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THE Seventeenth Annual Convention of the American Institute of Architects was a very harmonious and successful one. The amount of business transacted was not large, but the measures adopted were of considerable importance to the future of the Institute. About forty members were in attendance, including several from Ohio, one from Chicago, one from Indiana and one from Georgia, besides many from New York and Boston. The morning session of the first day, after the delivery of the President's Annual Address, was devoted to hearing the reports of the officers of the Institute and the Secretaries of the various Chapters, all of which indicated quiet prosperity. The membership of the Institute was shown to have increased considerably during the year, many accessions being reported from the Chapters, in addition to the reinstatement of one or two former members whose connection with the Institute had been allowed to lapse. The number of Fellows was reported as sixty-nine, leaving, under the rule adopted two years ago, but one vacancy. It was obvious to every one that this rule had set the limit far too low, and the report of the Committee appointed at Cincinnati last year to consider the question of an increase in the number of Fellows was peculiarly timely. This report had been printed, for the use of members, and after a good deal of discussion, the amendments to the by-laws which it proposed to make were substantially adopted.

THE first of these amendments abolished altogether the limitation of the number of Fellows of the Institute, and struck out also the clause requiring that candidates for that grade must submit specifications and drawings or photographs of some building; instead of this, putting upon the Chapters the responsibility of supporting the petition of candidates known to them, by requiring from them a true and faithful opinion as to their qualifications. The other important amendment proposed was one relating to the constitution of Chapters, by which any association of architects containing one resident Fellow of the Institute may be recognized as a Chapter, upon the approval of its rules and regulations by the Board of Trustees. As our readers will remember, the old rule in such matters was that five resident Fellows should be necessary to form the nucleus of a Chapter. This was recently modified, so as to allow a Chapter to be formed with two Fellows, but the Committee, believing that even this regulation served to hinder the formation of Chapters in places where such associations would be very useful to the profession, decided to recommend the reduction of this restriction to the lowest point, and the Convention unanimously approved of its action. There can be no doubt that the result of this determination will soon be seen in a considerable increase in the number of Chapters, much to the advantage of all the parties concerned.

THE afternoon of Wednesday was devoted to driving about the city of Providence, with visits to several public and private buildings, and in the evening the Convention reassembled to listen to Professor Lanza's lecture upon the Strength of Materials, which was received with all the interest due to the great importance of the subject. The second paper was by Mr. Fox, of Boston, on Competitions, and presented one side of that difficult subject most effectively. The third paper, by Mr. William A. Potter, of New York, on the Conduct of the Supervising Architect's Office, which had excited much curiosity, was omitted, Mr. Potter's engagements obliging him, at the last moment, to give up his visit to Providence. The remainder of the evening was, therefore, spent in examining the drawings contributed for exhibition by members of the Institute, among which Mr. Richardson's magnificent sketches for the Albany cathedral, and Mr. Eppinghausen's drawings for the Indiana State Capitol, were most conspicuous, although there were many others of much interest. The place of honor in the room was given to the only design made in accordance with the resolution of last year providing for a friendly competition among the members of the Institute. This was contributed by Mr. Moser, of Georgia, and showed an immense amount of thought and invention. The Convention listened with much interest to Mr. Moser's informal explanation of his work, and voted unanimously that the thanks of the Institute should be offered him, and that the design, with a key which Mr. Moser had prepared, should be reproduced and printed for the members.

THE morning session of the second day was brief, time only being allowed for the election of officers and a few matters of minor importance. The ticket presented by the nominating committee was chosen without a dissenting voice, Dr. Walter being re-elected President, Mr. Hatfield Treasurer, and the other officers generally being continued for the next year. Mr. George C. Mason, Jr., of Newport, R. I., who, since the declination of Professor Ware, has been Acting Secretary of the Institute, was chosen as Secretary. Just before the meeting was called to order, the members of the Convention assembled upon the steps of an ancient church near by, where they were photographed, with President Walter in the midst. Two negatives were taken, and if the proofs should be moderately successful the interest of the result should be sufficient to ensure the repetition of the same operation at succeeding Conventions. At twelve o'clock the members took the boat to Newport, touching at Rocky Point for lunch, and reassembled in a private parlor of the Ocean House at eight o'clock in the evening, after strolling for a few hours in small parties about the town. The evening began with the reading of a paper by Mr. Clark, of Boston, on The Architect as a Sanitarian, which was followed by an interesting discussion upon the disposal of house sewage by subsoil irrigation. Mr. Rotch's paper was not ready in time for the meeting, and unfinished business was therefore next taken up. Several members having expressed the opinion that new Chapters of the Institute could, by a little effort, be formed in various places which now have no professional association, or if any, one without connection with the Institute, it was considered to be fitting that the Convention should undertake to make some advances, and a resolution was unanimously passed to the effect that Messrs. Keller and Briggs, of Connecticut, and Earle, of Worcester, should be invited to make such efforts as they could toward the formation of Chapters of the Institute in those places, and that the Secretary of the Institute should be requested to communicate with prominent architects in Albany, St. Louis, Milwaukee, St. Paul, and Minneapolis, with regard to the possibility of reviving former Chapters, or constituting new ones. The change in the by-laws of the Institute, under which one Fellow only is needed as the nucleus of a new Chapter, gives sufficient reason for this action of the Convention, and as there is no difficulty, now that the restriction upon the number of Fellows is removed, in obtaining the election of any architect of high professional character to that grade, it seems probable that the invitation will meet with speedy response, not only from the architects of the places named, but from those of other cities and states, which would have been included in the resolution if any one had thought to mention them. This was the last business of the

session, and after a vote sincerely thanking the members of the Rhode Island Chapter for their unwearied kindness, the Convention adjourned. The question of the next meeting of the Convention was discussed, and several suggestions were made, some members favoring Albany, on account of the interest of its new buildings, while some, for the same reason, proposed Hartford, and others Chicago. The whole matter was finally referred to the Board of Trustees, who will probably make an early announcement of their choice. The last day of the Convention was spent in pleasure, the members, after an inspection of the mysterious "Stone Mill," dining together at the Casino, and afterwards visiting, by special invitation, some of the more amous cottages.

A NEW and useful method of ascertaining whether the water of a well is affected by a cesspool in what appears to be hazardous proximity is described in the *Scientific American*. As every one knows, the common test is to throw salt into the suspected cesspool or vault, testing the well-water beforehand, and again later, after the salt has had time to dissolve and find its way through the ground, by means of nitrate of silver, which produces a white cloud in water containing chlorides, and can be made to show the exact proportion of salt contained in the well-water. The quantitative examination of the water, however, is a matter for a skilful chemist, and as nearly all natural waters contain a little salt, the test is an uncertain one without such accurate measurement. For ordinary observers it is desirable to use for placing in the cesspool some substance which is never found in ordinary water, and whose presence, if introduced from outside, can be readily determined, and in a recent legal case, where it was important to determine whether the well of a certain brewery was polluted by infiltration from a foul neighboring well, the ingenious counsel for one party, or, more probably, some expert adviser, suggested that chloride of lithium should be thrown into the foul well, and afterwards looked for in the other. All the soluble salts of lithium have the property of giving a brilliant red color to a flame, and on evaporating some of the water from the brewery well, after the treatment of the other with lithium, the concentrated residuum, introduced on a thread into a flame, showed unmistakably the lithium coloration. In ordinary experiments, the red of the lithium flame, unless the salt were present in large proportion, would generally be obscured by the more powerful yellow derived from sodium, which is present in nearly all flames, but it is possible for the amateur experimenter to neutralize the effect of the yellow rays by holding a piece of blue glass between his eye and the flame, and the red color, if present, will then appear, or the flame may be examined with the spectroscope, which will show all the rays separately with perfect distinctness.

AN illustration of the idea which people of a certain class have of sanitary operations is to be found in an occurrence which took place in New York a short time ago. According to the *Sanitary Engineer*, a respectable colored woman applied to the judge of one of the courts for protection from "two devils" who had bewitched her. She described the devils as appearing like white men, one of them carrying a yellow valise, and the other a red one. They cast their eyes upon her in a sinister manner, so that she was alarmed, and went after a charm to avert the evil influence. She touched them with the charm as an exorcism, but they only laughed, and opening the valises took out a powder which they sprinkled about the door. Some of the powder fell upon her, and she had a return of the horrible pains which the incantations of colored people had brought upon her on another occasion. The judge, on inquiring further into this extraordinary story, ascertained that the "devils" were agents of the Board of Health, engaged in disinfecting the premises, but the prospect of being able to make the victim of their enchantments comprehend their mission seemed rather remote, and he contented himself with advising her to remove her family to another tenement, and to call on him again if the witches still troubled her.

THE *Sanitary Engineer* makes what seems to us a very just complaint in regard to the mode in which bids are usually invited and contracts awarded for steam-heating in buildings. Here and there is found an architect who has taken pains to inform himself upon the principles of the science of steam-heating, and knows enough about the different qualities of valves and fittings, and about the materials and methods of construction of boilers, to be able to specify what he wants, and to be sure that he gets it, but it is still very common, even with architects who possess a very considerable knowledge of steam-heating work, to invite a few well-known engineers to write their own specifications, and submit estimates in accordance with them. This practice has some excuse in the fact that many of the best heating engineers use boilers or radiators of a kind peculiar to themselves, and as it would hardly be prudent to require all the bidders on a job to estimate for putting in a boiler of a pattern controlled by only one of them, architects are compelled, if they would escape loud accusations of favoritism, to give a very large latitude on this point. With regard to steam-pipes and returns, however, and amount of radiating surface, there is no such difficulty. The rules for calculating the number of square feet of radiating surface, and the size and arrangement of pipes, are, or should be, as familiar to the architect as to the heating engineer, and the former, by a little attention to them, can readily draw his specifications so that his intentions as to every important part of the job shall be unmistakable, and he will be rewarded by being preserved from the annoyance and loss of reputation which cheap and irresponsible contractors, working under loosely or ignorantly drawn specifications, are certain to cause him.

THE latest news from the Keely Motor is of a somewhat contradictory character. A few days ago it was announced that the "big engine" was finished, and would be ready for operation about the first week in September, and a final inspection by the trustees was appointed for August 29, at which all stockholders were invited to be present. On the appointed day a considerable number of persons visited the workshop and were unpleasantly surprised to learn that the machine would not be ready for experiments for six weeks. According to the report of a newspaper correspondent, one of the stockholders, who had invited some friends to ride in a train drawn by the mysterious motor on the first of September, appeared to be annoyed at this intelligence, but was comforted by some remarks of the great inventor about a "thirty-pound vacuum," and other obscure topics. The outside world must think that the Keely stockholders are easily comforted, but he probably understands his own constituency, for after the soothing reference to the vacuum, the foreman of the shops informed the company that the price of motor stock would begin to rise within a week. He declined to mention the grounds of his expectation, but kindly proceeded to distribute among the visitors the cards of a Wall-Street broker, who would sell stock to any one desirous of profiting by the expected advance.

IT is gratifying to notice that the subject of improving the dwellings of the poor is steadily growing in importance in all parts of the civilized world. The French Government, among its other innovations, is seriously considering the question of building decent and comfortable abodes for the poorest of the population, while in England and America the subject has been, with great advantage, taken up by private individuals, who have done much themselves, and have led the way for others, to ameliorate the condition of the most helpless and dependent of their fellow-citizens. In one respect the work which has been done in this direction has led to disappointment. Houses have been built upon most excellent plans, full of light, air and sunshine, and offered at rents lower than those asked for the vilest dens in the neighborhood, only to be taken up by persons quite able to pay a higher rent, who crowded into them to the exclusion of those for whom they were intended; worse than this, if the better class of tenants are refused admission, it is often found that the houses remain empty, the most squalid and miserable of mankind apparently preferring to live like pigs in a sty, at a high price, rather than suffer the embarrassment of being lodged in a decent habitation. This perverted taste will probably disappear as the general habits of living of working people improve, so that it is not worth while to lament long over it, and there is no fear that benevolence will not for many years find ample occupation in modifying and improving the dwellings of those who are quite capable of appreciating, and being grateful for, the favors shown them.

SANITARY PLUMBING.

To execute the plumbing of a modern building after the methods now employed, in such a manner as to obtain *perfect* security and convenience, involves so great an expense as to be beyond the means of the ordinary house-owner, and a very general impression prevails that it is impossible without incurring the inconvenience of banishing all the plumbing to some detached building having direct communication with the open air, and otherwise thoroughly ventilated.

This is, however, a popular fallacy. Plumbing fixtures may be safely placed wherever convenience or economy in the arrangement dictates, and to present the grounds for this assertion, and show the manner in which the work may be done, at a reasonable expense, are the objects of this paper.

In many important particulars of plumbing sanitary authorities differ in opinion, and this difference increases the feeling of insecurity on the part of the public. Many sanitarians advocate, for instance, the ventilation of all traps by special stacks of pipes independent of the soil-pipe ventilator; and already this has become a law in many cities. Others claim that such ventilation is positively injurious, as greatly increasing the danger of loss of seal through evaporation, besides complicating the plumbing. Another source of disagreement is in the material and proper jointing of soil and drain pipes. One advocates heavy cast-iron with a joint lead-caulked by hand. Another recommends a lighter pipe and caulked by hydraulic or other mechanical pressure. A third prefers the rust-joint. Still another uses wrought-iron piping with screw joints; and others, finally, would return to the old lead pipe which until recently was used almost exclusively in this country. Lead was abandoned in favor of cast-iron largely on account of the greater resistance of the latter to the corrosive action of sewer-gas. Of late, however, the general custom of ventilating our sewers, soil and drain pipes has removed this objection, and the difficulties of properly jointing iron have caused many to favor a return to lead. The authorities again are divided in their opinions as to the best form of trap, water-closet, cistern-valve, and indeed as to almost every important fixture used in plumbing, and they are always at war on the subject of the proper disposal of kitchen grease.

In view of this unsettled condition on the part of the most eminent authorities, to propose to find and describe in detail a system of plumbing which shall not be open to the objections urged by either party, and to propose to substantiate the position by actual demonstration, might seem to savor somewhat of presumption. Nevertheless, a careful and persistent study of the subject made in an impartial spirit and under circumstances unusually favorable for carrying on experimental research, have led the writer to results of so positive and unexpected a nature in the direction of the disputed points, as to encourage him to make the attempt.

The most intelligent portion of the public, particularly in the Eastern and Middle States, have as yet only begun seriously to turn their attention to sanitary plumbing; and though the demand for literature on the subject is greatly in excess of the supply, the production of improved sanitary appliances is in advance of the demand. This is most strikingly shown by the persistency with which the public adhere to the use of that most abominable of all plumbing contrivances, that antiquated and decayed relic of barbarism — the common pan water-closet, the extent of the use of which may be taken as the index of the popular ignorance in sanitary matters. For within the compass of its fertile container, swarm, as it were, in a hideous mass, illustrations of outrages on every vital principle of sanitary plumbing; indeed, so evident are its defects and so universally has it been decried by all intelligent practitioners and writers, that a plumber who recommends it as a decent fixture to place in a house and displays it in his window as an advertisement of his calling may at once be classed as either ignorant or depraved or both, and unfit to be entrusted with the charge of plumbing work. It should, however, in justice to the proverbially wicked plumber, be said here, that many sell this closet only because they are *obliged to*. The conscientious plumber of to-day deserves a much better reputation than public opinion has given him. There are plenty of unscrupulous ones in the business still. These we should study hard to avoid, but the leading ones are intelligent and enterprising men, eager to keep themselves informed as to the improved methods and appliances which the last few years have developed, to grapple with the knotty problems of sanitary plumbing and to raise their calling to the dignity of a scientific profession; and these men the public are learning to appreciate. Every plumber is obliged to keep in stock and at times set unsanitary fixtures and cheap materials, because a short-sighted public insists upon having them. They cannot *afford* to refuse, but they sell under protest.

In spite of all that has been said and written as to the danger of breathing sewer-gas in confined places, and of the universal testimony of all who have any knowledge of the subject as to the reality of the danger, we occasionally meet a disbeliever; — perhaps one of those eccentric and perverse natures which rejects everything others accept; who calls a wholesome fear of sewer-gas "groundless panic," and the records of the great epidemics, "mere sensational stories." "The plumber," he says, "is a sufficient refutation of these notions, for he works at the very jaws of the sewers and flourishes on their breath."

Now this is a very careless and mischievous assertion; for plumbers do suffer from sewer-gas poisoning like other people, and the most prudent of them take every precaution to keep the "jaws of the sewers" well gagged while they are at work upon them.

It happens that a young plumber now at work in the office of the writer has but just resumed work after a severe attack of typhoid fever which he believes he acquired from exposure to sewer-gas, and the reasons he gives for this belief appear to be convincing.

