTH CANAL.—The inauguration of the work of cutting the Isthmus of Corinth has just been celebrated with a certain amount of solemnity at Kalamaki on the Gulf of Egina. A flotilla of steamers conveyed the royal family, court, corps diplomatique, ministers, deputies, etc., to the Piræus: the king of Greece cut the first sod and the queen fired the first mine. The works will be rapidly pushed on. In this case no serious difficulties are to be apprehended, as at Suez and Panama, the cutting to be effected in the present case being relatively small. The Suez Canal is 164 kilometres long, and that of Panama is to be 73, whilst the Corinth Canal will be only six. Its execution will be easy, and there would be no need to consider it at present, but for the interest attaching to a new and very expeditious mode of working which will be employed. This ingenious method, by insuring good and rapid work, will largely contribute to the success of the undertaking. The definite track chosen is that of Nero, and is the shortest, going in a straight line from the Bay of Corinth to the Gulf of Egina. It has been talked about, so to speak, for the last eighteen hundred years, from the times of Periander the tyrant, Claudius, Caligula, and Nero. Colossal though the work may be, it would never have made the Romans hesitate but that they were occupied elsewhere. Be this as it may, everything tends to show that the canal will be easily made and maintained. The rock to be pierced does not crumble, and the canal will traverse ground which is almost flat, and forms a sort of strand between the two bays. It rises in a gentle ascent for two-thirds of the way towards Egina, and then descends rather more rapidly until it reaches the Gulf of Egina. The highest point of the plateau to be traversed is seventy-eight metres above the level of the sea, and from this culminating point the ground descends in one direction at the rate of three centimetres, and in the other of two centimetres, per metre. The Corinth Canal will have the same dimensions as those of Suez and Panama. The minimum depth of water will be eight metres, and the width of the bed of the canal twenty-two metres. Moreover, the soil is composed of alluvium near the sea and of calcareous rock the rest of the way. If, however, it had been necessary to open this long, deep trench by ordinary means, great sacrifices of time and money would have been needed, instead of which the procedure to be employed in this case, the invention of an Hungarian engineer, M. Kausser, will enable the contractors to perform the work by the aid of five hundred men on an average, and in the course of four years. M. Kausser's very simple method, in fact, reduces the material and number of hands to an undreamt-of minimum, and allows the excavation being effected from one end to the other by dredging. The rock is blown up by mines, and the dredges remove the debris, and in this way no locomotives and wagons are required, the personnel being thus reduced to the smallest proportions.—*Paris Débats*.

RELICS OF THE MOUND BUILDERS.—Under date of May 23 the Boston Herald reports that a remarkable find is reported of relics of the mound builders in the Red River valley, the only deposit yet found in that region of this extinct race. A skull of heroic size and singular formation has just been turned over to the Historical Society for examination. The mound where it was found, 60 feet in diameter at the base and 12 feet high, is on the top of that wave of land running from Detroit to St. Vincent, a distance of nearly 200 miles, varying in width at the top from 40 rods to half a mile, and known through all that country as "the Pembina trail." The Snake River cuts this ridge 12 miles from Warren, running through a gorge with banks full 100 feet high, and not more than seven or eight rods from the south bank the mound stands in lonely oddity. The mound itself is of sand and gravel, and totally unlike the components of the trail, proving that the builders must have carried their loads from the lower ground. Near the centre the excavators found the bones of more than ten persons, male and female, and mixed with them, bones of badgers, horses, and hogs. The skull referred to as one of the number found, is the most perfect specimen, the other ones crumbling upon being exposed to the air. The upper teeth are gone, and the inferior maxillary is, of course, wanting. The pelvis bones and femurs found near it are abnormally large, and give conclusive evidence that the owner was of giant stature. The skull is not particularly striking, except that the mark of the hair line remains and shows that of forehead little was possessed. At the base of the skull is a protuberant formation which may have been peculiar to the race or the individual. The breadth between the temporal bones is about the same as in the average Caucasian, but the dome is more ridge-like and contains less cavity for gray matter. This Pembina trail on which the mound was built is of itself a peculiar formation, and has been so regarded for years. One of the members of the Historical Society holds to the theory that, when land appeared from the primeval seas, this ridge was the forerunner, and against it the waves beat, piling up the gravel and stones which form so large a part of its material. A thorough investigation into the mysteries of the mound is being instituted, and important developments are promised.

THE KINZUA VIADUCT.—Next August the Kinzua Viaduct, the highest railway bridge in the world, will be completed, or a year from the time it was commenced. It is situated in McKean County, Penn., about four miles from Alton, and its construction was ordered by the New York, Lake Erie, and Western Railway Company. According to an illustrated article in the *Scientific American* this bridge is 2,051 feet long, and 301 feet high. It has 20 spans 61 feet long, and one 62 feet long, alternating with the lower spans, which are 38 1/2 feet each. The truss, being 6 feet high and 10 feet wide, and continuous from one end to the other, is supported by columns 1 foot thick, which increase in length toward the middle of the bridge. They spread out with a batter of two inches to the foot, which gives a distance of 10.5 between the columns of the highest bents at the bottom. The two longest bents rest on two long piers, with pedestals built on each side of the stream, each containing about 500 yards of masonry. All the other columns rest on piers containing from 20 to 125 yards of masonry. The bridge will contain 4,000,000 pounds of iron and 7,000 yards of masonry. Its cost will be about \$300,000.

