

THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. XIV.

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No. 400.

AUGUST 25, 1883.

Entered at the Post-Office at Boston as second-class matter.

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THE Seventeenth Annual Convention of the American Institute of Architects will open in the rooms of the Providence Art Club, No. 35 North Main Street, Providence, R. I., at 10 A. M., on Wednesday next, August 29. The first business will be the Annual Address of President Walter, and this will be followed by the usual reports of officers and committees. After the consideration of these reports, which are this year of special importance, lunch will be served at the Narragansett Hotel, and the afternoon will be spent in driving about the city and visiting the most interesting public and private buildings. In the evening a lecture will be given on Strength of Materials, from Actual Tests, by Professor Lanza of the Massachusetts Institute of Technology, with lantern illustrations of different forms of rupture in large timbers under breaking stress. This will be followed by the reading of two papers, one on Architectural Competitions, by Mr. John A. Fox of Boston, and the other on the Conduct of the Office of Supervising Architect, by Mr. William A. Potter of New York, late Supervising Architect of the Treasury Department. The business meeting of the second day will be held in the same place at 9.30 A. M., and will be occupied with the election of officers and standing committees, and the consideration of reports, with such other matters as may be brought up. At eleven o'clock the meeting will be adjourned, and the members of the Convention will take the steamer for Rocky Point, where dinner will be served, and at three o'clock the voyage will be continued to Newport. At eight o'clock the same evening a meeting will be held at the Ocean House, for the consideration of unfinished business, and papers will be read by Mr. Arthur Rotch of Boston, on a subject to be announced, and by Mr. T. M. Clark of Boston, on the Architect as a Sanitarian. The third day will be left clear for enjoyment, and at 10 A. M., carriages will leave the Ocean House for a drive about the city, and visits to several private cottages, returning in time for dinner at the Casino at 2 P. M., after which the Convention will adjourn. Arrangements have been made for the accommodation of members at the Narragansett Hotel in Providence at the reduced rate of two dollars and a half a day, and at the Ocean House in Newport at four dollars a day. It is probable that the attendance will be large, and those who intend to be present are requested to send their names to any member of the Committee of Arrangements, which consists of Messrs. Alfred Stone and Thomas J. Gould of Providence, and Mr. Geo. C. Mason, Jr., of Newport.

TWO of our correspondents send us this week copies of "invitations to architects." One of them requests "full plans and details," "specifications and estimates perfect and complete," for a building to cost twenty-five thousand dollars, and offers "for the plans, details, specifications, etc., which we may select," "a fee of two hundred and fifty dollars." The other "invitation" recites the decision of a certain society "to erect a building not to exceed sixteen thousand dollars in cost," and "to offer fifty dollars to the architect furnishing the most feasible plan and specifications." The invitations in both cases have the air of being put forth in good faith, and while they

will raise a smile among the architects who receive them, they are at least far from exciting that scorn which all upright men must feel for the authors of those thinly disguised frauds by which young architects are tempted, under the delusive hope of meriting employment, to spend their time and labor for the benefit of tricksters whose arrangements for professional service have been already made, with reference, it need hardly be said, to their private interests. Even with the best intentions, however, the persons responsible for such propositions deserve as little gratitude from the bodies which they represent as they do from the profession which they hold so cheap. There are two sorts of individuals who occasionally respond to invitations of this kind: one includes young men who have some idea of drawing, but know nothing more of an architect's work or responsibility; the other is composed of persons of questionable reputation, who understand something of the art of building, and of the inadequacy of the reward offered to the service required, but count upon the success of methods known to them for making their clients pay liberally "through the nose" for what they think they are getting below the market price. This latter class, with the help of the mutual countenance and support which the architectural societies now foster in the profession, is being rapidly driven out of existence, while the number of draughtsmen disposed to advertise their incapacity by participation in such struggles also grows daily less. It will not be long, we trust, before it is reduced to nothing, and the practice of architectural competitions here is brought back to that current in all other civilized nations, under which the cost of securing a choice among a number of designs for a given building falls upon the owner of the proposed building, and is an addition to the regular percentage upon the cost of the structure, which he is obliged to pay in any case to the person to whom he confides the work. It is worth while to remember that in the places where this view of the subject prevails, architects are quite as much employed, and competitions are far more in vogue, than they are here; while building committees there obtain a satisfactory equivalent for the money which they expend in that way, by professional service which neither involves them in costly failures or mistakes nor renders them and their building ridiculous.

THROUGH the kindness of a correspondent in San Francisco we are put in possession of a copy of the new plumbing ordinance of that city, which went into effect on the first of August. In general, the ordinance resembles that of Boston, both of them being virtually abridgments of the New York law, the first one put in force. The California regulations have, however, some features peculiar to themselves, the most remarkable being a provision requiring all waste-pipes from all interior plumbing, exclusive of water-closets and kitchen sinks, to discharge into an open, trapped hopper. This regulation, compliance with which presents no difficulty in the warm, uniform climate of San Francisco, is borrowed from the English practice of disconnection once so much in vogue, and its adoption certainly indicates a creditable research and comprehension of the subject on the part of the Board of Health, but, after some experience with such disconnection we should be sorry to be compelled to adopt it in all cases, even in a favorable climate. If no exception were made to the wastes required to discharge over the hopper, the gases from the sewer would in this way be prevented, if the traps should dry out, from discharging directly into the house, but a neglected closet trap forms as good a conduit for sewer-gas as any other, while the outside hopper, lined with the slime from wash-basins and slop-sinks, is anything but a pleasant object to have under one's windows. In regard to the testing of soil-pipes, the rules prescribe the unpromising method of filling with water to the top. If this is literally carried out, we hope that a school for plumbers will be established in San Francisco, for the number of stacks of iron soil-pipe with lead joints east of the Rocky Mountains which would stand such a test is small indeed. It is unfortunate that nothing is said about a similar test for the iron vent-pipes, which need it quite as much as the soil-pipes themselves, but that is an omission which can be easily supplied, and an excellent addition to the provisions regarding air-pipes, requiring them to be laid with a continuous fall, to avoid collecting water by condensation, is worthy of being copied in all new ordinances of the kind.

AFTER many months of hesitation, the American Heat and Power Company in New York has succumbed to an accumulation of mistakes and misfortunes, and placed its property in the hands of a receiver, while the holders of the Company's bonds have begun a suit for foreclosure and sale, which will alienate the last vestiges of interest possessed by the company in the plant which has cost it so much. The total expenditure upon pipes and buildings has been about six hundred thousand dollars, and it was not until the best authority had pronounced the entire system worthless for practical use that the managers decided to abandon what had been already invested rather than pay the immense cost of a complete renewal of the work. Even the bond-holders, as it seems, will get back very little of the money lent on the security of pipes buried in the ground. The charter, which might have some value, has been allowed to expire, and the pipes, which cannot be used in their present condition, are hardly worth enough, as old iron, to pay the cost of digging them up. The rival corporation, the New York Steam Company, has met with a success which seems all the more striking in contrast with the misfortunes of the other. At present, this company has four miles of main pipe laid in the streets, and supplies two hundred buildings with steam, using five thousand horse-power in winter, and two thousand in summer. According to the *Evening Post* no failure has occurred in the pipes or valves used by the corporation since it first began to deliver steam in the spring of 1882, except where trifling injury has been done by external means; a telegraph pole, for instance, having been driven through one of the pipes.

ACCORDING to the *Scientific American*, the new conduit for supplying Virginia City, Nevada, with water, is built, for the sake of economy, down one side, and up the other, of a deep valley, which separates the town from the lake used as the source of the water. The bottom of the valley is seventeen hundred and twenty feet below the general line of the conduit, and the water in the pipes at the lowest part is therefore under a head, or hydrostatic pressure, of about eight hundred pounds to the square inch. The water on one side of the valley is conducted in wrought-iron tubes, eleven inches in diameter, and of metal one-quarter of an inch thick, lap-welded, and put together with screw joints. On the other side the pipes are twelve inches in diameter, and riveted. The welded tubes give no trouble, but the riveted pipes frequently fail. Under the immense pressure any imperfection in a seam gives an outlet for a stream of water which, although so slender as to be, perhaps, almost invisible, will cut through anything in its way, and if it falls upon another part of the pipe, will soon perforate it, and either determine the rupture of the whole pipe, or occasion a serious leak. The force of these thread-like jets is said to be so great as to tear the flesh from a hand incautiously held in one of them, and although they may be touched by those curious to feel their iron-like hardness, the side of the finger must be presented to them, instead of the tip, from which the nail is sometimes instantly torn if the current should happen to strike upon it.

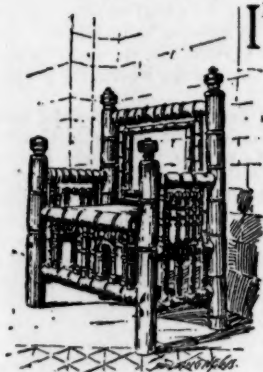
OUR readers will remember that the attention of archaeologists has been turned of late to the country about the Delta of the Nile, which, as having been one of the most fertile and thickly-settled portions of the world for perhaps ten thousand years, must contain some interesting traces of its early occupants. In the north-eastern portion of the Delta is the place still called San, which marks the site of the ancient city of Tanis, the capital of the Hyksos, or Shepherd Kings, who, although they held Egypt in subjection for five hundred years, kept their court and their riches in the strong frontier town which guarded their way back to the plains of Asia from which they came. Excavations were made here years ago by Mariette Bey, and the well-known seated statue of a Hyksos king, in dark-green basalt, was found, besides traces of many other objects, some having a curiously mingled Asiatic and Egyptian character. Unfortunately, Mariette Bey's explorations were interrupted, and the ruins have since been deserted, but the new society which administers the Egyptian Exploration Fund has determined to recommence the investigation next year. The sum available for the work of the present season was small, so that instead of attacking the Shepherds' capital, a kind of preliminary excavation was made at a place near by,

reputed to be the site of Rameses, the treasure city, or magazine, built by King Rameses with the help of the enforced labor of the children of Israel, and named after himself. The search was completely successful, except in the trifling particular that the place proved not to be Rameses but Pithom, the sister treasure city, built by the same means, and at the same time with the other. The buildings of the town consisted almost exclusively of enormous store-cuses, built of sun-dried bricks, some of which, in singular confirmation of the Scripture narrative, were made with straw for binding, and others without. Many inscriptions were found on the ruins, proving conclusively that the work was done by command of Rameses II, known as the Great, who has been heretofore generally supposed, but without definite evidence, to have been the Pharaoh of the Israelitish Exodus. The Pharaoh in whose reign Joseph came to Egypt is supposed to have been one of the Hyksos kings, and the kindness shown to him and his brethren may, it is surmised, have been due to a relationship of race between them and the Shepherd conquerors, while this same relationship may very probably have led to the oppression of their descendants after the expulsion of the Shepherds by the native leaders. The researches at Tanis will undoubtedly clear up the mystery, as well as many of the others which surround this strange epoch whose history, although in the Scriptural outline more familiar than any other, presents in its details some of the darkest problems known to students.

THE *Sanitary Engineer*, in a sensible editorial on the sewerage of small towns, introduces its remarks by the assertion that out of nearly two hundred towns in the United States containing between five and ten thousand inhabitants, and having a public water-supply, there are many which certainly have no sewerage system, and more which are believed to be without any; going on to draw the familiar picture of such places, with their houses clustered together on small lots, each with its cess-pool, slowly saturating its own and the neighboring cellars with poisonous liquids, and most of them with a foul privy in addition, contributing its stench to the noisome air. We are a little surprised that the *Sanitary Engineer* should be so unfamiliar with the filthy ways of New England cities as to limit its observation to places of only ten thousand inhabitants. To our own knowledge there is at least one city with a population of sixty thousand to which the description quoted applies with literal fidelity; and we have in mind another town of nearly twenty thousand inhabitants, so far civilized as to have at this moment under consideration the expenditure of something like a hundred and fifty thousand dollars for public parks, in which there is not a single foot of public sewer. The reputation of the place for healthfulness, as may be imagined, is none of the best, and the proposition to appropriate for parks a sum which would make a very efficient beginning in providing the town with a thorough system of drainage has to the dispassionate mind something the air of a scheme for dressing up a pig with ribbons, and leading him forth into genteel society.

WE learn from our interesting contemporary, the *Mexican Financier*, some particulars in regard to the asphalt mines of Mexico, which although long known, have only recently attracted the attention of persons disposed to develop them as a part of the resources of that rich country. One of the mines, which is said to be practically inexhaustible, is situated in Central Mexico, about sixty miles from Tampico, and it is estimated that the product, which is pure asphaltum, with hardly a trace of foreign matter, can be delivered at the port of Tampico for eight or ten dollars a ton. Near Vera Cruz is also a large deposit, and asphalt mines are found in one or two other places. We do not learn whether any of the mines furnish the natural mixture of asphaltum with finely comminuted stone which, under the name of "rock asphalt," forms so precious a material for paving; but it would be well worth while to make a thorough search for a substance which would be sure of ready sale in all the large cities of the world. The artificial mixture of asphaltum and ground stone, which is, if we are not mistaken, used for paving the streets of Washington, is, although inferior to the natural product of the Swiss and German mines, of much more value than the brittle coal-tar concretes. Attempts have been made in Mexico to adapt steam furnaces for burning the asphalt as it comes from the mines, but it is to be hoped that a more advantageous use will be found for it before long.

LECTURES ON ARCHITECTURE. — I.



ANCIENT BISHOPS CHAIR
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IN the year 1844, the late Mr. Arthur Gilman delivered a series of twelve lectures on architecture before the Lowell Institute of Boston. The MS. of these lectures was recently submitted to us, and it was proposed at first to publish it entire in the columns of the *American Architect*. But upon examination it proved — as was but natural, since it had been compiled for the instruction of a miscellaneous audience — to be in parts of too elementary a character to find a fitting place in a technical journal. There were, however, many interesting and instructive passages scattered through the different lectures which it seemed a pity should be lost. So it has been decided to publish portions of the MS. only, redistributing the chosen paragraphs when advisable, but altering in no way either the conclusions or the language of the author.

The most interesting portions seemed to us those which dealt with the general principles of our art, and applied them in a more or less detailed criticism of local buildings. These portions are not only sensible and instructive, but especially worth preserving as giving a lively picture both of the state of the builders' art in America forty years ago, and of the state of the popular intelligence with regard to it. Whatever mistakes and shortcomings we may lament to-day, we shall find that there has been much improvement since Mr. Gilman spoke, both inside the profession and outside of it. All these passages have been gathered together from the twelve lectures, and arranged in an order as nearly logical as possible. It was not possible, however, to make them thoroughly consecutive, without interpolations or alterations of the text; and both these measures have been studiously avoided. When these portions of the MS. shall have been concluded, we hope to supplement them with various extracts of different subjects, given simply as fragments without attempt at sequence or connection.

It will scarcely be denied that architecture is the oldest and the most impressive of all the fine arts, while at the same time its rules are more frequently violated in practice than those of any other — and in no civilized country are they less regarded than in our own. Yet, when viewed aright, it is a subject of great public importance; it has even been assigned, by ingenious writers, to a prominent place among those causes which affect the character of an age, and exert a visible influence over the moral and intellectual habits of a people. A general understanding of its leading principles, therefore, is certainly a desirable object, and one which it will be my present aim, so far as possible, to effect.

The position of this art is certainly a peculiar one. In many respects it differs very essentially from the rest, and it is beyond question that less attention has hitherto been paid to it than to any other. It has been complained — and not without reason — that the equivocal character which it holds, and which is occasioned by its compound nature as a mechanical trade and a fine art, is attended with disadvantages to its professors and to the public, from which the other liberal arts are fortunately exempt. In one respect, indeed, it appears to have circumstances in its favor, which they do not enjoy. For whatever may happen to be the state of the public taste, and however great may be the general apathy towards architecture, for its more elegant and intellectual qualities, it is certain that buildings of some kind or other must still be erected, as occasion for them arises; and so far as this, it is independent, it is true, of that sympathy or concern for it which is requisite for almost the very existence of the other fine arts. The shelter and convenience of buildings are absolutely indispensable to a state of civilized life; while the elegant luxuries of painting and sculpture cannot in reality be said to be so. Were this view of the case, however, to be carried to the extreme, the claims and pretensions of architecture to the rank it now holds would be virtually abandoned, and it would sink at once to the level of a mere trade. Use and convenience would become its only aim, and the labors and experience of ages would at once be lost to the world.