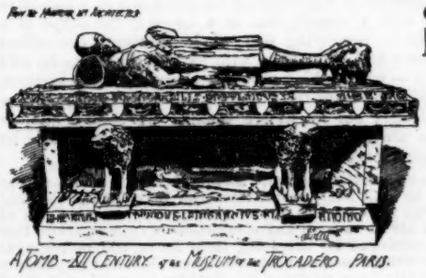
Plumbers lead an out-of-door life and must be in the full vigor of youth to carry on properly their somewhat arduous calling. This undoubtedly enables them to withstand the enervating effects of an occasional exposure to sewer-gas better than others. The disease germs are not friendly to the toughened system nourished by plenty of oxygen. It is in the feeble body, debilitated by confinement and impure air that they find their "happy hunting grounds." In piping a house for plumbing, the work is completed before the sewer connection is made, and the sewer-gas is not allowed to play about the building with such unrestrained liberty as many seem to imagine. It is now supposed that a single germ of disease entering a system prepared for its propagation is as potent to produce death as a thousand, for a single microscopic germ the ten-thousandth part of an inch in length is capable, under conditions suitable for its cultivation, of producing in fi.e days enough of its kind to fill the entire Atlantic Ocean.[1] The breathing of sewer-gas seems to have the property of preparing the system for the propagation of these wonderful and terrible organisms. Whereas on the contrary a copious supply of fresh air and oxygen destroys them. It is possible that fresh air taken in large quantities into the lungs before exposure to sewer-gas, fortifies them for a time against the danger from disease germs, and this may act to a certain extent in favor of the plumber. However this may be, it is certain that no medical fact rests on better evidence than that gases arising from decomposing sewage are one of the most fruitful sources of disease. In recognition of this fact the exclusion of sewer-gas has, within the last two or three years, in our large cities been made the subject of careful legislation. Such laws are greatly needed. Mr. Bayles in his excellent work on "*House Drainage and Water Service*" written in 1878, says: "As the plumbing work of our houses is commonly done, it would be better for most of us if we had to bring our water in buckets from a public hydrant and carry our waste to the culvert at the nearest street corner."

Classification of Subject.

The first division of our subject will include the consideration of:

1. The efficiency of the water-seal.
2. The water-closet, and its flushing and sealing arrangements, including the supply-cistern and valve, supply-pipe, trap and waste-pipe.
3. The wash-basin and its appurtenances, including the supply-pipe, faucet, waste-pipe, trap and overflow-pipe.
4. Traps in general.
5. Soil and waste pipes in general.

LECTURES ON ARCHITECTURE.[2] — II.



A TOMB — XII CENTURY. IN THE MUSEUM OF THE TROCADERO PARIS.

SINCE the first and most obvious reason of building is the desire to provide for the shelter and convenience of man in civilized countries, the first principle belonging to architecture grows out of this primary necessity, and has been shown to consist in the fitness or usefulness of the structure. This source of beauty is the same in all those edifices, however they may vary in their style or kind, which are in every essential particular suited to the obvious wants which gave rise to their erection. This has been shown in two of the most dissimilar structures that could possibly be conceived: the Grecian temple and the Gothic cathedral. I have endeavored to explain the circumstances from which these varieties resulted, and to describe those wants and uses

[1] This statement at first thought seems incredible; but it is easy to follow the steps which lead to such formidable results, for bacteria have been observed to increase by binary fissure, and to double themselves within an hour. The temperature, quantity and quality of nutriment and other conditions necessary for the unlimited development of the bacteria do not exist in nature, and we are fortunately protected from the destructive invasion of these invisible monsters. —See "*The Bacteria*," by Dr. Antoine Magnin, translated by George M. Sternberg, M. D. Published by Little, Brown & Co., Boston.

[2] Extracts from a lecture by the late Mr. Arthur Gilman, delivered before the Lowell Institute, Boston, in the winter of 1844–45. Continued from page 89, No. 400.

which led to the adoption of such peculiar and distinctive forms. If any of these correspond in their nature with those which impel us at the present day to construct dwelling-houses and churches or other public buildings, it will be proper to adopt the forms in question so far as this parallel is found to extend, but certainly no farther. Thus the claims of any particular style, and the merit of any building in which any one of them is exhibited, may be estimated, in regard to their *first* requisite, by a very simple and intelligible principle.

But there is another point, to which, as yet, I have scarcely alluded, and which seems to have a natural connection with this part of our survey. The *fitness* of architectural works is regulated to some extent by the nature of the material employed. Thus, when we are necessarily restricted to the use of a certain material, it has been observed that both fitness and good taste require a correspondence between the material used and the style adopted for the building. There is something very offensive to propriety in making the materials perform a part which does not belong to their nature; it is a deception upon the eye, which the mind does not readily pardon. Heavy and massive architecture in all ages and countries has been executed only in the most durable and time-defying stone, and a temple or a castle would make but a poor figure if this were not the case. Cottages and small villas, on the other hand, in some of the light and fanciful styles, may with greater propriety be erected in wood, since that material is often in harmony with the leading expression of their form and outlines. "There cannot well be a greater violation of correct taste than to build a castellated Gothic mansion with thin, unsubstantial wooden boards. It is a species of counterfeit coin," observes Mr. Downing, "which will never pass current with cultivated minds." De Tocqueville, in his remarks on the spirit in which the Americans cultivate the art, says: "When I arrived for the first time at New York, by that part of the Atlantic Ocean which is called the Narrows, I was surprised to perceive along the shore, at some distance from the city, a considerable number of palaces of white marble, several of which were built after the models of ancient architecture." His surprise was still greater, however, when he went the next day to inspect the temple that had particularly attracted his attention, to find that its imposing portico was supported by huge, hollow columns of painted wood.

Fitness, then, may be defined as the beauty of utility; but there is a second quality, that of *expression* — the expression of purpose in the structure — which has been called the beauty of propriety. This expression of purpose in architecture is conveyed by those leading features in a building which make up its whole appearance, and which at once suggest the end in view, and set forth the peculiar purpose for which it is intended. A church, properly constructed, for instance, is easily recognized by its spire; a dwelling-house by its chimneys and the arrangement of its domestic offices; or a barn by its plain, large doors, the absence of chimneys, and the obvious omission of ornament. Our reason acknowledges a satisfaction in finding them to be what they appear, or, in other words, with the truthfulness and reality of their expression. Whatever, therefore, tends to heighten expression of purpose, must grow out of some quality which connects itself in the mind with the use for which it is designed, and the most genuine mode of increasing our admiration of any building is to render it strictly expressive of the purpose for which it is erected.

A striking instance of the total violation of this obvious principle was given in the famous folly of Fonthill Abbey, which was designed by the same Wyatt who nearly demolished the whole of Salisbury Cathedral. At Fonthill, which he began for Mr. Beckford in 1795, he committed the blunder of representing an abbey, not as a habitable building combined with a church, but as a house in the shape of a church; the vestibule occupying one whole transept, the offices another, and the nave and choir filled with parlors, dining-rooms and sleeping-apartments — with nothing of reality about it but the kitchen. Every one can readily perceive the absurdity of such a freak, because it was an unusual one; but let us see whether we cannot find, or rather, whether we are not obliged to notice cases, in every way its parallel, in daily occurrence among ourselves.

"Although," says an excellent author, "at first thought it would appear that persons would be little likely to fall into error in violating the truthfulness of a building, yet examples do not unfrequently occur. Some of our dwelling-houses are so meagre and comfortless in their exteriors that one might be fairly pardoned for supposing them barns, and, on the other hand, we have seen stables so decorated with green shutters and pilasters that they have actually been mistaken for dwelling-houses." "A blind passion for a particular style of building," he continues, "may also serve to destroy expression of purpose, and it would certainly be difficult for a stranger, in some of our towns where the taste for Grecian temples prevails, to distinguish with accuracy between a church, a bank, and a hall of justice."

Not only should the whole structure, then, have a general character denoting the end in view, but every portion of it should be made, as far as possible, to convey the same impression. The various useful features entering into its composition should all be expressive of their end, and should appear to answer their particular purpose. But if all these distinctions are to be overlooked, and all these principles disregarded, and a universal model adopted in which none of them are contained, the scale of its exactitude becomes that of its incongruity, and the deviation from principle is just in proportion to the fidelity of imitation. This, it cannot be denied, is the case with by far the greater proportion of American architecture at the present day.

I will endeavor to furnish some additional proof of this observation: —

"Many of our contemporaries," says the *Quarterly Review*, "many whose genius no one can respect or prize more highly than we do, are desirous of introducing the *pure* Grecian style for the purposes both of ecclesiastical and civil architecture; but even their talents cannot naturalize architecture of ancient Greece in modern England. The Grecian temple will not submit to be transported into our atmosphere. No adaptation can be given which will reconcile it to utility. Plate-glass windows glaring through the intercolumns, chimneys and chimney-pots ranged above the pediment, are just as appropriate as English nouns and verbs would be in a Greek hexameter. When the architect's portfolio is opened, and the drawing is shown, these incongruities escape observation in the neat lines and coloring of a geometrical elevation, which can be made to look just as the artist pleases; but when the scaffold is struck from the real building, standing in the open air, they then strike us most forcibly, and we are compelled to acknowledge that its principles are too stubborn and unmanageable. View the Grecian temple as a dwelling-house, and with relation to its inhabitants, and then every part and portion which contributes to their comfort or convenience is a grievous sin against architectural fitness, for they are rejected by the very essence of the building into which they obtrude themselves. Is it considered with regard to its destination? Is the architect retiring into his study to plan the justice-hall, or the college, or the church? Why, then, every sign which tells the intention of the structure — which connects it with the policy, the learning or the religion of *our* age, becomes a monstrous and perpetual solecism. If such difficulties as these are considered, it will soon be understood how they estrange the architect from the intellectual cultivation of his art, and reduce him to a mere mechanical draughtsman."

Upon the high authority of the *Quarterly Review*, then, it would appear that the votaries of the Grecian orders are no wiser than Mr. Wyatt had shown himself to be at Fonthill Abbey. If there be any difference, indeed, it is certainly in his favor, since the style which he employed there was at least the natural offspring of the country where he undertook to use it, and when applied in a proper manner, produced very striking and satisfactory effects; while, on the other hand, the Grecian style is fitted for no single purpose which our habits and uses require, either in public or private buildings, and can never appear well in New England under any circumstances whatever.

Twenty-two years later, nearly a quarter of a century after the *Quarterly Review* thus eloquently declaimed against such false taste in the art, we find another able journal holding very similar language.

"We try," says the *Westminster Review*, published in April last [1844], "we try an architecture totally unsuited to our climate, and worse than useless for our purposes. Did the evil consequences of this system stop here, it would not be so serious as it really is; but thus it is that in copying and trying to adapt the classical types, we have learned to be mere copyists (in everything), and when we turn our attention to the Italian or mediæval styles, the false system still clings to us, and correctness of copying is still held the greatest merit of every design."

"The same absurd system," continues the *Review*, "poisoned our literature for more than a century and a half, though, fortunately for us, we have seen both the beginning and the end of its influence *there*. Cowper first dared to sing of original thoughts and feelings, and the giant hand of the peasant Burns tore to pieces the flimsy web of conventional criticism in which the corpse of our poetry had been wound. But if any one will take the trouble of reading the *Cato* of Addison, the *Seasons* of Thompson, the *Blenheim* of Phillips, or, indeed, any of the thousand and one poems about Damon and Daphne, or Phillis, or Chloris, or Mars or Cupid, which formed the staple commodity of poets of that age, he will be able to form a tolerably correct idea of the merit or absurdity of the classical productions of our architects — always bearing in mind this distinction: that the one is an innocent trifle, the other a positive and expensive inconvenience. A poet may indulge himself in harmless flirtations with dryads and water-nymphs without hurting any one; but a habitation must be either in reality very unclassical or very uninhabitable in this climate, and the whole race of porticos only serve to encumber our streets and darken our windows."

These forcible observations relate, it is true, to the present state of architecture in England, but among ourselves the case is just the same, or perhaps the truth is, somewhat worse. Architectural taste is there taking a very decided turn toward the true principles; but with us it is painful to notice that the offcast mistakes of the Old World find a ready adoption, and Grecian edifices are still the order of the day. The common consent of cultivated minds has indeed fully established this truth: that the system of the ancient architects does not admit of any wide departure from its fundamental principles, and that if these are contravened, the certain and speedy consequence will be the degradation and debasement of all its real beauties. But we are first to take care that we understand in what that system consisted. I should hail with pleasure even the faint indication of a desire to study the spirit and meaning, instead of reproducing the mere forms and details of the works of antiquity. And so long as this energy, this sensibility of taste is wanting, there remains one, at least, of the highest marks of civilization to which we can have no valid claim. The neglect of any such course of study is undoubtedly the cause of all the bad architecture of the present time.

Mr. Jefferson is said to have remarked, in reference to the style of building which prevailed in his day, that "the genius of architecture seemed to have shed a peculiar malediction over America." But if this were his honest conviction forty years ago, it cannot be said that at the present day there is any reason to reverse the desponding verdict. The architectural faults and follies of his times have indeed passed away, but it must be owned that they have been succeeded by others, of a different and more deplorable kind. An expression of character and appropriateness might have been wanting in the works of the former builders; still it was at least aimed at and attempted. The church was erected in one style, the senate-house in another, and the private mansion in another. The State-House, on Beacon Hill, the work of that period, is still, as a whole, the most rational building in the streets of this city [Boston]. The general idea was excellent, while the faults which appear in the execution were the work of

those who had the control, and are not to be attributed to its late respected architect. "The effect of this building," observes Mr. Cleaveland, in his essay on American Architecture, "is very striking. The dome rises above every object, crowning the city, and seeming to give a unity and decided character to the whole. It may be doubted whether any other plan could have produced so good an effect at a distance, as the dome depends less for the impression it makes, upon the detail of its ornament than any other form of building. The wings of the building (he continues) are so short as to appear mean, and render the whole too small for the dome which surmounts it. The original plan made the wings more extensive, but they were clipped by the Legislature, who could not afford to buy so much architecture."

Whatever may be its defects, there is certainly a character and expression in this edifice, which bespeaks its obvious use; but if its erection had been deferred to the present time, there is no doubt but that we should have had a Grecian temple in its place. No discrimination of character would have been shown; the elevation of the Parthenon would have been made the measure of this, as well as of every other public and private structure, and the same drawing that was this day used for a state-house, would to-morrow be sent in as a design for a Grecian church, and the next day as a classic villa. It matters not with the architect how widely different their character, how exactly opposite their purpose; his blind admiration for the Grecian colonnade seems to obtrude the object of its bigotry into every situation, where its inappropriateness becomes most evident and most ridiculous. Thus, the hexastyle portico of Athens is indeed re-copied in every locality, and with every variety of material that ingenuity can devise; but the fitness of the design to the purpose for which it is intended, or the expression in it of the character of the structure, if recognized at all in theory, is much oftener honored in the breach than the observance, in practice.

When, however, it is impossible to give the temple form to a building, the occupation of such one-idea builders is gone. As a last resource, they build up a dead, flat wall, with mere square holes in it for windows, unornamented and unrelieved, and still set a Doric portico up against it, which causes it to look as if the dead wall had fallen down on the back of a Doric temple, just as the portcullis of the enemy's castle fell upon the Baron Munchausen's horse, and cut it forever in two. As there are two very remarkable instances of this wonderful feat of invention in our own streets — the Tremont House and the new Court-House — I will take the liberty to give a somewhat amusing extract, in reference to the latter building, from the same essay by Mr. Cleaveland to which I have previously referred: —

"As we have never seen the plan of this building," says he, "it has been an unfailing source of wonder to us, as we have watched its progress. It is now so nearly completed that one can form a pretty good idea of what it is intended to be. For the benefit of those who have not looked upon this astonishing structure, we will attempt a description of it, though with a very faint hope of doing justice to the genius of the designer. Let the reader imagine a building so long, narrow and high, as to resemble a sheet of baker's ginger-bread standing upon the edge, and he will have some notion of the outline. 'I think, gentlemen,' said a western friend of ours, to a building committee who were asking his opinion of an edifice of nearly the same proportions as the new court-house — 'I think, gentlemen, if you please, that if you were to turn your academy over upon the *side*, it would cover a good deal of land.' We doubt if good nature itself could, in conscience, say more than this in praise of the court-house. The sides of this elongated and attenuated pile are pierced by numerous windows of different sizes, some arched and some square. At each extremity is a door, above which towers a dead wall, terminated by a cornice like that of the sides, of the simplest form. From this, the roof slopes back toward the centre. Near the eaves of each end of the building rises a broad, thin chimney of stone, terminating in several small pyramids, the effect of which is very remarkable. Thus far there is nothing in the edifice to complain of, because thus far it makes no pretence to architecture, and had the artist or the civic committee, or whoever was concerned, been content with leaving it in this state, we should have been satisfied with having a cheap structure, whose internal arrangements answered the purpose for which they were designed. But it seems as if, after the building was planned, it was thought necessary to make a little display of taste and classical skill, and accordingly we have Grecian porticos built up against the end walls When General Jackson and Major Downing were at the village of Downingville, the President made a speech to the people, of which the Major gives a report. 'Here,' says he, 'the General was goin' to stop, but says I in his ear: "You must give 'em a little Latin, Doctor." Here he off hat again: "*E pluribus unum*," says he; "*sine qua non*." "That'll do, General," says I.' Our architect's porticos are about as appropriate to the other parts of the building as the General's Latin to the speech he had been making. In themselves they are extremely beautiful. They are of the Doric order, and consist of four fluted columns, the shafts of which are of a single block, rising above a lofty flight of steps, and surmounted by a pediment of the true Attic proportions. But they do not belong to the building; they would look just as well, and would seem as appropriate if they stood on the opposite side of the street. They add nothing to the beauty of the edifice itself, because it has no beauty to add to, and they certainly do not constitute its beauty, because no one thinks of viewing them as parts of it. We should be in favor, therefore, of having them removed from their unfavorable position at the ends of the court-house, and carefully preserved, till they can be used for some building of Grecian architecture, to which they may seem actually to belong, and we assure the architect that his fame would not be in the least diminished by the abstraction."

