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THE long and embarrassed competition over the new Indiana State Capitol has been decided, and the design submitted by Mr. Edwin May of Indianapolis has been accepted. It is rather surprising, and a curious comment on the present lack of employment for architects, that sixty were found who were willing to subscribe to the hard conditions of the competition, and bind themselves in the sum of a hundred thousand dollars to produce a perfect building for a stipulated sum under the authority of irresponsible commissioners. We are informed by a correspondent that most of the designs submitted were of little merit; and it is noteworthy as an indication of preference in style that only two out of the sixty were Gothic. We have no more definite information concerning the successful design than the opinion of our correspondent that it is mediocre, and the statement that it is classic with French treatment; or more definitely, as the Louisville *Courier-Journal* has it: "The general plan of the building is of the classic Corinthian order, with a central dome." It is a building of 482 feet by 292 in extreme measurement, with projecting fronts of 184 feet on the long sides; and is estimated by its architect to cost $1,722,000, — a good deal for the money, we should say, and an opportunity for the architect to easily sink his hundred thousand dollars in extra cost. The act of legislature for building the Capitol, however, allowed two millions for its cost. The Commissioners have assigned the architect the full commission allowed by the bill, — three per cent.

ALL accounts seem to agree that the wise action of the legislature in requiring the commissioners to consult three experts — an architect, an engineer, and a builder — has been nullified by the commission. The advice of the experts has been contemptuously disregarded, it would appear, and they have been employed simply to revise the estimates submitted by the competitors. The saying of one of the commissioners which is reported in the *Courier-Journal*, that the experts "had nothing to do about it anyhow, and they had better keep their blasted mouths shut," will probably convince the people of Indiana that their work is in the right hands, and will teach the considerate architect that the commissioners will stand no nonsense. The shutting of the mouths of the experts has apparently been undertaken for them, for we are told that the commission has suppressed all the criticisms on the designs before them contained in their report, presenting only their estimates. It remains to be seen how the legislature will receive this free and easy setting aside of their obvious intention; but it may be that they have no remedy. It appears to the reader of the bill (see *American Architect* for March 31, 1877), that they have guarded the State pretty carefully against everybody but the commissioners.

AN interesting paper just printed by the Trustees of the Johns Hopkins Hospital, as one of their series of reports on construction and organization, is Dr. Billings's paper on the ventilation and heating of the hospital. It is chiefly a compact discussion of the requirements of hospital ventilation, and of the advantages of the different systems in use; including some tables of observations taken during certain weeks of the past season in the Barnes Hospital in Washington, and the Boston City Hospital, of the working of their appliances for heating and ventilation. These are, says Dr. Billings, the best observations of the kind ever made in this country; and they are interesting because they show what is accomplished in two carefully ventilated hospitals, though they are necessarily inadequate to show what may or may not be done. It appears that in heating one ward of the Boston hospital about 220,000 cubic feet of air per hour were raised thirty-two degrees in temperature, on an average, with a consumption of 25 pounds of coal, and in the Barnes Hospital 800,000 feet with 70 pounds, the volume of air treated being nearly four to one, and the consumption nearly three to one. The average supply of air per bed was in the one about two feet per second, and in the other about one and a half, — in both cases a very liberal allowance; but the percentage of impurity shown by analysis was about the same in both cases, indicating apparently that the distribution was more successful or more economical in the Washington hospital. It is noticeable also that the variations in temperature and humidity in the ward are much greater in the Boston hospital, — a not unnatural result of having a more extreme climate to deal with, — and especially that the average humidity in the Boston ward was extremely low in comparison, being very irregular, and descending at times as low as 17 or 18 degrees, while at Washington it was never below 43 and commonly not below 60, the extreme variation being in the first case from 17 to 40 degrees, and in the second from 43 to 82. The average thus shown in the Boston hospital is certainly below what is usually considered comfortable or desirable; but the observations were confined to a very short time at the dryest season of the year. The humidity, it is true, is a point to which Dr. Billings does not seem to attach much importance; but European authorities are inclined to take a different view of it, and we think that common observation, whatever it may be worth, seems to support them.

THE disposition of the Johns Hopkins Hospital requires more than one apparatus for heating, and for ventilation (see plans in *American Architect*, Dec. 23, 1876); and Dr. Billings wisely recommends that, considering the relative merits of different systems to be as yet undetermined, more than one method of ventilation shall be tried, and heating apparatus both for hot water and steam be put in. One of the purposes of the hospital, he says, is educational, and it "should be a sort of laboratory of heating and ventilation." In this view it will give an opportunity, such as has not been found before, for testing different methods simultaneously, with careful observation, on a large scale, and under identical conditions. Such an opportunity can hardly be overvalued, unusual as it is, and can be furnished without detriment to the hospital, since it may be assumed that in the present state of our knowledge all the contrivances used will be found fairly efficient, while no system has thus far established a conclusive superiority. Dr. Billings inclines to think heating by hot water better on the whole than steam heating, and we are disposed to agree with him so far as absolute convenience is concerned, though we are not sure that it is better for rigid economy, inasmuch as the pressure in it, and therefore the weight of the apparatus, increases rapidly with the height of the building heated, and because we suspect that latent heat can be carried with greater economy than free heat to the remote points where it is to be applied. One appliance for ventilation to which Dr. Billings ascribes great importance, wherein he is well sustained by Dr. Huntington of the Barnes Hospital, is the fan. It is a less expensive appliance than is

commonly supposed, — the fan and engine proposed for the Johns Hopkins Hospital are estimated at a thousand dollars, — and it costs little to run it where there is already a steam boiler. It is a much more manageable and efficient motive power than a draught-chimney. Some important details of its application are given in the report, and among them an example of its importance where there is need, as in case of operations, or other special emergencies in hospitals, to make a rapid change in the air of a room. Dr. Huntington quotes one instance where the proportion of carbonic acid in the air of a vitiated ward was changed in ten minutes by running the fan, as shown by careful experiment, from 11.23 volumes in ten thousand to 3.75.

Enough drawings and photographs of architectural work for the French Exhibition have been received by the Committee of the Royal Institute of British Architects to occupy over two thousand square feet of surface, says the *Architect*. The committee has at its disposal only a little more than a thousand feet of wall and a small screen. It has been obliged therefore to reject a third of what was offered, enforcing as far as possible the rule to refuse all drawings of designs not carried out, and winnow the remainder as it best could. A question naturally suggests itself in such a case, whether drawings should not be given preference over photographs, at least on walls, partly because they exhibit two phases of the architect's art instead of one; partly because the actual objects exhibited are then works of art pure and simple and not manufactures; partly because photographs can at need be exhibited to those who will take the trouble to look at them without using up wall-space, and indeed are less fitted to be seen from a distance than drawings; and finally because the number of photographs is practically infinite, and the case becomes one mainly of "first come, first served." It is also a question whether drawings for unexecuted work, at least if made with *bona-fide* intention, are not as fair representations of the attainment and capability of a profession, and as instructive, as those of executed work, which are presumably made before the work is built. It looks as if the main advantage of the exclusion were in saving the embarrassment and labor of selection. These questions do not immediately concern Americans, since there is no indication that there will be any American exhibit of architectural work, but they may at any other time.

The report of the first year's field-work of the New York State Survey, which we have just received, seems to indicate that the work has been carried on with remarkable efficiency and economy, the cost having fallen a good deal below the estimate of $20,000 submitted by the Commissioners last year (see *American Architect*, March 3, 1877). The whole expenditure for the year has been a little less than $14,000, and a good deal of this has been for instruments and "plant," which are permanent, the actual cost of the surveying being about $9,000. With the slender force thus provided, signal stations have been established, and a chain of well-conditioned primary triangles located in a belt across the middle of the State from the Hudson to Lake Ontario. These start from the United States Coast Survey stations at Rafinesque and Helderberg near Albany (connected by a line which is the base of the State Survey) and lead to the United-States Lake Survey station at Victory near the lake. This gives the survey the vantage not only of a line fixed and carefully computed by the general government to serve as a base, but a point fixed with independent precision at the other end of the chain, by which to check the intervening work. Of this belt the triangulation has been finished in the eastern half, — the primary triangles determined with precision, the secondary and tertiary triangles filled in and observed, the important points of the topography noted, and many barometrical altitudes taken. The report of the Director, Mr. Jas. T. Gardner, which is submitted with that of the Commission, tells us that the area covered by the executed triangulation is about 1,700 square miles, within which were determined eight primary stations, eighteen secondary, and fifteen tertiary, and from these the positions of one hundred and seventy points were fixed, making one in every ten square miles. The primary triangles were repeatedly measured, to insure accuracy, and we are told that in no case did the errors of closure exceed three minutes. Seventy meridian lines were established to aid in the determination of local surveys.

The act of 1876, which authorized the survey, required that it should include the determination of the state and county lines, a thing which the loss of old landmarks has made imperatively necessary; and the party charged with this duty accordingly examined during the season 175 miles of county boundaries, and marked 51 points on them by monuments. But for the sake of economy, impelled probably by the slenderness of the allowance made them, the Director, and after him the Commission, have recommended that this determination of boundaries be hereafter left to the counties themselves, and that the State survey be confined, for the present at least, to mere triangulation, leaving the topography also to be filled in by local surveys. There is, however, a manifest advantage in having the boundaries between contiguous and therefore possibly conflicting counties determined by an authority independent of both; and probably the work could now be done both with more economy and more precision than if it were assigned to the counties to do at their leisure — to say nothing of the probability that this would mean putting it off till it became still more difficult and costly than it is now. We are inclined to think, then, that the State was judicious in directing that this should be part of the work of the present survey. As for the topography, that too is, no doubt, a part of the work that could be much better done now and by the State in the present survey. In fact, there is little chance of its being done with decent faithfulness, or in most parts of the State even of its being done at all, until the State does it, and this probably the Director and the Commissioners do not forget; but it may be thought best to let an unformed public opinion grow to an appreciation of the work before an attempt is made to carry out literally the requirement of the act for "an accurate topographical survey." The need of a survey, at least, is sufficiently emphasized by a sketch map which is added to that which in the report shows the progress of the triangulation. This map records some errors in location of the latest map of one of the counties surveyed, where towns are from a quarter to three-quarters of a mile out of their places, and where there are errors in distance of half a mile in four miles and a half, and a mile and a half in fifteen.

A principal plank in the working-men's platform has always been the suppression of convict-labor, or at least its removal from competition with outside labor. There has been a good deal of canvassing in favor of it lately, and just now a memorial for it is going about among the working-men of Buffalo for signatures, of which it is said that five thousand are already secured. The memorial is reported to have the support both of workmen and employers; and a mass-meeting was to have been called for one day of this week to favor it. The question is not without its difficulties; but, so far as we can see, the only interests in it that need to be considered by legislators are those of the State and of the convicts themselves. We do not believe that if convict-labor were abolished to-morrow the working-men would find any change in their condition. A momentary disturbance of the balance in the towns where it was employed would be all the result, and would be quickly over. The hundreds of thousands of workmen in New York are too many to be perceptibly affected by the employment of the few hundreds of inferior men that are hired out from the prisons. A few places would become vacant in two or three towns; men would come in from without to restore the equilibrium, and things would be to them as they were before. The working-men's grievance is here a sentimental one of too unsubstantial a kind to waste legislation upon.

To the State it is unquestionably beneficial that the convicts should be employed. The financial aspect of the question is subordinate and hardly worth considering; but convicts are more easily controlled and less dangerous when they are kept at work. It is an advantage to society that when they are discharged they should be in as good a condition as

possible, and there is no doubt that labor is wholesome for them, and on the whole saves them from some deterioration. The good of the convicts themselves equally requires that they be kept at work. But no way has yet been devised of keeping them at work without in some way bringing their labor into competition with that of outside workmen. A writer to the Buffalo *News* proposes an act of the legislature which shall require them to be paid the same wages as ordinary men in their crafts, — an obviously impracticable suggestion, for no contractor would pay these wages for them, nor could they be made to earn them in any way. Another suggestion of the same writer is more reasonable, — that the convict's wages shall be turned over by the State for the support of his family, if he has one, and if not that they shall be accumulated as a fund for his use when he is discharged. Here again the pecuniary interest of the State is too secondary to be considered, and it may fairly be urged that if society for its own protection takes away from his family the supporter, such as he is, on whom they have a right to rely, it should still leave them the benefit of whatever he may earn. It is quite possible that to know he was helping support his family would often encourage a prisoner to work better, and this could not but have a good effect on him; or if he had no family it might be some spur to him on the difficult path to reform, to find when he came out that there were savings waiting for him.

A CURIOUS quarrel has arisen over the use of the New York Post Office. The building, like others of its class, is under control of the Secretary of the Treasury, except so far as it is assigned to the Post Office. A short time ago the Secretary directed the Collector of Internal Revenue for New York to give up the offices he has occupied on Cedar Street, for which the Government has paid a rent of $45,000, and assigned him rooms in the Post Office building now occupied by the United States Commissioner and the District Attorney, directing the Commissioner to transfer himself to the upper story. Mr. Davenport, the Commissioner, objected to the change, and flatly refused to move, intrenching himself behind a clause in the deed of sale by which the city conveyed the ground occupied by the Post Office to the United States. This clause provides that the building "shall be used and occupied exclusively as and for a Post Office and Court House for the United States of America, and for no other purpose whatever;" and that if it ever ceases to be used for these purposes, or is used for any other, the land shall revert to the city. Mr. Davenport therefore proclaims that the Government is debarred from introducing the collector into the building, and will invalidate its title if it does so, and that he will not seal the forfeiture by acquiescence in the Secretary's order. This controversy has made some excitement, by raising the question whether the Government has not already forfeited its title in assigning rooms in the building to the Steamboat Inspectors, the Commissioner for the Paris Exhibition, and the Secret Service Department; and a resolution has been adopted by the New York Board of Aldermen, inquiring of the corporation counsel whether such a use of the building does not work a forfeiture. The provision in the deed seems to have been ill-considered on the part of the Government, and was probably unknown to Mr. Sherman, as it was forgotten by pretty much everybody else. It is perhaps desirable to have the question determined now, once for all; but the position of the Commissioner seems to be a weak one: for it is difficult to see what effect his acquiescence in the Secretary's order, after due protest, could have, or what right he has to resist it in any case, if the control of the building belongs to the Treasury Department.