There is another evil of no small magnitude in the condition of this art; it is one directly opposed to that kind of reform which would advance the spread of good taste by removing at the same time all traces of a former bad one. I refer to the necessary durability of even its worst examples. However miserable or unworthy they may be, buildings when once erected must remain for an indefinite period of time; criticism cannot annihilate them, nor common-sense topple them down to the dust. They cannot be put out of sight like worthless pictures; they cannot be converted into waste paper like useless books. A feeble and affected school of literature, though ever so much admired by one generation, may suddenly pass away, and be known to the next only as a byword of contempt and reproach. But abortions in brick and stone are not so easily got rid of; the building remains, and must remain an eyesore to every

passer-by, — the laughing-stock of this age, and the wonder and contempt of future times. The mischief is done, and it is too late to repair it. Neither do buildings, like books, admit of after-revisals, and of new editions with corrections; unless amended before their completion, the faults and mistakes that may have been committed are altogether past remedy; bad as they may be, they must stand as our bequest to our successors. In view of this fact, declares the acute Dr. McCulloch, "the public at large has a claim over the architecture of a country. It is common property, inasmuch as it involves the national taste and character, and no man has a right to pass himself and his own barbarous inventions as a national taste; nor to hand down to posterity his own ignorance and disgrace, to be a satire and libel on the knowledge and taste of his age."

The productions of architecture cannot, on the other hand, like those of the other fine arts be multiplied at will. They cannot be produced indefinitely, and so as to meet the demands of mere taste; but only in proportion to the actual necessity which arises for them. But with painting and sculpture, the reverse of this is the case, since they can be encouraged for their own sakes alone, and are exempt from that check upon supply which limits it according to the positive wants of their patrons. Hence, architecture is much more dependent upon casual circumstances and opportunities than they are; and is placed beyond almost every other kind of control than that which the ordinary course of things can provide. If an opportunity for its encouragement arises in any other way, the art is, even then, only called into action for the sake of ministering to the pride, or perhaps to the mistaken taste of those who can afford to pay for it. It does not always follow that the most lavish expenditure is attended with the most satisfactory results. How far such is actually the case may be judged by looking at what has been done among us, within the last fifty [1800–1844] years. It might be deemed uncourteous to point out at this time any individual examples of failure; but among the buildings erected during that period, we may find many that are certainly far inferior to what they might have been rendered by more diligent study, and more artist-like treatment. Those who have only learned *building* as a *trade*, have been encouraged to practise *architecture* as an *art*, and the encouragement they have met with seems to have been in exact inverse proportion to their merit. In this circumstance alone, we can find the reason for the present condition of the public knowledge and taste. The excuse generally alleged, however, is that the architect has been obliged to pay a greater regard to economy than to anything else; yet we can scarcely allow this to be a reason, because it is plain to every one, that of late years, our most costly edifices, those in fact where no limit has been assigned to the expense, have been the most unsatisfactory of all. And even were we to allow it to have any weight, it does not follow that economy should prevent the display of refined taste; because in proportion as there is necessity for being sparing of outlay, there is also necessity for taking care that there shall be no loss of attainable effect. It is, then, more than ever demanded that nothing shall appear to have been aimed at beyond what has been actually done, and that what has been done, should, if possible, appear to be quite as much as ought to have been aimed at, or as the particular subject itself would properly allow. But no effect can be worse than the one so unfortunately prevalent among us, where the utmost ambition of design appears to have waged an ineffectual war with comparative poverty of means. Churches have been erected, whose fronts are decked with the stateliest pomp of heathen magnificence, but whose sides are scarcely more finished than a hovel; and the Choragic monument of Lysicrates, the richest specimen of the Corinthian order, has been laid under contribution to furnish columns for a shingle palace, on the dustiest road in the suburbs of the city. Such ludicrous instances of misapplied ornament remind us of the celebrated costume of the negro King of Congo, who shows himself to his delighted subjects adorned with a cocked hat, an epaulette, and a pair of green spectacles, but almost entirely innocent of clothing upon any other part of his sable body.

To investigate all the reasons for this low state of architectural science would perhaps be a delicate and invidious, rather than a difficult, task. It is on all sides confessed that, owing to some influence or other, architecture has been hindered from putting forth its powers in this country on a scale commensurate with what several of the respective occasions have demanded. If the majority of such unpropitious influences, however, are declared to be of such a nature as to defy all attempts at remedy, I think this yet remains to be proved by those who are interested in throwing the blame entirely upon circumstances. It is not likely that they will be remedied at all without considerable exertion; without very energetic measures of perseverance even, on the part of members of the profession itself. They ought at once to take the lead in the work of reform, and to free themselves from the imputation of culpable mismanagement, or of tame submission to the grossest errors of judgment on the part of their employers.

Until the public have acquired some true perception of architecture as a fine art, and until they have cultivated such feeling for it as will enable them to enjoy it for the sake of the pleasurable sensations it excites in the mind, they will be satisfied with a very low standard of merit on the part of its professors, and evince a carelessness for the beauties of architectural design, without any reference to the enjoyment they might easily derive from their encouragement. It may, perhaps, be thought the bane of *all* art, that it is so dependent upon the public feeling; that it flourishes in proportion, not

only to the degree of talent among its professors, but according to the degree of taste or sensibility for it among other classes of the community. But there can be no doubt that such is the true state of the case. Unless there are minds capable of appreciating them, the immortal designs of Raphael are little more than so much old canvas or paper; the sublime sculptures of the Parthenon than so many defaced and battered stones. Without some congenial minds, some kindred faculties in those around him, the artist, let his particular calling be what it may, is forced to breathe in a withering atmosphere; his genius may bud, yet it will be only to be blighted; and however fair may be the creations of his fancy, though they may in themselves be a paradise of art, yet it will be one of which irrational animals only are the spectators.

All art demands more or less of acquired taste; and in the case of architecture especially is there need of this prerequisite, for the obvious reason that it is not an imitative art, and the signs therefore by which it appeals to the mind must be understood, before it can be made intelligible to the learner. [The author then proceeds to say that the idea of "fitness and adaptation" is the main principle to be borne in mind.] Pure architecture of any style or kind, is governed by rules which are based on a refined analysis of what is suitable in the highest degree to the end proposed. Hence it follows that there should be no parts about a building that are not necessary for *convenience, construction and propriety*, including under the latter term all such features as are expressive of the peculiar sentiment intended to be conveyed. It is necessary to make this distinction, because all architecture is symbolical, and expressive of some meaning or other, and the various forms which have impressed it with such singular differences in various parts of the world have been adopted as each country advanced in civilization and refinement; and may be viewed as transmitting to posterity the degree of importance to which the nations that invented them had respectively attained. Those are, of course, the highest styles, in which this unity of feeling has been most successfully carried out. "In all the fine arts," says Mr. Alison, "that composition is the most excellent, in which the different parts most fully unite in the production of one unmingled emotion; and that taste the most perfect where this relation of objects in point of expression is most delicate and precise." In art as in nature, beauty seems to follow the adoption of forms suitable to the expression of the end. The fundamental error of imitators in all the arts has its origin in the disregard of this rule; they servilely copy the effects which they see produced, instead of supplying and adopting the principles which guided the original artists in producing them. Thus they disregard all those local, temporary or accidental circumstances upon which the propriety or impropriety—the congruity or incongruity—of their works must wholly depend. Every design may thus at once be tested by a maxim which will invariably be found to be correct. . . .

I will now bring before you two of the best known examples in the Grecian and the Gothic style, and though these are, as you will perceive, so totally different from each other in every feature, it will yet be easy to illustrate the great leading principle of fitness and propriety from both of them.

The Grecian temple, of which the Parthenon is a general type, consists of a colonnade, or exterior range of columns surrounding the whole edifice, and carrying above them the entablature on which the roof mainly depends for support. The cell or enclosed portion of the building is formed by a plain wall behind, into which no windows should ever open; and on this account the small interior was either comparatively dark, or, in those temples called *hypæthral*, lighted only at the top. If this arrangement is departed from in our modern imitations the simplicity and unity of the style is violated, and the incongruous building becomes a miserable departure from the style it professes to follow. But when employed by its authors and inventors the style of Attica and Ionia is nearly faultless. The separate members of the building have a definite relation to the whole. They are connected by their affinity, and united by the position in which they stand. Each one is in its destined place; no one is extraneous or superfluous; but all are characterized by the utmost fitness and propriety. This kind of architecture is a composition of columns which are obviously intended to assemble themselves only in the form in which you see them here. They seek to enter into no other combination. Beauty and elegance result from their present union. The long, unvaried horizontal line of the entablature rests in stable tranquillity upon the even ranging capitals below; and the conical shafts of the columns are repeated in unbroken symmetry. The sacred architecture of Greece requires no habitable interior. The temple was entered only by the priests; while the colonnade and porticos were spacious, for the people who assisted without. It is therefore so constructed that a cell of narrow dimensions, and intended to contain a single statue, is the only apartment which can be placed within its walls. We are not expected to enter into the fane. It is a monument which we are to contemplate from without; and which appears in all its pride when considered as a portion of the surrounding landscape. The chaste columns and pure sculptures, which are now mellowed by the hand of time to a sad and sober gray, or fallen into the ruin in which no doubt you have often seen them represented, originally shone with all the splendor that the taste of Phidias could invent, or the munificence of Pericles could bestow. Every moulding was distinguished by strongly contrasted colors; and the snowy whiteness of the Parian marble was concealed beneath glowing layers of gold, azure, and vermillion. In the opin-

ion of the Grecian architect, his building was seldom more than the framework of his idolatrous sculpture. Every feature about it bespeaks this end. It was never intended for social worship; it was the shrine only, upon which decorations were to be displayed. The altar flamed in the open air before the portico, and the votary was to offer up his sacrifice there, looking around to the woods, the purpled hills, and the circling horizon. . . .

From the science of its mechanical execution, aided by the transcendent skill of the sculptor, the beauties of the *design* in Grecian architecture are doubly enhanced. As *masons*, the Greeks carried the art of building to the highest point of excellence which their method of construction required. The Grecian architect possessed all the means which were necessary to carry out his ideas. The elements of those ideas indeed, were few, for scarcely any variety of structure was demanded from his art; he placed a large number of columns around the more sumptuous edifice, and a smaller number around the more humble structure: he raised the temple and the tomb. His career was definite, he saw the end of it; he was required to perfect rather than to invent; his architecture submits itself to the judgment, and the judgment is satisfied. A problem has been proposed to which a perfect solution has been given. The Grecian architect performed all that he had promised to himself, all that he had wished to have given him, and so soon did the Grecian style attain its wonderful perfection, that from the earliest to the latest period, a few elegant improvements scarcely to be discerned even by the practised eye, a few tasteful variations rather to be described by the critic than felt by the spectator, are the only tokens which denote the progress of Grecian art from infancy to maturity.

But such were not the labors of the Gothic freemason. He stops frustrated, but not in disappointment. Neither the marble quarries of Mount Pentelicus, nor the chisel of Phidias could assist him. Rude materials, and still ruder hands were all that he could command. His architecture must depend only upon its innate character and significance. His cathedral, therefore, must be considered rather as a forethought than as a finished specimen. It exhibits the effort that has been made to embody those abstract ideas of solemnity and grandeur, which could not be fully realized or accomplished by human power. Still the effect has not failed. Gothic architecture appeals to the imagination, and fancy half supplies the deficiencies of the material scene. A Gothic building has always the charms of mystery: it always appears to be larger than its actual dimensions. The mouldings, the pillars, the arches always create receding shadows, and to the mind the idea of space arises, it will be found, from a succession of shadows, just as the conception of time results from the succession of ideas. In the earlier Gothic periods the management of light and shade was studied with remarkable skill. The mouldings are all composed of deep hollows and bold projections; the curves are almost invariably of the higher order, and the separations of the apertures are marked by carrying the mouldings above the level of the wall. A small fillet, also, often runs down the front of the lesser columns. By these artifices, all the forms of the building are brought out, painted as it were in bold relief; for the minute linear projections catch the light and heighten it, and the undercutting deepens and mellows the shade. In the later and more luxuriant styles, however, this attention to the tints was neglected, and the mouldings occasionally became shallow and trivial. But the daylight is courted by the Gothic architect, throughout all the periods of his style. The lines and masses of the roofs and buttresses, the ascending towers, and pinnacles, and spires are all marked and defined by the full blaze of noon, which falls upon them, and contrasts itself with the freshness of the apertures and the darkness of the walls which are behind the sunshine. After we have passed the outer gate, the architect seeks to exclude us from the sight of middle earth. His monastic genius delights in quadrangles, cloisters, and solemn porches in majestic piles, which expand and close round the spectator, leaving him nought to contemplate but themselves, and the clouds above him, toward which their tapering lines insensibly conduct his eye.

Thus it is that the Gothic style always fills the mind, and conveys the notion of comprehension and capacity. Habitation, and converse and congregational worship are seen to be its only intent. We seem to be invited to enter the cathedral. The wide portals expand upon the western front, and in the long perspective which appears between the pillars of the porch, and ends in the distant chancel, the light darts downward from the lofty unseen windows high up in the walls; each one marked by its slanting, colored beam of luminous haze, checking the pillars and the pavement, and forming what has been beautifully called "a solemn translucent gloom." Gothic architecture may be viewed as an organic whole, bearing within it a living, vegetating germ. Its parts and lines are interwoven and united, they spring and grow out of each other. Its essence, its distinguishing idea is the curve, which in the physical world is the token of life or organized matter, just as the straight line indicates death or unorganized matter. It is a combination of curves and arches, whose circles may be infinitely folded, multiplied, and embraced. Hence, the parts of a Gothic building may be expanded indefinitely, without destroying its unity. However multiplied and combined, they still retain their relative bearing; however repeated they never encumber each other. All the arched openings, the tall pointed windows, the recessed doorways are essential parts; they do not pierce the walls of the structure to weaken them; on the contrary, they bind them together. The spire may rise aloft, the large and

massy walls may lengthen along the soil; but still the building preserves its consistency. Richness of decoration, color and gold, may increase the effect of the Gothic style; but the inventor chiefly relies upon his art and science. Gravitation which could bring the vaulted roof to the ground, is the power which fixes each stone in the arch, and every one bears witness to the mastery which the architect has gained. Sir Christopher Wren is said to have gone down to Cambridge at least once a year, to contemplate the vaulted ceiling of the chapel of King's College there; and although the first mathematician and architect of his age, he repeatedly observed that he should not know where to fix the first stone of such a stupendous structure. The details of a Gothic building are frequently inelegant. Parts considered by themselves are often destitute of beauty, but they are always relevant, and all their minor faults are lost in the merits of the whole. . . .

The traditions of the Greeks, embodied with their religion and poetry, built the substructure on which the foundation of Grecian art was raised. Whether this sentiment afterwards found expression in the dramas of Æschylus or Euripides, or in the lyrics of Pindar and Anacreon; whether it found a tangible shape and form in the works of Phidias and Praxiteles, or was presented to the eye in the colors of Polygnotus or Zeuxis; all these were but different modes of the same feeling, the result of a sincere and earnest adoration of what was great and beautiful in art. The form once given, it required but time to complete the superstructure that at length arose.

It might never indeed have attained its glorious perfection had not other circumstances combined to add to its beauty. If Salamis and Platea had never witnessed those triumphs of patriotism, the mind of Greece might never have risen to that exalted pitch, which impressed so noble a stamp on all her after acts. Her poetry and her arts, as the voices through which her sentiments of freedom and glory found an utterance, would never have acquired that power and purity, which is the essence of all the productions of those young days; whether we have it now in the works of her poets, her painters, her sculptors, or her architects.

It was a similar expression of national feeling and of national religion, which produced the architecture and the arts of the Middle Ages. The splendid remains of Winchester and Ely, of York, Salisbury, and Oxford, are nothing more than the reflex and expression of the poetry and the faith of the people. They were written in a language which all were interested in, and which was understood and felt by all. And the observation is certainly true, that in the arts of a country its history is written, and that they are much more faithful interpreters of it than the chronology of its kings. In them, the nation speaks for itself without constraint, and they have studied the philosophy of art to little purpose, who expect that circumstances and causes so widely different from any we have now reviewed, as those that at present exist in this country, can possibly reproduce what other causes produced in other times.

I am not unaware of the objections that may be urged against the views I have now stated. As similar causes in the physical world always produce similar effects, it may appear to many very reasonable to suppose that the form of a beautiful specimen of architecture, which has afforded a pleasurable sensation to the spectator, will always retain that power. An exact copy of a pleasing original when repeated or created anew, may be anticipated to produce the same degree of gratification as it did in its original place. But when the architect acts upon these premises he will be sadly disappointed. The slight consideration which we have now given to the nature of his art, has I think shown us that it is to produce its effect upon the *mind* quite as much as upon the eye. Its forms are understood by the intellect; not merely painted upon the retina. The pleasures which it excites arise from complicated sources; they spring from the thoughts which we bestow upon the object, and not merely from the contemplation of the form. This assertion may be easily exemplified. A building which we *know* to be constructed of pine boards and composition ornaments; of hollow columns glued together in pieces; of cast-iron balustrades, and copper spouts; will never please as much as if it were raised of freestone. The outlines of the design may have the same elegance; but we cannot disjoin the ideas of grandeur and durability, and the notion of the instability and slightness of the flimsy edifice derogates from its consequence. Besides which, when we look at a building we are gratified by considering the labor and skill of its construction. We like to see the firm and regular courses of well-squared stone; the shaft compacted with the capital, and the wedge-stones balancing each other in the arch. But when the materials pretend to perform a part which does not belong to their nature we are offended by the deception, and receive but a very small proportion of the pleasure which their *forms* would have given if executed in the genuine substance. Every deception of this kind in architecture becomes a blemish which the mind does not pardon. The rough wall and oaken rafter of antiquity (observes Mr. Pugin), yet impress the mind with feelings of reverent awe which never could be produced by the cement and plaster imitations of elaborate ornament, and the florid designs which in these times are stuck about our mimic buildings in such disgusting profusion.