It would be natural to suppose that these remarks would receive some little consideration in the community. They do not appear, however, to have had the least effect in any quarter. "Boston may be the Athens of America," observes Mr. Cleaveland, "but certainly, the days of Pericles have not yet come."

In fact, the dissemination of knowledge and the corrections of criticism upon this subject seem hitherto to have done but little good. The favorers of the present wretched system appear to argue for victory, and not for truth, and in most cases

"E'en though vanquished they will argue still."

Our public and private libraries contain many lucid works upon these subjects, in which, without a single exception, these monstrosities are condemned. But still these gentlemen go on, copying and caricaturing the portico of the Parthenon, and it must be that the more opportunity such a person possesses the less he troubles himself to comprehend. Dr. Southey speaks of an admirable print among George Wither's emblems, having for its motto, "*Cœcus nil luce juvatur;*" that is, a blind person is benefited by *no* light. It represents an owl, standing in broad sunshine, with a pair of spectacles on his beak, a lighted candle on either side of him, and a blazing torch in each claw, and the more light there is, the less is the owl able to see. No happier emblem could be imagined to typify that school of builders who rear such enduring edifices of their powers of observation. Architecture requires for its practice the intensest study, and a knowledge of all its proprieties can never be acquired without a great degree of enthusiastic application. It requires, in fact, more taste to appreciate its beauties, and more study to understand them, than such persons will very often be found to possess.

Thus it is not difficult to understand how the designs of such persons, through a want of appreciation of the real nature and business of architecture, should be at once costly, offensive, and full of unsustained pretension. Both in theory and practice we have been committing a great mistake; and the arguments hitherto in use, both by the advocates and opponents of either of the various styles, have generally been based upon fallacious grounds. They have consisted, for the most part, in mere private views and opinions relative to comparative abstract beauty, in the different styles, and these, as might be expected, have proved most inconclusive. To advocate any kind of architecture merely on the score of its intrinsic beauty, will never bring us any nearer to a true understanding of the question. We must go much deeper than this, we must turn to the principles from which all the styles originated, before we can be intelligent or consistent followers of any of them. The history of architecture is in fact, the history of the world, and as we successively inspect the edifices of antiquity, its nations, its dynasties, its religions and its customs are all brought vividly before us. The belief and manners of all people in those remote ages are embodied in the edifices they raised, and they are transmitted to us in this way quite as clearly as in any other. Each one was the inventor and perfecter of their own peculiar style, and each style was the type of their religion, customs and climate. The beauty of these various styles, when viewed with reference to the purposes for which they were thus raised is very great; indeed it would be impossible, under the same circumstances, that it should be surpassed, since each is equally the perfection of what was intended by its inventors. A follower of Bramah or Isis, a fire-worshipper of Persia, or a devotee of the classical mythology could not well have produced anything different from what they have done, and so completely did these edifices embody the principles and worship of their builders, that the discovery of a certain form of temple or of peculiar architectural arrangements and symbols, is at once admitted as evidence of the existence of a certain people and religion in that place. Nay more, it may be urged in confirmation of this fact, that by architecture and ornament alone, learned men of the present time are enabled to make the most important discoveries, relative to the history of nations whose very existence is anterior by many centuries to the Christian era, and of whom the accounts of chroniclers give only such vague and contradictory ideas as to render it very fortunate that we can thus go to the more authoritative testimony of their monuments and remains.

But will the architecture of our time, it has been asked, or so much of it as is solid enough to last, hand down to posterity any certain clue or guide to the system under which *it* was erected. Is it, like that of former ages, the expression of existing opinions and circumstances, the enthusiastic embodiment of the faith, the feeling and the polity of the nation? Is it not rather something entirely apart from these, is it not a confused jumble of styles and symbols borrowed from all nations and periods? I am much mistaken if the uncompromising advocates of such arbitrary restorations would not be repudiated by the humblest architect of antiquity, if he could again return to earth. The condition of his art would involve anomalies far beyond his power to comprehend.

The leaders of the art in England, those from whom the architecture of that country receives its tone and character, have of late years proceeded on very different principles from those I have now reviewed, and have returned in many instances to correct and consistent taste. The erection of the New Parliament Houses in the national Gothic style, is observed by Mr. Pugin to be the greatest advance that has yet been gained in the right direction. "If the architect's design be carried out, we shall then have (says he) a monument of English art which has not been surpassed, even in antiquity. This building is the morning star of the great revival of national architecture and art; and it is a complete and practical refutation of those persons who venture to assert that pointed architecture is not suitable for public edifices. The plan embodies every possible convenience of access, light and distribution of the various halls and chambers, without the aid of false doors, blank windows, mock pediments, adapted temple fronts, and show domes to make up an elevation."

Not less illustrative of the universal applicability of the pointed style, is the beautiful and highly original design for a small church now erecting in this vicinity, the church of St. Luke now in process of completion in Chelsea, from the designs of the architect of Trinity Church in the city of New York. The whole cost of this singular little structure is estimated at only $2,500, a much smaller sum than must have been expended on several gaudy and meretricious fabrics in its immediate neighborhood. If I do not mistake it is intended to seat about four hundred persons, and it does not present a single inconsistency of conception. When we consider the extremely low cost of this building, and the amount of accommodation which has nevertheless been provided, simply by adherence to the natural and consistent principles which were advanced at the commencement of this lecture, we cannot but acquiesce in the remark that "in matters of ordinary use a man must go out of his way to make a bad thing." This little church is as purely Gothic as the vast and magnificent cathedrals of England, and proves the wonderful versatility of the style which can thus adapt itself to such opposite extremes. Thus the universal cry that the Gothic is so very expensive is shown to be incorrect, and it becomes equally evident that some of its most beautiful effects are produced by natural combinations and construction. The real truth is that even the details of this style, when treated consistently, cost less than the ordinary sort of fittings in use among us, and are, at least, twice as durable.

It is some satisfaction to find a design like this of the Chelsea church, actually reduced to practice amid the chaotic mass of blunders of which we have to complain. Indeed, the progress which the revival of pointed architecture has made within the last few years is most surprising. Errors and mistakes will no doubt be often committed during the course of such a transition. It is only by slow and painful degrees that we can struggle up to a condition of natural and vigorous design. "The age in which we live," observes Mr. Pugin, "is a most eventful period for art; we are just emerging from a state which may be termed the dark ages of architecture. After a gradual decay the style, for style there was, became so execrably bad that the cup of degradation was filled to the brim, and as taste had fallen to its lowest depth a favorable reaction commenced."

"The breaking up of this state of things," he continues, "naturally produced a complete convulsion in the whole system of the arts, and a Babel of confusion has succeeded to the one bad idea that generally prevailed; private judgment runs riot, and every architect has a theory of his own, a beau-ideal he has himself created, a disguise with which to invest the building he erects; one breathes nothing but the Alhambra, another the Parthenon, a third is full of lotus-cups and pyramids from the banks of the Nile, while another works up Stuart's and Revett's Athens on a *modified* plan, and builds lodges, chapels, reading-rooms and fish-markets, with small Doric work and white-brick facings. Thus styles are now *adopted* instead of *generated*, and ornament and design adapted to instead of originated by the edifices themselves."

If any one will carry back his thoughts to first principles in the art he will perceive that there is no escape from the force of these remarks. And so long as we have no fixed theory in architecture, and deem no other scale of propriety necessary in a building than simply that it is our own good pleasure to build it, we shall always remain exposed to such merited censures. There are styles and modes, however, which are strictly congruous with all our present requirements, and which readily assimilate themselves with all the wants and uses of our own period. There are the Italian—varied as it is by the differences of three successive schools, the Florentine, the Roman and the Venetian—and the Gothic with its four periods, the Norman, the Early English, the Decorated and the Perpendicular styles; to these also, in certain situations, we may add some modifications of the Romanesque, and with all these at his command, with all their picturesque varieties of outline and expression the architect can have no reason to complain that he is restricted to a narrow or monotonous field of selection. If rightly and sensibly applied each will furnish us with buildings of less cost, and ranking much higher as productions of art, while in point of convenience they will certainly be far superior to the anomalous structures which at present we are content to rear.

In designing any public building, therefore, the artist never need be at a loss to find examples by which consistently to regulate the arrangement of his own design. It remains, however, to consider the necessities of domestic buildings, and review those forms and modifications of the art which are found to be most easily suited to its character.

In the first place then it is to be observed that all pure and pleasing domestic architecture in any given style has invariably been a subdued expression or manifestation of that style, adjusted to the humbler requirements of the building and the more quiet purposes of domestic life. The same leading quality of expression characterizes the Gothic cathedral and the Gothic mansion, as you may easily perceive in these two examples: the same ruling principles of construction may be discerned in the temple and the villa, in the Grecian Parthenon, and the Italian Villa Capra, but how changed in their features, and how entirely dissimilar in their modifications. All the modes of building in modern use may be referred to two original forms, of which they are only altered varieties, viz.: to the Grecian or Classical, in which you will recollect that horizontal lines prevail, and the Gothic, in which vertical lines prevail; and though it would be very absurd to copy a cathedral, or reconstruct a temple as a domestic residence intended for our daily and constant accommodation still there have not been wanting artists who have caught something of the spirit and beauty of the original masterpieces of art, and transfused them into the domestic styles which have grown out of these to suit the wants of civilized life. Thus, although the pure germ of the Classical style, which is the temple, not being intended originally for domestic purposes is altogether unsuited to them, yet the Roman and Italian styles, which are modified forms of it, are in truth elegant adaptations of its characteristic forms to this purpose. It is truly astonishing how so simple and obvious a fact should be so continually overlooked; it is an axiom which we should expect every novice to understand. The Italian style in particular, by its arcades and piazzas, its terraces and balconies, its projecting roofs, and the capacity and variety of its form is so suited to every want and purpose in a dwelling-house, of whatever cost or dimensions, that an architect must have been at great pains to avoid seizing upon it as the style of all others exactly suited to his purpose.

But if the elements of the classic styles have not been confined to the temple form, neither have those of the Gothic been confined to the cathedral. In this class of edifices, as exhibiting it in its noblest form, it certainly exists in its highest grandeur and purity; but its beauty and picturesqueness have reappeared without any real diminution in the old English styles of domestic architecture. The most perfect and most fascinating examples are those of the mansions of the time of the Tudors, but still the whole rural architecture of England is imbued with its spirit. The manifestations of it are everywhere visible in quaintly carved gables or verge-boards, in wreathed and clustered chimneys, beautiful windows ornamented with simple tracery, and in numberless other details which are equally expressive and characteristic.

For domestic architecture, then, it will be advisable to employ these natural modifications of the great architectural styles where the beauty grows out of the enrichment of some useful or elegant features of the house, such as the gables, windows or verandas, rather than those where some strongly-marked points, which have but little domestic association, overpower the expression of the rest of the building. The Rural Gothic style and the Rural Italian are certainly much the most beautiful modes that can be chosen from for our country residences. Their forms are convenient, their accessories elegant, and their expression highly indicative of the refined and unostentatious enjoyments of the country.

THE ILLUSTRATIONS.

WATER-TOWER FOR THE HACKENSACK WATER CO., WEEHAWKEN, N. J. MR. FREDERICK C. WITHERS, ARCHITECT, NEW YORK.

THIS water-tower is now being built by Mr. John F. Ward for the Hackensack Water Co., of which Mr. Charles B. Brush is Chief Engineer, and is intended for the supply of Weehawken, Union Hill and West Hoboken. The water is brought from New Millford, N. J., a distance of fourteen miles, in 20-inch pipes to the reservoir adjoining (which has a capacity of 15,000,000 gallons at a level of one hundred and eighty feet above tide-water), from whence it will be pumped into the tank in the tower. In the engine-room, which is above the boilers, will be placed two Worthington engines, each capable of pumping 2,000,000 gallons in twenty-four hours. Over this room there will be an office for the Company 24½ feet square, reached by the spiral staircase situated at the angle, which will be continued up to the parapet of the roof, from whence there will be a fine view of the Hudson River and the surrounding country. In the floors over the office will be two sets of rooms for the employés, each consisting of a living-room, three bedrooms, water-closet, closets, etc., and above all will be the tank, 30 feet in diameter, capable of holding 165,000 gallons at a level of 300 feet above tide-water.

BROWNLEY HALL, WELLESLEY, MASS. ALLEN & KENWAY, ARCHITECTS, BOSTON.

THIS house, finished last fall, is the residence of Mr. J. Wentworth Brown. The lower part of the walls is built of Bragville granite, rock-faced; the upper part is "half-timber" construction, the panels being of cement. On the south side is a carved stone sun-dial, with the legend

I · ONLY · MARK · YE · HOURS · WHEN · SHINES · YE · SUN ·
WITH · RICHEST · BLESSINGS · GOD · MARKS · EVERY · ONE ·

IN the hall is a large mullioned window, filled with stained glass by MacDonald. The carving throughout was done by Evans & Toombs. Messrs. Norcross Brothers were the builders. In the rear is a stable for six horses and two cows. The entire cost of house and stable was about $50,000.

COMPETITIVE DESIGN FOR A $3,000-HOUSE SUBMITTED BY "*Oliver Twist.*"

"'*Oliver Twist's*' plan does not differ materially from the preceding one except that a servant's room is provided on the ground floor; this is a costly addition, the cellar and trench wall much exceeding in cost what would be required to slightly raise the main roof enough to finish an attic chamber. Two or three feet taken from the veranda would have completed the vestibule suggested, and insured further comfort in winter. The elevation is picturesque and ingeniously varied by simple devices, and the arrangement of the windows on the stairs is interesting. There is the less need of the servant's room in that there are four chambers on the second floor. A door from large

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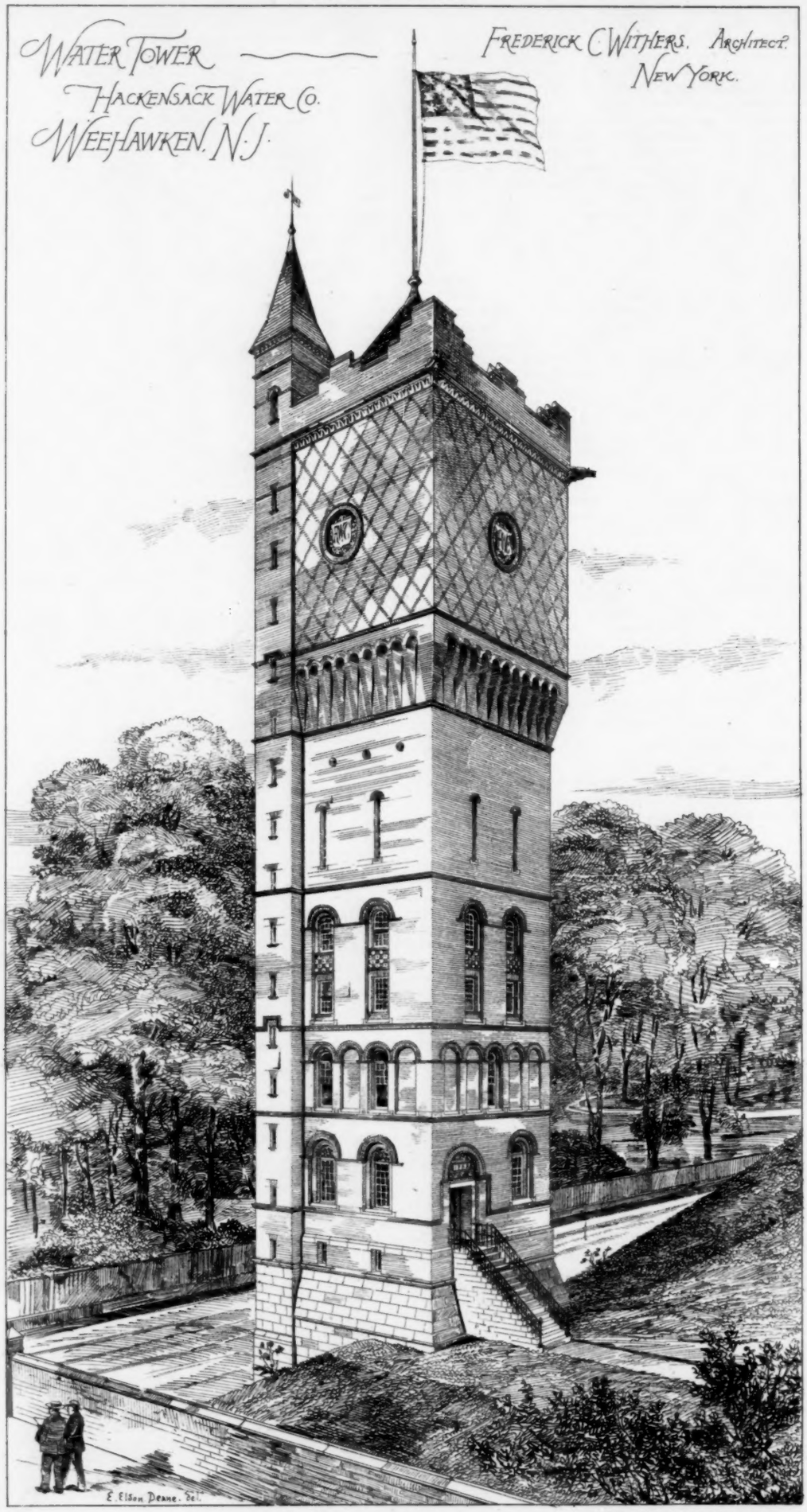