THE New York Society of Decorative Art has taken up the wise plan of mediating between professional designers and the amateurs and others whose work it receives. It proposes to find means to carry out the drawings of architects and designers for such work as it supplies, — painted tiles, plaques and panels, or hangings and embroideries. It also offers to receive designs, paying for them when used, from any one who will furnish suitable ones. This strikes us as excellent in more ways than one. There are a great many amateurs and *quasi*-amateurs who are able to execute decorative work acceptably, but whose want of discipline in design makes their performances unsatisfactory when they are left to themselves, to whom it would be profitable to work under direction. There are many architects and others engaged in carrying on work for which such artists could furnish desirable details if they could be set at work on them, and there are many more or less clever draughtsmen and designers to whom an opportunity of improving their skill by practice, and of earning something in dull times, by designing in a small way, should be very acceptable. There are, in short, plenty of people who would be glad to design, and plenty who would be ready to execute: any means that will bring the capable ones among these into working connection is a thing to be welcomed.

SIR EDMUND BECKET ON THE FRAILTIES OF ARCHITECTS.[1]

THE recent instances in several cities, of trouble between architects and their clients, have called to our mind Sir Edmund Becket and his remarkable book, which although published more than a year ago, and reviewed with more or less meekness by all the professional journals of London, has not been noticed in these pages.

Sir Edmund Becket has for a good while been a thorn in the side of the English architects, with whom, nevertheless, he seems to be personally on the best of terms. We call his book remarkable because it furnishes the first instance we remember in which a respectable profession has been deliberately overhauled in print for its methods of dealing with its patrons. Cases enough of individual complaint we have all of us known, alas! often with too much reason. But that a man of somewhat eminent and conspicuous position in the world of London, a Queen's Counsel, an LL.D., and a man familiar by long experience with the ways of architects, who has been in the habit of attending by invitation the meetings of the R. I. B. A., and of taking a prominent part in their discussions, should come forth with a book declaring in substance that their ways are unreasonable, their charges extortionate, their airs intolerable, is certainly, to our mind, nothing less than extraordinary. We do not mean to say that this is the purpose of the book, which is indeed an innocent-looking volume enough, intended to furnish non-professional persons with certain useful information as to the best way of going to work to build themselves houses, together with many items of knowledge concerning the practical details of house-building and church-building, also a table showing the size of every principal church in Europe, and a dissertation on the Pyramids. It is only the first fifty pages or so which deal with the frailties of the architectural profession, and it is only these which we propose noticing here.

The author devotes a few vigorous pages at the outset to the condemnation of architectural competitions as a means of securing the best service; and we have never seen stronger testimony against the usefulness of that favorite institution. Here is a matter, he says, "in which all the *a priori* reasons point one way, and all experience another." He confesses the plausibility of the reasons commonly brought forward in favor of competitions, and states them fairly, but declares that experience tells another tale; that the anonymous element in the designs is a delusion, — every prominent architect having a manner both of design and rendering, as well known as himself, and that, if that were not enough, every competitor who has a friend among the judges takes good care that his friend knows which is his design; that the best architects will refuse all competitions but the great ones, and are justly getting shy even of those; that the excitement of a great competition throws even the best architects off their balance, which is the only way he can account for the badness of all the Law Courts designs and of those for the Albert Memorial; that the character of competition drawings is such as to preclude committees from getting a fair idea of what the building would be if built, — all sorts of "clever fallacies," as he mildly calls them, being employed by architects to make the building look imposing; all recesses being exaggerated by false shadows, the foregrounds being filled with fine ladies and gentlemen on foot and horseback, looking very small compared with the building, steeples always being surrounded by flights of crows, evidently designed to contribute to the grandeur of the building, because rooks notoriously despise all but very high trees. Finally he observes that the history of all the recent great competitions shows that the man who gets the first prize seldom carries out the work. "Although a pair of comparatively unknown architects got the Foreign Office prize in 1857 from a set of inexperienced judges, it soon came to be understood that the prize was all they were to get, and the award was generally considered a mistake. A parliamentary committee sat upon it, and the result was that the work was intrusted to Sir Gilbert Scott by the government. And then that government went out, and Lord Palmerston came in, and after promising the House of Commons to do nothing without their approval, as soon as the session was over he told the architect that he would cancel his appointment if he did not change the style from that of which he was the acknowledged master, to

[1] A Book on Building. By Sir Edmund Becket, Q.C., LL.D.: London, 1876.

another in which he had never built at all; and so that competition went in every way for nothing. And so did another and still greater one, viz., that for the long-expected Law Courts, which arose from the offer of the Society of Lincoln's Inn, to build new Courts of Equity in 1859 for a guaranty of interest on a sum which will probably be exceeded by the salaries of the architect and the clerk of the works before the job is done. Then we had all the parade of a great Royal Commission, and the publication of a Blue-Book of elaborate conditions and instructions, and an exhibition of designs in a building erected for the purpose, and the appointment of a sub-committee to choose the best design of persons with as much architectural experience as those who awarded the Foreign Office prize; and then a decision of the Crown and its law officers that these great lawyers, as two of the committee were, had exceeded their powers by recommending two architects instead of one, because they preferred the architecture of one and the internal arrangements of the other. And so at last the architect was again appointed by the first commissioner of works, and by an odd coincidence, the very same (Lord J. Manners) who had appointed the architect for the Foreign Office ten years before, as if there had been no competition."

Disbelieving altogether in the efficacy of competitions, he yet sees that they are not likely to be soon abolished, and tries his hand at a series of conditions under which the worst evils of the system might be avoided. These contain nothing which has not been laid down repeatedly by American architects, except a provision that specifications be required, "embracing every thing except furniture, necessary to fit the building for its purpose;" also that the acceptance of any plan shall depend on its being capable of execution within a given sum, this meaning that a contractor shall be found who will undertake it for that sum, and furnish sureties in one-third the amount.

On the responsibility and powers of architects, as also on their charges, Sir Edmund Becket writes with a vivacity evidently inspired by the memory of many a hard-fought fight. Three things in the common practice of the profession chiefly rouse his ire: —

First, That architects once in charge of a building insist on carrying it through without interference from the owner, and often in opposition to his wishes, and that the common form of contract with the builder has and is meant to have the effect of enabling them to do so.

Second, That they claim the ownership of the drawings made in carrying out a commission, in spite of the decision of English courts of law to the contrary.

Third, That in charging for service, their commission is fixed at five per cent, but is liable to be increased to double that sum by additional charges.

The author says that the common impression among persons about to build is that the only alternative to a competition is to select a competent architect, tell him what you want and are prepared to spend, and then "throw the responsibility all on him." This is by no means the notion or the practice of Sir Edmund Becket. His own method is to keep the responsibility to himself, holding his architect well in hand, and watching him all the way through as a cat watches a mouse. A client who will not do this must "sit still and see any number of blunders committed which he will either have to submit to forever, or else to pay some other architect for pulling the house to pieces after it is done, to try and cure them."

The author therefore believes in interference, to what extent he admits it is difficult to state with precision. "But the expediency of interfering more or less is one thing, and the right of a man not to be made to pay for doing things for him on his own ground contrary to his expressed wishes is another. Very few people are aware that every building contract prepared by an architect negatives this right altogether, and that architects distinctly deny it. The legal effect of the common form of contract is neither more nor less than this: The contractor shall build, whatever it is, according to the plans, for so much money; but the architect may order any addition or alteration that he pleases, either before or after any of the work is done, without consulting the employer, and even though he may object; and the employer shall pay for it at a valuation, and shall also pay the architect a further percentage for designing it, and a further one besides for valuing it, unless some other valuer is employed and paid, which is as bad. It was in that way that the Houses of Parliament were made to cost six times the original estimate, notwithstanding all the work was done by contract. . . .

"This doctrine of unlimited submission of the employer to his architect is avowed without disguise in the latest architectural books. The author of the 'Choice of a Dwelling' doubtless knew that he expressed the opinion of his fraternity in saying, 'After the plans are settled, and the work commenced, it must be distinctly understood that the "client" yields himself absolutely to his professional adviser.' If architects imagine that by calling their employers *clients* (as some tradesmen now call their customers when speaking of them, though they take good care to call them *patrons* when asking for their patronage), they are *ipso facto* demonstrating the duty of 'yielding absolutely to their professional adviser,' they are very much mistaken. A client can stop his lawyer from proceeding a day longer than he likes, or from taking any step that he objects to, or discharge him in a moment. . . .

"The same doctrine of submission was, moreover, laid down with peculiar emphasis, from the chair of the Royal Institute of British Architects, at their annual meeting in 1871, when the president of the year said that although he, like nearly everybody else, was far from approving the published design for the Law Courts, yet he considered it the duty of the nation to yield itself absolutely to Mr. Street, now that he had been intrusted with the work. On which it is at least amusing to remark, that the nation through its official representative, the First Commissioner of Works, had just then compelled Mr. Street and all the other architects employed by the government to submit to terms of exactly the contrary kind." Concerning the claim which the profession have always maintained to the ownership of the plans, as instruments of service, Sir Edmund Becket declares that no custom can establish the right of a professional association to "invent new rules, and set them up as binding on everybody else;" and furthermore, that the Court of Exchequer has rendered a decision on this point, in the course of which the judges, with a truly judicial calmness and moderation, said that such an attempt to supersede the common law was "contrary to reason, good sense, and justice; impossible, suicidal, cutting its own throat by its absurdity as soon as it was produced." The language sounds much more like Sir E. Becket than like our idea of an English justice, but it is quoted from the report of the case of *Eddy v. McGowan*, 1870.

Our author is most sarcastic when he comes to the schedule of charges issued by the R. I. B. A., that "highly respectable trades-union," as he calls it, adopting the civil sneer of the *London Times;* and feels bound, "when architects tell us that the schedule or 'private code' is calculated to prevent disputes, and that people may learn what they are to pay their architects in every possible contingency, by buying it for threepence at their house in Conduit Street, — to answer as a lawyer that it is nothing of the kind, but the direct contrary; and to warn employers that all that can be deduced from it is that 'five per cent on the cost of the work executed from the architect's design' is the very least that they will have to pay, in the absence of some special agreement, and that the maximum may be ten per cent and sometimes more. I have known that and more charged, and sometimes paid with grumbling and sometimes properly refused."

But now he rejoices that the schedule has been thrown over by the architects in the new arrangement with the Commissioner of Works which specifies that the architect's remuneration shall be a fixed sum to be agreed on beforehand. "The leaders of the profession having adopted that arrangement with their largest employer, the public, any others are, and I know consider themselves, as Mr. Burges says, at liberty to do the same and agree to any terms they like." The form of contract with the architect which is now adopted by the British Government covers substantially all the points enlarged upon by Sir Edmund Becket. We venture to reproduce the sense of it here, A. standing for architect, and C. for commissioners or committee.

1. The A. will prepare sketch plans, elevations, and sections of the intended building, having regard to the proposed cost, so that a contract might be made for it, including fixtures and fittings, warming, ventilating, lighting, boundary-fences, lodges, and every other work necessary to render the building fit for occupation, except furniture, for the proposed amount.

2. If the C. abandon the intention of executing the building, the A. shall be entitled to a sum to be fixed beforehand, and to the return of his sketches.

3. If the sketches are approved, with or without modifications, and the C. desire to proceed, the A. shall by a day to be named prepare working-drawings and specifications for competition by builders.

4. The drawings and specifications shall be full and complete so as to enable the C. to enter into a contract with a responsible builder.

5. If the most approved trader exceeds the amount proposed, the A. shall, if required by the C., revise his plans so as to bring the expenditure within the prescribed limit.

6. The plans and the documents relating to the works shall be the property of the C., and the A. shall make at his own expense all copies of them necessary for the conduct of the works.

7 and 8 are merely formal as to certificates and clerk of works.

9. The A. will be at liberty to vary architectural details, provided such alterations do not involve extra cost, but shall on no account incur any increased expenditure without sanction of the C. in writing.

10. If any additional or substituted works become necessary, the A. shall furnish the plans, etc., as soon as possible.

11. The A.'s remuneration shall be a fixed sum, to be agreed on beforehand; and one third of it shall be paid to him on the execution of the contract, another third when one-half the contract price has been paid to the builder, and the rest when the last payment has been made to the builder.

12. If after working-drawings have been made, the C. do not proceed, the A. shall be entitled to a fixed sum, to be agreed on beforehand, and the plans, etc., shall belong to the C.; or if they proceed only with a part of the works, the A. shall be entitled to

a proportionate part of the remuneration mentioned in (11), in addition to a proportionate part of the sum mentioned in this article, in respect to the works abandoned.

13. The A. shall be entitled to nothing more, except for alterations and additions made by the written authority of the C.

14. In that case he shall be entitled to such increased remuneration as may be agreed on, or determined by arbitration.

15. If the A. becomes incapacitated, or dies, he or his representatives shall hand over to the C. all plans and papers relating to the works, and shall be entitled to such equitable proportion of the unpaid part of the said remuneration as may be agreed on.