Every structure raised by the hand of man derives its entire value as a work of art from the feelings of the human soul. It is not to be viewed as a mere pile of stones, neatly joined together and symmetrically disposed in regular courses; but as the expression of a sentiment and the exponent of a real motive and meaning. The

dwelling derives its sanctity from the domestic hearth; the palace from the throne; and the church from the altar which it contains. If this truth be not kept in view by the architect, instead of catching the spirit and meaning he merely reproduces the forms and details of the works of his predecessors. His compositions are senseless, inanimate, and rigid; mere unmeaning form, without one particle of life-giving spirit, and conveying no possible sentiment or emotion to the mind.

Not in this manner worked the great architects of antiquity. With them it was not a blindly imitative, but an inventive and an intellectual art. They did not linger in idle contemplation of their predecessors. No style or structure was held up as a perfect model, or propounded as an infallible test. It was their desire to excel by the mixed exercise of judgment and invention. Selecting from the skill of past ages the ideas best suited to the present, they felt it was their calling to adapt their art to the wants and feelings of the society in which they lived. It was thus that their structures acquired the charm that we would vainly attempt to impart to cold and corpse-like restorations. Those who seek to distinguish themselves by the practice of this, which has been termed the finest of the fine arts, should not, indeed, be content to lose the benefit derived from study and experience. But they may be best instructed how to profit by the contemplation of past excellence by considering (in the words of the Earl of Elgin) that their models should be imitated, "not with the timid and servile hand of a copyist; but their beauties should be transferred to our soil, preserving at the same time a due regard to the changes of customs and manners, to the difference of climate, and to the condition of modern society. In this case it would not be so much the details of the edifice itself, however perfect, which ought to engross the attention of the artist; but he should strive rather to possess himself of the spirit and genius by which it was originally planned and directed; and to acquire those just principles of taste which are capable of general application." The whole course of an architect's necessary studies could not be better set forth than in this admirable quotation. It is a matter of much greater doubt how many will condescend to improve themselves by complying with such judicious and wholesome advice. It is a balance by which but few could be tried, and not be found wanting.

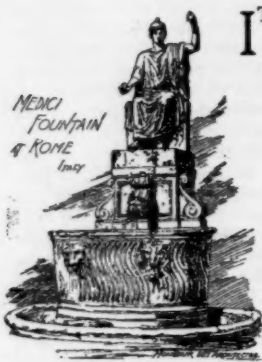
From the observance then, of this great principle of fitness and propriety results that unity of style, which is always so highly commended by the best writers. Where a definite end is proposed and is strictly kept in view, it follows that all minor considerations will be held subservient to it; and that every feature of the detail will be made to harmonize with its requirements. Incongruity and contradiction must otherwise be the sure result. The unity of the whole, and the obvious connection of the various parts are words which comprise almost everything in the application of the principles of criticism to architecture.

But how seldom have any of our architects exhibited an acquaintance with these simple and obvious principles. They have fancied on the other hand that by copying the outline, and reproducing the porticos of Grecian temples, they were really reviving Grecian art; and that by persevering in this course they might produce works as beautiful as those of the ancients. Some have even expressed the hope that by adding our knowledge to theirs, and the power of our civilization to the less refined polity of those early times, we may surpass them. But those who reason in this way, says a late writer, appear to have only glanced at the surface of the question, and to know but little of Grecian art, or of what in fact it really consisted. It was not with those artists a thing borrowed from others, or something apart from their feeling or polity; but really and wholly the enthusiastic expression of the faith, the feeling, and the poetry of the nation.

The real architect then, ought not to work merely by line and rule. He should recollect that he is composing a work which ought to have a given intent. Whenever he determines to adopt any system which prevents him from yielding to the *meaning* of his structure, he ought to apprehend that he is in the wrong. Whenever he feels himself *cramped* by his pattern, he may be assured that the precedent, however good in itself, is *bad* for the purpose to which he makes it a slave. Take the Parthenon, so exquisite in its purpose and meaning; convert it into a dwelling-house by building your external walls in the place of the pillars; raise the pitch of its roof to suit our wintry climate; fill the shell with two or three tiers of glazed windows; cover the roof with numerous stacks of vainly disguised chimneys, and then see if these homely and unpretending features will not entirely overcome the ostentatious display by which they are surrounded.

NUISANCE—INCONVENIENT BUILDING.—A bill in equity was filed by certain property owners praying that a building in a highway pertaining to their property be removed, and that the closing up of the highway be enjoined. There was nothing about the building itself deleterious to the health of the complainants, or that rendered the use of their habitations uncomfortable and dangerous—it was simply inconvenient to have the building occupy the street. In this case—*Clark vs. Donaldson*—the Supreme Court of Illinois decided that an injunction could not be granted. Judge Schofield, in the opinion, said: "The building having been erected, a court of equity would not, except in an extreme case, interfere to remove the building. If it were a building dangerous to property or life before a jury could hear and decide upon a case, the court might act. But if it is only, as it is in this case, an inconvenience, no matter how great, a court of equity would have no right to interfere and abate the nuisance, at any rate before the question is settled at law."—*Iron Age*.

VITERBO.



IT was night when we entered Viterbo, and our reception was characterized by an attitude of reserve which a further acquaintance materially modified. The broad, low *vettura* slowly climbed a hill in quite the usual manner—a manner acquired by the necessity of always climbing a hill before entering an Etruscan town—and as we neared the summit, a long line of dark walls rose gradually skywards. A fitful light, stooping in the wind, made weird shadows across the face of a Madonna above the gate, and a form, surmounted by the single cock's feather that denoted an officer in the Octroi service, challenged us from under the archway, and let us pass without further ceremony. Within the gates the road inclined downwards towards the centre of the town. It was perfectly deserted; high masses of houses upon either side were grim and dark; here and there, as we searched for an *albergo* amidst a little labyrinth of narrow streets, a flaming lamp threw broad, grotesque shadows upward from cornices and mouldings; but usually the sky, dark as it was, seemed light in contrast to the granite walls about us. At last we rattled over the stones of a small, shapeless *piazza*, and disembarked at the door of the Albergo Angelo. The usual commands ensued, followed by the inevitable response, "*Subito, subito*," and the equally inevitable delay. But at length Viterbo faded away like all other things of consciousness, to be seen under more favorable conditions in the morning.

The Viterbo people pride themselves not a little upon the fact that their town has been called the Nuremberg of Italy, and as far as the proportions of the buildings are concerned, they can justly do so. Built largely by feudal lords in the thirteenth century, at a time when houses were literally castles, the very strength necessary in their construction gave these houses a breadth and dignity which is largely lacking in the German work. Whoever, loving the quaintness of the Rhineland, and attracted by this pseudonym, should make a pilgrimage to Viterbo, in search of droll conceits or grotesque bits, would be liable to disappointment; but if, like Doctor Syntax, his search were for picturesqueness *per se*, there is sufficient for his ample satisfaction. The peculiar virtues of Viterbo work are its originality and its simplicity. It is distinctly individual in that nowhere else in Italy or Spain is this peculiar kind of exterior staircase used—an exterior staircase [See Illustrations] parallel with the façade, terminating in a broad landing, which is closed from the stair by a stone-trimmed door, and is carried by a half-arch. There is a similar landing in a house at Brindisi, but its approach is different. In Spain, the little gallery over the small north court of the Ayuntamiento, in Barcelona, approaches it the most nearly; but this is only a balcony, to which access is gained from the interior. The reason for such staircases is doubtful; mere picturesqueness would hardly seem to have justified it in the minds of the designers of that age. Lack of sufficient space for broad stairs, a desire to save all room inside and a consequent hanging of the stairs in mid-air to allow access to both stories, at once suggest themselves; but from the position of some of these buildings upon piazzas with ample space about them, these are manifestly not the reasons. The strong and solid (never balustered) parapet to the landing, and the strong door between it and the stairs, seem to imply that the landing was available as both an offensive and defensive sort of *barbican* to the house. This is further supported by the fact that the two stories are not otherwise connected; naturally all this is mere surmise. The broad surfaces of the Viterbo work cannot be too highly praised; they even occur in the construction of the arches, which have much longer voussoirs than would be necessitated by mere constructive requirements. It is one of the hairs of architectural controversy that is frequently split, whether the face surfaces of arches shall be broader than absolutely necessary. As a matter of fact, there are few arches but must irritate the "purists." As well object to a label moulding for having no *raison d'être*. The Viterbo arches, by the way, have labels. The inner and outer circumferences of the voussoirs are not struck from the same centre; the outer line of the arch is more or less stilted, making the key longer than the voussoirs, which gradually decrease in length towards the springing of the arch. This, of course, is not at all unusual in Italian work; occasionally the outer arch line becomes a slightly pointed arch, as in Or' San Michele, at Florence.

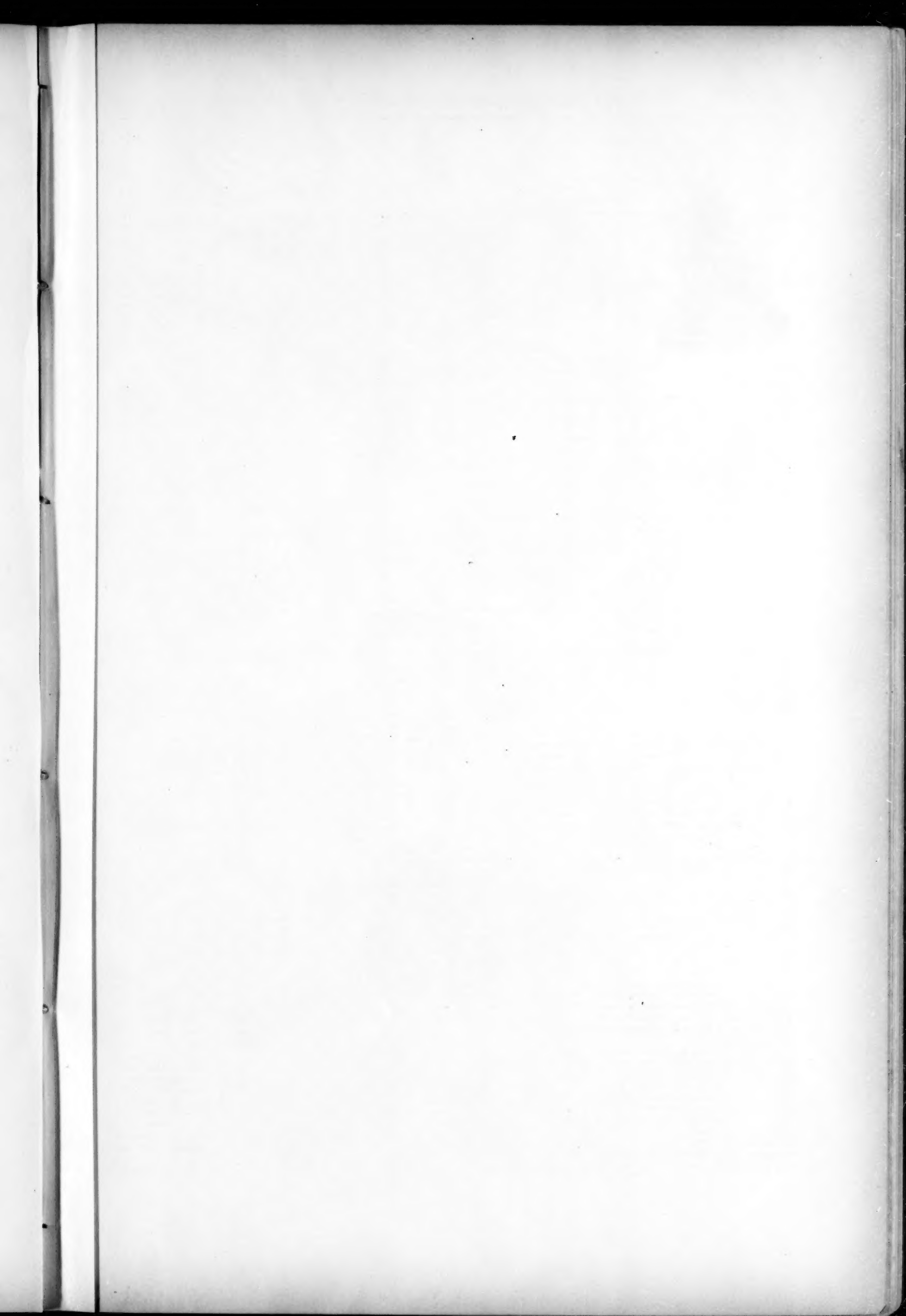
In Avila, Valladolid and Salamanca, in Spain, there are arches which resemble those in Viterbo, though, while in Italy the tooling of the face of the voussoirs is the same as that of the wall-ashlar, in Spain the voussoirs are without a label, and are slightly—very slightly—more finely cut upon their surfaces, thus obtaining an excellent contrast with the wall, which is flush with the face of the voussoirs. There are other arches which are almost wholly moulded, the mouldings being comparatively simple, consisting of filets, flat cymas and scotias, kept well to the surface of a plane, as in most good work. Wherever these mouldings are decorated, the design is simple; in fact, the material does not allow fine cutting. Egg-and-dart work is

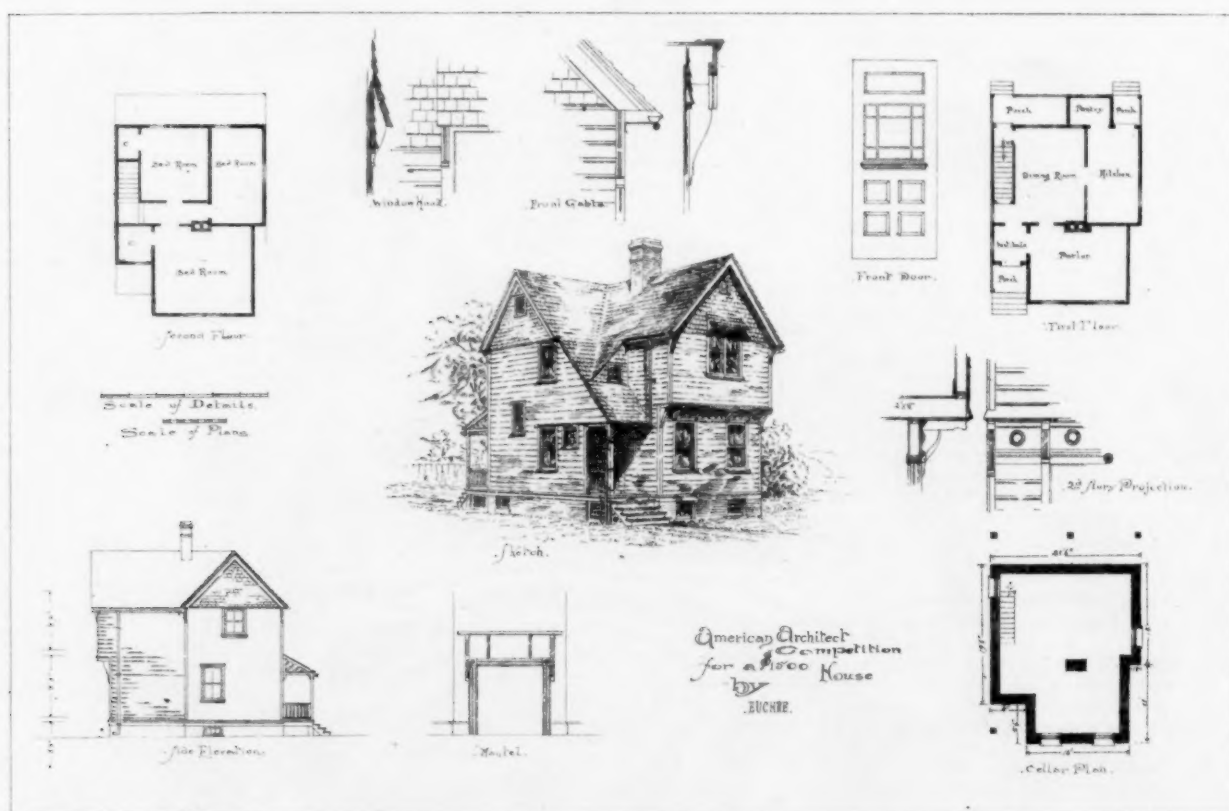
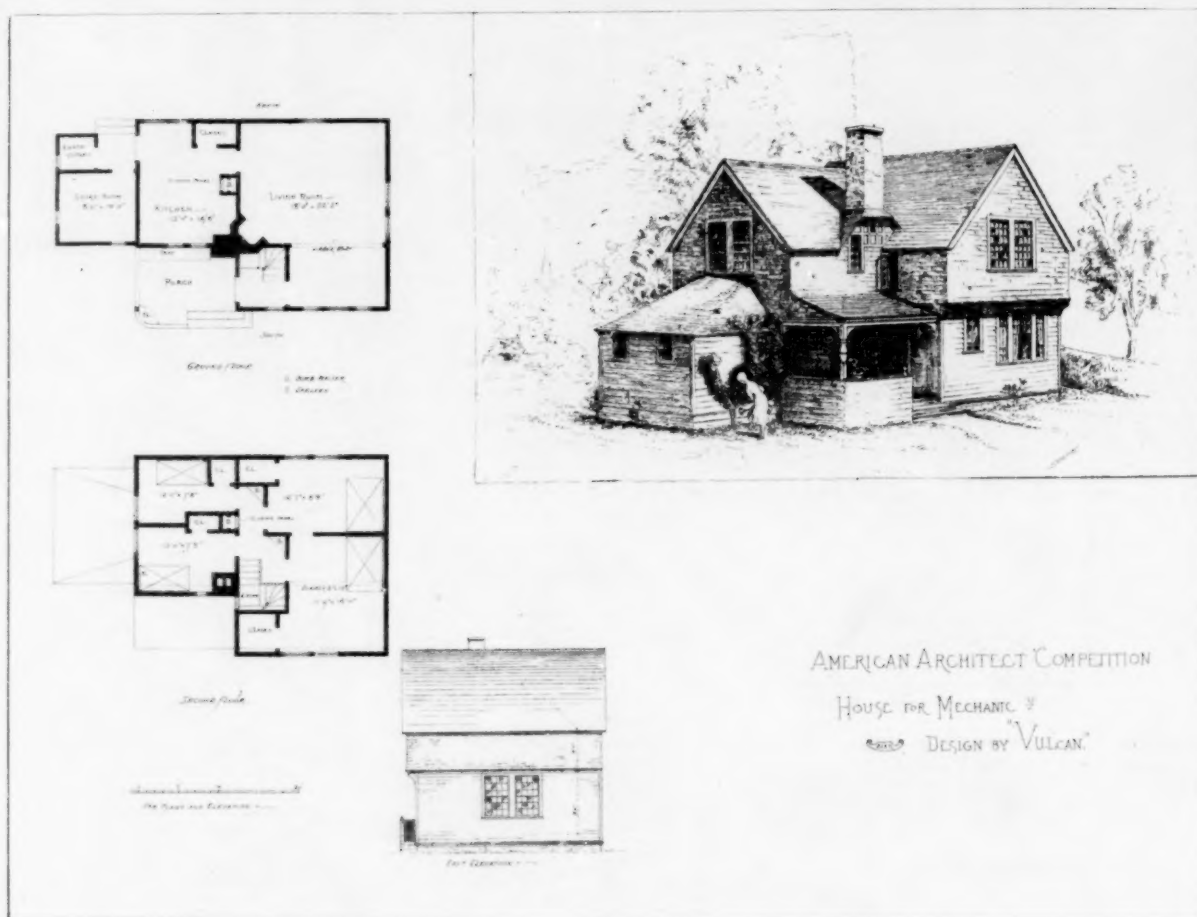
almost entirely absent; flat outlined leaves are largely used, and also a peculiar form of prismatic star pattern. The arches are particularly good in their proportions and the sweep of their lines; many are low and flat, but always have a free curve, decidedly different from the weak, broken-backed line of the so-called three-centred arches.