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.]

258,547. DOOR-HANGER.—Wilbur F. Berry, Martinsburg, W. Va.
258,551. PERMANENT WINDOW-SCREEN.—John H. Bradford, Belleville, Kan.
258,575. FRANKLIN STOVE AND FIRE GRATE.—Alfred Greenaway, Louisville, Ky.
258,583. KILN FOR BURNING BRICK.—James Johnson, Bay View, Milwaukee, Wis.
258,590. COUPLING FOR LIGHTNING-RODS.—William B. Munn, Collingswood, N. J.
258,597. DOOR-HANGER AND PULLEY.—Chas. W. Pierce, Oak Hill, N. Y.
258,611. SASH-HOLDER.—Henry A. Stone, Brooklyn, N. Y.
258,629. HOT AND COLD AIR REGISTER.—Richard S. T. Cissel, Elizabeth, N. J.
258,638. HANGER FOR PLUMBERS' PIPES.—Edward O. Ford, Laurel, Md.
258,639. AUTOMATIC DAMPER-REGULATOR.—John W. Funck, Stapleton, N. Y.
258,663. PAINT COMPOUND.—William Jay McDonald, Gainesville, Ga.
258,673. WRENCH.—John E. Preston, Brunswick, Me.
258,691. SAFETY APPARATUS FOR ELEVATORS.—Cyus W. Baldwin, Chicago, Ill.
258,699. DISINFECTING APPARATUS FOR WATER-CLOSETS.—Henry Blackman, New York, N. Y.
258,716. BORING-MACHINE.—Vincent Cox, New Vienna, O.
258,738. CARPENTER'S FLOORING-TONG.—William R. Forrester, Bakerville, Tenn.
258,744. APPARATUS FOR THE DISPOSAL OF SEWAGE.—Amason S. Glover, Brockton, Mass.
258,764. BIT-STOCK.—William A. Ives, New Haven, Conn.
258,791. DOOR-SPRING.—Martin C. Mohr, Manchester, Io.
258,827. AUTOMATIC GATE FOR ELEVATORS.—Benj. C. Vanduzen, Cincinnati, O.
258,839. MOISTURE-PROOF COATING AND COVERING FOR WALLS, FLOORS, ETC.—Rasmus Von Petersen, Copenhagen, Denmark.
258,833. COMBINED BOLT AND KEY FASTENER.—William White, Chicago, Ill.
258,837. ADJUSTABLE BASE-BOARD.—Charles H. Willson, Mount Vernon, N. Y.
258,838. MANGER.—Charles H. Willson, Mount Vernon, N. Y.
258,839. FRAMES FOR DOORS AND WINDOWS.—Chas. H. Willson, Mount Vernon, N. Y.
258,841. ROOFING-BRACKET.—Stephen Woodward, Delano, Minn.
258,855. COMBINED ANVIL AND VISE.—John J. Glover, Dardanelle, Ark.

SUMMARY OF THE WEEK.

Baltimore.

BUILDING PERMITS.—Since our last report twenty-three permits have been granted, of which the following are the more important:—
F. Sigrist, three-story brick building, Fayette St., bet. Pine and Fremont Sts.
Richard Cromwell, Jr., one-story engine-house, boiler-house and stack, n e cor. Pratt and Fremont Sts.
Thos. B. Galtner, two six-story warehouses, Nos. 269 and 271 Baltimore St., bet. Hanover and Sharp Sts.
Solomon Corner, two three-story brick buildings, Biddle St., e of Calvert St.
John M. Getz & Co., five three-story brick buildings, Chase St., bet. Valley and Wilcox Sts.
Joseph Richardson, two-story brick building, Sterrett St., w of Spring St.
H. M. Rowe & Co., two-story brick packing-house, 35' x 65', Boston St., bet. Gwynn and Leeken Sts.
H. S. Lanfair & Co., two-story brick warehouse, 65' x 69', n e cor. Lancaster and Durlam Sts.
Church of Ascension, three-story brick parsonage, Arlington Ave., s of Townsend St.
Wilson & Hunting, three-story brick building, McCulloh St., bet. McMechen and Wilson Sts.
Mary E. Lechjaer, two-story brick store building, n e cor. O'Donnell and Chesapeake Sts.
R. F. Gardner, three-story brick building, n e cor. Chester and Monument Sts.
R. F. Gardner, two or three-story brick building, Monument St., w of Bond St.

Boston.