16. Disputes to be settled by an arbitrator appointed by the Treasury.

17. No rules of the R. I. B. A. or any other society to be held binding on the C.

This agreement, or something equivalent to it, Sir Edmund Becket earnestly advises all persons to require, before trusting themselves to a member of this dangerous profession, — and this is the moral which all his previous objurgation is meant to enforce.

In respect of which it occurs to us to say that all this abundant, half-indignant, half-contemptuous complaint against the architects of England is not to be regarded as only the angry outburst of a choleric old gentleman with a pet grievance, which he is fond of talking about as loudly as possible. There have been too many similar though less vivacious witnesses, with portions of the same story to tell, and with the same lesson to deduce from it, viz., "Don't put yourself too much in the power of your architect, or even if possible get along without him altogether." It is not many months since this feeling grew so strong among official men in London as to push the Commissioners of Works to consider whether in the case of the great government buildings, the public would not be better served by dispensing with professional service and putting the work in charge of the Board Surveyors, with a corps of draughtsmen. The remarkable advice given by Professor Huxley to the Trustees of the Johns Hopkins University at Baltimore indicates the same feeling among non-official persons.

These things are, in our opinion, to be regarded as the signs of a growing dislike in England towards the profession, on the part of its employers; a dislike arising not so much from distrust of its competency, as from a feeling of injury and resentment at its pretensions and the liberties architects are supposed to take with their employers' money. The instances of absolute and conspicuous incompetence on the part of architects are comparatively few, and, like the mistakes and failures of men in any other calling, though loudly condemned when they occur, have little to do with the attitude of the public towards the main body of the profession. It is not by its failures, but by its successes, that any profession is to be judged. And certainly the history of British architecture during the last generation is brilliant enough to put to shame any complaint on that ground. The grievance really lies, we suspect, just where Sir Edmund Becket's book indicates, in a certain bumptiousness in the treatment by architects of their employers; an unwillingness to receive instructions, and a still greater unwillingness to follow them; an eye to splendor of architecture as against convenience of plan, and to the magnifying of the architect as against the comfort of the client. In short, the grievance is in the nature of a personal grievance, and concerns the personal behavior and manners of the profession. It is time this was said, and that those who have taken up so noble and serious a calling should make up their minds to eschew the small vanities and jealousies and touchy sensibilities which have ever been the reproach and ridicule of those who follow art in any of its branches, but which are nowhere more out of place, and more unnatural.

We wish it could even be said that this unworthy temper is confined to the intercourse of architects with their clients. It is impossible to read the professional papers of London without amazement at the absence of good feeling and of good manners; the peevishness, distrust, intolerance, and jealousy which mark the intercourse of architects with each other. From the days of Sir Charles Barry, when his brethren signed a petition to the government to set aside his design for the new Parliament-houses and order a new competition, down to these later days which have witnessed the frantic abuse of Mr. Street after the Law Courts competition, and of Mr. Burges during the contest over the decoration of St. Paul's, it has seemed as if any conspicuous success of a prominent architect in a competition were the signal for his fellows to open upon him in full pack.

It is our happiness to believe that the architects of our own country, while yielding now and then in some measure to the besetting weakness of the profession, have generally been able to maintain their intercourse with each other on a higher footing of mutual confidence and respect. We ought nevertheless to recognize the tendency which undoubtedly does exist, and to strive by every means in our power to strengthen among us the habit of good feeling and professional comity to that extent that it shall be proof against any emergency of temptation.

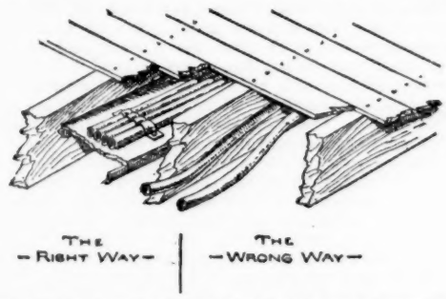
DECORATIVE ART. — The ladies of Saratoga have formed a society of decorative art, which is to be, like the Boston one, an auxiliary of the New York society.

MODERN PLUMBING. — II.

LAYING PIPES.

LEAD pipes are put up with brass bands, and "tacks," which are small flat castings of hard metal, soldered at the middle or edge to the pipe, and then screwed to the board on which the pipe runs. The brass bands are used where several pipes run so close together that there is not room for tacks, and are strips of sheet-brass, bent to fit the pipe, and fastened by screws at the ends. There should be enough points of attachment to prevent the pipe from sagging or getting out of place by the contortions which expansion causes in it; and iron hooks and nails, which cut their way into the lead as it moves, should be avoided.

Pipes should never run, as is often seen, suspended between the beams of a floor. If it is necessary to carry them between the

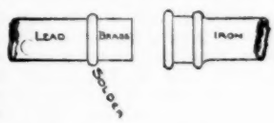


floor and ceiling, boards should be fitted in at the proper inclination, and the pipes laid on them; then there will be no danger of sagging, with the probable consequence of a torn or burst pipe in the worst possible place. After the pipes are so laid, it is well in country houses to fill in around them with sawdust or planing-mill chips, and the floor over them should be screwed down. However, pipes should not run under floors or in partitions if it is possible to avoid it, but always on boards fixed to walls or ceilings of kitchens, closets, or store-rooms, so that the whole length is easily accessible.

Lead pipes are joined by flanging out the side or end of one into a rude cup, and sharpening the end of the other to fit into it; the portions next the joint are then scraped bright, and at a certain distance rings of lampblack and grease are "smudged" around each pipe, and a mass of hot solder wiped around the junction, which adheres to the bright parts, but not to the lampblack, thus making a neatly defined oval lump.

The quality of the solder is important. The smallest taint of zinc, even a few filings in a pot of solder, renders it brittle and unfit for good work. Commercial solder usually contains a little impurity of this kind, which has to be removed by burning with sulphur. The solder is melted and kept red-hot, and stirred with a lump of sulphur, which must be kept always below the surface to prevent its taking fire. The zinc is gradually separated and rises to the surface as sulphide, and is skimmed off, leaving the solder pure.

Lead can be soldered perfectly to lead or tin, and also to brass or copper, if the surface of the brass or copper is cleaned with acid and roughened with a rasp to make the solder adhere, but not at all to iron. In entering a lead into an iron waste-pipe, a poor plumber fills the joint with putty, which cracks or is eaten by mice in time; but a first-class workman solders to the end of the lead pipe a brass or copper ferrule, and this when introduced into the iron pipe gives resistance enough to allow the joint to be calked with melted lead, making a perfect and durable junction.



Iron and brass pipes are joined by means of cast fittings, — branches, tees, bends, sleeves, etc., — into which the pipes are screwed, red-lead paint being first daubed over the screw. Much of the neatness of the work depends on the precision with which the pipes are cut off, and the appearance is seldom so good as a first-class job of lead-piping. Both iron and brass pipes are put up with brass bands. The brass pipes, after they are done, should be varnished with a good coat of shellac, or they will soon corrode and look badly.

The system of pipes should be so laid out that they will not cross each other when running nearly horizontally. In that case

one must either dip under the other, forming a "bag," or, what is nearly as bad, must jump over it, forming a chamber which is soon filled with air which accumulates from the bubbles carried along in the water, and this being pent up, unable to escape either way, stops or greatly checks the flow of water. The necessity of

dodging around gas-pipes often gives trouble in a similar way. Of course a "bag" in a pipe traps it, making a similar air-chamber of the length of pipe adjacent to it, besides its further defect that the water cannot be drained out of it.

In a house with complicated plumbing, the laying out of the work so that all the pipes shall follow their course without interfering, the shut-off cocks shall come in accessible places, and the whole be kept well together, demands skill and judgment of the highest order; and an experienced eye will recognize the thoughtful and thorough workman far more in the precision with which the pipes fall into their places, and the neatness of their lines, and the mode of turning up their ends, than in the shiny fittings or polished marble.

Cast-iron waste-pipes are put up with hooks and straps of iron, and must have a strong support at every joint. The parts are joined by inserting the small end of one into the socket or "hub" of the other, putting in a little hemp or oakum, and then pouring in melted lead or solder, and compressing it with a calking-iron. To lessen the corrosion of the iron, the pipes should be painted. They may be dipped in hot tar, which is good, but makes the pipes disagreeable to handle unless they have a longer time to dry than can generally be allowed. Next to tar, red-lead paint makes the best protection. Two coats should be put on, one before the pipe is put up, to make sure of reaching all parts, and a second afterwards to make the whole neat and uniform. The inside of the pipe can be coated by pouring in liquid paint and turning it around; but it is not usually done, and it is doubtful whether the paint resists the ammonia and other gases inside the pipe long enough to do much good. White-lead paint should not be used unless on top of a coat of red-lead, as it corrodes the iron. If red lead cannot be had, the iron may be whitewashed with common lime wash, and the white-lead paint put over this, which will form a tolerable substitute.

In entering an iron pipe into the drain, care must be taken not to put the iron so far in as to choke the drain: the socket is partly filled with oakum, and cemented with hydraulic cement. It is a great advantage to join the iron pipe to the drain by means of a Y branch, of which one opening is closed only by a plug, which can be removed, and the junction of the soil-pipe and the drain, where obstructions frequently occur, cleaned without disturbing either pipe.

BOOK NOTICES.

QUANTITIES.[1]

Mr. Fletcher's book on Quantities, which was first published as a series of articles in the *Building News*, though mainly adapted to English methods of work, is not without interest to the American reader. It affords more complete and detailed information than we have elsewhere met of the system of measuring and computing both labor and materials, which holds so conspicuous a place in building-operations in both England and Scotland. It is a neatly-printed duodecimo of two hundred pages, the last sixty of which are occupied by a copious index, which adds greatly to the serviceableness of the book; and by a set of tables, some of which are readily accessible elsewhere, but others, as for instance a table of the time to be allowed for various items of all sorts of work, are, so far as we know, unique. The bulk of the book is occupied by a dozen chapters, all written upon the same plan, in which the arts of the excavator, bricklayer, slater, mason, carpenter, joiner, ironmonger, smith, gas-fitter, bell-hanger, plasterer, plumber, painter, glazier, and paper-hanger are successively taken up, the method of measuring work described, special difficulties noted, and variations of usage pointed out. In every case a table is added which "has a double use. It shows the order of taking the items of this trade, and the method of measurement." Throughout the book, enumeration, the most elementary of arithmetical processes, plays an important and most useful part. In estimating, as in making specifications, there is not generally so much danger of getting things wrong as of missing them altogether; and, in this country at least, the elaborate lists Mr. Fletcher has prepared of all the items that need to be considered are likely to be quite as useful in the perfecting of specifications as in the preparation of estimates.

Whether, on the whole, this cumbrous and expensive system of "surveyors' quantities" is worth what it costs, is a question Mr. Fletcher does not raise; and it is not in place to discuss it here. It undoubtedly is of great service to architects, in bringing them, at the outset of their professional career, into immediate contact with every detail of building-operations. It is greatly to be regretted that in this country no such post as that of district surveyor should be open to the rising practitioner, and that in his own practice, the getting out of quantities for the contractors should not be forced upon him. Whether the system is any better for the interests of the work than the system, or no system, generally in vogue in this country, by which each contractor satisfies himself, by methods satisfactory to himself, how much work will be required of him, is quite another question. A skilful antagonist might find in Mr. Fletcher's book a number of statements which he could use, not without effect, as arguments against the practices it is occupied with explaining. "Judgment" still seems a potent factor in the result; and the contractor is at the mercy of the surveyor's judgment, which he cannot tell about, instead of having his own to rely upon.

[1] Quantities: a Text-Book for Surveyors, in Tabulated Form, explanatory of the Best Methods adopted in the Measurement of Builders' Work, etc. By Banister Fletcher, F.R.I.B.A. London: B. T. Batsford, 1877.

KRELL'S DORIC CAPITALS.

A series of profiles of twenty-four Greek Doric capitals, including nearly all the authenticated examples, has been reproduced from the Atlas of Krell's History of the Doric Style, by Mr. F. W. Dean of Cambridge, Mass., for use of the students in art at Harvard College, and under direction of the Professor of Fine Arts, Mr. Norton. They are careful tracings from the drawings in Krell's Atlas, better executed in fact than the drawings themselves, and printed in lithographs of the size of the originals. These drawings give the most complete comparative view of the Greek Doric capital that has yet been prepared, and are accurate so far as accuracy has yet been attained. They are arranged in approximately chronological order, and accompanied by a table that cites the authorities from which they are compiled. We miss any record of the scale of the originals, which would have been of advantage, or any indication of the painted ornaments of which traces have been found in some of the capitals, which might easily have been supplied, and we notice the absence of the remarkable capitals of the Temple of Apollo at Bassæ, and the so-called Portico of Philip at Delos. The book may be had of Mr. Dean, who is to be addressed at Cambridge. The price is two dollars.

THE ILLUSTRATIONS.

HUDSON RIVER STATE HOSPITAL, POUGHKEEPSIE, N.Y. MR. FREDERICK C. WITHERS, ARCHITECT, NEW YORK.

We give an illustration of a portion of the State Lunatic Asylum at Poughkeepsie, N.Y., just built. The buildings were begun in 1868, when the first appropriation for them was made by the State Legislature; and the work has been carried on whenever successive appropriations have been available. The south wing shown by the block plan, ultimately intended for the sole use of males, is now occupied by both sexes. The central building for administrative purposes is now building; and when the north wing, which is intended for the reception of females, is built, the whole will form a group of buildings with a frontage of nearly 1,500 feet. The walls are of brick, the outside ones being built hollow, and faced with Croton fronts. The door-arches and heads of windows are of Ohio and Bigelow blue-stone combined, and the string and eaves courses of Ohio stone. All the partition walls are twelve inches thick, except those in which the ventilating flues are carried up, which are sixteen inches thick. Every room has at least one of these flues carried up to a ventilating ridge in the roof. The ombra shown in the drawings faces the south, and is intended for a promenade for the patients, being open in the summer and enclosed in the winter. The general design was made by Messrs. Vaux and Withers, and the buildings erected in conjunction with Dr. J. M. Cleaveland, the medical superintendent.