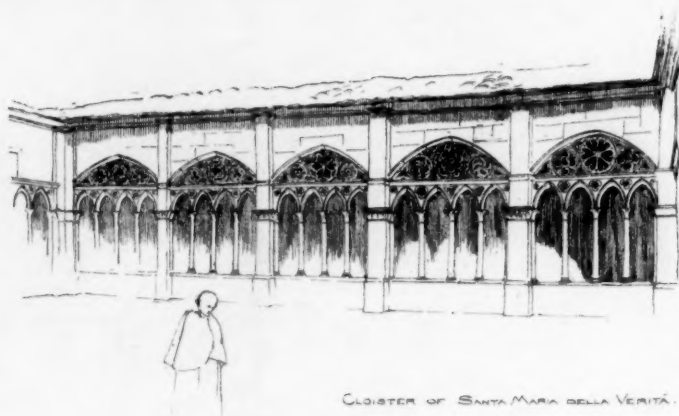
The Via del Pellegrino, which wanders about the town in a desultory fashion, passing beneath arches and across bridges, culminating in the little piazza so often sketched, is full of picturesque bits. The very manner in which the old *torroni* still existing mass accidentally with long, low roofs or arcades carried upon baseless, sturdy columns, often suggests a scheme for a façade, or a grouping of parts that is excellent. To state that Viterbo is termed by ancient writers (usually nameless) the city of "handsome fountains and beautiful women" is but to reiterate a very hackneyed sentence of the guide-books. The fountains only demand our attention, for the charm of dark eyes, as potent still as in the days of La Bella Galiana, needs a finer medium than prose to be its worthy exponent. In the centre of each little square is a polygonal basin of stone, simply panelled, with the scutcheon of some old family in low relief upon its sides, surrounding a columnar shaft circled by a few grim lion-heads, from whose yawning mouths the water falls in long curves. Crowning the shafts is a quaintly-cut Madonna, or an opening flower. No attempt is made to make the fall of the water itself effective; the thin jets fill the great basin, and scarcely ripple the surface as they fall, and the water lies cool and dark to the basin's lip, with only sufficient movement to cause the light reflections, that lie in concentric waves about the column's base, to slowly undulate. Here and there the lion of Viterbo, either in relief or standing firmly upon his four sturdy legs, ornaments a more ambitious design. One of the later fountains, ascribed to Vignola (though superior to most of his work) is a peculiar but effective combination of forms. The Fontane Grande is already well known and requires no description, and the court of the Palazzo Pubblico contains a late fountain that is rather Barocco.

The churches have little to recommend them, excepting Santa Maria della Verita, outside the walls, which has a Spozalizio, by Lorenzo di Giacomo (1469), which is one of the finest frescoes in Etruria, and a very charming Gothic cloister, of which the proportions and tracery are equally good. The interior of the cathedral is simple and good. The historical interest of Viterbo centres about the piazza in front of the cathedral. Here, in 1155, Frederick I, with much pomp, and surrounded by richly costumed followers, came to render himself vassal to Breakspare, the English Pope Hadrian IV, and held his stirrup as he mounted; here the place was thronged, in 1279, as the rumor spread through the town that Count Guido, to revenge his father's death at Evesham, had slain the nephew of Henry III of England at the high altar; and here, in the old Episcopal Palace, whose front is now more scarred than attractive, three of the Popes of the thirteenth century owed their short and stormy supremacies to the vote of a conclave whose every member trembled at the word of Charles of Anjou. A fine façade the old palace must have had. The entire court on the right, which is carried upon stone vaulting, was separated from the piazza by a doubled columned screen, surmounted by a Ghibellini parapet, with escutcheons. This, now badly mutilated, is filled in and forms a screen wall. In the court behind is one of the best fountains in Viterbo—a many-sided polygonal basin, around a column of ample diameter, which carries above its leaved cap another decagonal basin ornamented with waving flutings and lions' heads; a single jet rises from the centre of the upper basin. The water no longer flows; bladed leaves and purple flowers of the iris sway in the wind instead, while the seats around the court, where the bishops sat in the afternoon shadows and discussed the famous muscatel, which proved too much for old Johannes von Augsburg, are disused and empty. The great Hall of the Conclave can only boast the remains of its ceiling. Passing out from it, and down the broad steps, a quaint street at the left leads to the square near the Palazzo Pubblico, where there is a pathetic little museum of Etruscan and Roman antiquities, but few of which are intrinsically interesting after one has seen the Etruscan museum of the Vatican and that at Corneto. The private collection of Signor Falcione, which is near at hand, contains, on the contrary, some of the finest Etruscan glass and gold work to be seen in Etruria; the decorative dainty designs of the gold-work especially are extremely interesting, even to an architect, such design being capable of adaptation in many ways. The Etruscan tombs at Corneto, some thirty miles away, are naturally of much more interest to the archaeologist than to the architect, but the color of the wall painting is well worth studying. At the corners of the palaces that flank the piazza of the Palazzo Pubblico at Viterbo, stand two columns on either side; around them and above, upon the palace walls, are richly cut, ribboned escutcheons, with many a tasseled cardinal's hat and not a few Papal tiaras, relics of a splendor that vanished centuries ago. The columns flower into bell-shaped caps, each of which carries a long, flat base, upon which, with all four feet planted firmly, stands the lion of Viterbo. He stood there with the same conscious security in his bearing when the people went out to battle against Rome, and came home triumphant; he still stands, a symbol of the indomitable spirit that inspired and continues to inspire these cities of Etruria. As we pass out under the high arches of the gate, into the open country, along one of those many roads all of which "lead to Rome," of the many things left behind us in the quiet city that he guards, his attitude of defiance leaves the strongest impression of all upon the mind.

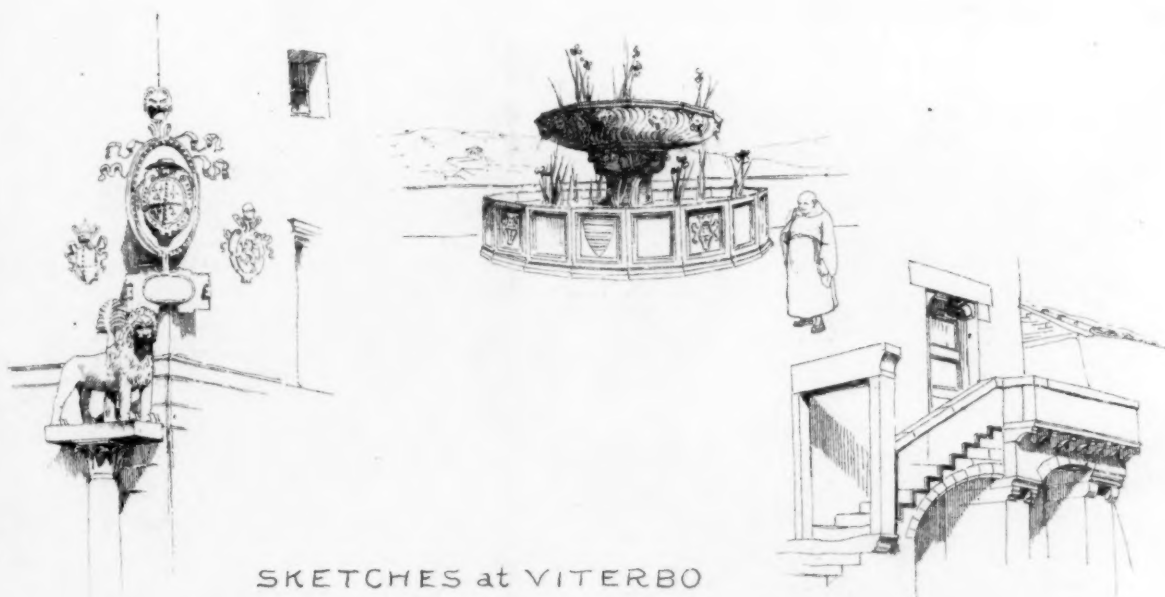
C. HOWARD WALKER.





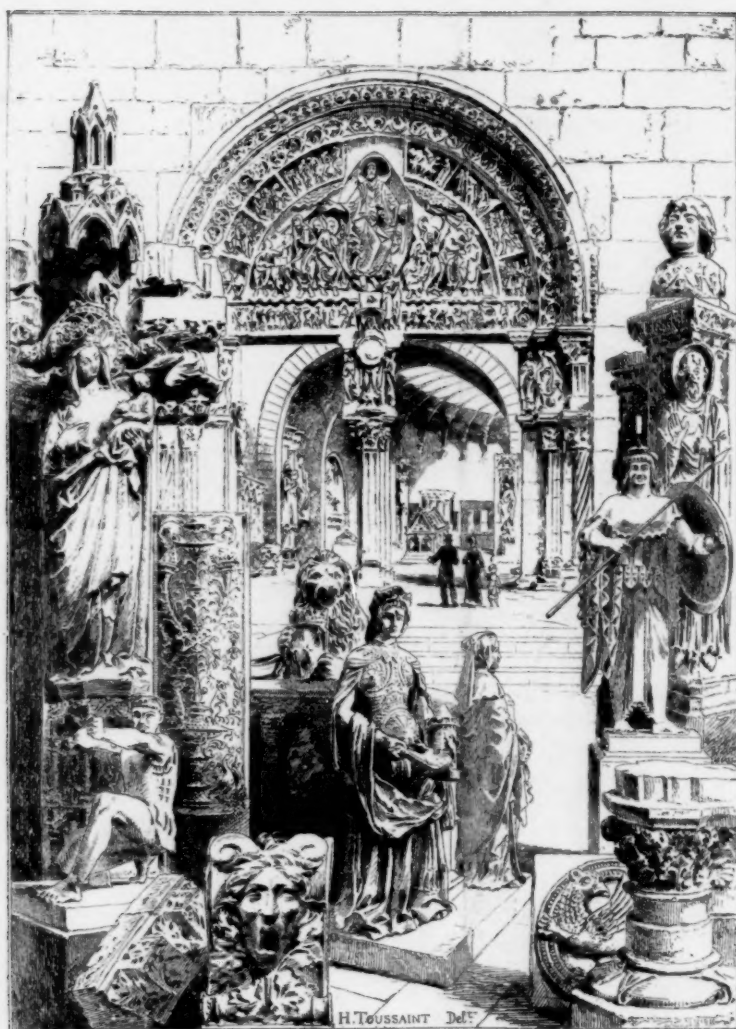


CLOISTER OF SANTA MARIA DELLA VERITÀ.



SKETCHES at VITERBO

CW



The Gilded Virgin of Amiens. The Acanth from the Temple of Apollon.	Bronze-man Corbel.	Decorative from the Cathedral of Yvesley. Tomb of Francis II. and of Margaret to Paris.	Fragment of the Cathedral of Arles. Mosaic, from the Temple of Apollon.
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THE BUILDER.



UR FOREIGN EXCH

UE DE LA REPUBLIQUE
QUE. A PARIS



DECORATIFS - Architect, M. HENRI.



EXCHANGES. XVIII.

Printing Co. 211, Fleet Street, London.



THE BUILDING NEWS.

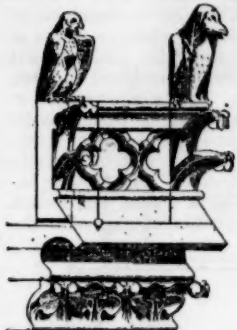
HATCHETT'S HOTEL & WHITE HORSE CELLARS, PICCADILLY W.
W. & A. WEATHERLEY AND J. E. LINDSAY ARCHITECTS.



SANTA MARIA DELLA SALUTE.

THE ILLUSTRATIONS.

THE STATUE OF THE REPUBLIC, PARIS, FRANCE.

[From *La Semaine des Constructeurs*.]

From the Church of
NOTRE DAME PARIS
SAINT-ETIENNE AND CO. & C.

ON the 14th of July, the day of the National Fête, the Statue of the Republic was unveiled on what was formerly known as the Place du Château d'Eau, Paris. This monument is the work of M. Leopold Morice, sculptor, and M. Charles Morice, architect. The statue is of bronze, the body measuring six metres and a half; the head from the top of the forehead to the chin is one metre, and the Phrygian cap which crowns the whole measures 1m. 40c., while the weight of the statue is about 10,000 kilogrammes. It is placed on a circular granite pedestal, and the three statues which form part of the group, and symbolize the republican device, "Liberty, Equality and Fraternity," are also of granite. Near the cap of the pedestal is the coat-of-arms of the city of Paris, in bronze. The statue faces the Rue Turbigo, and on

this side on the podium, one metre above the ground, is a lion four metres high, who seems to hold himself in readiness to protect the urn of universal suffrage. A little behind him is a large shield planted in the midst of large palm branches, bearing the date 1789, all in bronze. Twelve bas-reliefs, recalling the great achievements of the national history, are to ornament the pedestal. Six of them are already finished; they are the oath in the tennis-court, the taking of the Bastille, the *abandon des privilèges*, the provisional Government of 1848, the 4th of September, 1870, and the fête day of the Republic in 1880. The illustration also shows one of the decorative standards for which M. Mayeux obtained the first prize in the competition for the decoration of the Place de la République.

MANTELPiece IN THE FLEMISH RENAISSANCE STYLE FROM THE ROYAL PAVILION AT THE FISHERIES EXHIBITION, LONDON.

[From *The Cabinet-Maker and Art-Furnisher*.]