WAREHOUSE.—A brick building, 20' x 80', is to be built at once on the site of Mercantile and Clinton Sts., for the Quincy Estate; W. G. Preston, of Boston, architect.
ALTERATION.—The old Somerset Baptist Church, from which the spire is now being removed, is to be altered over into a school-building for the "Boston University." The old front is to be torn down and a new one erected. Another floor will be put in on the gallery level, and other extensive alterations will be made inside for the purposes of the school. The contractors are Wm. M. Rumney for the mason-work, and S. M. Chesley & Co. the carpenter-work; Mr. Wm. G. Preston, of Boston, is the architect; cost, about \$45,000.
BUILDING PERMITS.—Wood, Adams St., near River View St., Ward 24, for Patrick F. Burke, two-story

dwelling, 16' 10" and 24' 10" x 40' 9"; Patrick F. Burke, builder.
Pynchon St., No. 186, rear of, Ward 21, for Daniel Harvey, three-story dwelling, 22' x 28'; John L. Dakin, builder.

Blue Hill Ave., near Waverley St., Ward 21, for Katherine L. Gavett, two-story hip dwell., 19' 2" x 35' 4"; Burnham C. Dennett, builder.

Erricon St., rear of, Ward 24, for Putnam Nail Co., two-story mechanical building, 30' x 60'.

Parkman St., rear of, near Brooks St., Ward 25, for Lyman, Heavy & Rivett, boat-house, 13' x 35'; W. H. Lyman, builder.

Brooklyn.

CHURCH.—The corner-stone of the new edifice of the Holy Trinity German Roman Catholic Church, at Montrose and Graham Ave., was laid on Thursday, May 18. It will cost \$200,000. The dimensions are 88' x 170'. Two towers will raise to the height of 220'. The Rev. Michael May is pastor.

NEWSBOYS' HOME.—A new building for the newsboys' Home, at No. 61 Poplar St., is to be put up at a cost of \$43,000.

BUILDING PERMITS.—Morton St., s s, 100' w Bedford Ave., three-story brownstone dwelling; owner, N. Pritchard; builder, C. L. Johnson.

Meeker Ave., n s, 75' e Graham Ave., three-story frame dwelling; cost, \$4,500; owner, Louis Langenbacher, cor. Meeker and Graham Aves.; builder, John Rueger.

Greene St., No. 207, three-story frame tenement; cost, \$3,800; owner, Snorror, 107 Greene St.; architect, Fred. Weber; builders, Post & Gamble.

Floyd St., s s, 175' w Lewis Ave., two-story frame dwelling; cost, \$3,200; owner, Mr. Bodenstedt, Ellery St., near Sumner Ave.; builders, George Strub and John Rueger.

New York Ave., n e cor. Prospect Pl., 2 three-story brownstone dwellings; cost, \$10,000 and \$14,000; owner, William H. Lyon, on premises; architect, George P. Chappell; builders, Cornelius King and Myron C. Rush.

New York Ave., n s, 50' e Prospect Pl., 2 three-story brownstone dwellings; cost, \$10,000 and \$11,000; owner, Cyrus P. Carpenter, cor. New York Ave. and Bergen St.; architect, George P. Chappell; builders, Cornelius King and Myron C. Rush.

Macon St., s s, 74' 4" e Verona Pl., 2 three-story brownstone dwellings; cost, each, \$7,500; owner and carpenter, T. B. Jackson, 424 Clinton Ave.

Chicago.

STRIKE.—The strike of the bricklayers still continues to paralyze building operations, and the questions involved seem no nearer solution than ever. Many parties who had contemplated building this summer have put it off altogether until another season.

BUILDING PERMITS.—Chicago West Division Railway Co., two-story and basement brick car storehouse, 46' x 105', Lumber St., w of Halsted; cost, \$7,500.
E. Carroll, two-story dwelling, 20' x 35', Grove Court, near Garfield St.; cost, \$2,200.

John J. Pontias, two-story and basement brick dwelling, 22' x 50', 60 Evergreen Ave.; cost, \$4,000.

A. Thompson, three-story and basement brick flats, 28' x 70', 181 Dearborn Ave.; cost, \$7,000.

Foss Estate, three-story and basement brick stores and flats, 75' x 110', 474 to 482 West Madison St.; cost, \$50,000.

Mrs. Sarah McGuirk, two-story brick store and dwelling, 1035 West Madison St.; cost, \$5,000.

Cincinnati.

PRICES AND MATERIAL.—The price of material seems to be coming down somewhat. Brickwork laid in the wall, which has been as high as \$15.00 per 1,000 can now be had for \$11.00 and \$12.00. Limestone is down to about \$3.50 per perch, where location is favorable. Recent bids on carpenter-work also show a decline in prices of that department.

STRIKE.—The plasterers' strike is at an end. The men went to work at the advanced wages demanded, to wit, \$3.50 per day. The strike lasted for nine weeks, the bosses gave in at last rather than put the other branches of the building trades to any further delay and consequent loss.