NEW CITY HALL BUILDING, PROVIDENCE, R.I. MR. S. J. F THAYER, ARCHITECT.

This building is built at the westerly end of Exchange Place, Providence, and is bounded by Dorrance, Washington, Eddy, and Fulton Streets. Its façades are of Westerly and Concord granite, the one illustrated being its principal front, and 133 feet 8 inches broad, and 92 feet 4 inches to the top of the masonry. The roofs and dome are built with iron frames, and the decorative features are of cast-iron. The plans were published in the *American Architect* for March 25, 1876.

DESIGN FOR A MORTUARY CHAPEL. MR. F. H. BACON.

This design was made by a student of architecture at the Massachusetts Institute of Technology, Boston, in accordance with the following programme:—

A Temple Tomb. — It is the custom in some countries to erect over a grave or tomb, a small temple or oratory, just large enough to cover it, containing an alter where a single mourner may offer prayers for the dead. It is required to design such a structure, making it in the form of a small Grecian temple, with two colums, *prostyle*, all the details being Greek rather than Roman in character. The plat of ground is supposed to measure six feet by twelve.

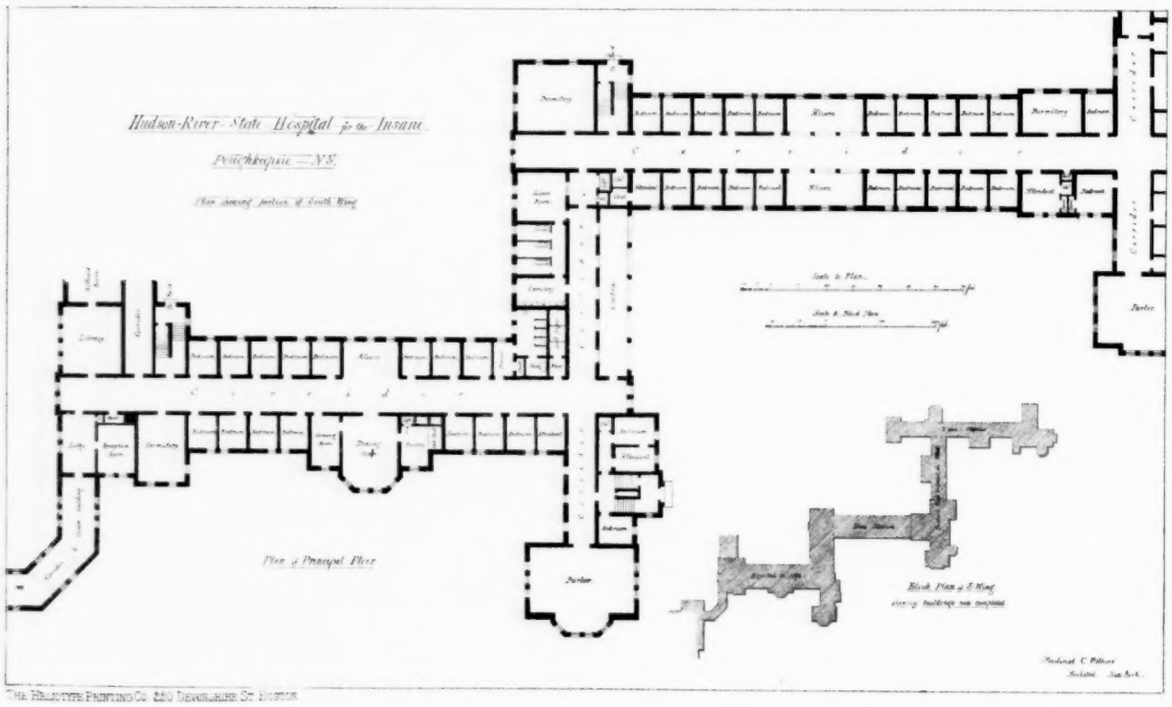
Required. — A plan, section, and two elevations, on a uniform scale of half an inch to the foot, with details one-twelfth full size, all on an imperial sheet.

STAIRCASE HALLS. MR. W. W. LEWIS, ARCHITECT.

These staircase halls are to be found in two houses lately built on Commonwealth Avenue, Boston.

Antwerp Cathedral. — It is said that the spire of Antwerp Cathedral can be seen from a distance of a hundred and fifty miles.

HUDSON-RIVER-STATE-HOSPITAL-FOR-THE-INSANE: POUGHKEEPSIE: N.Y: PORTION OF SOUTH WING: F.C. WITHERS: Architect



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FRONT · ELEVATION ·

· CITY · HALL — PROVIDENCE · R · I ·

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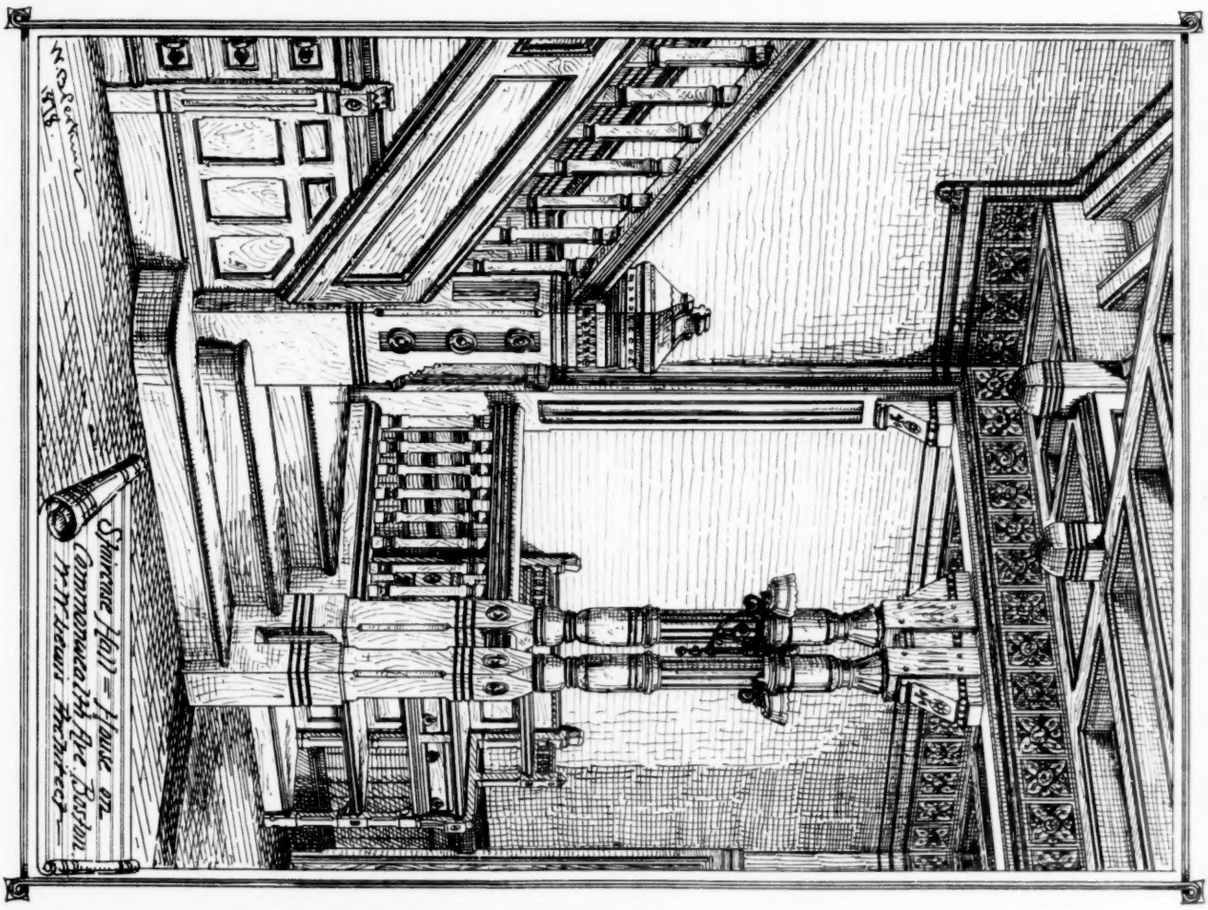
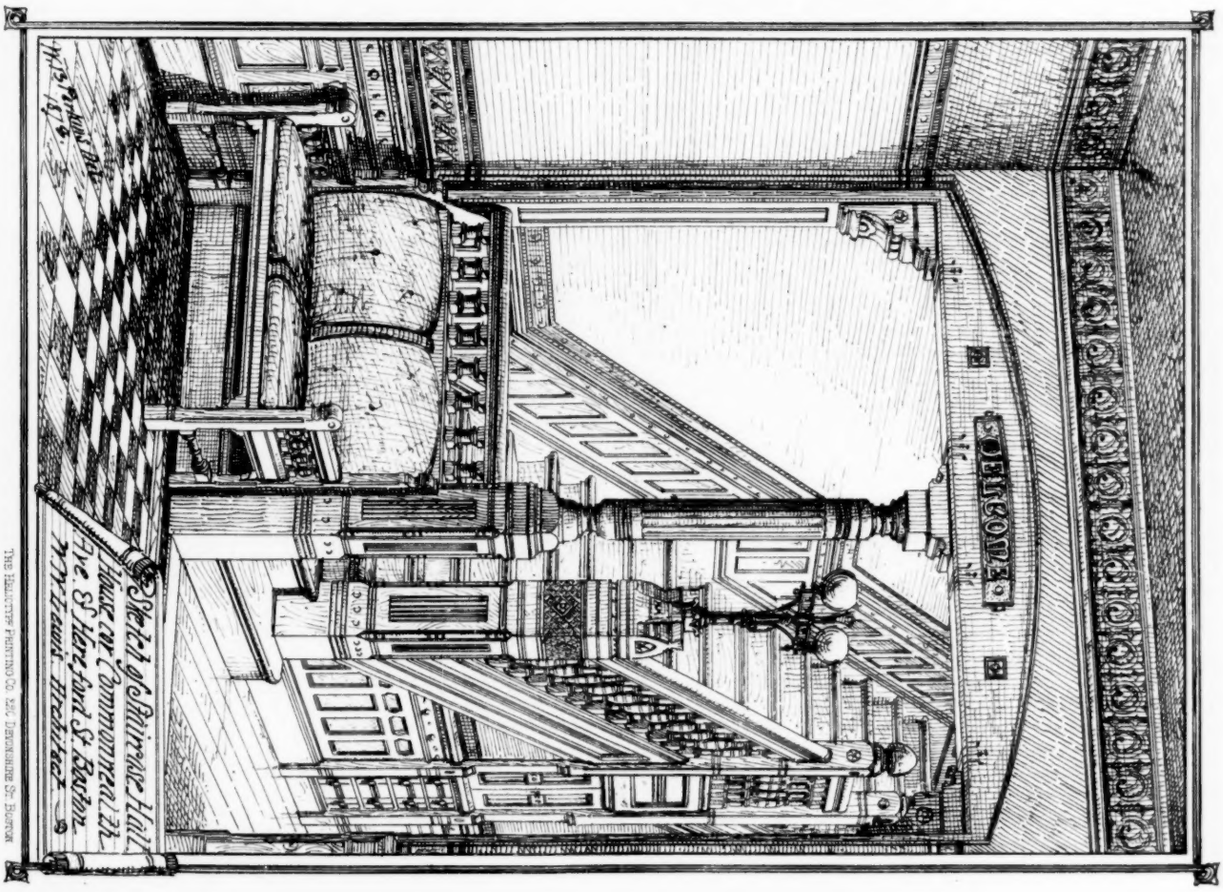


Staircase Hall — House of Commonwealth Ave. Boston.
H. H. Richardson Architect.



Sketch of Staircase Hall
House on Commonwealth Ave. St. Herefordst. Boston.
H. H. Richardson Architect.