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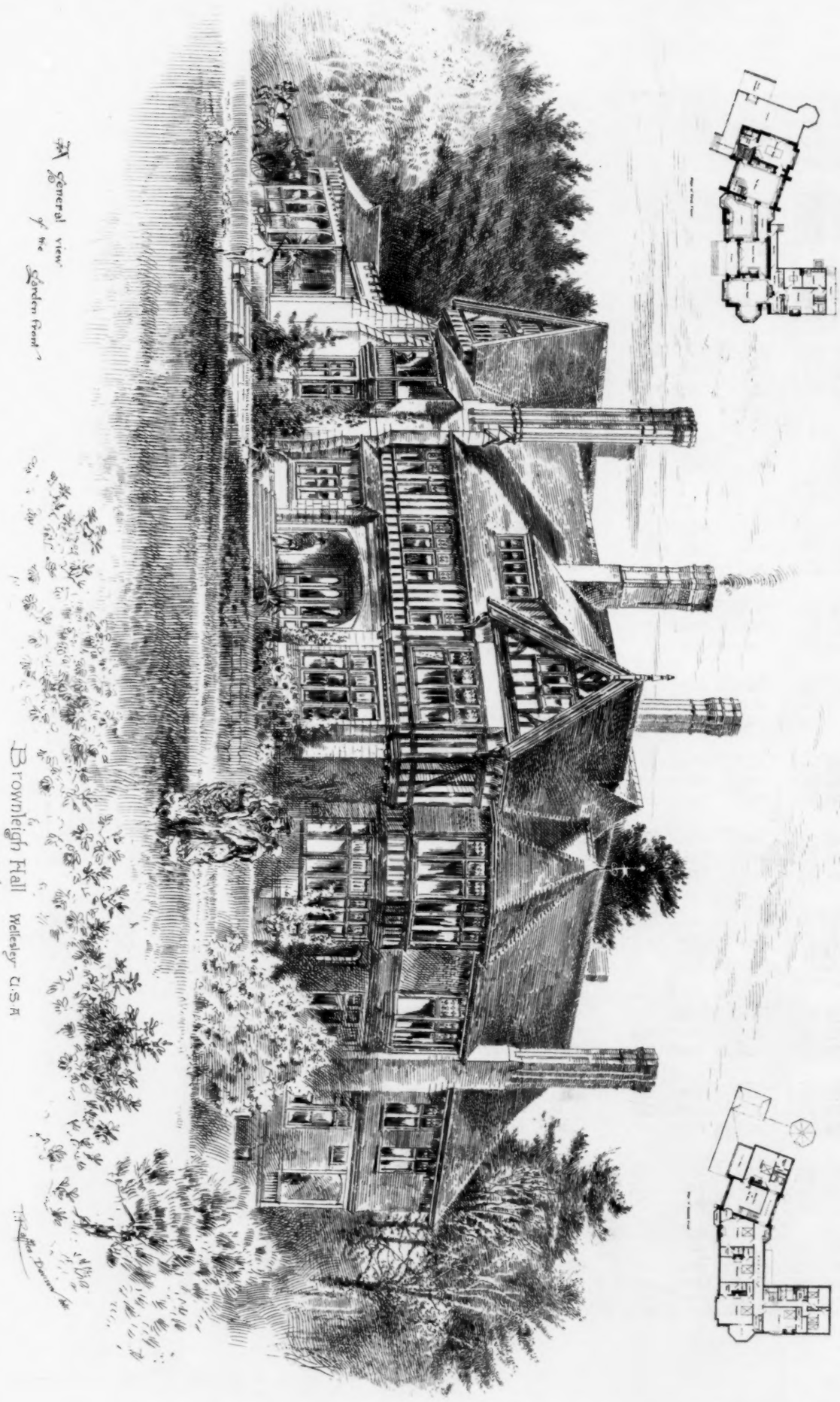

A General view of the Garden Front

Brownleigh Hall Wellesley U.S.A

Allen and Kenway Architects Boston

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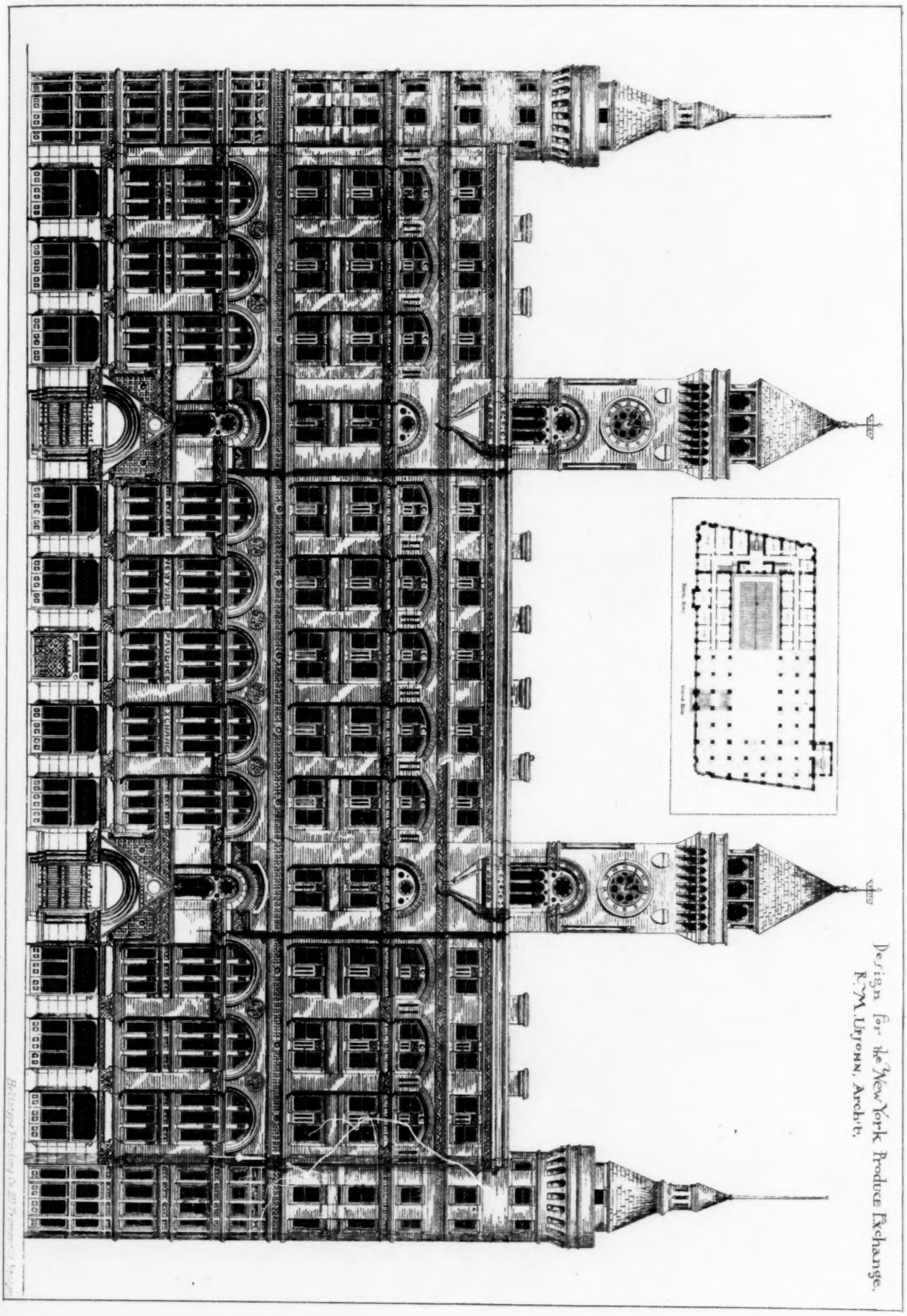

Design for the New York Produce Exchange.
R. M. Upjohn, Archt.

Bellingham Printing Co. All Processes, New York.

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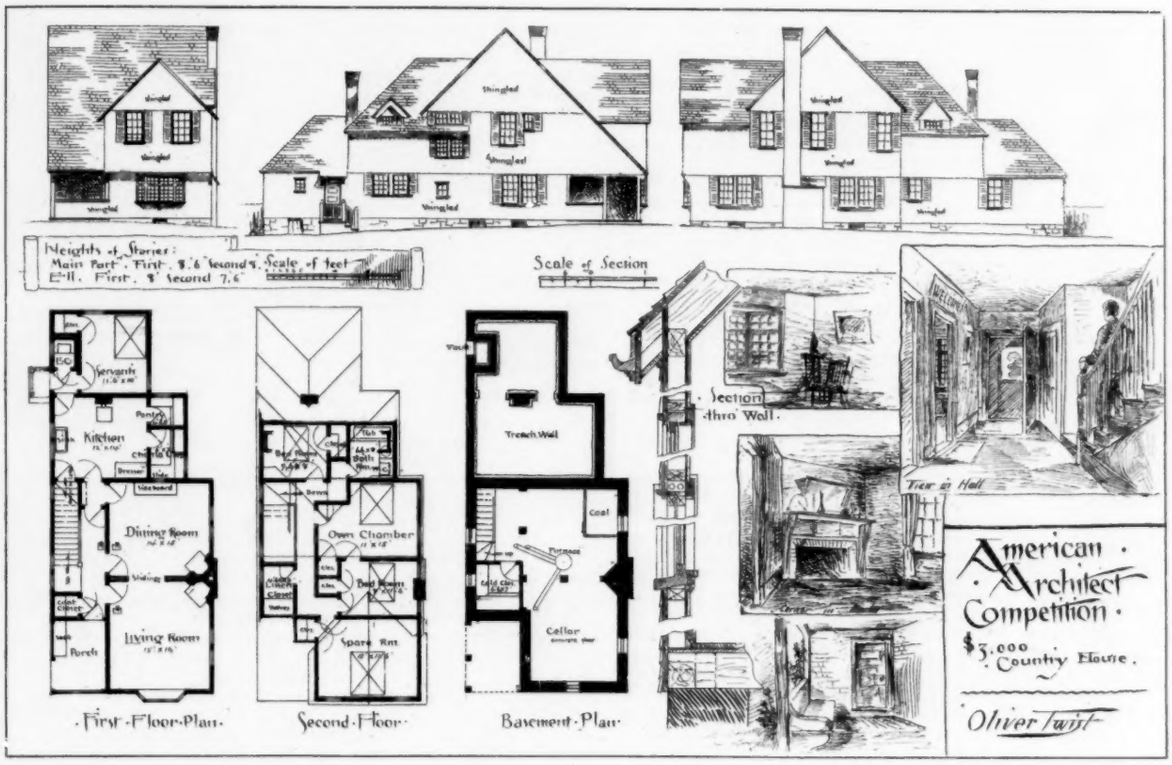
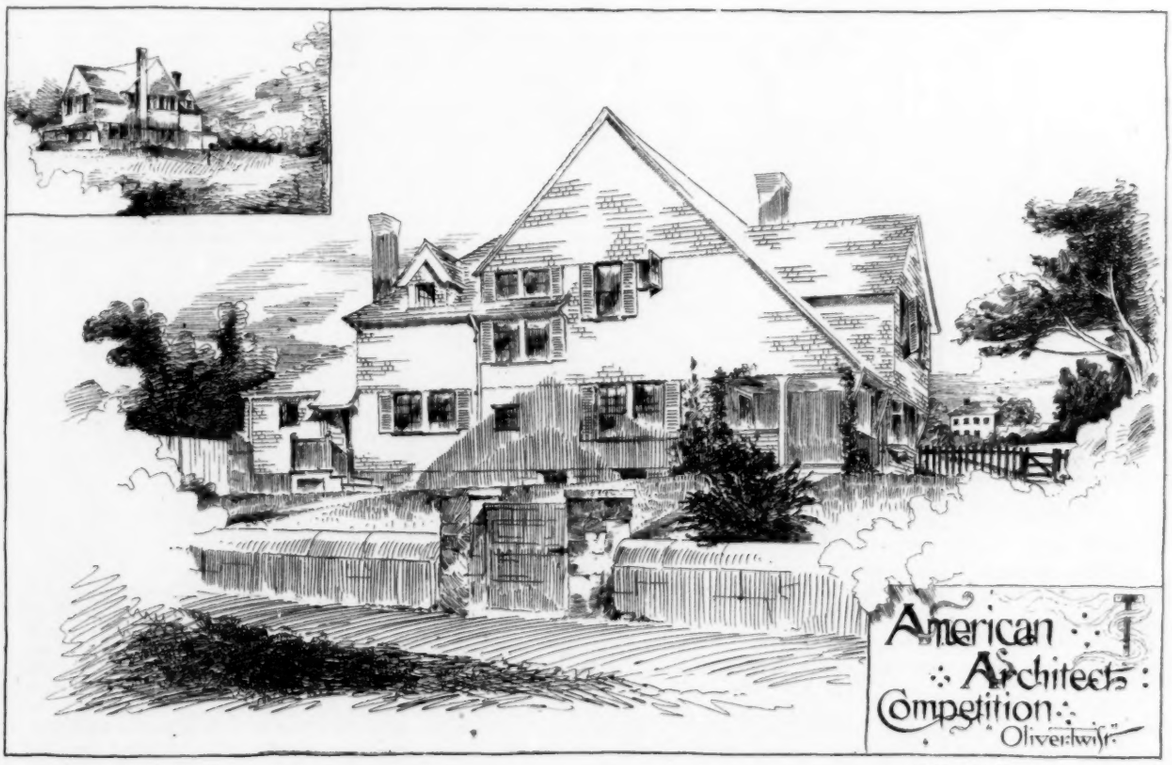




Heliotype Printing Co. 211 Tremont St. Boston

to small chamber has been wisely provided. This has been very generally omitted in some of the best plans, to their loss. The drawings are presented in a sketchy way which narrowly escapes being careless. We are sorry to see that '*Oliver Twist*' rates his commission at $125. If worth anything, he is entitled to more than that."—*Extract from Jury's Report.*

COMPETITIVE DESIGN FOR THE NEW YORK PRODUCE EXCHANGE BUILDING, NEW YORK, N. Y. MR. R. M. UPJOHN, ARCHITECT, NEW YORK, N. Y.

WATER SUPPLY.[1]

A DORMER FROM A HOUSE AT DIJON FRANCE

THIS book is intended to contain, within a moderate compass, the information in regard to water-supply, and the properties of different kinds of water, which will be most useful to young and inexperienced engineers, as well as to water-committees, persons in charge of water-works, and others who may, as very many intelligent persons do, take an interest in that important subject. In the present period of sanitary agitation, when the air is filled with contending facts and theories about our material surroundings, it is necessary for a writer desirous of presenting fairly the latest results in such a science to select with caution from the material at hand, so as to avoid both the attitude of incredulity which would reject everything not clearly proved, and the unbalanced enthusiasm which would give undue weight to a novel or picturesque hypothesis, but Professor Nichols manages to steer a middle course with remarkable success, and those who have read his treatise on the "Filtration of Potable Water" will recognize at once the clear and careful statement of facts and theories which places the reader in a position to understand current discussions without engaging his sympathies for either side.

The student, however, who is inclined on other grounds to the adoption of any particular theory in such matters will find, in the mass of general illustration and information which Professor Nichols is able to give, material which he can use to excellent purpose, either for correcting or confirming his opinions. For instance, some of the earlier advocates of sewage disposal by irrigation, instead of discharge into the sea, supported their reasoning by the assertion that the mixture of fresh water containing sewage matters in suspension with the salt water of the sea was attended with a kind of coagulation of the organic impurity, which led to its rapid deposition about the sewer outfall. This observation was ridiculed as a pure delusion by the partisans of the ancient method, but Professor Nichols quotes an account of some experiments made upon the turbid Mississippi water, which, while fresh, requires ten to fourteen days for depositing its suspended clay, but, on the addition of sea-water, clears itself in about as many hours. The same effect is observed in adding salts to liquids containing other finely-divided substances in suspension, and it seems as if the sewage-utilization party may have been right after all.