The strike of the carpenters lasted about ten days and the men returned to work without gaining any material advantage.

Cleveland.

HOUSE.—Judge W. W. Boynton is to build a stone house cor. Euclid Ave. and Princeton St.
Barnum & Coburn, architects, are preparing drawings for a large frame house to be built on Willson Ave., bet. Third Ave. and Garden St., by Mr. C. A. Grasselli.

CAR STABLES.—The East Cleveland St. Railway Company will build brick street-car barns upon the site of their present temporary structures on Cedar Ave. in a few months.

STORES.—Geo. Worthington & Co. will build a large stone and brick block; Cudell & Richardson, Cleveland, architects.

OFFICE-BUILDING.—W. C. Scofield is to build a five-story brick and stone office-building, 97' x 102', cor. St. Clair and Academy Sts.

WAREHOUSE.—C. W. Scofield, son of the above, is to build a five-story warehouse, 34' x 120', on St. Clair St.
CHURCH.—The plans for the new First Congregational Church building have been submitted by Barnum & Coburn, and are approved. The church will stand on the cor. of Franklin Ave. and Taylor St. It will be built throughout of brick with stone finish.

Detroit, Mich.

BUILDING PERMITS.—Seventy-four permits have been issued since our last report amounting to \$151,690; those costing more than \$2,000 are as follows:—
John Finn, brick house, No. 69 Helen St.; cost, \$4,000.

W. Y. Pepper, double frame house on Fourth St.; cost, \$4,000.

Petrequin Bros., 2 frame houses on Fourth St.; cost, \$4,000.

A. M. Gray, brick barn, No. 661 Woodward Ave.; cost, \$2,500.

A. M. Gray, brick barn, Davenport St.; cost, \$2,500.

New York.

APARTMENT-HOUSE.—Plans have been drawn for another large co-operative apartment-house to be built on the s e cor. of Fifth Ave. and Twenty-eighth St., fronting 121' on Twenty-eighth St., and 87' on the Avenue. It is to be built of brick, Belleville stone and terra-cotta, will be eleven stories and fire proof throughout. It will accommodate 23 families, and is arranged so that parlor and dining-rooms will be two stories. The interior finish will be ebony, mahogany, etc. Servants' rooms, offices, etc., look out into a yard. The first floor is to be used for a Safe Deposit Co. and stores. There will be four elevators. The cost will be about \$450,000; Mr. Chas. W. Clinton is the architect.

FLATS AND STABLE.—Mr. J. W. Dexter proposes to erect, at Nos. 418 and 420 West Sixteenth St., a tenement-house, five-story, 50' x 63', and a stable, 25' x 50'.

STABLE.—For Mr. R. M. Stives a carriage-depot, about 39' x 42', four-story and basement, is to be erected on East Thirty-first St., near Lexington Ave. It is to be of brick with blue-stone finish; Mr. Geo. M. Huss is the architect.

KINDERGARTEN.—The corner-stone of a Working Man's School and Free Kindergarten building was laid in West Fifty-fourth St., near Sixth Ave., May 30. The building is being erected by the Society of Ethical Culture, of which Prof. Felix Adler is the central figure.

CHURCH.—The corner-stone of the new building for the Calvary Baptist Church, at Sixth Ave. and Fifty-seventh St., was laid May 29. The new building will be of Lockport granite trimmed with Berea stone, 100' x 160'; J. R. Thomas is the architect, and Thomas F. Treacy the builder; it will cost \$200,000 when finished.

STORE.—Messrs. Park & Tilford are to have a store built on Fifth Ave., a little below Sixtieth St. It will cover a lot 50' x 100', and is to cost not less than \$100,000; Messrs. D. & J. Jardine are the architects.

STABLE.—A stable, to cost \$60,000, brownstone front, is to be built on lots Nos. 392 and 394 West Sixty-third St., for Mr. Frank Work.

HALL OF RECORDS.—The Hall of Records has been condemned by the Grand Jury, who recommend the erection of a fire-proof building, 150' x 200', to be built of iron and granite.

ALTERATIONS.—The building on the s e cor. of Fifth Ave. and Twenty-ninth St. is to have a new front and a four-story addition built, 25' x 35'. It is to be occupied by Messrs. D. Neumann & Co.; Messrs. H. J. Schwarzmann & Co. are the architects.

CONTRACTS.—Mr. Samuel Lowden is to be the builder of the Lincoln National Bank on Forty-second St.

Messrs. H. J. Schwarzmann & Co. have awarded the contracts for additions and alterations to Mt. Sinai Hospital, aggregating \$40,000, to Mr. Alex. Brown for the mason-work, and Mr. Jno. Duffy for the carpenter-work.

The New York Mastie Works have been awarded the contract for the Rock Asphalt work at the Retreat Building, Blackwells' Island, for the Commissioners of Charities and Corrections.

Mr. Rd. Deeves has been appointed Superintendent of the Central Park Apartment-houses, to be erected on Fifty-ninth St., bet. Fifth and Sixth Aves.