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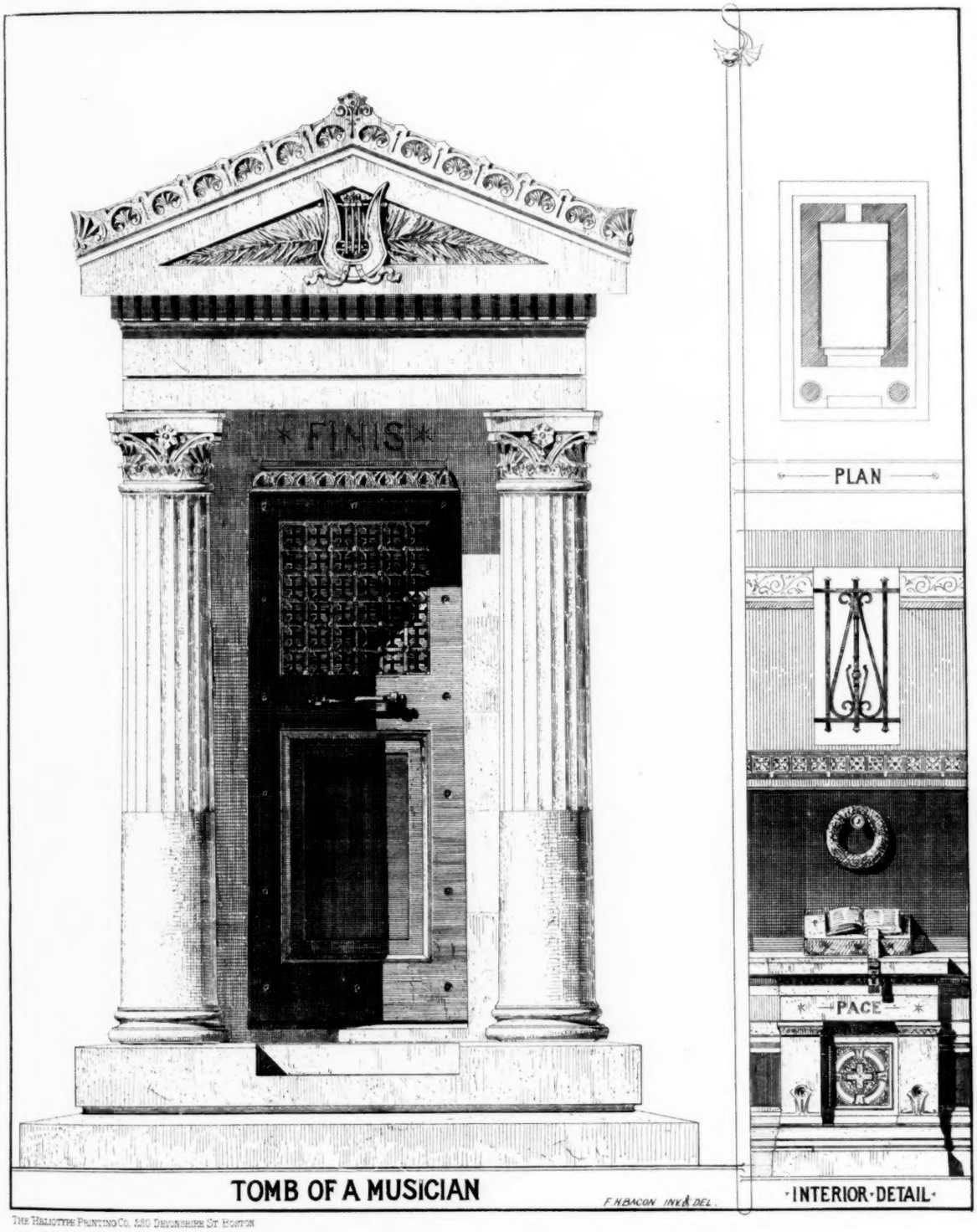

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THE AMERICAN INSTITUTE OF ARCHITECTS.

THE CHICAGO CHAPTER.

A REGULAR meeting of the Chicago Chapter of the American Institute of Architects was held at the Tremont House Club-Rooms, March 7, 1878.

President Bauer in the chair. Minutes of the last meeting read and accepted. The President had received a letter from Mr. Robert Loebnitz, formerly a partner of the President, tendering his resignation as member of the Chicago Chapter, — he having become a resident of Wiesbaden, Germany. On motion the resignation was accepted, and Mr. Loebnitz was nominated by the Chapter to the position of honorary member of the American Institute of Architects; and the Secretary was directed to communicate the action of the meeting to the Secretary of the Institute.

At the request of the Treasurer that some bank be named as depository for the funds of the Chapter, the Chapter designated the Commercial National Bank.

The subject of cements and their uses on concrete and other masonry was discussed at length. This led to the subject of the strength of brickwork, — notably of brick beams, so-called. Some instances of the remarkable bearing strength of beams of old brickwork were cited.

Steps are being taken by the Chapter for the establishment of rules for the measurement of all kinds of building-material, — hoping to secure the co-operation of all architects and contractors and to fix standards of measurement. The subject will be discussed at the next meeting. Adjourned.

PAINTING AND SCULPTURE AT THE CENTENNIAL EXHIBITION. — V.

[The report of Mr. John F. Weir in behalf of Group XXVII., embracing Plastic and Graphic Art.]

THE UNITED STATES.

IT has been frequently charged that American art derives its inspirations, as well as its style and technical discipline, from the schools of Europe. But it requires no very intimate knowledge of its real characteristics to discern that this assertion has no foundation in fact. The character of our art in general is decidedly varied, it is true; but it is quite possible to discriminate between that which is distinctively American and bears the unmistakable stamp of originality, and that which is either the work of artists of foreign birth residing in this country, or of Americans residing abroad and adopting the manners of foreign schools. The distinction is clear enough, and one that is easily recognized. In landscape-painting it is not an exaggerated estimate of American art to claim for it merits that are unsurpassed by the contemporary art of any people. In *genre*, also, there is evidence of original aims derived from the conditions of our life and character, though in a less marked degree than in landscape. Nor is it a matter of surprise that American art should have made such rapid progress in its development, when we consider the fact that our civilization is not the result of a slow and gradual advance from barbarism, but that its original elements were derived from peoples already matured in the civilizing arts under old and experienced systems of their own. The forming influences in our national life have not only had a high intellectual origin, but from the earliest dawn of our existence as an independent people this character has been sustained by our scholars, men of letters, and scientists, who have filled no subordinate place in the general intellectual progress of the past century. And, although laboring under the peculiar disadvantage of surroundings almost destitute of every thing that tended to promote a knowledge of art in the earlier days of our history, our older artists were not less widely esteemed than our representative men of other professions, nor were their merits less conspicuous. Allston, Copley, West, Stuart, Trumbull, and Newton were no less favorably and widely known in Europe than in their own country; and it may be affirmed of them without extravagance, that at that time — at the dawn of the present century — there were few artists of greater merit in any country, so recent a thing is the extraordinary and prolific development of art in all its branches which we witness to-day. And it cannot be said that this development, in all cases, is intrinsically what it appears on its face to be, — a march of progress. The technical resources of the arts have been enlarged and perfected, skill and method have been acquired through discipline, and the training that is requisite for successful competition in the arts is now necessarily severe and prolonged; yet it would be difficult to discern in the portrait-painting of the present time, in any country, a better style or higher order of excellence than is manifested in the portraits of Copley and Stuart. In short, the progress is one of technical externals rather than of genuine artistic aims — the expressive and thoughtful — which give value to art.

In historical painting, West, Allston, Trumbull, R. W. Weir, and Leutze have produced works well worthy of respect. In *genre*, also, there has been a natural and spontaneous expression of American life and character. Mount and Edmonds may be said to have originated with us this class of art, which has attained a conspicuous place of late. But in landscape the development of American art has been marked by originality and decided excellence. The strong tendency towards this class of painting may perhaps be accounted for by the fact that until recently the means for acquiring discipline in art have been of the most meagre kind, and the study of the human form was supplanted by the influence and beauty of our natural surroundings, particularly in its wild primeval grandeur. This partially filled the void occasioned by a lack of historic and artistic influences, and supplied an aim that has been fruitful of genuine results. Some years since, a few American landscapes found their way to the exhibitions of Antwerp and Brussels, and a distinguished Belgian artist declared "the works of American artists there exhibited to be among the most characteristic of the kind ever brought to that country." In that branch of art the United States suffered little by comparison with the best works of foreign schools, nor were its individuality and merit impaired by this juxtaposition. In *genre*, however, the comparison was decidedly unfavorable for us, especially when contrasted with the technical skill and thorough discipline manifested by the French and Spanish schools. Yet even in this class of painting originality of aim was conspicuous, as shown in the works of LaFarge, Hunt, Vedder, Benson, E. Johnson, Homer, Perry, and others, — the last three selecting their subjects exclusively from American life and customs, and with marked individuality of treatment. The first occasion wherein American art was brought in contact or competition with foreign art was at the International Exposition of 1867. The collection was small, numbering but seventy-five pictures, but for the most part it was well selected. An intelligent critic of the Exposition of 1867 wrote: "The American collection, as a whole, attracts attention, and has been very highly praised by the first artists of France."

But the International Exhibition at Philadelphia was the first opportunity for an adequate display of American art on its own ground, and under what should have been considered favorable circumstances had not this been partially frustrated by an indiscriminate admission of unworthy works. But notwithstanding this defect, the exhibit, as a whole, was a creditable one.

A feature of marked interest was the exhibition of the works of our older portrait-painters who link the present with the past century, as Gilbert Stuart, Copley, Allston, Morse, Newton, Trumbull, Jarvis, Inman, Sully, and others. Of recent portrait-painting there were admirable examples by Elliott, Furness, Stone, Huntington, Baker, Gray, Healy, Hunt, Page, Hicks, Staigg, Le Clear, Porter, and Miss A. M. Lea. Mr. Huntington's style is pleasing, correct in drawing, and always characterized by refinement of feeling. Mr. Baker is particularly agreeable in his treatment of female heads. Mr. Hicks's portrait of Gen. Meade is manly and vigorous. Mr. Page seeks the more subtile modulations of form, and his portraits are suggestive, luminous, and skilfully executed, but with a peculiar method which renders them not always agreeable. His art, however, is always thoughtful and expressive. Mr. Porter's style is one of refinement and pleasing in color, in which qualities Miss Lea's portraits, also, are conspicuous for merit.

In *genre* the most noteworthy examples were by Boughton, E. Johnson, LaFarge, Homer, Perry, Leutze, R. W. Weir, Vedder, Rosenthal, Chase, Shade, Shirlow, Loop, Benson, Bridgeman, Gray, Brown, Irving, Henry, Yewell, W. Thompson, W. H. Beard, Wood, C. C. Colman, and others; and in landscape-painting notably the works of Cole, Durand, Kensett, Gifford, McEntee, Church, Whittredge, Suydam, Hubbard, S. Colman, Swain Gifford, Cropsey, W. T. Richards, Bierstadt, Hetzel, De Haas, E. Moran, Bellows, D. Johnson, Miller, Bristol, Hill, Martin, Shattuck, James Hart, Van Elten, William Hart, Haseltine, Gay, Tilton, Fitch, etc. It is not to be inferred that the works of these artists are all equal in merit; but on the whole, they represent American art in a general and diverse way. Their names have become familiar to the public, and their several merits have received more or less recognition.

Cole and Durand may properly be termed the fathers of American landscape. They first effectually inspired the artistic mind with sympathies whose influence is still felt. Cole was truly a poet in sentiment, and his simple landscapes possess a charm which time does not mar. Durand likewise stimulated into activity that latent feeling for this branch of art which has become a marked feature of the American school, — if the term is admissible, — and his rendering of landscape is extremely sensitive and refined.

The late Mr. Kensett was represented by two of his most pleasing works, — "Conway Valley, New Hampshire," and "Lake George," the quiet and subdued sentiment of which is characteristic of his graceful manner. A serene and tender pastoral, and the more subtile modulations of tone in the landscape, had for him the greatest charm.

Mr. S. R. Gifford was represented by his "Sunrise on the Seashore," of which it may be said that the sea and its solitudes have seldom inspired a more profound motive, or one more adequately rendered, than in this picture. "Tivoli" and "Lake Geneva" are no less admirable, but with a very distinct sentiment; and "Pallanza, Lago Maggiore," has a full, flooded sense of light, modified by tone, that is in every respect masterly in treatment. Two pictures by the same artist, "Fishing-Boats of the Adriatic," and "San Giorgio, Venice," are as strong and pronounced in color as

the former works are delicate and suggestive. This artist is varied in his powers, and sustained, free, and finished in his methods. His pictures always manifest great elevation of thought and feeling. They are the interpretation of the profounder sentiments of Nature, rather than of her superficial aspects.

Mr. McEntee was represented by "October Afternoon," "November," "The Woods of Ashokan," Frosty Morning," and "Late Autumn." These pictures are all characterized by great sincerity and decided poetic feeling. They evince a subdued yet intense enjoyment of those phases of nature that are tinctured with melancholy, and which are therefore none the less beautiful. This artist's style is expressive and sensitive, and, within the scope of his strongest sympathies, mature and confident. His pictures evince a profound insight that is intolerant of that Denner-like portraiture in landscape, which aims at minuteness of imitation. They possess qualities of excellence, that in some respects are unsurpassed in this branch of art.

Mr. Church contributed his "Chimborazo," which, while it is representative of his peculiar style, is not one of his best works: it is not equal to his "Niagara" or "Heart of the Andes." The eminent ability displayed by this artist in the works last mentioned merits high praise, and has been widely acknowledged. Mr. Church views the landscape with the cool deliberation of the scientist, rather than with the intensity of the artist: his estimate of its values and its facts, therefore, is rather scientific than artistic. His art is always attractive and brilliant, but has a tendency towards accumulation of detail, in lieu of fulness of sentiment. His merits, however, are so generally recognized, and have so properly won for him the distinction due to brilliant talents, that his work rarely fails to attract attention and elicit praise. "Chimborazo" is one of a series of pictures, the materials for which were sought in another continent; and the extraordinary enterprise manifested by this artist in visiting remote latitudes in search of subjects for his pencil was a feature of his art that has since found numerous imitators. But Mr. Church is not insensible to the fact that all the materials requisite for great art may be found always near at hand, and even among what is termed mere commonplace.

Mr. Whittredge contributed his "Rocky Mountains, from the Platte River," "A Home by the Sea," "A Hundred Years Ago," "Twilight on the Shawangunk Mountains," and "The Old Hunting-Grounds," — the latter an especially admirable example of his free, nervous style, and of his felicitous treatment of wood-interiors. Mr. Whittredge's pictures of forest solitudes, with their delicate intricacies of foliage, and the sifting down of feeble rays of light into depths of shade, are always executed with rare skill and feeling. His style is well suited to this class of subjects: it is loose, free, sketchy, void of all that is rigid and formal. It evinces a subtile sympathy with the suggestive and evanescent qualities of the landscape. But in his treatment of the open sky this artist is less happy: there is sometimes apparent a slight crudeness in his rendering of this feature of nature, that is open to unfavorable criticism. His pictures, however, always express a sincere and true motive.