THE principal feature of this vestibule, and the one to which I wish to direct particular attention, is the characteristic mantel which I have roughly sketched upon the next page. It is essentially Flemish in its constructive features, and well represents that particular phase of the Renaissance which was cultivated both in Flanders, and, more crudely, in England, in the time when the artificers of Northern Europe commenced to catch the spirit of their predecessors of the sunny South. It forcibly reminds me of a mantel which I saw in the Musée Plantin-Moretus, at Antwerp, and it is of precisely the class of work which might have been seen in the house of a Flemish patrician of the seventeenth century. Although the same kind of work was executed in this country at about the same period, our designers did not effect the "hooded" mantelpiece so much as the Flemings. I think this is to be regretted, especially in the case of our halls, because the building out of the wood-work gives such a capital opportunity for the display of curios and pottery above. This capability for such decoration is specially manifest in the present instance, and Messrs. Gillow have fully availed themselves of the chance afforded. What with armor provided by Mr. J. E. Gardner, and bric-à-brac from the stores of Messrs. Daniell & Sons, of Wigmore Street, the hood of the mantel groans, so to speak, with a weight of glistening treasure. The richly-chased and inlaid musket, and the brilliant colors of the late Italian bronzes and majolica stand out well against the deep tone of the velvet-covered background.

HATCHETT'S HOTEL AND WHITE HORSE CELLARS.

[From *The Building News*.]

In rebuilding this hotel on the site of the well-known hostelry in Piccadilly, for the Hatchett's Hotel Company, Limited, a portion of the ground-floor has been reserved for a restaurant, etc., whilst in the basement, the far-famed name of "The White Horse Cellars" will be perpetuated on the old ground, but with improved surroundings, and with increased accommodation for the coaching business. The entrance to the hotel is, as heretofore, on Dover Street, with the coffee and reception rooms on the ground-floor, and the public and private dining-rooms on the first floor. The remaining floors are devoted to sitting and bed rooms, the kitchens, etc., being upon the fourth floor. The architects are Messrs. W. S. Weatherley and F. E. Johnson.

SEMI-DETACHED VILLAS. BY T. E. COLCUTT.

[From *The British Architect*.]

NEITHER of Mr. Colcutt's contributions to the present Royal Academy Exhibition is so representative of his special power and skill in design as are the three pairs of villas we illustrate this week. There is an excellent combination of picturesqueness and freedom with architectural rigidity and dignity in this work, which entitles it to be regarded as a happy illustration of villa design. We do not think it is free from a suspicion of "dodginess," or affectation, in

parts, but we speak of the design as a whole. Our readers will observe that the houses are just of the kind which may be successfully produced in brick and terra-cotta, and they will find them to be a favorable example of good terra-cotta work. The houses really illustrate much of the practical knowledge of the late Mr. George Jennings, the well-known sanitary engineer, by whom they were built. The terra-cotta was manufactured by him at his works, Parkstone, Dorset, where the clay used is raised from pits on the estate—the most suitable veins for terra-cotta being alone used, and none other. The color of it varies from a delicate cream to a warm buff. These high-class villa residences are situated in Nightingale Lane, between Clapham and Wandsworth Commons, from the designs of Mr. Colcutt, and under the close personal supervision of Mr. Jennings, regardless of cost. The warming, ventilation, and sanitary arrangements generally are on good principles, and on systems introduced by Mr. Jennings.

THE MUSEUM OF COMPARATIVE SCULPTURE AT THE TROCADERO, PARIS. SKETCHED BY M. H. TOUSSAINT.

[From *The Builder*.]

SANTA MARIA DELLA SALUTE, VENICE.

[From *L'Art*.]

SKETCHES AT VITERBO, ITALY. BY MR. C. HOWARD WALKER, ARCHITECT, BOSTON, MASS.

For description, see article elsewhere in this issue.

COMPETITIVE DESIGNS FOR A MECHANIC'S COTTAGE SUBMITTED BY "Vulcan" AND "Euchre."

"Vulcan." Too late for competition. Plan rather crowded at the entrance, and staircase cuts into the lower room over the fireplace, although the view up the stairs from the hall might be pretty. Chimney not well placed for the chambers. The exterior very carefully drawn, but not with the touch of a person who is used to sketching. The grouping is pleasing. There ought to have been an allowance in the full specification for flashing a large cricket behind the chimney that blocks the valley.

"Euchre." Stairway poorly arranged; central chimney good. Details nicely drawn and perspective prettily rendered.—*Extracts from Jury's Report.*

THE COMPETITION FOR A MECHANIC'S HOUSE. — VI.

DESIGN SUBMITTED BY "Vulcan."



DOVER
CHEN FRANCE

QUANTITIES AND PRICES RULING AT NEW YORK.

Earth excavation, 35 cu. yds., @ 30 c.	\$ 10.50
Rubble masonry, including outside chimney, 27 perches, @ \$4.	108.00
Bricks (laid), including fireplace, 3.3 M., @ \$20.	66.00
Plastering, 360 sq. yds., @ 30 c.	108.00
Total.	\$292.50
Spruce framing timber, 4 1/2 M., @ \$20.	\$90.00
Rough hemlock sheathing and flooring, 4.1 M., @ \$18.	73.80
Pine flooring, 1270 sq. ft., @ 4 c.	50.80
Clapboards, 950 " @ 3 c.	28.50
Shingles, 21 M., @ \$4.	84.00
Paper, 2,000 sq. ft., @ 4 c.	10.00
Mineral wool, 5 squares (2" thick), @ \$5.	25.00
Doors (including hardware, frames, etc.), 14, @ \$7 (average).	98.00
Two 3' 0" x 6' 9" x 1 1/2"	
Two 3' 0" x 6' 9" x 1 1/2"	
Five 2' 8" x 6' 8" x 1 1/2"	
Three 2' 8" x 6' 8" x 1 1/2"	
Two 2' 8" x 6' 8" x 1 1/2"	
Windows, double-hung (including frames, weights, etc.), 12, @ \$6.50 (av.)	78.00
Window casements (including frames, butts, latches, etc.), 11, @ \$4 (av.)	44.00
Nails.	15.00
Dumb-waiter, complete.	20.00
Gutters, 50 ft., @ 15 c.	7.50
Leaders, 36 ft., @ 20 c.	7.20
Mouldings, trimmings, turned post for porch, and panel over chimney.	20.00
Interior shelves and hooks.	10.00
Seat and shelf in porch.	7.00
Stairs, complete.	30.00
Earth-closet.	30.00
Sink.	3.00
Labor not included in above (590 sq. ft., not including porch and shed).	300.00
Painting.	100.00
Total.	\$1,131.50
Mason-work as above.	\$ 292.50
Total.	\$1,424.00
Builder's profit, 10 %.	142.40
Total.	\$1,566.40

The above is "Fulcan's" estimate, at what appear to him liberal rates. Figures for each item, however, furnished by Mr. S. Francis Quick, builder, of Yonkers, New York, give, "Fulcan" regrets to say, \$1,675. \$60 would be saved in Mr. Quick's estimate by omitting the dumb-waiter and the mineral wool.

THE DESIGN SUBMITTED BY "Euchre."

THE walls up to the grade are to be of stone, and from the grade to floor-beams, of brick.

The frame to be of hemlock and covered with novelty siding up to the cornice line.

The gables and roofs to be shingled.

Shingles on the roof not to be painted.

All floors to be of 1" white-pine.

Plaster, two-coat work.

Mill windows, doors and trimmings.

No blinds to the windows.

ESTIMATE OF QUANTITIES AND PRICES RULING AT NEWARK, N. J.

MASON-WORK.

75 yds excavation,	
12 ft. bluestone sills,	
20 perch of stone,	
4500 bricks in walls and chimney,	
370 yds. plaster,	
Total.....	\$493.85

CARPENTER-WORK.

3550 ft. of timber in the frame, @ \$25 per M., put up,	
1600 ft. novelty siding,	
176 ft. shingles in rafters,	
839 ft. shingles in roof,	
596 ft. pine in outside finish,	
110 ft. tongued and grooved roof-boards, for piazza,	
175 shingling lath,	
Total.....	\$225.31

48 ft. half-round gutter,	
17 iron brackets,	
48 ft. 2" lender,	
Total.....	\$19.50

2 mauls,	
4 cellar frames and sashes,	
6 window-frames, 4 lights, 14" x 28",	
6 " " " " 14" x 26",	
4 sashes, 2' 6" x 2',	
Total.....	\$115.00

(All frames to have sashes and casings.)

2 louver frames in gables,	
14 doors, 2' 6" x 6' 6" x 1 1/2",	
1 front door, 2",	
1138 ft. flooring,	
274 ft. baseboard,	
Total.....	\$104.33

(All doors to have jambs and trimmings.)

Hardware.....	\$12.07
Stairs.....	15.00
Painting.....	75.00
Carpenter labor.....	300.00
Sink in kitchen supplied with water from the street main.....	45.00
Cesspool in the yard and sink-waste connected.....	50.00
Architect's commission.....	75.00
Total.....	\$1,510.05

Estimate by James Cadmus, builder, Washington Street, Newark, N. J.

ASPHALT DEPOSITS IN MEXICO.—A variety of bituminous substances, from the pure hard asphaltum to the fluid petroleum, are known to exist in immense quantities along the coast of the Gulf of Mexico, chiefly in the States of Tamaulipas, Vera Cruz, and Tabasco, but there appears to have been no organized efforts to utilize the deposits either for domestic purposes or for commerce. Consul Cascard, of Tampico, says that almost inexhaustible beds of asphaltum exist on both banks of the river Thamesi, about sixty miles above that port, being found in a comparatively pure state, and containing only an insignificant proportion of foreign matter, chiefly vegetable, which it gathers while oozing through the sedgy borders of the river. The substance may be gathered with little difficulty, but as the locality is only accessible to boats of light draught, the beds are comparatively neglected. Asphaltum, or *chapopote*, as it is called in Mexico, is frequently found floating in masses on the rivers and lagoons, and is cast up on the beach by the waves all along the Gulf Coast, and especially in the vicinity of Tuxpan and on the Grijalva River in Tabasco. These masses, by the local law of flotsam, are the property of the finder, and are sold at the rate of from eight to nine shillings the hundredweight. In the State of Vera Cruz asphaltum is found in considerable quantities, the principal deposits being in the canton of Jalacingo, in Minatitlan, in the canton Ozuama, where several deposits of petroleum, asphaltum and coal are known to exist in a place called El Chapopote, in the municipality of Panuco, in Papantla, in Tuxpan, and Tomtoyuca. In Vera Cruz, near the village of Molocan, a few miles distant from the river of Coatzacoalcas, there is an immense deposit of asphaltum, which at some places is found pure, and at others more or less mingled with rock-salt and saltpetre. According to Dr. Hechler, a German traveller who visited it, the "salt mine," as it is popularly called, is an isolated spur, branching off from the main ridge or cordillera. This mountain is from 1,000 to 1,200 feet in height, and with a base of from three to four miles in extent, of cone shape and cracked by earthquakes. On its slopes are found a number of pits, some cold and still, others seething and bubbling and emitting a stifling odor. These pits appear to have cavernous communication with the internal fires of the mountain, which, as indicated by the external heat and frequent subterranean noises, contain vast masses of material in a state of combustion. The whole adjacent surface consists of asphaltum partly solid and partly liquid, and more or less mixed with rock salt. So extensive are these beds that the supply may be considered inexhaustible. In some places the seething pits eject considerable quantities of asphaltum in a liquid state. Extensive beds are also known to exist in the State of Chiapas, on the upper waters of the Grijalva River, which has its course through the State of Tabasco, and empties into the Mexican Gulf, near Frontera. — *Journal of the Society of Arts.*

WATER-CLOSETS.¹—XVIII.



A. G. JENNINGS'S Side-Outlet Hopper.—The first short hopper with a side outlet was invented in 1852, by A. G. Jennings, of London, in which he claims as novelties "the basin (bowl) and trap combined in one piece of earthenware, so formed that the basin is made to contain a quantity of water.

... The escape may be from the face, side, or front. The basin may be of any shape to hold water in the bottom." In 1876 an improvement was made on this closet, for which a patent was issued. He says: "It has been found to have the disadvantage that the

water tends to run around and around, instead of passing out in a stream." To remedy this defect, a rib, which is shown in the illustration by a dotted line, was introduced. This rib causes the water to be thrown in a mass toward the outlet, carrying whatever waste matter there was in the bowl with it through the trap. An opening for a vent-pipe, which is not shown in the illustration, is now manufactured in the usual position on the crown of the trap. The water is supplied through a fan instead of a flushing-rim, and it is intended to be connected with a tank.

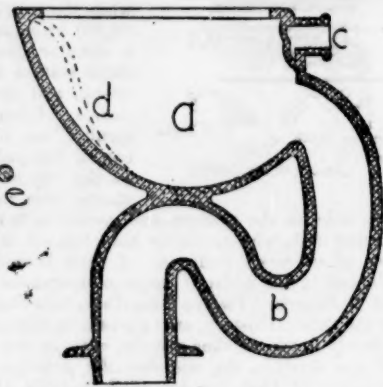


Fig. 190.—Jennings's Side-Outlet Hopper.

a, Bowl. b, Trap. c, Supply. d, Dotted lines showing where rib e was added in 1876.



Fig. 191.

Buckland & Rees's Hopper-Closet.

a, Bowl. b, Trap. c, Fan. f, Supply.

Buckland & Rees's Closet.—The second closet of this class was invented in England in 1862, by Buckland & Rees. This closet has its fan so shaped that a portion or half the water entering the bowl is driven to each side, "instead of being driven with a spiral motion, as is usually the case, the greater part of the water being allowed to flow directly to the bottom of the basin, and thence through the aperture or discharge-pipe on the other side." This closet has its trap and bowl in separate pieces. The "National" side-outlet closet manufactured in this country is apparently a combination of the two closets which have just been described.

Hellyer's Side-Outlet Hopper.—I illustrate two forms of short hopper of the type under discussion, which were invented by S. S. Hellyer, of London.

He acknowledges that he was unable to make closets of this kind act satisfactorily. The faecal matter would strike against the sides of the

outlet, and leave it in a foul condition. To obviate the tendency which the waste had to remain in the bottom of the bowl, the supply-pipe was divided into two parts, one of which entered the bowl near the bottom, and in this manner forced the water and foreign matter

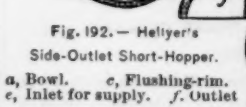


Fig. 192.—Hellyer's Side-Outlet Short-Hopper.

a, Bowl. c, Flushing-rim. e, Inlet for supply. f, Outlet

through the outlet. Hellyer concluded that this particular form of hopper was not good for the purpose which it was intended to serve. The bowl is formed so it can be placed in an ordinary trap that is placed above the floor.

Bostel's "Brighton" Closet.—A closet of this class, which has recently been extensively used in this country and in Europe, was invented in 1877, by D. T. Bostel, of Brighton, England. This closet is made in one piece of earthenware, the bowl and trap being formed in a manner similar to the Jennings short hopper (Fig. 190), the difference being in the flushing-rim, inspection-hole, and in the vent-pipe. The supply-pipe is divided so as to enter the flushing-rim at two points. Flowing around the flushing-rim, the water enters the bowl through small holes, which are purposely made larger on the side of the bowl, opposite to, or farthest from the outlet. By this arrangement the greatest volume of water is thrown where it is most needed, and the matter in the bowl is carried into the trap, if not through it.

¹ Continued from page 76, No. 390.

There is an opening with a cover, to be used for the purpose of inspecting the mouth of the trap, and forming a top to the side outlet. The opening for a vent-pipe is just below the inspection-cover. A

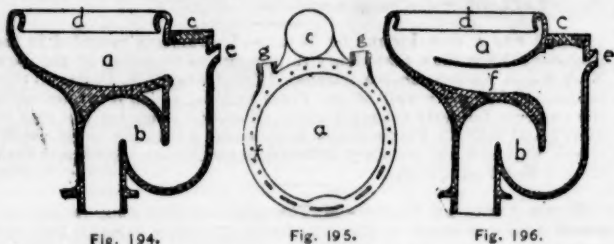


Fig. 194.

Fig. 195.

Fig. 196.

The "Brighton" Closet.

a, Bowl. b, Trap. c, Inspection-cover. d, Flushing-rim. e, Vent.
f, Slots in flushing-rim. g, Double-supply.

vent-pipe in this position will only serve to carry off locally-generated gases, and must never be connected with the soil-pipe, as it would form a communicating duct between the inside sewerage system and the house. In this closet a vent-pipe to prevent siphonage, back pressure, and to carry off gases generated in the soil and other waste pipes, would have to be connected with the branch from the soil-pipe below the floor, as there is no opening for the purpose near the trap. There is sometimes a false bottom or screen manufactured in this closet. I can see no good purpose served by this screen, while it increases the space and surface between the bowl and trap, which is liable to be fouled by matter in its passage to the trap. This closet is arranged to receive its water from a tank.

Stidder's Closet.—In 1878, one Stidder invented, and received patents from Great Britain, for a supply-pipe divided so the water could enter the flushing-rim at three points. This flushing device was intended for use with a short-hopper closet.