BUILDING PERMITS.—Grand St., No. 186, n w cor. Mulberry St., six-story brick factory; cost, \$43,000; owner, S. V. R. Cruger, 112 East Thirty-fifth St.; architect, Wm. A. Potter, 121 East Twenty-third St.; builders, R. Deeves and L. H. Williams.

Broadway, Nos. 384 and 386, six-story brick, stone and iron store; owner, Richard T. Wilson, 2 Exchange Court; architect, J. M. Slade; builder, W. G. Slade.

Fandewater St., Nos. 24 and 26, eight-story brick printing house; cost, \$100,000; owner, N. L. Munro, 37 Seventh Ave., Brooklyn; architect, J. S. Morgan Slade; builders, K. L. Darragh and John Smith.

Broadway, n w cor. Forty-third St., eight-story brick and Belleville stone hotel; owners, Robert and Ogden Golet, 261 Broadway; architect, H. Kafka; carpenters, Grissler & Fausel.

One Hundred and Twenty-sixth St., s s, 285' e Sixth Ave., 6 three-story brownstone dwellings; cost, \$10,500; owner, Wallace P. Birdsall, 1900 Madison Ave.; architect, Louis E. Duenkel; builder, W. P. Birdsall.

Forty-third St., n s, 375' w Ninth Ave., five-story brick flat; cost, \$16,000; owner, Margaret E. Niebuhr, 131 East One Hundred and Twelfth St.; architect, W. Scott West; builders, Niebuhr Bros.

Tenth St., s w cor. Ave. A, one-story brick church and three-story school and library building; cost, \$100,000; owner, Rutherford Stuyvesant, 16 Exchange Pl.; architects, J. Renwick and Wm. H. Russell; builders, Peter T. O'Brien & Son.

Greenwich St., No. 205, five-story brick flat and store; cost, \$20,000; owners, Hartly Bros., 157 Greenwich St.; architects, La Baw & Son; builders, John Catley and Mulholland & Connolly.

ALTERATIONS.—Pine St., No. 65, rebuild east party-wall, raised front and rear; cost, \$6,000; owner, Edmund H. Schermerhorn, 68 Wall St.; architect, H. J. Hardenbergh.

Fourth Ave., e s, 25' s Sixty-eighth St., three-story brick extension; cost, \$10,000; owner, Hahnemann Hospital, 247 West Fifty-first St.; architect, J. E. Terhune.

East Thirty-seventh St., Nos. 128 and 130, one and two-story brick extension, etc.; cost, \$3,000; owner, John A. Stewart, Lexington Ave., n e cor. Thirty-seventh St.; architect, J. B. Lodi; builders, McKenzie & McPherson.

East Eighteenth St., No. 228, raised two feet, flat roof, interior alterations, etc.; cost, \$3,000; owner, Wm. Arenfred, 137 Norfolk St.; architect, F. Jench; builder, not selected.

West Thirty-first St., No. 332, three-story brick extension; cost, \$2,500; owner, Pauline Werner, 352 West Thirty-first St.; architects, H. J. Schwarzmann & Co.; builder, Peter Wagner.

Sixty-ninth St., No. 44, one-story and basement brick extension; cost, \$8,000; owner, B. L. Ludington, on premises; architect, G. E. Harney; builder, not selected.

Broadway, No. 65, interior alterations, etc.; cost, \$20,000; owner, American Express Co., 61 Broad-

way; architect, E. H. Kenall; builders, A. G. Borgert & Bro.

Brooklyn, s e cor. Forty-second St., raised one-sty hotel; cost, \$15,000; lessees, Raud Bros.; St. Cloud Hotel; architects, D. & J. Jardine.

East Fifty-third St., No. 3, new mansard roof, new front, also two-sty brick extension; cost, \$15,000; owner, H. C. Nevins, cor. Fifth Ave. and Forty-fourth St.; architect, T. Weston; builder, D. Campbell.

Philadelphia.

HOUSES.—H. C. Gibson, Esq., will erect 14 dwelling-houses on Powelton Ave., between Thirty-second and Thirty-third Sts., to be of brick and brownstone; cost, \$8,500 each; Wm. S. Kimball, contractor; Geo. W. Hewitt, architect.

IN GENERAL.—Building operations are quiet as compared with the same date one year ago, which is resulting in the gradual receding from the high prices to which many items of the material line had been advanced.

BUILDING PERMITS.—*Tasker St., n s w of Eighteenth St., 13 two-sty dwells., 16' x 32'; Jas. Stukey, owner. Germantown Ave. and Junction R. R., two-sty stable and 2 two-sty dwells., 28' x 76'; Chas. Blanchard.*

Wayne St. and Junction R. R., three-sty factory and dye-house, 54' x 168'; J. D. Caldwell, contractor. Thirtieth St., s e cor. Norris St., two-sty dwell. and stable, 18' x 42'; C. B. Bachle, contractor.