Mr. Bierstadt contributed his "Yosemite Valley," "The Great Trees of California," "Mount Hood, Oregon," "Western Kansas," and "California Spring," no one of which equals his "Rocky Mountains," which some years since acquired a great and merited reputation, and was a work of exceptional power. The earlier works of this artist showed a vigorous, manly style of art that had its undeniable attractions. His pictures exhibited at Philadelphia indicate a lapse into sensational and meretricious effects, and a loss of true artistic aim. They are vast illustrations of scenery, carelessly and crudely executed, and we fail to discover in them the merits which rendered his earlier works conspicuous.

Mr. S. Colman sent his "Merchant of Laghouats *en route* between Tell and the Desert, Algeria," which is characterized by the agreeable manner this artist has been pleased to adopt. There are some manners, or methods of treatment in art, that are so intrinsically pleasing that they appear to be exempt from the criticism that usually deprecates pronounced formalities of style; and Mr. Colman's manner is one of these. It is attractive, thorough in its technical method, pleasing in color, and in every other respect than that of composition — in which it is perhaps too formal — it is admirable and artistic. A little seeming negligence or unstudied effect in composition would produce a more agreeable result; and yet this very thoroughness of discipline in Mr. Colman's work offers a contrast to the not unusual weakness of our art in these particulars. Mr. Hubbard exhibited his "Early Autumn," "Coming Storm," and "Glimpse of the Adirondacks," — the latter a characteristic example of his style, and luminous in its cloud-effects. Mr. Hubbard is particularly pleasing in his treatment of summer landscapes and afternoon skies, in which class of subjects his art is attractive, and often brilliant in its rendering of light and atmosphere, yet with a quiet and subdued tone. His style is not always equal, but it is expressive of true artistic sensibility and sincere motive. Mr. Bristol has lately acquired a more thorough manner, and his picture of "Lake Memphremagog" has decided merit. The evanescence of lights and shadows over the summer landscape is well expressed. Mr. W. T. Richards contributed but a single oil-painting, "The Wissahickon," — not one of his best pictures. This artist is a careful, conscientious student of nature, but it is only recently that he has permitted himself to exercise that freedom and largeness of vision characteristic of mature art: his later works manifest this in a marked degree. No painter is more thoroughly master of the sea, and waves in motion, than is this artist. Mr. Thomas Hill exhibited his "Yosemite Valley," a large picture, and superior to any thing of the kind in the Exhibition, in the way of attractive and realistic representation of scenery, strikingly grand in its own elements. Such representations have held a prominent place in American landscape-art. They appeal with force to the popular taste; and while they are very distinct in their aim from the ends sought in more mature art, which is less dependent on novelty of materials, they are not without decided power when treated with the ability displayed by Mr. Hill, or as formerly rendered by Mr. Bierstadt. Mr. Miller contributed his "Returning to the Fold," "The Road to the Mill," and "High Bridge, New York," all of which show decided merit with a strong foreign accentuation. Mr. De Haas exhibited "Moonrise and Sunset," and "A Brig hove-to for a Pilot," both marked by a strong German manner, brilliant in effect and vigorous in treatment, though somewhat formal. Mr. Hetzel exhibited a "Forest Scene in Pennsylvania," which was particularly pleasing and effective. Mr. James Hart was represented by a single picture, "A Summer Memory of Berkshire," which was an agreeable rendition of quiet pastoral landscape. Mr. Cropsey contributed "The Old Mill," and "Italy," two pictures very cleverly rendered, though with a peculiar manipulation characteristic of his style, which is often pleasing. Mr. Swain Gifford exhibited "Boats at Boulah, on the Nile," and "An Egyptian Fountain," which show admirable vigor and breadth of treatment. Mr. Swain Gifford is best known through his Eastern pictures, in which his rendering of Oriental life and atmosphere is peculiarly happy. Mr. Gay exhibited "Windmills of Delfthaven, Holland," a very admirable picture, true in sentiment, and skilfully executed.

FOREIGN ARCHITECTURE AT THE CENTENNIAL FROM A FRENCH STAND-POINT.

[See p. 408, vol. I., and p. 57, *ante*.]

The architectural drawings of the English section are to be found in a small hall of the Art Gallery. Fourteen artists, of whom several are of great merit and reputation, took part in this exhibition. Here, again, we find perspective views with landscapes, and but very few plans.

Mr. Aitchison exhibits a view of the painter Leighton's studio. This building is not especially interesting. It includes the studio which takes up the whole second story, and the apartment on the ground-floor. Furniture in black wood, inlaid, and some interior decorations, complete his exhibition.

Mr. Burges, who received a medal, exhibits under No. 9 a view of the new Law Courts in London, an important building with a high square tower, in the Gothic style after the English version. The Cardiff Tower is another square tower, similar in kind to that of *Jean sans Peur* at Paris. The Cathedral of St. Finn Barr, recently built at Cork, as shown in a perspective view, is partially hidden by trees; this is rather a water-color than an architectural drawing.

Mr. Cooke displays a large college similar to all its class in England; Gothic buttresses, a square tower rising in the middle of the façade between two gabled wings of less height, form a design of no great interest.

Mr. Penrose exhibits a notable scheme for the decoration of the dome of St. Paul's in London. It is illustrated by photographs of the colored drawings. A wide band with figures of musicians and singers encircles the round opening of the lantern; lower down on the dome, eight arches, divided horizontally in two, descend to the springing of the dome, and display, each, two compositions. The composition is classic, but unfortunately rendered on too small a scale to enable one to properly appreciate its true value. Mr. Penrose received a medal.

Mr. Smirke exhibits a pleasing water-color sketch of a pavilion for the South Kensington Museum. It has a very attractive appearance; glazed bricks give an additional grace to the Italian Renaissance as treated by the author.

Mr. Spiers, who studied at the *Ecole des Beaux-Arts* at Paris, sent to the exhibition his design for the *Eglise du Sacré Cœur de Montmartre*, which had already honorably figured at Paris among the other competitive designs for the same building. We have by the same artist a perspective view of a restaurant on Piccadilly. The composition of the main entrance is well studied, and the *entresol* with the high arches above it, which light the great hall, gives a very harmonious general effect. No. 36 shows the spacious and well-decorated vestibule of the same restaurant.

Under No. 39, Mr. T. H. Wyatt exhibits an Exchange Building for Liverpool. This is a large palace in which we find reminiscences of the Louvre, but its general decoration is perhaps a little meagre. The same artist, who received a medal, displays two other designs, — a city house of a rather monumental aspect, and

[1] Mr. Spiers was from the *atelier* of M. Questel, and by his talent he does credit to his French masters. — *Ed. Revue Générale.*

a house with outbuildings and offices. Slate roofs with separate bands of deep color, and brick walls sharing the same peculiarity, give an appearance to the whole suggestive of Scotch plaid. The water-color rendering itself is very agreeable and successful.

The most interesting part of the English section of architecture, or rather of architectural decoration, is certainly to be found in the separate exhibition of the South Kensington Museum, which occupies a special room of the Art Gallery. There are here three life-size figures painted in oil, which were used as models for some mosaics executed in one of the halls at South Kensington, and which represent Michael Angelo, Apelles, and Donatello. The first is the work of the regretted Mr. Godfrey Sikes, the second of Mr. E. J. Poynter, and the third of Mr. R. Redgrave. These works by artists whose names are well known in France are very remarkable, and merit serious attention. By Mr. Sikes, in the same hall, we find in addition some pleasing architectural sketches; and by Mr. Poynter, a decoration — "The Months and Seasons" — in a very good style. The figures of May, July, September, and November, and of Spring and Winter, are excellent.

From Belgium, M. Louis de Curte, a pupil of the *Ecole des Beaux-Arts* at Paris, is the only exhibitor. He contributed a good design for a Gothic cathedral of the thirteenth century. The plan is very simple. At the intersection of the two branches of the cross, is a belfry resting upon eight pillars, and elegantly pierced by slender openings which let in the light, and produce the most charming effect. The towers of the façade are placed diagonally, which gives to the main entrance a certain originality. A general plan, a main façade, a side façade, and two sections, complete M. de Curte's contribution, which secured him a medal.

In the Italian section, M. Marianna exhibited a collection of about thirty drawings, representing a theatre for the city of Palermo. The plans of the substructure, of the stage, the green-room, etc., are on a scale of one-fiftieth, thus occupying a large surface. The auditorium is arranged with taste, as can be seen from some well-rendered sections and a general view. Unfortunately, I was unable to see the general plan, which had disappeared at the very moment I visited the Italian section.

Canada and New South Wales exhibited in their respective sections photographs of the principal monuments of their large cities. In general, these monuments have been built by English architects. The post-office at Sydney, and several buildings at Montreal, Quebec, and other cities, although not wanting in interest, would only furnish matter for monotonous descriptions, for no plans of these buildings were shown.

Spain, which occupied a separate little pavilion, had there concealed its architectural exhibition. This, however, did not prevent the committee from finding it out, and awarding three medals, — Don José Malde of Madrid, and Señor Antonio Rovira y Ravaza of Barcelona, for designs of commemorative monuments, and to Don Ramon Tenas of Barcelona, for a church. These drawings were well made and rendered, and merited the recognition accorded them.

Austria had sent photographs, both of monuments and of drawings. It would have been better, I think, to have sent the original drawings. In the first place, the photographic reductions are too small; and secondly, it is to be considered that an exhibition which is wholly made up of photographs is far from being attractive. Most of the works exhibited had been already displayed at the Vienna Exhibition of 1873; the works, at least, of those artists who obtained medals, — H. von Ferstel, Ludo Tischler, H. von Hansen, Fr. Schmidt. We cannot do better than to call attention to the criticisms already made public by M. Pascal (see the *Revue Générale de l'Architecture*, vol. xxxi. columns 22, 56, and 265), to the justice of which we can by personal observation testify. It is to be added that several monuments shown at Vienna by drawings are here shown by photographs of the buildings themselves. — M. C. PICTOU, *in the Revue Générale de l'Architecture.*

CORRESPONDENCE.

WORK ON THE TUILERIES. — THE HÔTEL DE VILLE. — THE ELECTRIC LIGHT.

PARIS, February.

"IT is an ill wind which blows nobody good," sums up many compensations in life which are unexpected, and architects may be pardoned if with the doctors and lawyers they count upon such ill winds for their chief practice. Certainly M. Lefuel, however patriotic, must regard the Commune with, to say the least, mingled feelings as he sees on the Rue de Rivoli the *pendant* to his earlier wing and Pavillon de Flore touching upon completion. The scaffolding about this building well illustrates how seriously all accessories of art and science are regarded here, for it is of a solidity which with us would be held sheer extravagance, and perhaps with reason. The pavilion, though receiving the finishing touches, is almost hidden behind its heavy stagings. At a distance, clear of all projections, are four massive stories of scaffolding, used only for communication and for raw materials, as between this and the walls are intermediate and movable stages on which the men work. Not a ladder is to be seen, but each façade has its stairway, three feet two inches in width, which reaches the story above in two runs of the easiest grade, and is protected with stout handrails. Children could play with safety over these stages and stairs. At the angles are huge elevators, nineteen feet square, for hoisting materials, supporting their own weight on four twenty-inch joists with braces in proportion. All this is bolted with iron bolts. Hardly a nail could be found, as all the secondary scaffolding is supported on spars lashed together, — a great economy where wood is high, as these spars are let out over and over again.

Naturally in private architecture these scaffoldings are less luxurious. After the ground floor is finished, the first thing is to erect an elevator of the ultimate height of the walls, and then spars fastened to the sidewalk in beds of mortar support the staging, and to these are lashed the successive stories. But in all cases there is a great deal more timber used than with us. The professor of construction at the *Ecole des Beaux-Arts* in his lectures pays a high compliment to the daring ingenuity of the American scaffolds. There is some excuse, however, for this solidity, as in France all mouldings and sculpture are cut when the stones are laid in place. Although the width of the staging protects the workmen in all weathers, huge sheds like giant marten-boxes are built out from and about the pediments and principal groups of sculpture. In these *ateliers*, working from the great plaster models, are gangs of men under the direction of distinguished sculptors, who themselves give the finishing touches. Among these are Gruyère, Lafrance, Bonnassieux, Bosio, etc.

A wide gap now separates the new pavilions above mentioned from ruins of the old garden façade of Philibert Delorme, and the uninitiated must be puzzled to see one end smoothly plastered, apparently to amuse men who pull themselves about on stages to draw figures. These are the "*appareilleurs*" who are working out full-size diagrams of intersecting arches and vaults. They look like common workmen, but both from theoretical training and experience will do the most difficult problem faster than most professors.

Building under cover is taking a still greater development of late. About a year ago the frequenters of the boulevards were surprised to see rapidly put up on a vacant lot a prodigious wooden shed pierced with great windows and skylights. There was no getting a glimpse of the mysteries within, but during the winter months there came from it a ceaseless din of hammer and derrick; and one spring day the boarding vanished, and the street was agog with the sight of a noble five-story block entirely finished. The surprised divinities of the boulevard acknowledged with a shrug the beauty of the rival sprung Minerva-like upon them.

Speaking of the spars used, the Hôtel de Ville with its bristling scaffolding completely built far above the stone courses looks like a crowded seaport. Work on it is stopped, as there is a trial going on between contractors and architects. The latter have made many changes besides pulling down a large part built, and the former demand increased credits. At the new Hôtel Dieu now finished and in use, a whole story was taken down, as it was found the building was too high for the width between the ranges of wings; and even down, there is much complaint at the air not circulating sufficiently through these spaces.