On the subject of bacterial infection the book gives much information, but without venturing any sweeping opinion. That the development of the anthrax carbuncle is connected in some way with the presence in the system of certain animalcules the author evidently regards as satisfactorily proved, although, singularly enough, he omits all mention of Pasteur in connection with the investigation by which this was established, referring only to some experiments of Koch. The connection of other contagions with similar organisms he speaks of as having been conjectured "with more or less show of reason," and this expression certainly well represents the actual state of knowledge on the subject. Among the various subjects on which valuable and important information is given in the course of the book are some which will particularly interest architects, one of the best discussions of this kind being that on wells. Here, as in all the rest of the book, we find definite statements of fact in place of mere assertion, and these statements of fact are just what the architect wants to enable him to form an opinion of his own. The most important circumstance in regard to any well is, perhaps, the probability of its contamination with sewage. Whether sewage is unwholesome or not is for the moment unimportant; every one will admit that it is desirable to keep it out of drinking water, and there are few architects who have practised in the country who would not be glad to know how to do so with certainty, but the statements hitherto accessible to them in regard to the drainage area of an ordinary well have been generally so conflicting as to be of no use as a guide. Professor Nichols gives what will, therefore, be valuable as a standard of a certain sort, in an account of some experiments made at Berlin on wells sunk in a sandy plain, which showed that in dry weather the influence of the pumping from the well could be traced by the lowering of the level of the ground-water over an area extending nearly half a mile in every direction from it, and even in wet weather the radius of influence was about a thousand feet. Of course, the draught of water from such a distance is very slow, but the fact remains that most wells, after a few months of use, form around themselves a basin of some such extent, down the sides of which the water steadily flows toward them. In regard to driven wells, about the operation of which a good many curious notions are current, we are glad to find here some sensible information. In consequence, probably, of the resistance which a driven well in heavy soil opposes for a time to the action of the pump, it is often supposed that the water in the surrounding earth must be pressed toward the well with a force comparable with that which the operator finds it necessary to apply for extracting it by means of the pump-handle, but it is found, from actual experiment, that the suction of the pump is entirely expended upon obstructions about the point of the pipe, and no more water can be obtained from a given stratum by means of a tube well than any other, while, aside from the cheapness and security from contamination by surface water, of the tube well, it possesses no special advantage, and presents some grave inconveniences.

In regard to the material of service-pipes Professor Nichols gives also some useful information. In his opinion, the use of lead service-pipes for household use, while generally unobjectionable in places furnished with a public supply, should be avoided where the water is drawn from a well, the alternate exposure of the metal to air and water, by the change of level in the contents of the well, often occasioning a very rapid corrosion. As a substitute for lead in such situations block-tin pipe presents the most advantages, being little subject to corrosion, and harmless in most of its combinations, even if chemical action should take place. Next to this, tin-lined pipe, if properly made and put together, is most serviceable. Brass pipes, which might be, but rarely are, used as suction-pipes, are probably acted upon by the water, but it is uncertain whether the corrosion would, with most waters, injure the quality of that which passed through it to an appreciable extent. Galvanized pipe, although cheap, is not durable, the zinc coating being soon corroded so as to expose the iron to rust, while the dissolved and suspended particles of zinc carried away in the water injure its quality, although it is doubtful whether they are absolutely poisonous to those who drink it. Enamelled iron pipes, as found in the market, are quite as durable as the galvanized ones, and impart nothing to the water worse than a slight flavor of coal tar, which comes from some of them while new. In Altona, a suburb of Hamburg, in Germany, wrought-iron pipes coated with magnetic oxide by the Bower-Barff process have recently been put in for service-pipes, and if they prove durable, would seem to be the best yet introduced.

[1] *Water Supply, considered mainly from a Chemical and Sanitary Standpoint;* by Wm. Ripley Nichols, Professor at the Massachusetts Institute of Technology. New York: John Wiley & Sons, 1883.

THE $3,000-HOUSE COMPETITION.—XVIII.

DESIGN SUBMITTED BY "*Oliver Twist.*"

CELLAR WALL:—A dry wall, 1′ 6″ thick, and pointed with red mortar above grade. Bottom of "trench" wall to be 4′ below surface of ground.

Frame:—Sills, 6″ x 6″; plate, 4″ x 6″; posts and girts, 4″ x 6″; floor-joists, 2″ x 8″, 16″ on centres; studs, 2″ x 4″, 16″ on centres; rafters, 2″ x 7″, 18″ on centres; trimmers and headers, 4″ x 8″.

Roofing Boards:—The roofing and covering boards of hemlock.

Outside Finish of pine.

Gutter of wood, 4″ x 5″, with 3″ zinc conductors.

Shingles:—Sawed pine, 4″ to weather.

Porch with six posts and seat; rail, 3″ x 4″.

Inside Finish pine, painted. In kitchen, sheathing 3′ high, shellacked.

Under Floors of hemlock.

Upper Floors:—Kitchen and bath-room, hard-pine; elsewhere spruce.

Doors and Windows, factory sizes; machine moulding throughout.

Mantels:—Allow $30 for mantels.

Stairs of ash; one 5″ post, and baluster 1¼″ turned; rail, 3″ x 4″.

Glazing included in carpenter's estimate.

Plumbing to consist of one sink with pump, one bowl, one bath-tub and water-closet.

Painting:—Outside walls to be painted two coats, and in any two colors desired. Roof to be painted with linseed oil and Venetian red. Walls in kitchen to be painted one plain tint.

Hearths and Fireplaces of face brick. Piers, 8″ x 12″; flues of chimney, 8″ x 8″, with 4″ brick around them. Floor of cellar, concrete.

ESTIMATE OF QUANTITIES AND PRICES RULING AT BOSTON, MASS.

CARPENTER-WORK.

8,000 ft. of spruce timber, @ $17 per M	$136.00
4,500 " furring and partition stock, @ $16	72.00
7,500 " hemlock covering-boards, @ $15	112.50
30,000 M. of sawed pine shingles, @ $4	120.00
1,600 ft. of stock for outside finish	75.00
110 " wooden gutter, 4″ x 5″, @ 12 c.	13.20
Windows complete	160.00
Doors and frames	135.00
Upper floors	125.00
Stairs, of ash	115.00

Hardware and nails	$185.00
Work on porch, outside steps, and sundries	80.00
Mantels	30.00
Total	$1,938.70

MASON-WORK.

20 sq. yds. of excavation, @ $2.50	$50.00
60 perch stone wall, @ $1.75	105.00
6 M. brick, laid, including lime, etc., @ $18	108.00
Two fireplaces and two hearths	60.00
1,250 yds. of plastering, @ 25 c.	312.50
Painting (not including glazing)	200.00
Plumbing	130.00
420 sq. yds. concrete, @ 40 c.	168.00
65 ft. conductors (zinc), @ 15 c.	9.75
Architect's commission	125.00
Total	$1,268.25
Grand total	3,206.95

Chimneys with stone foundations.
Furnace, furnace-pipes and drains not included in this estimate.

SCHEDULE OF DOORS AND WINDOWS.

One door,	3′ 6″ x 6′ 10″	Eight windows,	2′ 6″ x 5′ 6″
Six doors,	2′ 10″ x 6′ 10″	Seven windows,	2′ 6″ x 4′ 10″
Twelve doors,	2′ 8″ x 6′ 8″	Eight windows,	2′ 6″ x 3′ 6″
Ten doors,	2′ 6″ x 6′ 8″	Eight windows,	2′ x 2′ 6″

THE SEWERAGE OF PARIS.[1]—III.

TOMB OF CHERUBINI.
CEMETERY PERE-LACHAISE PARIS—A. LECLERE ARCH.

AFTER the full discussion of the whole subject, of which the paper of M. Vauthier's, previously printed here, was an important element, the Technical Sanitary Commission of Paris has passed the following resolutions—those requiring the discharge of water-closet matter into the sewers being carried by a vote of twenty-one to six.

WATER-CLOSETS.

ARTICLE 1. In every house there should be a water-closet for every apartment [suite]. In case of need this may be placed outside the apartment [suite], if on the same floor with it.

ART. 2. Every water-closet shall be supplied from a reservoir, by a supply-pipe, or by other means with a sufficient quantity of water to insure a *minimum* supply of ten litres per person per day.

ART. 3. Each water-closet should be furnished with a water-seal trap below the bowl.

HOUSEHOLD WATERS AND RAIN.

ART. 4. The waste-pipes of sinks must be trapped near the upper end.

ART. 5. All leaders should be intercepted so as to prevent direct communication with the sewer.

ART. 6. Every soil-pipe or sink-waste should be carried above the roof to establish active and permanent ventilation.

ART. 7. It is desirable that these soil-pipes carried above the roof, as before said, should be flushed by automatic intermittent flush-tanks, located on the highest story where there are closets.

ART. 8. In order to insure a hermetic and permanent interception between the sewer and the house, the outlet pipes shall be supplied with traps at their lower ends before entering the public sewers.

ART. 9. Waste-pipes shall be tight, of cast-iron or vitrified earthenware, and carried through the house branch[2] to the public sewer.

VAULTS.

ART. 10. It is necessary to continue the suppression of the system of fixed vaults. To that end new vaults will not be established, except in cases to be determined by the administration, where the absence of a sewer, the arrangement of the existing sewer, the insufficient supply of water, etc., will not permit the direct discharge either into the existing sewer, or a special sewerage system.

ART. 11. A basin with sloping sides should be sunk at the bottom of the vault, under the man-hole cover, to render the work of emptying easier and more rapid.

ART. 12. In vaults now existing ventilation should be accomplished by inlet-pipes, and by pipes open at their upper ends, and carried above the roof of the house.

ART. 13. It is necessary to insure, with the aid of a sufficient force, a more complete surveillance as to the tightness of vaults, and over the work of emptying them.

ART. 14. The emptying of vaults should not be authorized, except by aid of the most perfect apparatus, especially such as, creating a vacuum in the chambers, have arrangements for the disinfection of the escaping gases.

MOVABLE TUBS.

ART. 15. Movable tubs, of which the overflowing is inevitable, should be suppressed without delay wherever this is possible.

ART. 16. A *temporary* exception may be made in the favor of receptacles supplied with dry and absorbent substances, which are of great service in one-story buildings and for the ground floor, when the renewing of their absorbents is assured by a regular service.

APPARATUS FOR SEPARATION OR DILUTION.

ART 17. Apparatus for separation or dilution constitutes only an imperfect adjunct of a discharge to the sewer.

ART. 18. Such apparatus should be so arranged as to render overflow into the cellar impossible, and to insure the direct flow of the surplus to the sewer. They are permissible only in houses abundantly supplied with water.

DISCHARGE OF WATER-CLOSET MATTER INTO THE SEWER.

ART. 20. The total discharge of excremental matters into the sewers may be authorized in the case of sewers having a large and constant flow of water, not subject to an accumulation of sand, and in which matters are carried without halting to the point of discharge in the collecting sewer.

ART. 21. It may be permitted also in sewers less abundantly supplied than the above, but having fall and flow sufficient for the removal of all matters, on the condition that the improvements be carried out which are indicated in Articles 23 and following.

ART. 22. In sewers which do not satisfy the conditions specified in Articles 20 and 21, or in which the back water of the collecting sewers may check the flow, the discharge of excremental matters can be made only in tight pipes placed inside of the large sewers, and carried far enough to reach sewers which do meet the prescribed conditions.

MAINTENANCE AND CLEANSING OF THE SEWERS.

ART. 23. Flushing wagons carried on rails may be established in 7,600 metres of the old sewers which now receive much sand.

ART. 24. The angles of all inverts should be rounded.

ART. 25. It will be necessary to increase the size, or to reconstruct old sewers to a length of about 10,000 metres. The inclination of their inverts will be increased for about 8,000 metres.

ART. 26. To insure the cleansing of the sewers, independently of the water admitted at the inlets and such as comes from habitations, there will be established a system of flushing by means of reservoirs discharging ten cubic metres of water, placed at the head of each sewer, and at maximum intervals of 250 metres along its course.

These reservoirs will be emptied instantaneously once or twice each twenty-four hours.

Gangs of workmen will follow the movement of the water discharged to cause deposited matters which remain attached to the walls of the sewer to be carried on with the flow.

The length of the sewers in which this mode of cleansing by flush-tanks may be employed is about 424,000 metres.

ART. 27. There will be established in the collecting sewers a certain number of sand-boxes (fifteen at the outside) in such a way that the cleaning boats or wagons may secure the removal of these matters with a delay of not more than twenty-four hours.

ART. 28. Movable catch-basins will be established at the inlets of sewers under paved streets, or others which discharge sand, manure or heavy matters into the sewers. The number of these catch-basins is estimated at two thousand.

ART. 29. The central system of collectors will be so completed as to relieve the collectors of the Coteaux and of Clichy, and to provide a discharging capacity of 400,000 cubic metres per day.

ART. 30. The waters of the lower parts of Grenelle, of Bercy and of the Thirteenth Arrondissement of Paris will be discharged into the collectors.

ART. 31. There will be established at the outlet of the collector at Clichy flood-gates and movable dams to prevent the reflux of the waters of the Seine in time of flood. The flow of the waters of the collector will then be assured by modifying the pumps at Clichy, so that they may raise and throw these waters into the Seine to the amount of 600,000 cubic metres per twenty-four hours.

PURIFICATION OF SEWAGE WATER.

ART. 32. The waters of the sewers of Paris, taken in their present condition, that is to say, containing a large proportion of excremental matters, can be subjected to processes of purification by the soil without danger to the public health.

ART. 33. It is proper to ask the Government to take the measures necessary to interdict the discharge of impure waters into the course of the Seine and of the Marne in their passage through the two departments of the Seine and Seine-et-Oise.

ART. 34. A study will be immediately undertaken as to the purification of the waters of the departmental collectors of the Seine and of the sewers of Paris, which will be connected with them by the irrigation of the plains bordering the river above Paris.

[1] Continued from page 79, No. 399.
[2] A gallery running from the sewer to the line of property.

On the 31st of July the Municipal Council of Paris appropriated 50,000 francs for the construction of Waring's system of sewerage in the Rue du Temple, and for the drainage, under his direction, of the public buildings adjoining. This improvement will be completed this season, the work being done by the Drainage Construction Company, of Boston.

THE PROTECTION OF THE MONUMENTS OF CAIRO.

A TOMBSTONE, AT CONSTANTINOPLE

AMONG the minor questions which Lord Dufferin has wisely included in his general revision of Egyptian affairs, the protection of the monuments of Cairo deservedly holds a prominent position. It is known, says a writer in the *Times*, that His Excellency has already suggested to the Khedive's Government a scheme for their better preservation, and that the scheme will probably embrace alike the ancient monuments of the Nile valley and the mediæval architecture of Cairo.

This comprehensive view is clearly the simplest and wisest mode of dealing with the historical and artistic interests of Egypt; but it is the first time that the Arab monuments have been held worthy of a place beside the remains of ancient Egyptian art. The monuments of the Pharaohs and Ptolemies have naturally excited the greater interest, and have been proportionately better cared for. Till late years, however, this care has been altogether inadequate. Tourists have been suffered to chip off

pieces of inscriptions and statues, and to blacken the sculptured walls of tombs with their ruthless candles and torches; and even the leading explorers and scholars have joined in the work of spoliation, and thought more of enriching the museums of their own countries than of the lamentable gaps they left in Egypt itself. Even now, though M. Maspéro is as vigilant and single-minded as could be desired, his staff and his powers are not sufficient adequately to control the vandalism of travellers. To lovers of the ancient monuments, therefore, Lord Dufferin's proposal of an archæological police will be very welcome. But to students of Arab art his reforms will seem even more important. The mediæval buildings of Cairo have in recent times suffered infinitely worse treatment than the ancient temples and tombs. They are built, and often very badly built, of perishable materials; some of their finest decoration is in stucco and wood, while that of ancient Egypt is carved in limestone and granite. Thus, with Arab art, the agency of natural decay was added to the neglect and wanton destruction of man. Nothing but constant and skilful repairs could have preserved the monuments of Cairo in their original perfection, though it may be doubted whether any skill could have resisted the action of time upon many of their most beautiful and delicate decorations. The attempt, however, was not made, for the funds with which they were endowed by their pious founders were confiscated early in this century by Mohammed Ali, and since then no one has shown himself inclined to keep up at his own expense monuments which were dedicated to the memory of some one else. It is very probable that the endowments were misappropriated before their confiscation by Mohammed Ali, and it is certain that the present deplorable condition of most of the mosques presupposes centuries of neglect and indifference. The pious zeal or personal vanity which prompted their erection evidently died with their founders, and subsequent generations preferred building new monuments in their own honor to preserving those which were erected in honor of their ancestors. It is the way with all Eastern architectural ambition. Whatever the cause of the present state of the monuments of Cairo, the result is the same. Whatever is to be done now will be done at least a century too late. It is now impossible to restore the mosques and the other exquisite vestiges of the Mameluke era to their pristine beauty, and most of the rich decoration of the interiors is gone forever. They have been allowed to travel too far on the road to destruction. All that can now be done is to preserve them in their present condition as long as possible with the help of every resource of science; to repair such portions as admit of being repaired, while allowing no rash restoration; and to copy, cast, squeeze, photograph, and survey them while they yet stand, and thus preserve their plans and decorations in some form or another before the originals, in the natural course of things, built for a time and not for ever, gradually decay and disappear. If Lord Dufferin can attain this much he will have performed an immense service to art. When it is stated that there are now in Cairo 315 large mosques, 191 chapels, 294 sacred tombs, 200 *sebîls*, or fountains, 35 mosque schools, and 18 hospices, to say nothing of the noble monuments comprised in the extra-mural cemeteries of Kaït Bey and the Kerâfeh (called by Europeans "Tombs of the Khalifs" and "Tombs of the Mamelukes"); that these thousand monuments represent what is vaguely termed Arab art in its purest form, free alike from the excessive elaboration of the Alhambra, and from the grotesque forms and ornamentation of India; that they trace the history of this purest form of Arab art from its early phase (omitting the nondescript mosque of Amr) under Ibn Tulûn in the ninth century of our era, through the characteristic epochs of the Fatimite Khalifs and of Saladin, to the golden age of the Mameluke Sultans and the prince of Cairene builders, Kaït Bey, in the fifteenth century, and then through its gradual decay, under Turkish rule, to the monstrosities of the present century — it will be realized that the preservation of so continuous a series of monuments must be an unspeakable gain to students of art. How beautiful and unique these monuments are those who have visited Cairo repeatedly and for long periods can alone appreciate. There is but one voice among artists and archæologists as to the imperative necessity of preserving them.