Scott St., n and s s, n of Twenty-seventh St., 26 two-sty dwells., 13' x 24'; Robert McClellan, contractor.

Ward St., w s s of Wharton St., 3 two-sty dwells., 14' x 28'; Thos. Grinnon.

Arch St., n s, between Seventh and Eighth Sts., five-sty store, 65' x 140'; Yarnall & Cooper, contractors.

Church St., s e s w of Hamilton St., 3 two-sty dwells., 16' x 40'; J. Baker, owner.

Norris St., n s e of Thompson St., 2 two-sty dwells., 14' x 32'; M. E. Diener, owner.

Wood St., cor. Railroad, two-sty dwells., 32' x 59'; J. T. Sheldrak, contractor.

Spencer St., s s e of Ridge Ave., three-sty dwell., 16' x 45'; Chas. Bartie, contractor.

Gaul St., w s n of Somerset St., 8 two-sty dwells., 13' x 40'; J. R. Pyle, contractor.

Rochester, N. Y.

HOTEL.—Contracts have just been awarded for the "Powers Hotel," to be the largest hotel in town. W. H. Gorsline, mason; Robert Boyd, carpenter; Warren & Brackett, architects.

BARN.—Brick barn for W. S. Kimball, in rear of his residence on Troup St., has been commenced; to cost \$10,000; Gorsline & Hopeman, contractors; J. G. Cutler, architect.

HOUSES.—The building for E. Ounpaugh, on Monroe Ave., to cost \$20,000, and the residence of Mrs. Hollister, on Plymouth Ave., to cost \$9,000, both of brick with stone and terra-cotta finish, are well under way; J. G. Cutler, architect.

A large residence for H. M. Hill, on Sibley Park, also one for B. H. Rose, on Wilder Park, are being constructed; to cost from \$4,000 to \$5,000; Putnam & Block, architects.

OFFICE-BUILDING.—The foundation has just been completed for a building, cor. of Water and East Main Sts., to be six stories above basement, of Philadelphia brick with stone finish; interior of first-sty to be lined with porcelain brick; owner, F. Cox; Rogers & Thomas, architects; cost of building, \$60,000.

ASYLUM.—The addition to St. Joseph's Orphan Asylum, on Andrews St., is being pushed forward. The building when completed will be four stories, 34' x 64'; to cost \$12,000; Oscar Knibel, architect.

St. Louis.

BUILDING PERMITS.—Fifty-six permits have been issued since our last report, but fifteen of which are for unimportant frame houses. Of the rest, those worth \$2,000 and over are as follows:—

Petion & Kluegel, two-sty carriage-factory; cost, \$1,900.

Fred. Betz, two-sty dwell.; cost, \$3,000.

Louis C. Bohle, two-sty livery stable; cost, \$25,000.

Mrs. Wm. McKee, two-sty dwell.; cost, \$15,000.

Mary F. Dreas, two-sty dwell.; cost, \$10,000.

Wm. Ernst, two-sty store and dwell.; cost, \$2,500.

R. S. McDonald, two-sty dwell.; cost, \$4,200.

Geo. W. Kerwin, two-sty dwell.; cost, \$4,200.

R. F. Miller, two-sty tenement-house; cost, \$2,500.

St. Louis Mutual House-Building Co. No. 3, two-sty tenement-house; cost, \$3,900.

St. Louis Mutual House-Building Co. No. 3, two-sty dwell.; cost, \$3,243.

St. Louis Mutual House-Building Co. No. 3, two-sty dwell.; cost, \$3,243.

H. Jurgens, two-sty dwell.; cost, \$4,000.

Dr. Thos. O'Reilly, three-sty dwell.; cost, \$3,000.

Dr. Thos. O'Reilly, two-sty dwell.; cost, \$4,000.

Dr. Thos. O'Reilly, two-sty dwell.; cost, \$4,000.

PROPOSALS.

IRON FURRING AND LATHING.

[At Boston, Mass.]

OFFICE OF SUPERVISING ARCHITECT,
TREASURY DEPARTMENT,
WASHINGTON, D. C., May 26, 1882.

Sealed proposals will be received at this office until 12 M., on the 26th day of June, 1882, for furnishing and fixing in place complete all the iron furring and lathing, etc., required for the U. S. Post Office and Sub-Treasury extension at Boston, Mass., in accordance with drawings and specification, copies of which and any additional information may be had on application at this office or the office of the Superintendent.

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JAS. G. HILL,
Supervising Architect.

IRON STAIRS.

[At New York, N. Y.]

Sealed proposals will be received at the Hall of the Board of Education until June 13, 1882, for an Iron Stairway for Primary School, No. 25. For full information, see *City Record*. For sale at No. 2 City Hall.

PROPOSALS.

SCHOOL-HOUSE.

[At Maryville, Mo.]

MARYVILLE, Mo., June 2, 1882.