Each night of the Grand Opera, a crowd collects in the Place, and discusses the merits of the new electric lights. There are two clusters on the *perron*, and they suffice to turn the usually brilliant gas-lamps into mere points of dull yellow light, which bear about the same proportion to the intense white light diffused from the ground-glass lanterns that the oranges in a stall do to the street-lamp above. The central lanterns of the eight clusters in the square have been also fitted with it, and the Place is as bright as during a phenomenally bright moon. The experiment cannot yet be called successful, for the lights are so near the level of the eyes that nothing can be seen above or beyond them, the Opera only revealing itself in the gloom by a dull yellow glow from the *foyer*. However, the effect may be very fine when the light is placed as high as the cornices of the buildings, which in public monuments are always provided with a line of gas-jets.

M. Jamin, Professor of the *Sorbonne* and the *Ecole Polytechnique*, in a recent lecture gave an academic indorsement to this last industrial application of science; and aided by the inventor M. Jablochkoff, he showed how by condensers the divisibility of the electric light had been increased until a true means of canalizing the current had been obtained. He maintained that this light need not have the ghastly tone which has been the characteristic of previous electric lights, but that it really approached nearer to the sun's rays than any other light yet used. Those interested in gas have had a thorough fright, but he re-assured them somewhat by declaring that gas would retain its advantages for dwellings, but the electric light would be used with greater economy for lighting large spaces. It is being used and introduced in various large shops and establishments already.

There is to be, by the way, at the exhibition a complete display of light-houses and their apparatus, which in France are especially fine, as well as one of life-saving and wreck-helping tackle. This will be on the bank of the Seine, and form part of the Marine Exhibition, for which models are being expressly made. R.

THE CONNECTICUT SCHOOL OF DESIGN. — THE HARTFORD SOCIETY OF DECORATIVE ART. — THE CONNECTICUT MUSEUM OF INDUSTRIAL ART.

Hartford, Conn.

For many years past, efforts have been made in different parts of Connecticut, to establish schools of art work, where instruction should be given which would benefit the public interests of the State, and stimulate the desire for a better class of artistic products. The outgrowth of this feeling led to the formation of The Connecticut School of Design, which was opened in this city five or six years ago. The school held one or two annual exhibitions, which called forth a commendable show of oil-paintings and water-color drawings, together with some architectural work; but the association which had bravely entered upon its good labor, and had opened classes for gratuitous instruction in painting, was sadly crippled soon after its inception, by the departure from the city of a large proportion of its prominent members in the profession. Pecuniary embarrassments set in, and although the organization is still in existence, it takes now no active part in public education. The Hartford Society of Decorative Art is doing a good work in its particular line, which is chiefly the decoration of tiles, and drawing. The society aims to supply instruction in elemental drawing at a nominal cost; and its efforts have been thoroughly appreciated, as testified by the large attendance of scholars, who are under the instruction of Miss Taylor of Boston, a pupil of Hunt the artist. But the great opportunity for practical instruction in art is now offered at New Haven. The Connecticut Museum of Industrial Art has grown into existence principally through the efforts of Professor William P. Blake, and was established in 1876, the first public exhibition being held last year. As a nucleus to the property of the Museum, the Swedish figure-groups seen at the Centennial Exhibition were purchased, and under the direction of the Swedish Commissioner were placed in the old State House in New Haven, where last year a loan exhibition was held, which was this year repeated and attended with success, many rare and beautiful objects of art being shown to the public. The aim of the association is to promote the prosperity and artistic advancement of Connecticut industries, by the establishment of a museum containing specimens of the selected manufactures of the State, and of industrial and applied art generally. In connection with the Museum, schools for instruction in any branches of art from free-hand drawing to a knowledge of *repoussé* work are to be and have in part already been opened; the general plan of the organization being the same, on a reduced scale, as that of South Kensington. It is the endeavor of the managers that the Museum shall comprise not only the best specimens of Connecticut industries, but those from other sources; reproductions of works of art by means of casts and electrotypes, as well as materials illustrating the development of home industries up to the present time. It is proposed also to obtain a suitable library, which shall contain books, drawings, and photographs, having a direct bearing upon the application of art to industry and to general decoration. To further the instruction of teachers, lectures will be delivered by competent authorities in the various branches of art.

The Museum is, as its name indicates, a State association; its officers are chosen from the principal cities, and the management of the association is vested in a board of trustees, of which the Governor of the State, the Mayor of New Haven, and the President of Yale College, are *ex-officio* members. The city of New Haven has testified its interest in the movement, by an appropriation, by providing suitable rooms for the Museum, as well as by the generous response of individuals who have deposited in the collection many rare and antique articles, rendering the exhibition particularly attractive.

Some features of interest to the architectural student are seen in specimens of wrought-iron work from Messrs. Cox & Sons of London. One is a section of a *grille*, showing conventional foliated work, the effect being heightened by a judicious introduction of color upon different parts of the work. Among the Swedish terra-cotta work is a tall fluted column with carved cap and moulded base; and near by is a specimen of modelling of the human figure, something on the caryatid order. This terra-cotta work is of a grayish color like unbaked clay, while in the next room it is seen of another tint. A copy of the celebrated Warwick Vase shows the material in a light buff, and other examples of this shade are seen; notably a large vase, admirably executed and richly ornamented by clusters of flowers carved in the clay before baking. An architectural "boss" of Doulton ware is exhibited, and shows incised work as well as clearly-cut carving; the tints are subdued, being dark blue upon a drab ground. Some interesting specimens of Spanish tiles in a variety of colors, both glazed and unglazed, are to be seen.

The principal features of the loan exhibition are found on the upper floor of the State House, and in many respects the display may be favorably compared with the recent Loan Exhibition at the Academy of Design in New York. Rare specimens of porcelain are to be seen, Limoges faience, Dresden china, and Delft ware, as well as Japanese and Chinese curiosities, exquisite laces, and a creditable display of amateur decorative work. The schools are to be in several of the rooms on the ground floor. Already instruction is being given in making *macramé*-lace, and a class has been formed to study the decoration of pottery. Professor Honey of Yale College instructs pupils in mechanical drawing. Several of the leading manufacturers in the State have answered the call for specimens of their work, and others will soon be represented.

With these assurances of co-operation on the part of manufacturers, it is to be hoped that a general interest can be awakened throughout the State to consider the importance of sustaining an organization whose motives are to improve our present industries by a more rigorous application of the principles of art.

Chetwood.

HOW ST. JOHN IS REBUILDING.

St. John, N.B.

To the Editor of the American Architect.

Dear Sir, — After our great fire which occurred, as you know, on the afternoon of Wednesday, the 20th of June last, the axe and saw of the carpenter were in great demand. Temporary wooden shanties sprung up everywhere, as if by magic; our public squares were soon covered with them; and some, built upon the ruins of more pretentious edifices, caught fire from the ashes still smouldering beneath. These shanties were of course inadequate to the requirements of their occupants: stores, dwellings, churches, public institutions, etc., must be provided, and for these the services of the architect were required. As the news of the calamity spread in all directions, many valiant knights of the T-square generously left their lucrative practices and honorable positions in other cities, and hastened to the rescue. For a while every steamer brought an addition to the ranks; and people soon learned to see without surprise the exterior of a fresh shanty gayly decorated with a dozen or more highly colored, unframed "perspectives" of panoramic proportions, a few indeed being faithful representations of meritorious work, but most seeming designed only to display utter contempt for all canons of good taste. Do I speak too plainly? Surely the men who by earnest endeavor and upright conduct adorn the profession of architecture know that this cap will not fit them.

Following the architects came the agents for the supply of building-material. The suspension by the Dominion Government, of duties on this class of merchandise at the Port of St. John, tended largely to increase our trade in such with the United States; and many new materials, formerly almost unknown among us, were introduced. Two of the most important of these were the enamelled bricks from Philadelphia, and mock stone-work made of galvanized sheet-iron. The former material attained at once a place in public favor; with the high finish and brilliant gloss of their polished surfaces, these bricks seemed a special gift of Providence, sent to occupy the place of freestone and granite, which were henceforth, by common consent, banished from the exterior of our buildings. Thousands of these bricks have been used, — in some cases with success; but where their brilliant colors have been most lavishly displayed the stripes and checks indulged in are altogether too suggestive of the Sioux Indians in the glory of their traditional war-paint.

The utter failure of granite and freestone to withstand intense heat opened the way for galvanized-iron work. This material had been used here before the fire, but sparingly; the cornices of most of our buildings having been of wood painted and sanded. The use of wood for such purposes being forbidden by law, the impossibility of forming heavy projections in brickwork leaves the sheet-metal master of the situation. Its apostles, for the enthusiasm of its votaries justifies the name, run into the wildest extravagance. But the greatest objection to the use of it is in the defective manner in which most (not all) of it is put up, owing to the urgency of the demand: large surfaces are covered with it, but precautions against contraction and expansion are seldom or never used; the joints are left open; the inside is never or rarely painted; so that in a few years repairs amounting to almost entire reconstruction will be necessary.

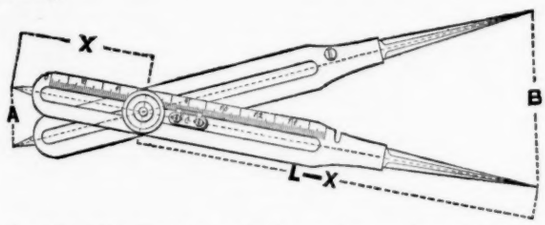
Of the contractors and mechanics who for a time have made our city their home, some of course are not so good as others; but a large number, I am happy to say, are good and trustworthy men, whose large experience and unquestioned integrity enables them to command the public confidence. The general workmanship of our buildings is at present much the same as formerly, good, bad, and indifferent; yet in the matter of brickwork all contractors seem to meet on a common level: it seems utterly impossible to convince the workmen of the importance of flushing back joints, or of the necessity of bond. As a rule, fronts are laid by a superior class of workmen; and amusing scenes frequently occur between the aristocratic layer of face-bricks, and his humbler brother of the side walls, when the former is obliged to accommodate the ends of his front to the twists which no amount of supervision can prevent the latter from imparting to his work. Some improvement has been made in regard to thickness of walls, by a law based upon the building-law of Boston, which took effect some three months after the fire; but, the majority of our principal business houses being previously under way, some extremely thin walls exist in the most important portion of our city, and some accidents have occurred, accounts of which have already appeared in your columns.

The weather throughout the winter has been exceptionally mild, so that there has been little interruption to building-operations. Most of the new stores are already occupied, and many dwellings of a much improved class will be ready for occupation by the 1st of May. Much work has been done, and much is talked of for the coming season; but competition is so active that prices will be kept at their lowest level. For a building worth about $9,000, offered in competition a short time ago, no less than twenty-two tenders were received. VERAX.

AN IMPROVEMENT IN PROPORTIONAL DIVIDERS.

IT is believed that this improvement, which can be easily added to any correctly made instrument, will render it of much more general application, especially in copying drawings when the unit of measure is to be changed, and will also afford a ready means of removing any incorrectness arising from breakage or wear of points.

As shown in the accompanying drawing, a scale of equal parts is graduated on one side of the instrument, its beginning being about half an inch from the extremity of the short point. A vernier plate is fastened to the joint plate by two screws passing through slots, so as to allow the vernier plate to be moved either left or right, as the zero of the vernier must be set at exactly the same distance from the centre of the joint as from the extremity of the short point to the beginning of graduated scale. A vernier is graduated on this plate, to enable the instrument to be set with the necessary accuracy.



A scale of fifty parts to one inch is very convenient, and, the vernier being equal to nine of these parts divided in ten equal parts, differences of $\frac{1}{500}$ inch can be directly read upon the instrument.

To adjust the instrument, measure the exact total length of the instrument by a scale similar to that graduated upon it. Set the instrument by trial, so that the distance A between the short points shall have any desired ratio to B, between the long points. Calculate by the formula for lines the corresponding value of X or the reading for the instrument. Then loosening the vernier screws, slip the vernier on the plate, without moving the joint, until this reading is given by the graduated scale. Fix the screws, and the instrument is properly adjusted. Any change caused by breakage can be perfectly remedied by re-adjustment in the same manner.

GENERAL FORMULA.

Let L = total length of instrument, measured by the graduated scale.
X = distance from centre of joint to extremity of short points.
L — X = corresponding distance from the centre to the extremity of long points.
A = distance between the short points.
B = corresponding distance between the long points.

V = ratio of A to B = $\frac{B}{A}$.

From similar triangles we have,
A : B :: X : L — X, and, by substitution,

$X = \frac{L}{1+V}$, a general formula for setting the instrument.

N. B. — Whenever the value of X obtained from the following formula is too great to be set on the instrument, deduct it from L, set the vernier to this difference, and change the ends of the instrument.

1st, *Lines.*

$$X = \frac{L}{1+V}.$$

Set the instrument to read X. Take any distance A in points A, the distance between points B will = V × A.

2d, *Copying drawings, changing scales or units of measure.*

Let $\frac{1}{S}$ = actual scale of original, or fractional part of full size.

$\frac{1}{T}$ = actual scale of the required copy.

$$X = \frac{L}{1+\frac{S}{T}}.$$

Set the vernier to X. Take off dimensions of the original with points A, points B will give the corresponding dimensions of copy.

3d, *Length of any aliquot part of the circumference of a circle.*

Let n = number of equal parts into which the circumference is divided.

$$X = \frac{L}{1+\frac{n}{2T}}.$$ Take a radius of the circle in points B, points A will give the length of arc required.

4th, *Side of regular inscribed polygon.*

n = number sides of polygon.

$$X = \frac{L}{1+\frac{1}{2\sin\left(\frac{360°}{2n}\right)}}.$$ Take radius in points B, points A give the length of the side of the polygon.