The Lambeth "Flush-out" Closet.—A closet of this form and class, which was designed and is manufactured by Doulton & Co., of England, is made in two pieces of earthenware. This closet has an inspection-hole so that the compartment over the top of the trap can be examined without difficulty. There is also an opening in the crown of the trap, which may either be used as an inspection-hole or as a place into which a vent-pipe

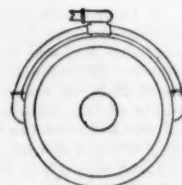
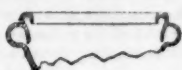


Fig. 197.

Stidder's Branch Supply.

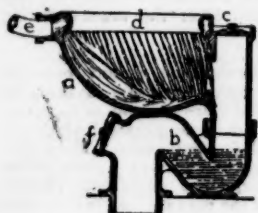


Fig. 198.

The Lambeth "Flush-out" Closet.

a, Bowl. b, Trap. c, Inspection-cover. d, Flushing-rim. e, Supply. f, Opening for vent.

are furnished in one piece of earthenware, or with an earthenware bowl and an iron trap.

DEDUCTIONS.

As stated before, I consider the simple short-hopper closet, with a bottom outlet, the best form of water-closet in use at the present time, when it is properly flushed from a tank, through a well-arranged flushing-rim, and has a trap properly ventilated. Although I have not found it necessary, a vent-pipe encircling the bowl and connected with a heated flue may sometimes be found advantageous.

In this form of closet we find one simple in its construction, effective in its action, immediately discharging the faecal matter into the soil-pipe, and at the same time cleanly and healthful, having no concealed chambers or compartments to become foul and generate unwholesome gases. In fact, it leaves little to be desired as an improvement on water-closets. Closets with bottom outlet and of the short-hopper pattern, with effective flushing-rims, are manufactured by the majority of dealers in plumbers' supplies in the United States and Great Britain, and the French have also made an effort to manufacture and introduce them into Paris. The short-hopper closets of the form under consideration are recommended by such prominent authorities on sanitary plumbing as S. S. Hellyer¹ of England, W. P. Buchan² of Scotland, and Prof. P. Putyo³ in a work recently published in Belgium. By a comparison with other forms which are and

have been in use, the cleanliness, simplicity and effectiveness of the short hopper can easily be appreciated by those who are least expert on the subject. With the valve-closet we have the bowl and its usually faulty connection with the receiver. The valve itself and its seat, nicely adjusted with all necessary cranks, spindles, journals, springs, levers, weights, etc., according to the pattern of closet, are all liable to get out of order, and all parts which are within the receiver and the sides of the receiver are liable to become foul. Portions of the valve are formed of perishable rubber, the overflow is more or less complicated, and the trap, when one is used, is necessarily placed below the floor, with few exceptions.

The plunger-closet has its plunger, plunger-compartment, and, in all except a very few cases, floats and supply-valves with overflows, all connected with the bowl, and between it and the trap.

In the classes just mentioned, all the described mechanism is used in place of the simple bowl and trap of earthenware. And with what gain? The speedy and effectual removal of waste matter is accomplished more quickly and thoroughly by the simple than by the complex closet. In the plunger and valve closet small particles of filthy matter and foul sediment collect in the compartments which are under the valve or around the plunger, and concealed from view. These particles decay and generate foul and in some instances poisonous gases.

The whole surface of the short hopper, except in the side-outlet form, is visible, and any particles that cling to the bowl are in plain view, and I think all will acknowledge that it is better to have such foulness where it can and will be cleaned off by a careful housekeeper, than to have it out of sight, where it will remain and undergo decay; fair without, but foul within. When these closets (the simple short hopper) have their seats in the proper position, the tank placed at a sufficient height, between seven and eight feet, one-and-a-quarter-inch supply-pipe, which must not be diminished by bends, I have never known them to fail to wash the bowl perfectly whenever flushed. The plunger and valve closets are supposed by many to form a mechanical seal between the bowl and the soil-pipe, but this is not the case with the closets of this class which are in the market, as the overflow only interposes a water-seal, except in the closets mentioned in preceding pages, which is the same seal as the trap of the short hopper. Although the experiments of Dr. Fergus of Glasgow and Doremus⁴ of New York have apparently proved that gases in a concentrated form will pass through a water-seal trap, nevertheless I think it can be said without exaggeration, that the majority of sanitarians have accepted the experiments of Dr. Neil Carmichael, of Scotland, which have since been confirmed by Dr. Wernich, as conclusively proving that "water-traps are therefore, for the purpose for which they are employed, that is for the exclusion from the house of injurious substances contained in the soil-pipes, perfectly trustworthy;" in other words, organic germs will not pass through a water-seal trap. [See *American Architect*, Nos. 224 and 236.] With the traps vented and the soil-pipe open, we need have no fear of gases passing through the trap, provided the water-seal remains intact.

The advantage which a short hopper has over a long hopper has been mentioned in connection with the description of the latter type, as having less surface to become foul between the seat and the trap, and the possibility which exists of the trap under the long hopper losing its seal by the impetus attained by the water. The advantage which this form has over the hopper with the side outlet is having the mouth of the trap always visible, and being without the concealed space formed by the side-outlet between the bowl and trap, which should always be avoided. It is needless to say that the pan-closet, as it is usually manufactured, with its container which becomes almost filled with filth, the faulty connection between bowl and container, which allow gases generated to enter the room, its imperfect flush and leaky supply-valves, is not to be compared with the short-hopper closet.

A NEW INTERIOR FINISH FOR FIRE-PROOF BUILDINGS.

CHICAGO, August 17, 1883.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Every architect who has had much to do with fire-proof structures has found the difficulty of devising suitable finish for them. Indeed the "finish" of all commercial buildings is something of a problem.

Wood is not easily cleaned and is readily defaced. Cast-iron is costly, requires painting and is inartistic. Cement (Keene's or others') soon loses its polish by contact with the smoke-laden air. Marble is costly and loses its polish very soon. Encaustic tiles are good, but expensive.

In the construction of a number of office-buildings here, during the last few years, we have found so much difficulty in the above respect, that we have been especially interested in a new device for obviating it.

It consists, in brief, in using thin metal, stamped with a die, and backed with plaster-of-Paris or cement.

The wainscoting is made of tiles of bronze and brass stamped in various patterns and of any size, which have flanges turned back from the face. The wall, whether wood, brick or stone, is covered with plaster-of-Paris to a thickness of about three-fourths of an inch, and the tiles are forced against it.

⁴ Report of D. R. F. Hamilton's Address before the New York Academy of Medicine. — *Sanitary Engineer*, Vol. V. No. 17

¹ *The Plumber and Sanitary Houses.*

² *Plumbing.*

³ *L'Hygiène dans la Construction des Habitations Privées.*

Bases and architraves are made similarly, except that they are drawn through a mould in suitable lengths, and are put up in the same way. In both bases and architraves and in wainscoting, bronze nails, with ornamental heads, are used, rather for effect than absolute necessity; these are driven through the thin metal into the wood grounds.

In many cases very thin metal is used which is reinforced with a backing of common metal. The effect of this work is exceedingly good.

The metal—brass, copper or bronze—is finished in any color from antique brass to deep bronze, or left with the great play of color it has when first from the die. It is evident that the utmost variety of uses can be obtained by this means, and that the result must be, if properly applied, both artistic and enduring.

The cost of the work is not greatly more than if done in wood.

Very respectfully, BURNHAM & ROOT.

PLASTER ON OUTSIDE WALLS.

HARTFORD, CONN., August 13, 1883.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Could you inform me through the columns of your valuable paper of the best and most durable material for plastering outside of brick or stone building, or repairing similar work (work to be painted). Respectfully yours, L.

[PORTLAND cement of the best quality, thoroughly mixed with an equal quantity of sharp sand, and perhaps one-fourth as much sawdust. Brush and wash the wall off thoroughly, roughen it by hacking, unless it already presents a good key for the plastering, and have it well dampened with water before applying the plaster. If well done, the mortar will last as long as the brick, and will never come off. Do not paint until the whole is well dried out, which will take two or three months, as the paint will blister if put on over damp work. The very best Rosendale cement may be used in place of Portland, at half the cost, but it is not half as good for the purpose.—EDS. AMERICAN ARCHITECT.]

NOTES AND CLIPPINGS.

THE RUINS OF CASA GRANDE.—At Casa Grande, Arizona Territory, stages leave Florence and thence run to Pinal and Globe. Casa Grande (meaning large house) derives its name from an extensive ruin a few miles distant to the north. The *casa grande* proper is surrounded by vestiges of still more extensive ruins, indicating the existence in former times of a large city at this point, so large that it is believed to have been the abode of 200,000 or 300,000 people. The *casa grande* was discovered by Coronado in 1540, when in search of the "Seven Cities of Cibola," the "Cities of the Bull." It was then four stories in height, with walls six feet thick. The Pina Indians were then, as now, living in the vicinity, but had no knowledge or tradition even in regard to its origin or history. In 1775 it still covered a space of two hundred feet by four hundred feet wide, as described by Father Pedro Font, who visited it, but it has crumbled rapidly since that time. The ruin is now only two stories in height, and covers a space of only thirty by fifty feet. It is built of a material resembling concrete or grout. The course of a large irrigating canal can still be traced for a distance of forty miles above the whole ruin. Many similar ruins are found in various parts of the Territory, especially among the Gila and Salt Rivers, the Agua Fria and San Pedro, unmistakably pointing to the existence of an advanced ancient civilization in this country, which has been swept entirely from the face of the earth. On the San Pedro are remains which indicate the existence there at some former period of a large city. The foundations were of stone, and extensive stone ruins are also found in many other sections. Cemented water-cisterns are still found in a good state of preservation. There are also extensive cliff-houses in many portions of the Territory, which doubtless date back to a still earlier age, when the ancient inhabitants were islanders, dwelling in rocky fastnesses overlooking the sea, before the final upheaval of the country in general. These ruins, found in nearly every portion of the Territory, will perhaps furnish the key in time to some enthusiastic antiquarian to unlock the mysteries of the past and to open up the history of the ancient people and its perished civilization.—*Denver News*.

USEFUL NOTES ON WATER.—One gallon of distilled water weighs 10 pounds; one gallon of sea-water weighs 10.32 pounds; 1.8 cubic foot of water weighs one hundredweight; 36 cubic feet weigh one ton, equal to 224 gallons; one cubic foot contains 6.3 gallons. (The English standard, or Imperial gallon, is here referred to.) The average daily consumption of water in towns is sixteen to twenty gallons per head. In pipes the square of the diameter in inches equals pounds weight of water per yard. Example: An inch pipe holds nine pounds per yard. One hundredth inch of rain is about one ton's weight to the acre. A nominal horse-power for a boiler requires one cubic foot of water per hour. Circular apertures are most effective for discharging water, since they have less frictional surface for the same area. The *vena contracta* is the best form of orifice for discharging water. The ordinary speed to run a pump is 80 to 100 feet per minute. The pressure in pounds per square inch of a column of water is the height of a column in feet multiplied by 5.94, or, for an approximation, one-half pound pressure per square inch for each foot of height. Water, in flowing through an aperture, has a velocity equal to that acquired by a heavy body falling freely from a height equal to the distance between the centre of the aperture and the surface of the water. Doubling the diameter of an aperture increases the flow four-fold. A man can raise water from a well ten feet deep at the rate of thirty gallons per minute. The approximate time occupied in discharging equal quantities of water, under equal heads, through pipes of equal length, varies from 80 for a straight pipe, 200 for a curve, to 220 for a right angle.—*Engineering News*.

LARGE EXPORTATION OF BRICKS TO AMERICA.—The large full-rigged ship *Morayshire*, of Glasgow, 1,428 tons, left Leith lately for Portland, Oregon, direct with 1,485 tons of brick, 360 tons of fire-clay, and 220 tons of cement, being the largest cargo of the kind ever shipped at Leith.—*Journal of Commerce*.

\$7,426 FOR A FEW INCHES OF WALL.—Instruments recorded in the Register's Office show that Henry A. Morgan, as President of the New York Times Association, has purchased from Orlando B. Potter all that portion of the party-wall of the *Times* building which is erected upon the property formerly occupied by the *World* building for the sum of \$7,426, and that Mr. Potter is now to construct a building to be eleven stories high upon the property at Beekman and Nassau Streets and Park Row.—*New York Tribune*.

SOUTH AMERICAN WOODS.—M. Thanneur describes some varieties of South American woods which seem likely to become valuable for engineering purposes. The yandubay is exceedingly hard and very durable. The couroupay is also very hard and very rich in tannin. It bears some resemblance to the quebracho, which is perhaps the most interesting of all and the most used. It is very abundant in Brazil and La Plata. Its diameter varies within the same limits as that of the oak, but the trunk is shorter. It is used for railway sleepers, telegraphic poles, piles, etc. It is very durable, especially when well seasoned. It is much heavier than water, its specific gravity varying between 1.203 and 1.333. Its color is reddish, like mahogany, but it becomes darker in time. On account of its hardness it is difficult to work, and it cannot be readily cut with an axe. It has been introduced into France on account of its richness in tannin. A large proportion of Brazilian leather is tanned by the sawdust of quebracho, but the leather is rather brittle. A mixture composed of one-third of powdered quebracho and two-thirds of ordinary tan gives very good results.—*Annales des Ponts et Chaussées*.

A LEGEND OF COLOGNE.—Adelheid Richmodus, wife of one of the mediæval Senators who swayed the destinies of Cologne, died, to all appearance, and was buried in the vaults of the neighboring Apostelkirche. It was said a valuable ring could not be removed from her hand, and was consequently interred with her. This excited the cupidity of the sexton, who came at night to steal, and failing in his efforts to loosen the ring, tried to sever the finger. Blood flowed; the lady revived and sat up in her coffin, to the horror of the thief. After the first paralyzing shock of finding where she was, she passed through the gates he left open in his flight, and, still wrapped in her winding-sheet, knocked at her husband's door. The servants, on looking out, recognized her, and rushed terrified to their master to say they had seen her ghost; but on calmer reflection, Adelheid continuing to knock and beg plaintively for admission, they concluded she was alive and said so. Richmodus declared the whole a trick of their imagination, and said he would as soon believe his horses were transported to the attic as that his wife lived. As he spoke, the clatter of hoofs proved his incredulity rebuked by a miracle. The door was opened to the shivering lady, who told her story and was affectionately received, becoming "the joyful mother of children," and dying in reality at an advanced age. The horses' heads carved in wood, painted one black and one gray, still look from the top window to convince the skeptic; and the next street, Richmodstrasse, is named after the much-enduring woman.—*London Society*.

ANCIENT RUINS IN SONORA.—Ancient ruins have recently been discovered in Sonora, which, if the reports are true, surpass anything of the kind yet found on this continent. The ruins are said to be about four leagues southeast of Magdalena. There is one pyramid which has a base of 4,350 feet and rises to the height of 750 feet. There is a winding roadway from the bottom leading up on an easy grade to the top, wide enough for carriages to pass over, which is said to be twenty-three miles in length. The outer walls of the roadway are laid in solid masonry from huge blocks of granite in rubble, and the circles are as uniform and the grade as regular as they could be made at this date by our best engineers. The wall, however, is only occasionally exposed, being covered over with the debris and earth, and in many places the *sahuaro* and other indigenous plants and trees have grown up, giving the pyramid the appearance of a mountain. To the east of the pyramid a short distance is a small mountain about the same size, which rises to about the same height, and if reports are true, will prove more interesting to the archaeologist than the pyramid. There seems to be a heavy layer of a species of gypsum about half way up the mountain, which is as white as snow, and may be cut into any conceivable shape, yet sufficiently hard to retain its shape after being cut. In this layer of stone a people of an unknown age have cut hundreds upon hundreds of rooms from five by ten to sixteen to eighteen feet square. These rooms are cut out of the solid stone: so even and true are the walls and floor, and the ceiling so plumb and level, as to defy variation. There are no windows in the rooms and but one entrance, which is always from the top. The rooms are about eight feet high from floor to ceiling; the stone is so white that it seems almost transparent, and the rooms are not at all dark. On the walls of these rooms are numerous hieroglyphics and representations of human forms, with hands and feet of human beings cut in the stone in different places. But, strange to say, the hands all have five fingers and one thumb, and the feet have six toes. Charcoal is found on the floors of many of the rooms, which would indicate that they built fires in their houses. Stone implements of every description are to be found in great numbers in and about the rooms. The houses or rooms are one above the other, three or four stories high; but between each story there is a jug or recess the full width of the room below, so that they present the appearance of large steps leading up the mountain. Who these people were and what age they lived in must be answered, if answered at all, by the "wise men of the east." Some say they were the ancestors of the Mayas, a race of Indians who still inhabit Southern Sonora, who have blue eyes, fair skin, and light hair, and are said to be a moral, industrious, and frugal race of people, who have a written language and know something about mathematics.—*Tucson Citizen*.

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.]