Notice is hereby given that sealed proposals will be received by the Board of Directors of the School District of the City of Maryville, in Nodaway County, Mo., on Friday, June 16, 1882, at the office of the Secretary of said Board in said city, to build a fourteen-room school-house in said district, and also to heat the same by steam.

The plans and specifications may be seen at the office of said Secretary, or at the office of Messrs. Echel & Mann, in St. Joseph, Mo.

Proposals may be left either with the Secretary or at the office of Messrs. Echel & Mann.

The Board will reserve the right to reject any or all bids.

JOHN EDWARDS, Secretary.

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BRIDGE.

[Near Kishwaukee, Ill.]

Sealed proposals are invited up to June 15, for building an iron bridge 302' in length across the Kishwaukee River. For full particulars address F. C. Johnson, Kishwaukee, Ill.

WM. HALL, J. P. MILLER, F. C. JOHNSON, Commissioners of Highways, Town of New Milford, Winnebago Co., Ill.

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SEWER.

[At Hyde Park, Ill.]

Public notice is hereby given that the undersigned village clerk of the village of Hyde Park, Cook Co., Ill., will receive up to 6 o'clock, P. M., of Monday, June 10, 1882, at his office in the village hall in said village, sealed proposals for the construction of a brick sewer on Forty-fifth St., Woodlawn Ave., and Forty-fourth Pl., from Grand Boulevard to Lake Michigan. The internal diameter of said sewer to be four feet between Lake Michigan and the centre line of St. Lawrence Ave., thence to the east line of Grand Boulevard, to be 375-100 feet, according to the plans and specifications now on file in the office of the village engineer. Payments for said work to be made in certificates drawn against Special Assessment Fund No. 134, on the back of which said certificate the village shall be released from all liability. All bids shall be accompanied with a certified check for the sum of five hundred dollars, which check shall be held until said work is completed.

The village reserves the right to reject any or all bids.

EDWARD W. HENRICKS,

Village Clerk.

SHOPS.

[At Columbus, O.]

Sealed proposals will be received until 12 o'clock, June 26, 1882, in the office of the Superintendent, at the Institution for Deaf and Dumb, in Columbus, O.

A.

For the excavation.
For the brick and brickwork.
For the stone and stone-masonry.
For cut stone-work and material.
For carpenter-work and hardware, including material.
For tin, galvanized iron and slating.
For painting and glazing necessary for the shop improvement at the above institution.

B.

For the excavation.
For the brick and brickwork.
For piping, plumbing and sewerage, including material necessary for the heating-apparatus of the above shops.

Plans and specifications can be seen at the office of Julius A. Kremer, architect, 64 North High St., Columbus, O.

The trustees reserve the right to reject any or all bids, and a sufficient bond must be furnished with the bid for entering into the contract if the same is awarded.

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F. C. SESSIONS,
Resident Trustee.

COURT-HOUSE.

[At Cleburne, Tex.]

Consolidated sealed proposals for the building of a new brick court-house for Johnson County, will be received at my office, in the City of Cleburne, Texas, until 12 o'clock, M., Saturday, June 17, 1882. Bidders will be required to file a bond for \$2,000, forfeitable if, after the contract is awarded, the bidder should fail to enter into contract with the court for the building of the court-house. Payments will be made in cash upon estimates made by the architect, as the work progresses, the court reserving 20 per cent upon each payment until the completion and acceptance of the building. Plans and specifications can be seen at the office of W. C. Dodson, architect, in Waco, Tex., until Tuesday, the 6th day of June, and at my office in Cleburne, Tex., from the 7th to the 17th day of June, 1882.

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W. J. EWING,
Judge County Court, Johnson County.

ROSTRA.

OFFICE OF NATIONAL CEMETERIES,
WASHINGTON, D. C., May 20, 1882.

Sealed proposals, in triplicate, with a copy of this advertisement attached to each, will be received at this office until Tuesday, June 20, 1882, for the construction of a rostrum at each of the following named national cemeteries: Marietta, Ga.; Stone's River, near Murfreesboro, Tenn.; Mound City, Ill.; Fort Leavenworth and Fort Scott, Kan.

Copies of plans and specifications may be seen, and blank forms of proposals procured at this office and at the Quartermaster's offices at Newport Barracks, Ky.; Louisville, Ky.; St. Louis, Mo., and Fort Leavenworth, Kan.; at the cemeteries above named, and at the Chattanooga, Nashville, Memphis and Knoxville, Tenn., national cemeteries.

Proposals should be indorsed "Proposals for Rostres," and addressed to the officer in charge of National Cemeteries, Washington, D. C. They will be opened at noon on the date specified, when bidders are invited to be present.

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BENJ. C. CARD, Q. M., U. S. A.

PROPOSALS.

COURT-HOUSE.

[At Wyandotte, Kan.]