It is fair to say that this necessity has of late years been recognized by the Egyptian Government. A commission was appointed at the end of 1881 for the special purpose of protecting these monuments, and it includes the names of such well-known admirers of Arab art as Rogers, Artin, and Franz Beys, and MM. Bourgoing and Baudry, besides the Minister of Vakoufs and other officials. Its work was interrupted after a preliminary meeting, by the late troubles, but it has since resumed its functions with renewed zeal. There appears to be some misconception in England as to the character and work of this "Commission for the Preservation of the Arab Monuments of Cairo." It has been insinuated that the Commission is not only inoperative, but that it is positively in league with the destroyers of monuments. Recent reports from Egypt, however, tend to show that such suspicions are wholly without foundation. The Commission is working hard, and working in a scientific and intelligent manner. It has appointed two sub-committees, one of which is entrusted with the task of drawing up a complete inventory of the Arab monuments (and has already registered between seven and eight hundred of them), while the other is instructed to visit the various mosques, tombs, fountains, etc., which upon information received, appear to be most urgently in need of attention, to report upon their condition and recommend the proper steps to be taken for their preservation. Once a week this sub-committee makes an official tour of inspection, visits a series of monuments, decides whether they are capable of preservation or not, and in the former case reports on the best means of preserving them. If a monument is so wholly ruined that preservation would be both useless and impossible, the Commission removes any fragments of tracery or mosaic, or other objects of interest that may be found among the ruins, to the new Museum of Arab Art, which is being formed in the eastern cloister of the mosque of El-Hâkim, where already a goodly collection of fine specimens of wood-carving, brass and silver-work, mosaics, tiles, enamelled-glass lamps, bronze-plated doors, colored glass and stucco windows, etc., has already been brought together. The recommendations of the sub-committee are not only sent in, but carried into effect; and, with a view to public criticism and surveillance the reports are regularly published by Rogers Bey in the *Moniteur Egyptien*. Every monument which the sub-committee has decided to be worth preserving is forthwith in general committee declared "an historical monument," and from that moment forward no power can touch it, no new road can be opened through it, and no surveyor can dock it to suit the prevailing notion of regulated street frontages. In accordance with the recommendations of the sub-committee, falling walls, arches and towers are propped up with buttresses or beams, ruined gateways are repaired, modern encroachments on monuments are cleared away, and scattered fragments of ruined monuments are taken to the Museum of El-Hâkim. Not only are the known monuments cared for, but others previously unsuspected are discovered in the official tours of inspection. Only last month the sub-committee unearthed the family tomb of the Abbaside Khalifs of Egypt, and every inspection brings to light something novel and interesting to the student of Arab art and the history of mediæval Egypt. Whatever is thus discovered is at once recorded and described in the archives of the Commission; but while every precaution is taken to identify, preserve and record the historical and architectural monuments of Cairo, no attempt is made at restoration. Those who know what restoration means in Cairo will appreciate at its full value this prudent reserve.

Here, then, we see at last the beginning of a proper treatment of the Arab monuments. Thanks chiefly to the energy, learning, and zeal of Rogers Bey, the Commission is working well and on the right lines. Lord Dufferin has here an instrument ready to his hand, and his efforts will doubtless be directed chiefly to strengthening the hands of the Commission. He is well aware that to be effectual the Commission needs to be furnished with additional powers. For example, it can declare a building an historical monument, and thereby protect it from all direct attacks; but its power does not extend to indirect aggression. Many mosques depend for support to some extent upon the surrounding houses, and the demolition of a house over which the Commission has no control may result in the destruction of the mosque. The prime agent in such demolitions is the present code of urban regulations by which the width of streets is fixed at so many metres, while a level frontage is required at the cost of every building that projects too far into the street. Whatever is supposed to interfere with the rapid passage of the two-horse open cabs with which Cairo is now infested must be swept away, according to the present tasteless system. The city is full of evidences of the havoc wrought by this *alignement* regulation, and if it is not immediately checked the injury done to many of the finest monuments will be irreparable. Lord Dufferin's first step should be to limit the power of the Minister of Works in the matter of this *tanzîm*, or street straightening, and to give the Commission power to prevent indirect as well as direct injuries to the monuments. The members of the Commission need no instruction in the importance both of registering and of propping up, and otherwise preserving the Arab monuments; these are their chief aims at present, and they are pursuing them with success; but besides these there are other points to which their attention will probably be directed. One of these is the appointment of a trustworthy body of guardians for the monuments — an archæological police, who, unlike the present *bowwâbs*, should be above the influence of baksheesh at the hands of depredating travellers, and who should receive fixed salaries and charge fixed entrance fees, which should be self-registering. Another important point is proper representation of the monuments by means of surveys, drawings, photographs, casts, etc., while yet such preservation is possible, so that any monument could be accurately reproduced from the data thus recorded. A third point is the organization of the Museum of Arab Art, and the appointment of a competent curator, who should be able to inaugurate a school of Arab design. It must be added, however, that, considering that the museum is quite in its infancy, the Commission has effected a great deal of admirable work in it in an amazingly short time.

One very serious condition remains. The members of the Commission are for the most part busy men, with enough official work to do without their honorary services on the Commission; if the powers and functions of the Commission are increased, it is not easy to see how the members can find time to exercise them. What is wanted is a body of men who can give their undivided attention to the work which has been so ably begun. Of all countries in the world Egypt would appear to be the one in which a Ministry of Fine Arts would be most obvious and appropriate, and there is no reason why the creation of such a department should throw much additional expense on the Treasury. It would only be necessary to make the Director of Archæological Research and head of the Boulak Museum one and the same person with the Minister of Fine Arts,

appoint an under-secretary for Arab art, and establish a competent staff of surveyors, inspectors, and clerks. By levying a fixed entrance fee on all visitors to public monuments, ancient and mediæval, the cost of administration would easily be repaid; real students of Egyptian and Arab art would gladly submit to the imposition of an extra charge, and tourists would be indifferent to a small increase in the national custom of baksheesh. A Ministry of Fine Arts, holding control over all the monuments of Egypt, would meet every requirement, provided the staff were mainly European and properly trained, and there are already enough students of ancient and mediæval Egyptian art to remove all doubt on that score. If such a ministry does not form part of Lord Dufferin's scheme, it may at least be hoped that his scheme will lead up to it in the future. — *The Architect.*

THE DECECO WATER-CLOSET. — A CORRECTION.

Newport, R. I., August 18, 1883.

To the Editors of the American Architect: —

Sirs,— On page 76 you publish a cut and a description of the "Dececo" closet, which you erroneously call "Waring's Siphon Closet." These are hardly exact.

1. The closet is *not* set over a second trap, which is placed below the floor.

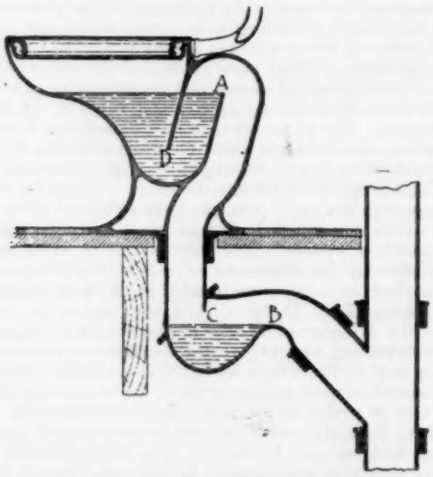
2. There is a "weir" (generally open), but no "lower trap."

3. The comment as to the rising of the water in the bowl would have applied to the earlier form of this closet; it does not apply to the present form. The amount of water required to discharge the bowl is not "excessive." A single gallon is more than enough for this, but more than one gallon should be discharged at each use of any water-closet.

4. The weir below the floor is no more like the "objectionable D-trap" than a cube of chalk is like a cube of cheese. They have similar shapes, but very different functions.

5. The "vent-pipe" *can* be used for the protection of the trap of this closet as well as that of any other.

With these exceptions the description is correct. I enclose an accurate drawing, with a description of the mode of operation, which I beg you to publish.



When water is discharged into the bowl it overflows at A. If the quantity is sufficient it cannot escape at B without rising so high as to close the opening at C. This prevents air from entering the siphon; the air already there is carried out by the current of water, and the bowl is emptied by a rapid siphon action.

As soon as the water in the bowl descends to D air follows it and "breaks" the siphon. Then the contents of the weir-chamber fall below C, and the siphon is again filled with air. The slow stream of the "after-wash" fills the bowl for the next use.

Each discharge of the closet produces a rapid and thoroughly cleansing current through the weir-chamber B C.

Respectfully yours, Geo. E. Waring, Jr.

TRAPPING KITCHEN-SINK WASTES.

Cleveland, O., August 27, 1883.

To the Editors of the American Architect: —

Gentlemen,—I have found several conflicting opinions as to what is the best way to take waste-water from a kitchen-sink. In Chicago it seems to be generally the custom to put simply a running or S trap directly under the sink, continuing the 1½″ or 2″ pipe to a catch-basin three feet in diameter, built of brick, outside the house, and from that into the main sewer, etc. Here, in Cleveland, one plumber says he always puts in simply a Bower trap directly under the sink; another that he invariably uses an 8″ x 12″ bottle grease-trap of lead, etc., etc., so that it is plain to see that plumbers, like other "doctors," disagree, and I wish you would be kind enough to decide it for me in the next issue of the *American Architect*, and greatly oblige,

Yours respectfully, Inquirer.

[The question of kitchen-sink traps is a much-vexed one everywhere. We are ourselves still open to conviction, but with a small family, not much addicted to throwing grease and greasy water down the sink, we prefer to use a large ventilated bottle-trap under the sink. The grease seems to remain in this long enough to congeal slightly, forming crusts, which afterwards break up and pass away through the outlet in small lumps. If the drain beyond has a good fall, a great deal of the household grease may thus pass through it without any tendency to clog it up. Such round traps will often run for several years without being clogged with grease, and if they should become stopped, a hot concentrated solution of caustic potash will generally clear them so that they can be used until an opportunity offers for taking out the trap-screw and putting the trap in thorough order. With the S-trap and outside grease-trap, the latter, especially if of brick, gradually collects an immense amount of putrescent grease and sediment, which makes its cleansing a very offensive operation. The Bower trap we should be inclined to use anywhere rather than under a kitchen sink. For such a purpose it combines in some degree the disadvantages of both the others, and has one of its own, that the rubber of the floating ball is injured by the grease. It is only fair to say that the opinion of most sanitary engineers differs from ours in this matter, the rule with them being to employ the S-trap and outside catch-basin, so that we offer our own with some diffidence.—Eds. American Architect.]

NOTES AND CLIPPINGS.

One Cause of Defective Foundations.—Brine Pumping.— The continual pumping of brine, which has now been going on for so many years in the Cheshire (Eng.) salt district, and which in past times has led to such deplorable consequences, has just resulted in another subsidence, not of land, but of water. At Dunkirk, near Norwich, and consequently in the centre of the salt industry, a brook was suddenly observed to be flowing backward, and it soon became evident that its waters and those of an adjoining lake were being swallowed up into some large cavities formed in the rock-salt below. No immediate danger has resulted, but it is feared that the great influx of water will melt the rock-salt, and so lead to serious subsidences in the near future. Many attempts have been made by owners of property in this district to urge upon the Government the advisability of stopping the brine-pumping, which is having such ruinous results, but hitherto without success.— *Exchange.*

Deep-Sea Light-Houses.—A leading English journal endorses a plan recently formed by an English engineer for founding "deep-sea light-houses" as a "hopeful scheme, which, if carried out, will fulfil a want that has long been acknowledged." As explained to the London Society of Engineers this plan proposes the construction of a hollow cylinder of riveted iron-work, two hundred and ninety feet long, to consist of two sections — the upper part to be one hundred and forty feet long, destined to rear its head above the waves and fitted as an ordinary light-house, while the remaining portion of the tube is to be ballasted so as to sink below the water-line, and counteract the force of wind and waves on the exposed part. The whole apparatus is to be anchored in deep water by heavy steel cables. The inventor claims that it would be easy to tow such a structure to the spot selected for it, and then, by admitting water to the lower section, it would assume an upright position and ride the waves like a bottle. The practical use which this is intended to serve is to give notice of approaching storms by means of telegraphic connection with the shore. It is believed to be practical to found a floating telegraph station, say one thousand miles from the coast of England in mid-ocean, from which comings of approaching storms could be given at least twenty-four hours before their arrival.

Utilizing Ashes. — Mr. J. A. Shinn has obtained a patent for the use of ashes in making mortar. It has been found that the fine portion of domestic ashes is capable of being converted, with a small proportion of lime, into a mortar having, when a month old, a tensile strength of from four to five times that of common sand-and-lime mortar, or about 80 pounds per square inch. Sand-mortar a month old has a tensile strength of 20 pounds. Ashes and lime mixed as béton, gives a tensile strength of 140 pounds and a crushing strength of over 1100 pounds per square inch. It will thus be seen that, by utilizing the ashes for mortar, a large part of the expense of removal could be saved, together with the whole cost of procuring sand for that purpose, and, at the same time, a very superior article of mortar be produced. In consequence of the small quantity of lime required (ten per cent.), it would be necessary to mix the mortar by machinery at a mill and deliver it ready for use. This practice prevails to a great extent in European cities on account of the superiority of milled over hand-made mortar. Ash-mortar has the additional advantages of resisting the action of water as soon as it has set (in from two to three days), and also the combined action of fire and water, the quantity of lime being so small and the chemical union with the ash so complete that the application of heat does not produce free oxide of lime, as in the case of sand-mortar, and consequently does not swell when water is applied to the heated mortar. The weight of ash-mortar is about one-half that of sand-mortar when both are dry, and it works soft and smooth. Ash-mortar forms, when set, a silicate of lime and alumina, and hardens uniformly throughout, like cement; while sand-mortar, when set, is but an imperfect carbonate of lime, the sand furnishing the nucleus around which the carbonate forms. Ashes made under steam-boilers, or in other fires where a high degree of heat is maintained, are not suitable for mortar, owing to the chemical change which takes place in the fire, the finest part of such ash, that found behind the bridge-wall of the boiler, being found to be of the same nature as the coarse clinker, having no special affinity for lime, and being only fit for combination with cement or plaster. — *Metal Worker.*

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.]

283,755. FIRE-ESCAPE. — George A. Clapp, Quincy, Mass.

283,756. STEAM-GENERATOR. — Wm. Cooper, Chicago, Ill.

283,758. BRICK-MOULD.—Alexander F. Crowe, Emporia, Kan.

283,770. PRESSER-FOOT DOOR-OPENER. — George L. Geiger, Philadelphia, Pa.

283,776. LOCK. — Frank Augustus Guthrie, Gallipolis, Ohio.

283,789. FIRE-PROOF MATERIAL FOR FILLING SAFES, DOORS, ETC. — George Kelly, Chicago, Ill.

283,831. ELEVATOR. — George Burder Thayer, Boston, Mass.

283,833. COMBINED CUTTING-PLIERS AND PUNCH. — John Thomson, Hartford, Conn.

283,844. BIT-STOCK. — Charles H. Amidon, Buffalo, N. Y.

283,892. EAVES-TROUGH HANGER. — Clinton D. Hyre, Lexington, Ill.

283,896. SASH-FASTENER. — Eleazer Kempshall, New Britain, Conn.

283,908. ROOF-SCAFFOLDING. — Aaron R. Manly, San José, Cal.

283,913. SKYLIGHT. — James McIntyre, Boston, Mass.

283,929. MACHINE FOR SAWING STONE. — David Shortsleeve, Rutland, Vt.

283,941. WINDOW-BLIND. — Joseph Williams, San José, Cal.

283,946. SASH-BALANCE. — George Wilt Arnold, Knoxville, Ill.

283,953. HEATING-STOVE. — H. Clay Bascom, Troy, N. Y.

283,961. FIRE-ESCAPE. — Henry E. Braunfeld, Philadelphia, Pa.

283,968. FIRE-ESCAPE. — Henry B. Church, Grand Rapids, Mich.

283,969. FIRE-ESCAPE. — George H. Clowes and Edward L. Frisbie, Jr., Waterbury, Conn.

283,987. SIPHON-FAUCET. — Norton A. Ellis, Boonesborough, Iowa.

283,996. ART OF EXTINGUISHING FIRES. — Charles Lyman Garfield, Albany, N. Y.

284,008. STOP-HINGE. — Theodore M. Hass, New York, N. Y.

284,012. BURGLAR-ALARM. — Frederick D. Hill, New York, N. Y.