282,961. BENCH-CLAMP. — Thomas Crispin, Detroit, Mich.
 282,966. COMBINED PROTRACTOR, SQUARE AND BEVEL. — James Duckworth and Eli Smith, Springfield, Mass.
 282,975. VISE. — Clark Fisher, Trenton, N. J.
 282,977. COMBINED REGISTER AND VENTILATOR. — Abraham D. Gallentine, Marion, Ind.
 282,993. SPRING-HINGE. — Henry P. Kochsmeler, Freeport, Ill.
 282,996. FIRE-ESCAPE. — Ogden G. Lee, Poughkeepsie, N. Y.
 283,008. FIRE-ESCAPE LADDER. — Chas. T. Merritt, Hyde Park, Ill.
 283,012. SECURING SLABS OF VENEERING TO BUILDINGS. — Benjamin Morton and Arthur Tilley, Toronto, Ontario, Can.
 283,015. CHIMNEY OR FLUE. — Thomas Rowan, London, Eng.
 283,038. FIRE-ESCAPE. — Isaac L. Stover, Centralia, Ill.
 283,040. AUGER-BIT. — Jas. Swan, Seymour, Conn.
 283,074. MANUFACTURE OF WROUGHT-IRON. — Lucius D. Chapin, Chicago, Ill.
 283,083. FLEXIBLE SOFT-METAL SASH-BAR. — Alphonse Friedrich, Brooklyn, N. Y.

SUMMARY OF THE WEEK.

Baltimore.

BUILDING PERMITS. — Since our last report nineteen permits have been granted, the more important of which are the following: —
 Brush Electric Light Company, two-story brick building, s Monument St., between Constitution St. and Graves Alley.
 Agnes Madden, three-story brick building, w s East St., between Fayette and Douglass Sts.
 John W. Lee, 2 three-story brick buildings, e s Green St., s of Mulberry St.
 Michael Carlin, 2 three-story brick buildings, e s Pennsylvania Ave., between Biddle and Orchard Sts.
 Jos. Turner, 13 three-story brick buildings, e s North Ave., commencing n e cor. Townsend St.; and 5 three-story brick buildings, n s Townsend St., e of North Ave.
 Otto Goldbech, 5 two-story brick buildings, e s Potomac St., s of Hudson St.
 M. L. Day, two-story brick stable, in rear of No. 93 Baltimore St., s s, between Stricker and Gilmore Sts.
 B. Thornton, two-story brick stable, in rear of No. 75 Lee St., n s, between Sharp and Hanover Sts.
 L. C. Smith, 2 two-story brick buildings, e s Hanover St., s of Fort Ave.
 Henry Sieck, two-story brick building, in rear of No. 23 Sharp St., w s, between Henrietta and Montgomery Sts.
 J. M. Heigh, four-story brick back building to No. 141 Charles St., e s, n of Centre St.

Boston.

BUILDING PERMITS. — *Brick.* — Boston St., near Hamlet St., Ward 20, for Thomas Rice, 6 dwellings, 20' x 30', two-story mansard; Thomas Rice, builder.
Leverett St., No. 152, Ward 8, dwell. and store, 20' x 50', five-story flat; P. F. McGaraghe & Co., builders.
Washington St., Nos. 989-997, Ward 16, for W. H. Adams, stores and apartments, 50' x 114', four-story flat; W. H. Adams, builder.
Wood. — Allston St., near Shafts St., Ward 24, for Henry C. Kendall, dwell., 21' x 33', two-story hip; Philip L. Ritter, builder.
Allston St., near Allston Sq., Ward 25, for M. F. Sprague, 2 dwellings, 20' x 30' and 15' x 38', two-story pitch; M. F. Sprague, builder.
Bennington St., near Swift St., Ward 1, for Otis Pease, dwell., 15' 0" x 22' and 20' x 28', two-story pitch; Edwin J. Turner, builder.
Alleghany St., near Parker St., Ward 22, for Benj. F. Bean, 2 dwellings, 18' x 28', three-story flat; Benj. F. Bean, builder.
Parker St., near Alleghany St., Ward 22, 2 dwellings, 18' x 28', three-story flat; Benj. F. Bean, owner and builder.
Parker St., near Oscar St., Ward 22, for Benj. F. Bean, owner and builder, 6 dwellings, 18' x 28', three-story flat.
Lynde St., near Austin St., Ward 5, for Edmund Noonan, dwell., 22' 9" x 24' 8"; three-story flat.
Ryfa St., n s, near K St., Ward 14, for Trustee Hawes Furl, 2 dwellings, 23' x 40', two-story flat; W. T. Eaton, builder.
Cook St., between School and Harvard Sts., Ward 24, for Edward P. Whitcomb, dwell., 28' x 37', two-story pitch; J. H. Wilder, builder.
Ruggles St., No. 328, Ward 22, for William Gilligan, stable, 20' x 25', two-story flat; David Angel, builder.
Oriental Ct., near Phillips St., Ward 22, for Thomas O'Leary, dwell., 13' x 16', three-story flat; Samuel H. J. Jones, builder.
Easted with this, near H St., Ward 14, for

Michael Deady, greenhouse, 12' x 50', one-story pitch; Michael Deady, builder.
Alger St., rear, near Dorchester St., Ward 15, for Arthur E. Thompson, carpenter-shop, 20' x 40', one-story flat; John Thompson.
Unnamed Pl., off Union Ave., Ward 23, for Benj. F. Sturtevant, storage, 35' 4" x 55', one-story flat; Samuel T. Case, builder.
Orleans St., near Maverick St., Ward 2, for James Cleary, dwell., 22' x 34', two-story mansard; Richard Costello, builder.

Brooklyn.

BUILDING PERMITS. — *Potomac Ave.*, n s, 80' e Clason Ave., 5 three-story brick dwellings, tin roofs; cost, each, \$3,000; owner, architect and builder, 1045 Fulton St.
Lewis Ave., s w cor. Pulaski St., two-story brick store and tenement, tin roof; cost, \$5,000; owner, Joseph Fessler, Lewis Ave., cor. Hart St.; architect, T. Engelhardt; builders, W. Rauth and D. Kreuder.
Poplar St., No. 19, near Willow St., three-story brownstone front dwell., tin roof; cost, \$10,000; owner, J. P. Taaffe, 220 Fulton St.; architect, R. B. Eastman; builder, W. J. Kerrigan.
Gates Ave., s s, 150' e Sumner Ave., three-story brownstone front store and tenement, gravel roof; cost, \$3,500; owner and builder, L. E. Brown, 126 Herkimer St.; architect, C. E. Cozzins.

Chicago.

HOUSES. — H. Sierks, architect, has completed plans for a two-story dwell. for Mr. A. J. Harding, at 643 Adams St.; cost, \$12,000.
 S. V. Shipman, architect, has plans ready for 3 three-story dwellings, for Mr. H. A. Goodrich, on Warren Ave.; cost, \$12,000.
 Dr. Knox will build 2 three-story dwellings, on West Van Buren St., to cost \$11,600; J. W. Cassell is the architect.
 Theo. Karls is the architect for 2 two-story houses, for Susan A. Buschick, on North Clark St.; cost, \$9,500.
 O. J. Pierce is architect for 7 three-story dwellings, to be built in the North Division, for C. F. Fuller, to cost \$35,000.
 Mr. R. W. Tonsill will build, on Dearborn Ave., two-story dwell., to cost \$20,000; Cobb & Frost are the architects.
 C. M. Palmer, architect, has plans ready for the erection of 7 two-story dwellings, on Dearborn St., to cost \$20,000.
CHapel and School. — J. J. Egan is architect for the chapel and school building to be erected on Belden Ave., to cost \$20,000.
COLLEGE. — S. V. Shipman, architect, planned the four-story and basement addition to the Rush Medical College, on Wood St., to cost \$30,000.
STORE AND FLATS. — H. Kley is architect for three-story store and flats, to be built on Milwaukee Ave., for J. Bartuska; cost, \$13,000.
 H. Sierks, architect, has made plans for flats to be built for Geo. Roethel, on South Hoyne St., to cost \$8,000.

WAREHOUSE. — John C. Cochrane is the architect for the four-story warehouse on Michigan Ave.; cost, \$25,000.

BUILDING PERMITS. — Michael Kinman, two-story store and dwell., 1256 West Lake St.; cost, \$3,000.
 Mrs. Muttay, 2 two-story dwellings, 105 and 107 Flourney St.; cost, \$6,500; architect, H. Sierks; builder, E. Mensching.

Wm. Lange, two-story store and dwell., 3925 Wentworth St.; cost, \$3,700.
 John Mesenbocher, two-story dwell., 534 North Market St.; cost, \$3,400.

Mrs. C. Sullivan, three-story store and flats, 195 West Twelfth St.; cost, \$8,000; architects, Furst & Dudolph; builder, Jno. Mountain.

J. H. Swartz, four-story store, 280 to 288 Madison St.; cost, \$53,000; architects, Burling & Whitehouse; builder, Jno. Mountain.

E. Nelson, three-story flats, 39 Ray St.; cost, \$7,500; architect, H. M. Hanson; builder, Jno. Mountain.

Joe Bartuska, three-story store and flats, 694 Milwaukee Ave.; cost, \$13,000; architect, H. Kley; builder, J. Kley.

P. Jyerell, two-story dwell., 632 Fifteenth St.; cost, \$3,000.

E. L. Brand, store, 67 and 69 Jackson St.; cost, \$3,000; architects, Adler & Sullivan; builder, McGregor.

M. Welertsky, two-story store and flats, 3641 Halsted St.; cost, \$4,000; architect, T. H. Rehbold; builders, J. Lehman & Co.

B. Bierfeld, two-story and basement store and dwell., 625 Blue Island Ave.; cost, \$3,800.

A. J. Harding, two-story dwell., 643 Adams St.; cost, \$12,000; architect, A. V. Shipman; builder, N. Cameron.

Geo. Roethel, two-story flats, 355 and 357 South Hoyne St.; cost, \$8,000; architect, H. Sierks; builder, E. Mensching.

L. & J. O'Neill, four-story warehouse, 27 and 29 Michigan Ave.; cost, \$25,000; architect, John C. Cochrane; builder, E. F. Gobel.

Antonio Visitti, three-story and basement store and flats, 76 North Franklin St.; cost, \$4,000.

John Kortis, three-story and basement store and flats, 50 Ingram St.; cost, \$8,000.

James Lavery, two-story dwell., 3805 Dearborn St.; cost, \$3,500.

Henry Dreyer, two-story and basement dwell., 302 West Fourteenth St.; cost, \$4,000.

John Halbock, two-story dwell., 506 West Nineteenth St.; cost, \$3,400.

John Koch, two-story dwell., 220 Evergreen St.; cost, \$3,000; builder, Hagenan.

Wm. Lorr, two-story dwell., 338 Thirteenth St.; cost, \$4,000; architect, F. Klitenich; builder, Chas. Rupfer.

H. A. Goodrich, 3 three-story dwellings, 722-726 Warren Ave.; cost, \$12,000; architect, S. V. Shipman; builder, W. H. Illiff.

Buethner Bros., three-story store and flats, 2610 South Park Ave.; cost, \$10,000; architect, H. Sierks; builder, H. Appel.

Albert Bily, two-story dwell., 829 Allport St.; cost, \$3,000.

Dr. Knox, 2 three-story dwellings, 789 and 781 Van Buren St.; cost, \$11,600; architect, J. W. Cassell; builders, J. W. Cassell & Co.

Susan A. Buschick, 2 two-story dwellings, 952 and 954 North Clark St.; cost, \$9,500; architect, Theo. Karls; builders, Niegeisen & Baden.

Rush Medical College Hospital, four-story addition to College, Wood St.; cost, \$30,000; architect, S. V. Shipman; builder, W. H. Illiff.

Jacob Ewerts, three-story store and flats, 2502 Wentworth Ave.; cost, \$5,000; architect, J. Frank; builder, A. Mueller.

James Hart, two-story flats, 352 Belden Ave.; cost, \$3,000.

Royal Insurance Company, of Liverpool, nine-story office building, 165 to 175 Jackson St.; cost, \$600,000; architect, Boyington.

F. Larned, 6 two-story dwellings, 3600 to 3610 Stanton Ave.; cost, \$18,000; architect, W. F. Furber; builders, Oliver & Hill.

E. Huber, three-story dwell., 116 Lincoln Ave.; cost, \$7,000; architect, J. H. Huber; builders, Resaler & Winekler.

John Heyden, two-story dwell., 329 Webster Ave.; cost, \$4,000.

D. Goldberg, three-story dwell., 146 Pacific Ave.; cost, \$4,400; architect, Geo. Vigeant; builder, A. Kaiser.

S. Loeffel, two-story dwell., 64 Wisconsin St.; cost, \$3,500.

Fred. Grazer, two-story dwell., 110 Nineteenth St.; cost, \$3,500.

Chicago & West Indiana Railroad Company, three-story store and dwell., 200 Fourth Ave.; cost, \$1,000.

Chicago & West Indiana Railroad Company, three-story store and dwell., 214 Fourth Ave.; cost, \$1,000.

John Hortel, three-story addition, 471 Nineteenth St.; cost, \$4,000.

Rev. B. Baryzski, chapel and school, Belden Ave.; cost, \$2,400; architect, J. J. Egan; builders, Geo. Lehman & Co.

C. Busby, 7 two-story dwellings, 3132 to 3448 Dearborn St.; cost, \$20,000; architect, C. M. Palmer; builder, C. Busby.

C. F. Fuller, 7 three-story dwellings, 400 to 406 Chestnut St., 234 Rush St., and 2-9 Cass St.; cost, \$35,000; architect, O. J. Pierce; builder, L. Weick.

Geo. Schneider, three-story store and flats, 2441 Wentworth Ave.; cost, \$5,000.

Geo. Koeth, two-story dwell., 62 Herndon St.; cost, \$3,000.

R. W. Tansill, two-story dwell., 332 Dearborn Ave.; cost, \$20,000; architects, Cobb & Frost; builder, Louis Weick.

R. L. Pitte, two-story flats, 241 West Twentieth St.; cost, \$4,300.

Adam Lauer, two-story dwell., 590 West Chicago Ave.; cost, \$3,200; architect, W. Runde; builders, Lauer & Runde.

H. C. Johnson, three-story store and flats, 382 and 384 Belden Ave.; cost, \$10,000.

Cincinnati.

FLATS. — Geo. W. Rapp, architect, has prepared plans for pressed-brick building for stores and flats, for Peter Scherer, s w cor. Liberty St. and Cent Ave., 50' x 88'; cost, \$25,000.

HEAVY LAND SALE. — The s e cor. of Fourth and Elm Sts. (50' on Fourth St., and 100' on Elm St.), sold recently for \$100,000, or \$2,000 per front foot. This is probably the highest price ever paid for property in this city, certainly since the war. Harper Bros., of New York City, through their Cincinnati agent, H. W. Derby, were the purchasers, and it is rumored that they will soon erect a new business house on the lot.

HOUSE. — Geo. W. Rapp, architect, has prepared plans for brick dwell., 719 Vine St., and remodeling adjacent dwell.; cost, \$15,100.

ALTERATIONS. — Geo. W. Rapp, architect, has prepared plans for alterations and addition to Bellevue House, Pavilion, head of Elm St.; size of additions, 65' x 80'; cost, \$10,000.

BUILDING PERMITS. — Edwin Murphy, two-story brick building, w s Gilbert Ave., s of Nassau St.; cost, \$4,000.

Benj. Readers, three-and-one-half-story brick building, w s Rittenhaus St., near Clark St.; cost, \$4,500.

Thos. W. Koenig, 6 two-story brick buildings, s s Oak Ave., cor. of Orchard St.; cost, \$22,000.

Papenbrock & Co., three-story brick building, e s Canal St., near Green St.; cost, \$3,000.

M. Teltman, two-and-a-half-story brick building, e s John St., between Betts and Laurel Sts.; cost, \$5,000.

N. E. Dibble, six-story stone front, 3 West Fourth St.; cost, \$7,000.

Mendel, Rosenburgh & Co., three-story brick building, Beddington St.; cost, \$6,000.

D. W. Miller, two-story brick building, Eggleston Ave., between Fifth and Sixth Sts.; cost, \$13,000.

P. W. King, 5 two-story frame buildings, w s Colman St., near Bank St.; cost, \$10,000.

Cincinnati Gas Company, two-story brick building, Eastern Ave., between Main and Spencer Sts.; cost, \$15,000.

Frederick Gallat, four-story brick building, n e cor. Clay and Allison Sts.; cost, \$4,500.

Mrs. Martha Meeks, two-story frame building, Kemper Lane, near Nassau St.; cost, \$5,000.

Reparis for week, \$6,500.

Detroit.

BUILDING PERMITS. — The following are the more important permits granted since our last report: —
 Jos. Deskocher, brick store, 372 Michigan Ave.; cost, \$3,200.

J. V. Smith & Son, brick store, 540 Michigan Ave.; cost, \$3,000.

M. A. Edwards, brick house, 57 Davenport St.; cost, \$7,000.

George Hatt, frame house, 83 Fremont St.; cost, \$3,000.

Geo. S. Brush, brick store, 151 Michigan Ave.; cost, \$4,000.

Jas. Anderson, 4 brick stores, West Larned St.; cost, \$10,000.