5th, *Side of a regular circumscribed polygon.*

n = number sides as before.

$$X = \frac{L}{1+\frac{1}{2\tan\left(\frac{360°}{2n}\right)}}.$$ Take a radius in points B, the points A give required side.

6th, *Similar surfaces or areas.*

Let V = ratio of area of given to that of proposed surface.

$$X = \frac{L}{1+\sqrt{V}}$$ Take any dimension of the given surface in points A, points B give the corresponding dimension of the proposed surface.

7th, *Similar solids or volumes.*

Let W = ratio of volume of given to that of proposed solid.

$$X = \frac{L}{1+\sqrt{W}}$$ Take any dimension of the given solid in points A, points B will give the corresponding dimension of the required solid.

The values of X for the cases commonly occurring in practice may be calculated by the preceding formulæ, and tabulated once for all, thus allowing the instrument to be as quickly set as those most fully graduated, or those values may be calculated readily as required. Of course any shortening by breakage would change the value of L, and make a recalculation or correction of the tables necessary. N. C. R.

AN EXPLANATION FROM MR. BRABAZON.

WE have been prevented heretofore from taking due notice of a letter from Mr. Andrew Brabazon, the builder whose suit against the corporation of Trinity College was noticed in a letter from our Hartford correspondent of Feb. 16 (*American Architect*, No. 112). Mr. Brabazon encloses a communication from himself to the Hartford *Times* of Feb. 23, with a request that we should put him and Mr. Kimball in their proper places before our readers. We do not know that we can do more to put Mr. Brabazon in his proper place than to quote the essential part of his defence in the *Times*, which we give below. The decision of the court, which we must assume to be entitled to respect, awarded him $200 instead of the $1,500 which he claimed. The court therefore considered, it is to be inferred, that he had rendered services greater than it was reasonable to expect him to render without payment, and of less value than he considered them to be. Behind this decision we have no occasion or inclination to go. Mr. Brabazon says:—

"When Mr. Kimball got started on the new drawings he sent for me to figure on the cut stone, and told me he wanted a detailed price on every part, so that he could put on or leave off, as it suited the committee. I made up these bills for him, as he requested me to do. I gave the cost of the stock separate, and the value of the labor in itself; also the amount of both, given by the piece or foot, lineal, cube, or superficial, as it suited him. Then he wanted the total cost of each building summed up. In this way we figured up five buildings for him — namely, the students' dormitory, library, chapel, lecture-room, and dining-hall. After we got through with all the Ohio and upper stone trimmings, Mr. Kimball ordered us to go back and figure all the basement cut stone separate, which we did. After giving him all the information he desired, to help him to mature his drawings and finish them with a knowledge of their expense, and subject to his call from January to June, he also kept our time for twenty or thirty days."

SOOT-STAINED PLASTER.

AUSTIN, TEX.

EDITOR AMERICAN ARCHITECT.

Dear Sir, — On page 96 of your journal "a subscriber" asks for a remedy for "sulphur" which has appeared in plastering, caused by using old brick in the wall on which there was soot.

The cause of the color is probably the pyrolignous acid in the soot uniting with the calcite of the plaster, carrying with it enough carbon to give color.

There is no remedy except to remove the cause and effect, and re-plaster.

Respectfully, JOHN W. GLENN.

PITTSBURGH, PENN., March 20, 1878.

EDITORS OF AMERICAN ARCHITECT AND BUILDING NEWS.

Gentlemen, — Anent the query in your last issue as to "soot-stained plaster," I would remark that an experience of over thirty years in this sooty region has taught me that the only way to prevent such "stains" is to "cremate" all sooty

OLD BRICK.

A DAY IN BOSTON.

THE British tourist in America should by all means visit Boston. After seeing San Francisco, Chicago, and New York, he cannot help feeling well pleased with this city if he is interested in architecture, for it presents characteristics quite different from other cities in the United States. Situate on a peninsula, the ground rising to a hill in the centre, it has an advantage over other cities built on a dead level. The streets are irregular in plan, reminding one of our cathedral towns; and the buildings, though mostly all modern, and lacking the picturesqueness given by age, are yet grouped and arranged with good effect. The beautiful park with its shady walks, and the gardens with their fountains and statuary, are not miles distant from the centre of the city, as in some large

cities: in Boston they are in the midst of the city. Seated there, you have a view of many of the principal buildings, the gilded dome of the State House, the roofs of the houses near it, and the clock-towers of the city rise behind the foliage of the trees. There are no factory-chimneys, no noxious works to be seen: all looks clear and bright in the morning air. The streets, though not wide, are remarkably clean; in many old trees grow on each side; and, generally speaking, the footpaths are paved with red brick, with granite curb.

I was surprised to find the humblest class of dwellings built with brick, and faced with fine red pressed bricks, as good brickwork as I have seen in England. In all my ramble I did not see any inferior brickwork, very little cement, and, as a rule, an avoidance of wooden cornices and bay-windows. The ordinary dwellings are plain in character, the windows of good proportions. Some have bay windows curvilinear in plan, with a pier in the centre, and a window on each side. The doorways are recessed from the street, to give a sheltered porch, and the doors are in design an improvement on our four-panelled doors. In most cases the woodwork is not painted, — merely varnished or rubbed with oil. The cornices are of stone or brick, simple in design; and the uniform red brickwork is only relieved by the green-painted louvred shutters hung on the outside of the window, giving a not unpleasing effect. Some of the brick buildings (all the old buildings erected more than a century ago) are painted on the outside, which I think is quite a legitimate treatment when the brickwork is ugly or discolored. Many of the principal buildings are built of granite, others of freestone. One building in Post-Office Square, of Renaissance design, is built entirely of white marble. It has a clock-tower rising above a warm-colored roof, and altogether has a very rich effect. Although many of the chief buildings are of Italian or classic design, yet Gothic work seems highly in favor with the Bostonians, and there is evidence that they have drawn their inspiration of Gothic art from France. Some of the designs are excellent.

Trinity Church, the work of Mr. H. H. Richardson, architect, is well worthy of a visit. It is somewhat conspicuous, from the bright red color of the tiles on the tower roofs, which, doubtless, time will tone down. The church is cruciform in plan, with wide nave, the aisles narrow, used only as passages. The transepts are also wide, but not deep. The central tower, which is the chief feature, is built on four massive piers at the intersection of nave and transepts. The style, we are informed by the architect (in a published description of the church), is French Romanesque: to our thinking, there is a touch of Florentine influence. A warm-colored freestone has been used for building; and the exterior, if not always graceful, is imposing and bold in detail; but the central tower, with its circular angle-turrets and pyramidal roof, seems to lack height. The interior of this church is very fine; the color is dark in key, a kind of Venetian red being the groundwork. The woodwork of the seats is of excellent design and color; the shafts of the tower-piers are of bronze color, with capitals and bases in gold; and the upper part of the tower is very rich and beautiful. There are some figure-subjects in friezes, which might have been better, as also the stained glass. A heavy chandelier of polished brass work is suspended from the centre of the tower, and the effect of the whole is very fine. The architectural forms are bold, and well suited for color.

Boston has an excellent Public Library, in a fine building of Italian design fronting the park. The collection of periodicals of all nations is said to be the most extensive in the country. There is also a collection of engravings, originally in the possession of Cardinal Tosti, well worthy of inspection. From an antiquarian point of view, Old South Church and the Old State House are interesting. Over the doorway of the church is a tablet giving the dates when the church was "gathered," built, destroyed, rebuilt, and desecrated by the British troops. On the whole, there is really much to admire in this city, which would well repay a longer visit. There is a quiet, orderly, unobtrusive feeling in its architecture, which seems to aim at building with good materials; at least there is not to the same extent that vulgar, ostentatious display characteristic of the architecture in many other cities. — *The Architect.*

NOTES AND CLIPPINGS.

The Statue of Liberty. — The *Dix-neuvième Siècle* speaks of M. Bartholdi's statue of Liberty as follows: —

"The plaster model is nearly completed. In a few days it will be stripped of the scaffolding which surrounds it, and upon which several gangs of men are at work. The first sentiment inspired by this enormous head, nearly thirty feet high, is almost terror. Its gigantic dimensions are stupefying; but by degrees the eye becomes accustomed to the colossal forms, and the mind reconciles itself to the extent of those great lines, and we discover in the midst of them the majesty and the light which the author has endeavored to give to the features. But the public will soon have an opportunity to see the beauty of this work, for the head of the statue of Liberty is to be exhibited at the Universal Exposition. M. Bartholdi is making copies in plaster of his statue of Liberty. Two hundred of them only will be executed, numbered and registered with the name of the purchaser."

Indian Pottery. — At Johnstown, R.I., a bed of soft soapstone has been uncovered, which proves to have been an old Indian pottery, where basins, pipe-bowls and axe-heads were made in immense quantities. The savages cut away the stone with pieces of slate till the shape of the proposed article, bottom-side up, was left detached on the ledge; it was then split off with wedges, and hollowed out with a sharp stone scoop or gouge.

Explosive Dust. — A correspondent of *Nature* writes: "There have been three explosions of malt-dust in our mill within four years, not due to any carelessness in allowing a flame to approach the impalpable dust, but ignited by a spark from a piece of flint passing through the steel rollers, or from excessive friction in some part of the wood fittings. Such explosions are not uncommon."

Second-Hand Loyalty. — There has always been a mystery as to the fate of decorations, such as triumphal arches, when they have served their purpose in this country. It seems that some, at least, of them, find their way to distant parts of the world, where they are again brought into requisition on festive occasions. For instance, the marriage of King Alfonso, of Spain, was celebrated the other day, with great pomp and rejoicing, at Havana. There was also an illumination of the Central Park; and one of the most striking features of the festivities was, it is stated, a triumphal arch, bought for $5,000 in England, which was used in this country on the return of the Prince of Wales from India, but which seemed none the worse for wear, and excited general admiration. — *Pall Mall Gazette.*

La Direction des Beaux-Arts at Paris. — M. Viollet-le-Duc, who, we suppose, is looked upon by Americans as the leading architect in France, although not wholly without honor in his own country, is yet looked on as rather an architectural black-sheep, so strong is the academic feeling in the graduates of the *Ecole des Beaux-Arts*, who until very lately have been taught to look upon the architecture of the Middle Ages with scornful eyes. Because of his belief in and advocacy of what is usually known as Gothic architecture, he has failed of election to the academy, and although at one time appointed by the favor of the Emperor as a lecturer at the *Ecole des Beaux-Arts*, he was obliged to desist from lecturing because of the outrageous conduct of the students and the opposition of the authorities of the school. The world, however, has been the gainer, in that the lectures he had prepared have been published as the well-known *Entretiens sur l'Architecture*. He has lately contradicted, in the following words, the report that he was a candidate for the office of Director of the Fine Arts: "I never have had a hankering after office, and the desire has not grown upon me with advancing age. Moreover, allow me to call attention to the fact that I have always enrolled myself in opposition to what is called the *direction* of the fine arts. If, as there is small likelihood, a minister should offer me this office, I would accept it for, perhaps, twenty-four hours, with the hope of demonstrating to him that the wisest thing he could do would be to suppress it."

Fires in Paris. — The official reports of the Paris Fire Department for 1877 show that there were 2,192 fires during the year, of which 1,707 resulted from negligence or imprudence, and 194 from accidents, three were set by incendiaries, 175 are set down as arising from causes unknown, and 113 are ascribed to faulty construction. The total loss by these fires was $492,116, a sum that is often exceeded by the loss caused by a single fire in any of our cities. That so large a proportion as five per cent of the number of fires should have been caused by faulty construction, shows that even good building and strict laws are not perfect guards against fires.

The Steam-Power of the World. — According to Dr. Engel, of Berlin, the aggregate steam motive-power at present in use in the world is 3,500,000 horse-power, employed in stationary engines, and 10,000,000 horse-power in locomotive engines, making a total of 13,500,000 horse-power. This force is maintained without the use of animal food, except by the miners who dig the coal and provide the fuel; and the force maintained in the muscles is to the force generated by the product labor as about 1 to 1,000. This steam-power is equal to the working force of 25,000,000 horses, and one horse consumes three times as much food as one man. The steam-power therefore is equivalent to the saving of food for 75,000,000 human beings. Again, three power-looms, attended by one man, produce daily seventy-eight pieces of cotton fabric, against four pieces produced by one hand-loom, worked by one man, in the year 1800. This, of course, is but the merest outline of what is accomplished by the use of steam-power and labor-saving machinery.

Leaky Soil-Pipes. — One of the causes of leaks in cast-iron soil-pipes is that the shell is too thin; so that particles of the moulding-sand which, from the nature of a casting, must adhere to it to a greater or less extent, when they are jarred out or washed away leave behind them minute holes, which a slight oxidation renders practically impermeable to liquids, but not to gases.

Two Kinds of Architectural Description. — The following bits of architectural description found in the daily papers, are thoroughly American and well contrasted: —

"Michael Angelo's spirit is marching along. We have a depot. It has no lofty dome, no heaven-pointing spire, yet it reminds one of St. Peter's at Rome, — by way of contrast. It is not round, but it is just the squarest thing yet invented in architecture. Come to Mount Healthy on the College Hill Railroad, and see what lumber can do in the hands of an artist. Like all good things, its real beauty consists in its utility; and as one of our poets says, it beats nothing all to ——, especially on a rainy day."

"The Speaker [of the New York Assembly] will face the rising sun, flanked on either side by reporters' galleries raised the same height as the desk, but not standing out so prominently. Over his head will tower an immense Gothic arch, under which and stretching back above and beyond the Speaker's platform will be a commodious gallery for visitors."