Sealed proposals will, on the 30th day of June, A. D., 1882, and up to the hour of 12 M., on said day be received at the office of the County Clerk of the County of Wyandotte, in Wyandotte City, Kansas, for the furnishing of material and the erection of a Court-House for said Wyandotte County, Kansas, in accordance with the plans and specifications, which may be seen at the office of said County Clerk, and at the office of E. T. Carr, in Leavenworth city. Each bid must be accompanied by a deposit of \$300 in cash or a certified check for that amount, as a guaranty that the party bidding will, within ten days, if his bid be accepted, enter into a contract for the completion of said work, and give a satisfactory bond for the faithful performance of the work thereby awarded to him. Each bidder will be required to make a separate bid for the erection and inclosing of the building as per instructions to bidders, and for the full completion of the building as per plans and specifications. The right to reject any and all bids is hereby reserved.

By order of the Board of County Commissioners,
D. K. EMMONS, County Clerk.

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SEWERAGE SYSTEM.

[At Pietermaritzburg, Natal, Africa.]

The Town Council of Pietermaritzburg, Natal, invite plans and specifications, with approximate estimate of cost, of a complete system of sewerage suitable for the city. A premium of £100 (one hundred pounds) stg. will be awarded to the author of the selected plan, such plan to become the absolute property of the Corporation, all others being returned free of expense. Plans under motto or *nom de plume* (competitor's real name to be inclosed in envelope), addressed to Mr. E. W. Whishire, Town Clerk, Town Office, Pietermaritzburg, Natal, and indorsed "Plans for Sewerage of City," will be received at the Town Office up to 12 noon on the 14th September. A plan of the city can be seen and further information that may be required obtained on application any day during office hours to Walter Peace, Esq., Natal Emigration Agent, 21 Finsbury-circus, London, E. C.; John A. Roos, Secretary, Town Council, Cape Town; W. P. Perin, Esq., Town Clerk, Port Elizabeth; John A. Boag, Esq., Town Clerk, Kimberley; and the Town Clerk, Pietermaritzburg.

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HYDRAULIC ELEVATOR.

[At Washington, D. C.]

OFFICE OF BUILDING FOR STATE, WAR AND
NAVY DEPARTMENTS,
WASHINGTON, D. C., June 1, 1882.

Sealed proposals for furnishing and erecting in place complete a Hydraulic ash-lift or elevator in the area of the North Wing of the Building for State, War and Navy Departments, in this city, will be received at this office until 12 M., June 20, 1882, and opened immediately thereafter, in the presence of bidders.

Specifications, general instructions to bidders, and blank forms of proposal will be furnished to established builders of hydraulic elevators upon application to this office.

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THOS. LINCOLN CASEY,
Lt.-Col. Corps of Engineers.

SCHOOL-HOUSE.

[At Alexandria, Minn.]

Sealed proposals for building a school-house at Alexandria, Douglas County, Minn., will be received by the undersigned until June 10, 1882.

An approved bond in the sum of \$7,000 must accompany each bid.

Plans and specifications may be seen at the office of L. S. Buffington, Fire and Marine Building, St. Paul, until the 20th day of May; at 411 Nicollet Ave., Minneapolis, until the 30th day of May, after which they will be at my office.

The right is reserved to reject any and all bids.

By order of the Board of Education.

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GEO. S. CAMPBELL, Secretary.

STATE CAPITOL.

[At Madison, Wis.]

Sealed proposals in the form of a contract will be received by the Commissioner, for the construction of two transverse wings to the State Capitol Building in Madison, Wis., until Thursday, the 15th day of June next, at 10 o'clock, A. M., for the erection of two wings to the present Capitol-building in Madison, Wis., designed by D. R. Jones, architect. Plans and specifications will be on exhibition at the office of D. R. Jones, in Madison, on and after the 25th day of May. The performance of the contract, on the part of the builder, must be secured by the bond of two or more freeholders, citizens of Wisconsin, who shall verify to their responsibility in the aggregate sum of \$50,000 over and above legal exemptions, and in the form furnished (blank) by the Commissioners. To secure uniformity and fairness in bidding, and avoid complications, all blanks will be furnished by the Commissioners. Proposals and contracts must be on the printed forms furnished, inclosed in a sealed envelope, indorsed "Contracts for Capitol-building," and addressed or delivered to the Governor of Wisconsin, or to N. B. VAN SLYKE, Secretary.

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BRIDGE PIERS.

[At Salisbury, Mass.]

Proposals will be received at the office of the County Commissioners in Salem until the 12th of June, at 12 noon, for the building of the stone piers and abutments of the proposed bridge across the Merrimack River from Deer Island to Salisbury; also for removal of old bridge and piers at same point; plans and specifications can be seen at said office after May 17; the right reserved to reject any or all proposals.

JOHN W. RAYMOND,
GEORGE J. L. COLBY,
ZACHARIAH GRAVES,
County Commissioners.

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STEAM-HEATING APPARATUS.

[At New York, N. Y.]

Sealed proposals will be received at the Hall of the Board of Education until June 15, 1882, for Steam-Heating Apparatus for Grammar School, No. 42. For full information, see *City Record*. For sale at No. 2 City Hall.

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