Popping & Fisher, brick house, 1013 Woodward Ave.; cost, \$35,000.
 G. W. Lloyd, additions to brick house and new barn, 491 Jefferson Ave.; cost, \$18,000.
 M. W. Scoville, frame house, 420 Fourth St.; cost, \$3,200.
 Julius Hess, brick house, 29 East Willis Ave.; cost, \$9,000.
 Coltus B. Hubbard, brick house, Miami Ave.; cost, \$4,000.
 Gearing & Co., brick house, Miami Ave.; cost, \$5,000.
 Michigan Fish Commission, fish hatchery, 334 to 336 Michigan Ave.; cost, \$4,000.
 John Lerkroeger, addition to brick brewery, cor. Catherine and Propelle Sts.; cost, \$9,000.
 A. Chapoton, Jr., additions to bank block, Griswold St.; cost, \$50,000.
 M. A. Scoville, alterations to house, 345 East Larned St.; cost, \$3,300.
 Kerolier & Co., brick dwell., 349 Howard St.; cost, \$5,000.
 Peter Dedrichs, 2 frame houses, St. Aubin Ave.; cost, \$2,500.

New York.

WAREHOUSE.—At 58 Centre St., a four-sty warehouse, 25' x 75', of Philadelphia brick, with granite trimmings, is to be erected for Mr. E. B. Smith, from designs of Messrs. Berger & Baylies, to cost about \$49,000.

STORE AND RESTAURANT.—A four-sty building, brick and brownstone, 25' x 80', is to be erected, at a cost of \$20,000, from designs of Messrs. H. J. Schwartzmann & Co., at 18 Beaver St., for Messrs. Wiehl & Widman.

LABOR.—Contractors are being a good deal worried by "walking delegates" of the Trades Union, who have recently stopped work of all kinds on buildings where sub-contractors have non-union men in their employ.

BUILDING PERMITS.—Ludlow St., No. 25, five-sty brick tenement and store, tin roof; cost, \$12,000; owner, P. A. Fogarty, 352 East Fourteenth St.; architect, J. B. Franklin.

Washington Ave., No. 1355, two-sty brick dwell., tin roof; cost, \$5,000; owner, Philip Herdt, 834 One Hundred and Sixty-ninth St.; architect, J. Kastner.

Washington Ave., No. 1110, three-sty brick tenement, tin roof; cost, \$6,500; owner, Charlotte K. Hanlon, 1108 Washington Ave.; builder, Louis Falk.

Eighty-ninth St., n w cor. Third Ave., rear, two-sty store and dwell., tin roof; cost, \$2,500; owner, Chas. H. Davis, Huntington, L. I.; architect, Andrew Spence.

One Hundred and Fourth St., s s, 145' e Madison Ave., five-sty brownstone front flat, tin roof; cost, \$18,000; owner, Thomas Flinn, 343 East Seventy-eighth St.; architect, Andrew Spence.

Fourth Ave., e s, 80' n One Hundred and Fifth St., five-sty brownstone front tenement and store, tin roof; cost, \$12,500; owner, Geo. D. Schmid, 62 East One Hundred and Fourth St.; architect, Andrew Spence.

East Seventy-eighth St., No. 444, five-sty brick tenement, tin roof; cost, \$12,000; owner and builder, Joseph Johnston, 475 Second Ave.; architect, Julius Boeckel.

One Hundred and Thirty-third St., s s, 75' w Madison Ave., two-sty brick stable, gravel roof; cost, \$1,000; owner, James Everard, Hoffmann House; architect and mason, Jas. P. B. Remsen; carpenter, W. H. Walker.

Seventy-sixth St., s s, 125' w Ave. A, five-sty brick tenement, tin roof; cost, \$14,000; owner, Patrick Keyes, 352 East Seventy-eighth St.; architect, A. B. Ogden.

Third Ave., n e cor. One Hundred and Forty-ninth St., three-sty frame dwell., tin roof; owner, Francisca Uhl, on premises; architect, Henry Piering; builder, Adam Kaiser.

Girard Ave., n w cor. One Hundred and Fifty-eighth St., two-sty frame dwell., tin roof; cost, \$3,000; owner, W. J. Brennan, 457' w Nineteenth St.; architect, John E. Kerby.

St. Nicholas Ave., e s, 25' s One Hundred and Sixty-sixth St., three-sty frame dwell., tin roof; cost, \$6,000; owner, Joseph Brennan, 332 Greenwich St.; architect, J. E. Kerby; builder, A. Campbell.

Philadelphia.

CHURCH.—At St. James Church, cor. Twenty-second and Walnut Sts., the Warburton Memorial Column from design of Wilson Bros. & Co., architects.

HOUSE.—Spring Garden St., w Thirty-third St., residence for Samuel Woodington, Esq., from plans by Haselhurst & Huckel, architects.

STORE.—Arch St., Nos. 529 and 531, store, 38' x 288', of brick, with brownstone trimmings, ornamental front, from plans by Wilson Eyre and W. E. Jackson, architects.

BUILDING PERMITS.—Hope St., Nos. 1841 and 1843, 2 three-sty dwell., 15' x 30'; J. H. W. Chesnut, owner.

Howard St., n York St., 2 three-sty dwell.; 18' x 42'; Henry Gill.

Reese St., n Lehigh Ave., 5 two-sty dwell., 17' x 40'; Wm. Bartholomew, contractor.

North Second St., No. 2714, two-sty dwell., 18' x 40'; Wm. Kredel, contractor.

Woodland Ave., No. 2657, three-sty store and dwell., 18' x 37'; Jesse Lewis, owner.

Puni St., bet. Unity and Sellers Sts., three-sty dwell., 20' x 65'; Mr. Worrell, contractor.

Jackson St., w Sixth St., 2 two-sty dwell., 16' x 28'; W. J. Smith, contractor.

Thirteenth St., cor. Cherry St., three-sty brick building, 18' x 20'; new front and interior alteration; Philip Weaver, contractor.

Braudywine St., No. 1631, three-sty dwell., 18' x 50'; Adam Retze, contractor.

Twenty-sixth St., n Jefferson St., three-sty dwell., 18' x 58', also a stable and carriage-house, 14' x 32'; Thos. Shuster & Sons, contractors.

York Ave., e Tenth St., 6 two-sty dwell., 14' x 42'; also, in "Herbise Place," Fifteenth St., n Montgomery Ave., 10 two-sty dwell., 14' x 42'; also, Herbise St., n Montgomery Ave., 30 three-sty dwell., 14' x 42'; Jno. S. Merrill, owner.

K St., n Kensington Ave., 2 two-sty dwell., 14' x 28'; J. Keck, owner.

Fifth St., s e cor. Snyder Ave., two-sty chapel, 40' x 70'; A. S. Miller, Supt.

Saville St., w Cresson St., three-sty dwell., 17' x 32'; McIlvaine & Cunningham, contractors.

Johnson St., above Twenty-second St., two-sty dwell., 15' x 30', also two-sty stable, 35' x 45'; Robert H. Font, contractor.

Chestnut St., Nos. 1315, 1317 and 1319, fourth story addition, 19' x 100'; A. A. Catanach, contractor.

Page St., e Sixteenth St., 7 two-sty dwell., 14' x 45'; also, on Sixteenth St., s Diamond St., 4 three-sty dwell., 16' x 55'; also, on Fountain St., e Sixteenth St., 3 two-sty dwell., 14' x 45'; M. Carey Lee, owner.

Paletorp Ave., n Lehigh Ave., three-sty factory, 40' x 50'; Valentini Lint, contractor.

Park St., e Twenty-second St., 8 two-sty dwell., 17' x 37'; Jno. Thorp, owner.

Airy St., cor. Lofty St., 2 two-sty dwell., 15' x 30'; Chas. Dougherty, owner.

Richmond St., w Palmer, 3 three-sty dwell., 16' x 45'; Jno. S. Baldt & Son.

Tiernan St., Nos. 1230 to 1238, 5 two-sty dwell., 16' x 50'; F. Thurganger, contractor.

Race St., fourth-sty addition to store, 30' x 40'; W. P. Knight, contractor.

Wilder St., Nos. 2056 and 2058, 2 two-sty dwell., 15' x 28'; Alex. Wilson, owner.

Germania Ave., n Huntington St., 8 three-sty stores and dwell., viz.: one 14' x 50', seven 16' x 50'; Amos D. Kennedy, owner.

Ninth St., s e cor. Fern-n St., three-sty store and dwell., 16' x 25'; Michael Regney, owner.

Cubot St., n Lehigh Ave., two-sty dwell., 21' x 42'; also, Frankford Road, n Allegheny Ave., two-sty dwell., 20' x 41'; Jno. Cunningham, contractor.

ALTERATION.—Ninth St., cor. Chesnut St., alteration to store from plans by Wilson Bros. & Co., architects.

St. Louis.

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

H. Steffen, two-sty brick dwell.; cost, \$2,500; Herman & Schumacher, contractors.

T. W. Koenig, two-sty brick dwell.; cost, \$3,800; T. W. Koenig, contractor.

G. B. Mangha, 2 adjacent three-sty brick dwell.; cost, \$8,000; J. B. Legg, architect; A. E. Cook, contractor.

Mrs. Goodfellow, two-sty brick dwell.; cost, \$5,000; H. Kennedy, architect and contractor.

Aug. Witte, two-sty brick dwell.; cost, \$3,800; A. Heinke, architect; A. Uhri, contractor.

Samuel Hermann, two-sty brick dwell.; cost, \$9,000; J. B. McKeltrick & Son, architects; T. Manning, contractor.

J. Meyer, two-sty brick dwell.; cost, \$15,000; A. Grabie, architect; A. E. Cook, contractor.

Geo. May, two-sty brick dwell.; cost, \$3,900; Chapman & Thursty, contractors.

General Notes.

ATLANTA, GA.—A bill appropriating \$1000,000 for a State Capitol is before the Legislature.

BILLINGS, M. T.—Sealed proposals for the construction of a jail and jailer's residence in the town, to be completed by the first day of January, 1884, were received at the office of H. H. Bole, County Clerk.

HENNIKER, N. H.—The Contocook Valley Paper Company is building a storehouse.

LENA, ILL.—Church for First Baptist Society; J. C. Cochran, architect, Chicago; cost, \$8,000.

LONGVIEW, R. I.—The corner-stone for the new Christ Church was laid on Saturday, July 28.

LOWELL, MASS.—The Boston & Lowell Railroad Corporation are about to build a new repair-shop. The new building will be of brick, one-sty in height, with a width of 100', and a front of about 200'.

NEW BRITAIN, CONN.—The new block that Giddings Brothers are to build, on the cor. of Main and Commercial Sts., will be 51' x 106', and have three stories fronting on Main St., and one on Commercial St.

PAWTUCKET, R. I.—The Free Baptist Society has purchased for the location of the new church a portion of the Geo. L. Barnes estate on Broadway. The building of the new church will begin at an early date.

PITTSFIELD, MASS.—Terry Clock Company is to build a factory, 150' long.

SHAKOPEE, MINN.—Ground is broken for the new City Hall.

STILLWATER, MINN.—The ceremony of laying the corner-stone of the First Presbyterian church, on the corner of Third and Myrtle Sts., occurred August 12.

SOMERVILLE, MASS.—Ground is broken for the new Natural History Building of Tufts College, which is to stand in front of West Hall, and in line with College Hall and the Goddard Chapel. It will be of Somerville bluestone, will have a front of 180', and will form the central part of a proposed quadrangle. It will be 70' high, in two stories, with the inside walls of brick and the finish of hard-pine.

TANNERSVILLE, N. Y.—The corner-stone of a new Episcopal church was laid August 8.

WELLENLEY, MASS.—Messrs. Shaw & Hunnewell are the architects of the new library-building, which is to be built of rubble, stone and plaster; David Perkins, of Boston, builder.

PROPOSALS.

FURNITURE.

[At Philadelphia, Pa.]

OFFICE OF THE SECRETARY,

TREASURY DEPARTMENT,

WASHINGTON, D. C., August 15, 1883.

Sealed proposals will be received at this office until 2 o'clock, P. M., of Saturday, September 8, 1883, for manufacturing, delivering, and placing in position, in complete working order, certain furniture for United States public buildings in Philadelphia, Pa., Charleston, W. Va., Chicago, Ill., and other cities.

Upon application to this office, detailed information will be furnished to furniture manufacturers desiring to submit proposals.

The Department reserves the right to reject any or all bids, or parts of any bid, and to waive defects.

H. F. FRENCH,

Acting Secretary.

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RIP-RAP GRANITE.

[At Nantucket Harbor, Mass.]

ENGINEER OFFICE, U. S. ARMY,

NEWPORT, R. I., August 15, 1883.

Sealed proposals, in triplicate, will be received at this office until 12 o'clock, noon, on Thursday, the 6th day of September next, at which time they will be opened in presence of bidders, for extending the jetty at the entrance to Nantucket Harbor, Mass.

The amount to be expended for stone is about \$20,000.

The United States reserves the right to reject any or all proposals.

Specifications, blank proposals, and full information as to the manner of bidding, conditions to be observed by bidders, and terms of contract and payment, will be furnished on application to this office.

GEORGE H. ELLIOT,

Lieut.-Col. of Engineers.

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IRON PIPES AND CASTINGS.

[At Washington, D. C.]

OFFICE OF THE WASHINGTON AQUEDUCT,

WASHINGTON, D. C., August 8, 1883.

Sealed proposals, in triplicate, will be received at this office until 12 o'clock, noon, on Tuesday, September 4, 1883, for furnishing 3,000 tons, more or less, of cast-iron water-pipes and special castings for same. The iron pipe will include:—

680 lineal feet, 75 inches internal diameter; 6,700 lineal feet, 48 inches internal diameter; 1,060 lineal feet, 12 inches internal diameter; 2,650 lineal feet, 8 inches internal diameter; 420 lineal feet, 6 inches internal diameter.

For specifications, blanks on which bids must be made, and all other information, apply at this office.

G. J. LYDECKER,

Major of Engineers, U. S. Army.

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GRATES.

OFFICE OF SUPERVISING ARCHITECT,

TREASURY DEPARTMENT,

WASHINGTON, D. C., August 15, 1883.

Sealed proposals will be received at this office until 12 M., on the 5th day of September, 1883, for furnishing, delivering, and setting in place, complete, the grates required for the following government buildings:—

31 half-low-down grates, St. Louis, Mo.
 19 " " " Albany, N. Y.
 3 basket grates, Albany, N. Y.
 75 half-low-down grates, Philadelphia, Pa.
 2 basket grates, Philadelphia, Pa.
 7 " Paducah, Ky.

8 half-low-down grates, Charleston, W. Va.
 Separate bids must be made for grates for each building.

Further information, with diagrams of openings, may be obtained on application at this office.

JAS. G. HILL,

Supervising Architect.

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RETAINING-WALLS, IRON PIER, ETC.

[At Coaster's Harbor, R. I.]

BUREAU OF EQUIPMENT AND RECRUITING,

NAVY DEPARTMENT,

WASHINGTON, D. C., August 17, 1883.

Sealed proposals, in duplicate, for the above enumerated works, addressed to the undersigned, will be received at this office until 12 o'clock, noon, of the 31st day of August, 1883, at which time and place they will be opened in the presence of bidders. Plans may be examined, and specifications for the different works, and instructions to bidders may be obtained on application at this office; the Navy Pay Office at No. 45 Milk St., Boston, Mass.; the Navy Pay Office at No. 27 State St., New York City; or on board the U. S. ship New Hampshire at Newport, R. I.

The right to reject any or all bids is reserved.

EARL ENGLISH,

Chief of Bureau of Equipment and Recruiting.

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COURT-HOUSE.

[At Princeton, Ind.]

Notice is hereby given that the undersigned Board of Commissioners, of the County of Gibson, in the State of Indiana, have adopted plans and specifications for a new court-house to be constructed at Princeton, in said county, and the same are now on file in the office of the Auditor of said county, and that up to 12 o'clock M., on the 20th day of September, 1883, sealed bids are invited, and will be received by said Board, at the office of said Auditor, at Princeton, Indiana, for the construction of said court-house, and the contract therefor will be let to the lowest responsible bidder; said Board reserving the right to reject any and all bids. Such bids will be received for the whole work and for the separate parts thereof, and each bid must be accompanied by a good and sufficient bond, payable to the State of Indiana, signed by the bidder and at least two resident freehold sureties, which bond shall guarantee the faithful performance and execution of the work bid for in case the same is awarded to said bidder, and that the contractor, on receiving the contract, shall promptly pay all debts incurred by him in the prosecution of such work, including labor, materials furnished, and for boarding the laborers thereon. Said court-house will be 90' x 120', faced with stone, pressed-brick and terra-cotta, and fire-proof throughout. The plans and specifications therefor may be inspected at said Auditor's office, and also at the office of Messrs. McDonald Bros., architects, Louisville, Kentucky.

Witness our hands this 8th day of August, 1883.

SYLVESTER BENSON,

Com.

JOHN S. JONES,

Lucius C. Embree, Attorney.

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