284,015. WRENCH. — Isaac Q. Holmes, Clarksville, Ark.

284,016. WATER-CLOSET. — James L. Howard and Charles P. Howard, Hartford, Conn.

284,038. SAWING-MACHINE. — George McCoy, New Dungeness, Wash. Ter.

284,045. JOINT FOR DIVIDERS AND CALIPERS. — Charles Morrill, New York, N. Y.

284,046. FASTENER FOR THE MEETING-RAILS OF SASHES. — Charles Morrill, New York, N. Y.

284,055. COMPOSITION OF MATTER FOR FIRE AND WATER PROOF COVERING FOR ROOFS AND WALLS, ETC. — Robert J. Pattison, New York, N. Y.

284,076. SOCKET-WRENCH. — Albert P. Searles, Mount Kisco, N. Y.

284,082. LIGHTNING-CONDUCTOR. — Henry W. Spang, Reading, Pa.

284,088. FIRE-ESCAPE. — John G. Thomas, Newark, O.

284,106. APPARATUS FOR UTILIZING THE WASTE HEAT OF STOVE-PIPES AND CHIMNEYS. — Hiram M. Wheeler, Smithson, Ind.

284,117. WINDOW-GRATING. — Lewis N. Byar, Pottstown, Pa.

284,140. APPARATUS FOR VENTILATING, HEATING, AND COOLING BUILDINGS. — Thomas McGrory, Philadelphia, Pa.

10,377 (*Reissue*). WATER-CLOSET. — George Milne and William H. Gants, San Francisco, Cal.

SUMMARY OF THE WEEK.

Baltimore.

DWELLINGS. — Thomas Dixon, architect, is preparing plans for Messrs. Wilson & Hunting, Mr. Hubner, Mr. Hanway, and others, for a block of 17 three-st'y houses, each 18′ 9″ x 60′, to be built on an avenue fronting Druid Hill Park, some of which will be of brick and Ohio sandstone finish, and the others of serpentine stone, to cost $3,500 each.

LIBRARIES. — Chas. L. Carson, architect, has prepared plans for 2 one-st'y branch libraries of the Enoch Pratt Free Library, each 40′ x 80′, to be built on the cor. of Calhoun and Hollins and Fremont and Pitcher Sts., respectively. They will be built of brick, with stone and terra-cotta finish, and cost $10,000 each; J. F. Adams, builder.

BUILDING PERMITS. — Since our last report sixteen permits have been granted, the more important of which are the following: —

Buck & Jackson, 12 three-st'y brick buildings, Mosher St., between Carey St. and Carrollton Ave.

E. W. Haveland, 5 three-st'y brick buildings, w s Gilmor St., s of Presstman St.; and 4 two-st'y brick buildings, e s Vincent Alley, in rear of above.

John D. Fries, two-st'y brick building, s e cor. Canton Ave. and Regester St.

Blanch Bros., 5 two-st'y brick buildings, e s Patterson Park Ave., between Monument and McElderry Sts.

Alex. Kratz, two-st'y brick stable, in rear of No. 3 Bond St., e s, between Baltimore and Hampstead Sts.

Boston.

SCHOOL-HOUSE. — The city committee on public buildings has opened proposals for an addition to the primary school-house at Harbor View, south Boston. The bids were: Hamilton & Parks, $12,300; John French, $12,199; Joseph Hammond, $13,480; S. & H. Ames, $13,462; E. A. McKay, $12,659; John Ransom, $11,680; J. B. Wilson, $11,859; McNeil Bros., $12,200. The contract was awarded to John Ransom.

BUILDING PERMITS. — *Wood.* — *Wheatland Ave.*, near Whitford St., Ward 24, for Alonzo C. H. Laws, dwell., 28′ x 30′, two-st'y hip; Alonzo C. H. Laws.

Terrace Ave., near Food St., Ward 1, for Eben Brown, dwell., 26′ x 27′, two-st'y hip.

Albany St., near East Chester Park, Ward 20, for E. A. Remick, coal office, 18′ x 20′, one-st'y pitch.

Mather St., near Dorchester Ave., Ward 24, for N. H. Whittemore, dwell., 9′ 11″ x 23′ 6″, 26′ x 33′, 14′ 5″ x 18′ 6″, two-st'y hip.

Holmes Pl., near Mill St., Ward 24, for Thomas Knapp, dwell., 14′ x 14′, 22′ x 30′, two-st'y pitch; E. H. Hubbard.

Maywood St., near Blue Hill Ave., Ward 21, for Michael Leonard, 2 dwells., 20′ x 38′, three-st'y flat.

Elmo St., near Erie Ave., Ward 24, for David Simonds, 2 dwells., 22′ x 54′, three-st'y pitch.

Church St., near Mt. Vernon St., Ward 25, for Ellen M. Skehan, 2 dwells., 20′ x 30′, two-st'y pitch; Wm. McArthur.

Cambridge St., cor. Brighton St., Ward 4, for H. M. Ayer, store, 20′ x 25′, one-st'y flat; T. C. Woodworth.

Border St., No. 238, Ward 1, for John S. Weeks, storage of iron, 16′ x 18′, one-st'y pitch; Frame & Patten.

Bailey St., near Washington St., Ward 24, for Clark Bros. & Co., 2 dwells., 13′ x 14′, 17′ x 26′ 2″, two-st'y pitch; Alden B. Beal.

Brooklyn.

BUILDING PERMITS. — *Hancock St.*, n s, 270′ w Marcy Ave., three-st'y brownstone front dwells., tin roof; cost, each, $8,000; owner and builder, P. Brady, 885 Pacific St.; architect, M. J. Morrill; mason, not selected.

Richards St., e s, 750′ e Elizabeth St., four-st'y brick storage warehouse, gravel roof; cost, $20,000; owners, Beard & Robinson, Erie Basin; architect and builder, H. Turner; mason, J. C. Heavey.

Third Ave., e s, 75′ 2″ n Thirty-second St., three-st'y brick store and tenement, tin roof; cost, $3,500; owner and builder, Jas. McWalters, 692 Third Ave.; architect, W. H. Wirth.

Central Ave., e s, 55′ n Prospect St., three-st'y frame double tenement, tin roof; cost, $4,300; owner, Jos. Wendel, Central Ave., cor. Prospect St.; architect, G. Hillenbrand; builders, W. Rauth and J. Rueger.

Elm St., No. 61, n w cor. Myrtle Ave., three-st'y frame store and tenement, gravel roof; cost, $5,000; owner, Paul Arndt, 1246 Myrtle Ave.; architect, J. W. Heustis; builders, J. Bayer and P. Scheu.

Atlantic Ave., s s, 166′ e Rockaway Ave., 2 three-st'y frame dwells., gravel roof; cost, each, $1,700; owner, architect and builder, Darius C. Davison, 125 Sumner Ave.

Fifth Ave., s e cor. Eleventh St., four-st'y brick store and tenement, tin roof; cost, $6,000; owner, Ira W. Kimball, Ninth St., cor. Fifth Ave.

Central Ave., n e cor. Magnolia St., three-st'y frame store and tenement, tin roof; cost, $4,395; owner, George Bork, 307 East Ninth St., New York City; architect, F. Holmberg.

Jefferson St., s s, 90′ w Throop Ave., 5 two-st'y brownstone front dwells., tin roofs; cost, each, $4,500; owner and builder, Wm. Reynolds, 686 Madison St.; architect, I. D. Reynolds.

Stuyvesant Ave., n e cor. Van Buren St., three-st'y brick store and tenement, tin roof: cost, $6,500; owner and architect, Wm. Godfrey, 139 Stuyvesant Ave.

Lafayette Ave., n s, 118′ 10″ e Sumner Ave., 3 two-st'y brownstone front dwells., tin roofs; owner, Chas. J. De Bevoise, 104 Debevoise Ave.

Congress St., Nos. 203 *and* 205, n s, 175′ e Clinton St., 3 two-st'y brick dwells., tin roofs; cost, each, $6,300; owner, Wm. Patterson, Congress St.; architect, F. E. Lockwood; builders, T. J. Nash and Morris & Selover.

Chicago.

HOUSES. — Treat & Folz have completed plans for the two-st'y dwell. on Pearson St., in the North Division, for Charles B. Farwell, to cost $90,000.

John M. Van Osdel, architect, has plans ready for three-st'y dwell. in the North Division, on Dearborn Ave., for James M. Adsit, to cost $.5,000.

Conrad Seipp will build 3 three-st'y dwells., on Cottage Grove Ave., to cost $15,000; Cudell & Blumenthal are the architects.

Treat & Folz, architects, have plans ready for three-st'y dwell., for Mr. James A. Hunt, to be built on Delaware Place, at a cost of $10,000.

W. W. Boyington, architect, has completed plans for a two-st'y dwell. on South Ashland Ave., for Charles H. Case, to cost $25,000.

J. W. Ackerman is the architect for 2 two-st'y dwells., to be erected on South Park Ave., for H. W. Chase, to cost $12,000.

P. M. Almini will build two-st'y dwell. on Michigan Ave., to cost $10,000; S. S. Bemen is the architect.

Blumenthal & Cudell are architects for three-st'y dwell. for Geo. Kleinhaus, on North Wells St., to cost $7,000.

OFFICE-BUILDING. — Wheelock & Clay are architects for the six-st'y office-building, 100′ x 105′, on Pacific Ave., near Van Buren St., for the Open Board of Trade, to cost $130,000.

STORE. — W. C. Grant is building a five-st'y store, Nos. 9 to 13 Adams St., to cost $20,000; Holabird & Roche are the architects.

WAREHOUSE AND FACTORY. — F. Baumann is the architect for the three-st'y warehouse and factory to be built for F. O. Swannell, at a cost of $17,500.

BUILDING PERMITS. — W. A. Hanson, two-st'y and basement dwell., 102 Larrabee St.; cost, $5,000; builder, M. Zebrick.

John Hausberger, three-st'y and basement flats, 3029 South Park Ave.; cost, $5,000; architect, J. Marr; builder, A. Miller.

V. Karnold, two-st'y and basement dwell., 498 West Twentieth St.; cost, $3,600.

L. Kracht, three-st'y flats, 243 Bissill St.; cost, $4,500.

M. Klossen, two-st'y dwell., 31 Tell Court; cost, $4,500; architect, A. F. B.; builder, B. Ebregshauser.

Storey & Clark, three-st'y and basement warehouse, 1349 State St.; cost, $6,000; architect, J. C. Miller; builder, Thos. Wells.

George Wimmer, three-st'y dwell., 139 Lincoln Ave.; cost, $5,000; architect, F. Keltenich; builder, Wm. Hoft.

H. W. Chase, 2 two-st'y and basement dwells., 3222 -3224 South Park Ave.; cost, $12,000; architect, J. W. Ackerman; builder, John M. Dunphy.

C. H. Case, two-st'y and basement dwell., 201 Ashland Ave.; cost, $25,000; architect, W. W. Boyington.

P. M. Almini, two-st'y dwell., 1419 Michigan Ave.; cost, $10,000; architect, S. S. Bemen; builder, M. B. Bushnell.

J. C. Scheel, two-st'y dwell., 894 West Adams St.; cost, $5,000; architect, Wm. Strippleman; builder, George Lehrian.

C. B. Wilson, 4 two-st'y dwells., West Congress St.; cost, $8,000; architect, C. B. Wilson; builder, Geo. Lehman.

C. B. Farwell, two-st'y and basement dwell., 95 Pearson St.; cost, $90,000; architects, Treat & Folz.

C. Lehmann, two-st'y and basement dwell., 33 Coventry St.; cost, $3,500.

A. Luetgert, two-st'y factory, 69 and 71 North Ave.; cost, $3,000.

F. O. Swannell, three-st'y and basement warehouse and factory, Division St., cor. Hawthorn St.; cost, $17,500; architect, F. Baumann; builders, Moss & Chambers.

Mrs. J. C. Sternberger, three-st'y and basement store and dwell., 2801 Dashiel St.; cost, $3,000; architect, Wm. Strippleman; builder, J. B. McKay.

T. McNulty, two-st'y and basement dwell., 151 Sedgwick St.; cost, $4,500; architect, John Otto; builder, C. Loring.

C. M. J. Farson, three-st'y and basement store and flats, 3741 Cottage Grove Ave.; cost, $7,500; architect, F. R. Schock.

J. Kennally, three-st'y and basement store and dwell., 149 Milton Ave.; cost, $5,000; architect, John Otto; builder, Fagerlund.

Conrad Seipp, 3 three-st'y and basement dwells., Cottage Grove Ave., cor. Thirtieth St.; cost, $15,000; architects, Cudell & Blumenthal; builder, Henry Appel.

W. H. Lord, two-st'y and basement shop, 73 Hubbard St.; cost, $5,000; architect, Henry Clark; builder, Wm. Zuelsdorff.

James A. Hunt, three-st'y dwell., 21 Delaware Pl.; cost, $10,000; architects, Treat & Folz; builder, Geo. Fries.

J. Kohn, two-st'y dwell., 505 North Paulina St.; cost, $3,500.

Albert Ness, two-st'y and basement dwell., 156 Sedgwick St.; cost, $6,000; architect, John Otto.

James M. Adsit, three-st'y and basement dwell. and barn, 400 Dearborn Ave.; cost, $25,000; architect, John M. Van Osdel.

Dreffein Bros., three-st'y dwell., 237 Rumsey St.; cost, $6,000; architect, H. Kley; builder, Martin Lass.

W. C. Grant, five-st'y store, 9 to 13 Adams St.; cost, $20,000; architects, Holabird & Roche.

F. Salinsky, two-st'y and basement dwell., 737 West Seventeenth St.; cost, $4,500.

Martin Kullas, two-st'y dwell., 716 Holt St.; cost, $4,500.

A. Shutler, two-st'y store and dwell., 336 Twenty-ninth St.; cost, $3,300.

O. E. Wolff, 2 four-st'y and basement store and flats, 857 and 859 Clybourne Ave.; cost, $10,000.

A. McNicholas, two-st'y dwell., 51 Ashley St.; cost, $3,000; architect, J. H. Alexander; builder, D. Hayes.

Open Board of Trade, six-st'y and basement office-building, Pacific Ave.; architects, Wheelock & Clay; builder, Wm. E. Wheeler; cost, $130,000.

C. Schoenhuette, two-st'y dwell., 194 Augusta St.; cost, $3,000.

Geo. Kleinhaus, three-st'y dwell., 485 Wells St.; cost, $7,000; architects, Blumenthal & Cudell; builder, Chas. Thiele.

W. Batcheller, two-st'y livery-stable, 3438 and 3440 Forest Ave.; cost, $9,000; architect, A. D. Hinsdale; builder, J. S. Price.

The Green Estate, 2 two-st'y and basement flats, 450 and 452 Thirty-seventh St.; cost, $12,000.

Cincinnati.

HOUSES. — Geo. W. Rapp, architect, has prepared plans of two-and-a-half-st'y frame dwell. for Albert Schwill, Mt. Tusculum Pl.; cost, $10,000.

Also for a two-and-a-half-st'y frame dwell., for Chas. Wittstein, Kemper Lane, Walnut Hills; cost, $6,298.

Also, altering brick dwell. of Dr. Schneider, s w cor. Ninth and Vine Sts.; cost, $9,500.

BUILDING PERMITS. — F. Hamann, four-st'y brick building, Liberty St., near Main St.; cost, $4,000.

Henry Dietrick, two-and-a-half-st'y brick building, s s Corry St., near Vine St.; cost, $6,300.

Frederick Werner, two-and-a-half st'y brick building, n s Clark St., between Cutter and Linn Sts.; cost, $4,060.

George Bover, 2 two-st'y brick buildings, s s Moliter St., near Eden St.; cost, $9,000.

Edwin C. Kramer, two-st'y brick building, Moliter St.; cost, $4,500.

Fred. Fricker, two-and-a-half-st'y brick building, s e cor. Eighth St. and Summit Ave.; cost, $6,000.

Benj. A. Hunt, 3 two-st'y brick buildings, s s Chase St., near Langland St.; cost, $9,600.

Repairs for week, $24,537.

New York.

HOUSES. — On the n e cor. of Tenth Ave. and Seventy-third St., four houses, 18' x 55' each, first-st'y brownstone, above Philadelphia brick, are to be built from designs of Messrs. D. & J. Jardine.

A flat, 28' x 72', is to be built on the corner, of same materials, the total cost being about $82,000.

TENEMENT. — For Mr. Jno. B. Haskin, a four-st'y tenement-house, 25' x 65', is to be built on the north side of One Hundred and Twenty-first St., 100' w of Pleasant Ave.

BUILDING PERMITS. — *Boston Ave.*, e s, 300' n Ann St., one-st'y frame ice-house, gravel roof; cost, $3,000; owner, Geo. Keller, West Farms; architect and builder, J. C. Stichler.

Courtlandt Ave., w s, 75' n One Hundred and Forty-ninth St., three-st'y frame tenement, tin roof; cost, $4,500; owner, Franz Wilz, Courtland Ave., between One Hundred and Forty-eighth and One Hundred and Forty-ninth Sts.; architect and builder, Wm. Kusche.

Second Ave., n w cor. One Hundred and Twenty-third St., five-st'y brick flat and store, tin roof; cost, $20,000; owner, John Walker, 233 East One Hundred and Thirteenth St.; architect, J. H. Valentine; builders, Walker & Galston.

Second Ave., w s, 25' 1" n One Hundred and Twenty-third St., five-st'y brick flat and store, tin roof; cost, $18,000; owner, architect and builders, same as last.

Fifth Ave., Nos. 26 *and* 28, 2 four-st'y brick and stone dwells., tin roofs; cost, $25,000; owner, J. H. Gautier, 30 Fifth Ave.; architect, H. J. Hardenburgh; builders, John Banta and Jean & Taylor.

Third Ave., Nos. 385 *and* 387, rear, three-st y brick stable and workshop, tin roof; cost, $5,000; lessee, John Walsh, 206 East Twenty-eighth St.; architect, Jno. C. Burne.

One Hundred and Twenty-fifth St., s s, 150' e Eighth Ave., three-st'y brick store and hall, tin roof; cost, $7,000; owner, Wm. A. Martin, 128 West One Hundred and Twenty third St.

Seventy-third St., n e cor. Tenth Ave., four-st'y brick flat and store, tin roof; cost, $22,000; owners, Jonathan Allen, 335 Eighth Ave., and A. O. Rowe, 472 West Seventy-third St.; architects, D. & J. Jardine.

Seventy-third St., n s, 28' e Tenth Ave., 4 four-st'y brick dwells., tin roof; cost, $15,000; owners and architects, same as last.

East Seventy-fourth St., No. 209, four-st'y brick tenement and store, tin roof; cost, $10,000; owner, Catharine Irwin, 1274 Third Ave.; architect, S. A. Murphy.

Seventy-second St., s s, 400' e Tenth Ave., 5 four-st'y brownstone front dwells., tin roofs; cost, $25,000; owner, Margaret Crawford, 956 Third Ave.; architect, G. A. Schellenger.

Seventy second St., n s, 300' e Tenth Ave., 3 four-st'y brownstone front dwells., tin roofs; cost, $20,000; owner and architect, same as last.

Ackerman St., e s, 38' n New York Central Railroad, 4 two-st'y frame dwells., shingle roof; cost, $2,173; owner, Euphemic S. Coffin, 13 West Fifty-seventh St.; architect, John Hunter; builders, McBride & Mulligan and John Hunter.

Seventy-sixth St., n s, 243' e First Ave., five-st'y brick factory, tin roof; cost, $16,000; owner, Simon Strauss, 179 Lewis St.; architect, John Brandt.

Sixth Ave., s w cor. Fifty-fifth St., four-st'y brick and stone club-house, plastic slate roof; cost, $150,000; owner, New York Athletic Club, 108 East Eleventh St.; architect, H. Edwards-Ficken.

Forty-second St., foot of, and *North River*, two-st'y frame ferry-house and offices, metallic shingles and tin roof; cost, $30,000; owner, West Shore and Ontario Terminal Co., 15 Broad St.; architect, H. C. Blanchard; builders, D. Van Orden & Co.

East Fifty-third St., No. 152, five-st'y brick tenement and store, tin roof; cost, $10,000; owner, John Casey, 204 East Fifty-first St.; architect, A. B. Ogden.

ALTERATIONS. — *East Broadway, No.* 102, attic to be raised to full st'y, four-st'y brick extension and internal alterations; cost, $5,000; owner, August Marshall, 242 East Seventy-second St.; architects, A. Pfund & Son.

East Twenty-seventh St., No. 332, raise one-st'y; cost, $3,000; owner, W. T. White, 130 East Thirtieth St.; architect, E. D. Garnsey; builders, Robinson & Wallace.

West Tenth St., No. 69, three-st'y brick extension, etc.; cost, $3,000; owner, Louisa J. W. Duffin, on premises; architects, Reutz & Wirz; builder, H. Reynolds.

Philadelphia.

COLLEGE BUILDING. — The Board of Trustees of the Dickenson College have adopted the plans of C. L. Carson, of Baltimore, for the new scientific building.

HOUSE. — At Thirty-sixth St. cor. Race St., residence for F. G. Thorne, Esq.; from plans by Wilson Bros. & Co., architects.

ENGINE-HOUSE. — Engine-and-boiler-house, for Philadelphia Water Department; plans by Wilson Bros. & Co., architects.

STORE. — B. F. Janney, Esq., proposes to erect at Nos. 121 & 123 Market St., a six-st'y store; from plans by Wilson Bros. & Co., architects.

BOAT-HOUSE. — Alterations to the boat-house of the West Philadelphia Boat Club; from plans by Wilson Bros. & Co., architects.

BANK BUILDING. — Third National Bank, Broad St. cor. Market St., extensions for additions of Safe Deposit Department; from plans by Addison Hutton, architect.

SOCIETY BUILDING. — At Thirteenth St. cor. Chestnut St., for the Historical Society of Pennsylvania, additions to the General Patterson Mansion of fire-proof and hall; Addison Hutton, architect.

FACTORY. — By Messrs. Jos. S. and Thos. Elkinton, at Eighth St., cor. Mifflin St., a four-st'y factory, 60' x 150', of stretcher bricks and brownstone; from plans by Addison Hutton, architect.

BUILDING PERMITS. — *Sixtieth St.*, s w cor. Market St., three-st'y dwell., 18' x 44'; Jacob Yell.

Seventh St., n w cor. Wharton St., 4 three-st'y dwells., one with store, 15' x 34'; H. R. Coulomb, contractor.

York St., s s, w of Richmond St., two-st'y warehouse, 18' x 77'; Edward Allen, owner.

Eighth St., e s, n of Berks St., two-st'y addition to boiler-house, 23' x 25'; J. C. Halderman, owner.

Trenton Ave., bet. Lehigh Ave. and Huntingdon St., two-st'y stable, 42' x 132'; W. Halloway, contractor.

Manheim St., w of Knox St., two-st'y dwell., 15' x 42'; W. Mackey, contractor.

Green St., No. 1919, new front and fourth-st'y on back building, 17' x 36' and 32' x 39'; B. F. Ketcham & Son, contractors.

Chestnut St., No. 1244, four-st'y brick building, 20' x 42'; R. G. Black, contractor.

Centre St, n s, e of Thirty-seventh St., 2 two-st'y dwells., 12' x 30'; A. F. Brown, owner.

Lehigh Ave. cor. Marshall St., carpet factory, main building, 52' x 146', two-st'y office, one-st'y weaving room, one-st'y sizing room, etc., 51' x 208', and boiler room and engine-house, 40' x 152'; J. S. Steel, contractor.

Second St., e s, bet. Susquehanna Ave., and Diamond St., 10 three-st'y dwells., 16' x 44'; Chas. Bassart, contractor.

Walnut St., No. 939, four-st'y store and dwell.; Merriner & Buckingham, contractors.

Race St., No. 1109, three-st'y store and dwell., 18' x 32'; Geo. F. Payne & Co., contractors.

Frankford Creek, cor. Ashton St., three-st'y addition to factory, 30' x 50'; Jos. P. Yelkes, contractor.

Otis St., cor. Siloam St., three-st'y dwell.; A. T. Richards, contractor.

Nineteenth St., n s, s of Dickenson St., 2 two-st'y dwells., 16' x 40'; M. B. Stackhouse, contractor.

Frankford Ave., e s s of Allegheny Ave., two-st'y dwell., 16' x 50'; Dickson Bros., contractors.

Lehigh Ave., No. 1018, three-st'y brick building, 14' x 33'; H. W. Householder, owner.

Lawrence St., s of Girard Ave., two-st'y engine-house, 28' x 40'; Jos. McGavery, contractor.

St. Louis.

BUILDING PERMITS. — S. Prag & Bro., two-st'y brick dwell.; cost, $3,200; A. Dietz, contractor.

David Goss, two-st'y brick dwell.; cost, $3,800; J. B. Legg, architect; Philip Riechers, contractor.

Mrs. U. I. Paul, two-st'y brick dwell.; cost, $10,000; Jas. A. Conlon, contractor.

O. M. Schmid, two-st'y brick dwell.; cost, $4,000; Fred. Offerman, contractor.

F. Ryan, two-st'y brick dwell.; cost, $2,700; McNamara, architect; J. J. McMahon, contractor.

Terrence Martin, four-st'y brick dwell.; cost, $7,000; McNamara, architect; O'Malley Bros., contractors.

Geo. H. Bruggeman, two-st'y brick dwell.; cost, $4,600; Beinke, architect; E. T. Hoffman, contractor.

R. P. Hannekamp, three-st'y brick dwell.; cost, $6,500; J. G. Cairns, architect; sub-let.

F. W. Barkhoefer, two-st'y brick dwell.; cost, $5,700; Wm. Kerksieck, contractor.

R. Bozman, two-st'y brick dwell.; cost, $3,100; T. Furlong, architect; Whiting & McNamee, contractors.

J. Lahey, two-st'y brick dwell.; cost, $3,750.

St. Louis Mutual House Building Co. No. 3, two-st'y brick dwell.; cost, $5,500; Mortimer, architect; Bothe & Ratheman, contractors.

Wenzel Stephen, two-st'y brick dwell.; cost, $2,600; F. Mueller, contractor.

General Notes.

CHAPPAQUA, N.Y. — Daniel G. Boyd has been awarded the contract to build a new Orthodox meeting-house.

GENEVA, ILL. — The contract for the Kane County hospital for the insane has been awarded to Barker & McMaster, of Batavia, for $12,000.

LAWRENCE, L. I. — Two brick and frame cottages, 40' x 60' each, are to be built for Mr. Baker, at a cost of about $20,000; from designs of Mr. H. Edwards-Ficken, of New York.

LITTLE FALLS, N. Y. — Bishop Wigger, of the Newark Diocese, laid the corner-stone of a new Roman Catholic church, September 2.

MEDIA, PA. — Cottage for Frank P. Weaver, Esq.; plans by Wilson Bros. & Co., architects, Philadelphia.

MILWAUKEE, WIS. — The unfinished Passavant hospital at Milwaukee which was destroyed by fire, August 14, is to be rebuilt.

NEW BRITAIN, CONN. — The Russell & Erwin Manufacturing Co. are having plans prepared for a new office-building, by Wilson Bros. & Co., architects, Philadelphia.

NORTHAMPTON, MASS. — Horace Lamb, of Northampton, is to rebuild his wire mills about the size of the old building, and of brick.

OYSTER BAY, N. Y. — Mr. Robert Roosevelt has purchased 100 acres of land at Oyster Bay Cove, adjacent to the Sound, for $30,000. It is said that Mr. Roosevelt represents a syndicate which will spend $100,000 in building summer residences.

PATERSON, N. J. — Kearney & Foot, of New York, are building new file shops here.

PLAINFIELD, N. J. — A stable, 29' x 60', brick, stone and wood, is to be built for Mr. J. E. Tracey; from designs of Mr. H. Edwards-Ficken, of New York.

RIDLEY PARK, PA. — Cottage for Chas. H. Savage, Esq.; Wilson Bros. & Co., architects, Philadelphia.

ROSEMONT, PA. — House and stable for Jno. B. Garrett, Esq., of native stone; plans by Addison Hutton, architect, Philadelphia.

ST. PAUL, MINN. — A six-st'y hotel will be constructed on Roberts St., St. Paul, Minn., of which J. J. Egan, of Chicago, is the architect. It will have a frontage of three hundred feet, contain about three hundred rooms, and cost $1,000,000

SOUTH FRAMINGHAM, MASS. — The Congregationalists of this village, who have commenced the erection of a $17,000 church at the corner of Union Ave. and Pearl St., laid the corner-stone August 31.

STAFFORD SPRINGS, CONN. — Work has begun on the worsted yarn mill of the Warren Woollen Company.

THORNDALE, PA. — Chas. L. Bailey, Esq., is about to make extensive addition to his country house; plans by Addison Hutton, architect, Philadelphia.

WOLFEBORO, N. H. — F. W. & I. M. Munroe and J. W. Cropley, shoe manufacturers of Marblehead, Mass., are building factories here.

LATEST.

Brooklyn.

BUILDING PERMITS. — *Warren St.*, s s, 380' 9" w Smith St., four-st'y brownstone flat, tin roof; cost, $10,000; owner, Owen McGreevey, 168 Court St.; architect, F. E. Lockwood; builders, W. H. Hazzard's Sons & Co.

Tompkins Ave., n e cor. Stockton St., two-st'y and basement frame dwell., tin roof; cost, $3,500; owner, Samuel Elen, Tompkins Ave., cor. Park Ave.; architect and builder, N. M. Whipple.

Freeman St., s s, 25' w Oakland St., three-st'y frame tenement, gravel roof; cost, $3,000; owner, Ellen Cammal, on premises; architect, J. Mulhault; builders, J. Haffer and Randall & Miller.

Fifth Ave., e s, 100' s Fourteenth St., three-st'y brick store and tenement, tin roof; cost, $4,500; owner and carpenter, Wm. A. Hatfield, Sixteenth St., cor. Tenth Ave.

Johnson Ave., s s, 125' e Union Ave., four-st'y brick factory, gravel roof; cost, $6,500; owner, Louis Boesert, 6 and 8 Union Ave.; architect, J. Platte; builder, J. Auer.

Fifth St., e s, 22' s North Sixtieth St., three-st'y frame store and tenement, tin roof; cost, about $5,000; owner, Wm. T. Dailey, 139 Grand St.; architect, F. Holmberg; builder, not selected.

Brevoort Pl., s w cor. Bedford Ave., 2 three-st'y brownstone front dwells., tin roofs; cost, each, $8,000; owner and builder, Benj. Linlkin; architect, A. Hill.

Harbeck Pier, Furman St., between Wall and Fulton Ferries, one-st'y frame freight-shed, gravel roof; cost, $7,000; owner, W. H. Harbeck, 81 Beaver St., New York City; architect and builder, W. H. Hazzards Son & Co.

Eleventh St., e s, 26' r South Third St., three-st'y brick tenement, tin roof; cost, $4,000; owner, Mathias Burggraf, Eleventh St., cor. South Third St.; architect, J. Platte; builders, M. Smith and J. Frisse.

Hart St., n s, 90' w Throop Ave., 3 two-st'y brownstone front dwells., tin roofs; cost, each, $4,000; owner and builder, S. C. Phillips, 691 Lafayette Ave.; architect, A. Hill.

Fourth St., s s, 22' 4" w Hoyt St., three-st'y frame tenement, tin roof; cost, $2,950; owner, P. Ferguson, Fourth St., near Hoyt St.; architects and builders, M. Freemans' Sons.

Sullivan St., n s, 100' w Richards St., two-st'y brick tenement, tin roof; cost, $3,550; owner, John Adams, 184 Partition St.; architect and builder, L. Boner; mason, T. Shanley.

Bids and Contracts.

PHILADELPHIA, PA. — The contract for supplying the new United States court-house and post-office building with chandeliers and gas fixtures was awarded to Messrs. R. Hollings & Co., Boston, Mass., whose bid ($10,818.75) was the lowest. The other bids were as follows: —

The Archer & Pancoast Manufacturing Company, New York, $17,411.75.

Cornelius & Co., of Philadelphia, $16,113.

Cornelius & Co., of Philadelphia, $13,465.40.

Gibson, De Kosenko & Co., of Philadelphia, $11,832.75.

Horn, Pfeffer & Branner Manufacturing Company of Philadelphia, $17,260.05.

Mitchell, Vance & Co., of New York, $16,365.50.

CLIFTON, O. — The following contracts have been awarded for the Presbyterian Church; Mr. A. C. Nash, architect, Cincinnati.

Limestone, Owens & Co., $7,147.

Brickwork, J. G. McGarvey, $673.

Carpenter-work, Mackey & Wells, $4,000.

Plastering, E. Merring, $500.

Painting, Heatley Brothers, $414.

Roofing, Chris. Kiechler, $1,100.

Plumbing and gas-fitting, Gibson & Co., $275.

COMPETITION.

CITY-HALL.

[At Richmond, Va.]

RICHMOND, VA., September 1, 1883.

The time for receiving designs for City-Hall has been extended **to November 1, 1883.**

W. E. CUTSHAW,
City Engineer.

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PROPOSALS.

PASSENGER STATION.

[At Chicago, Ill.]

OFFICE OF THE CHICAGO & WESTERN INDIANA R. R. CO., CHICAGO, Aug. 28, 1883.

Sealed proposals directed to the undersigned, and endorsed "Proposals for Passenger Station Work," etc, will be received at this office **on or before the 12th day of September, at 12 o'clock.** M., for the masonwork, carpenter-work, iron-work, slating, steam-heating, painting, plumbing, etc., for a new passenger depot to be built for this company at the corner of Third Ave. and Polk St., Chicago. Proposals are to be made for each branch of the work enumerated above, and are to be accompanied with bonds in two sureties each to one-half the amount of the bid.

Said sureties are to guarantee that the bidder will enter into a contract if it is awarded to him, and further, that the bidder will perform the contract to its completion in accordance with his agreement and the plans and specifications. Plans and specifications can be seen at the office of the architect, No. 94 Washington St., Room 30, from 9 A. M., till 5 P. M., from the 28th day of August until the 12th day of September.

The undersigned reserves the right to set aside any or all bids.

S. R. CALLAWAY,
President.

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