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A FLORENCE letter in the *New York Times*, from Mr. James Jackson Jarves, records the progress and character of the new façade that the Florentines are adding to their famous Duomo. The front, as our readers remember, is a bare brick wall, which replaces the façade begun from Giotto's designs, and torn down at the end of the fifteenth century, to make way for a Renaissance front that never was built, but has been simulated from time to time by painted façades on canvas and stucco. The new front is intended to accord with the work on the flanks of the cathedral, being a facing of marble upon brick walls, enriched with inlay. The architect Defabris was selected at the end of, one might perhaps say in spite of, a competition in which architects from many quarters took part, and in which his design did not cover itself with honor, being — at least in comparison with the work with which it was to be associated — bald, mechanical, and to most critics very unsatisfactory. So unsatisfactory was it, indeed, that the work remained at a stand-still for a number of years after Victor Emmanuel had laid the corner-stone, because an acceptable design was not forthcoming from the architect. The competition, however, was fifteen or sixteen years ago; and Mr. Defabris has meanwhile had opportunity to improve his scheme, especially since he has had the anomalous privilege of studying the designs of his competitors, which have remained in his keeping.

THE renewal was fairly begun in 1875, and the skeleton of rough masonry on which the marbles were to be laid was finished in two years. Since then the casing has gone on: if we may judge from Mr. Jarves's statement wheel tracery has been put into the window at the clerestory level, it must have been carried over the whole front, and about a third of the decorative work is in place; and lately the scaffolding has been pulled down, to take breath, as it were, — to give a view of what has been done, and perhaps to wait for more money. The cost of it thus far has been about sixty thousand dollars, and it will take as much more to finish it, — a considerable burden to Florence, which has languished since the transfer of the capital to Rome. According to Mr. Jarves, so much of the work as is now displayed is "very satisfactory and extremely beautiful," — "a picturesque, brilliant, delicately sculptured front." We may hope that this praise is fully justified. The architect may have well profited by deliberate study and by the example of his rivals; both he and his workmen may have found ample schooling for richness and refinement of detail in their abundant renewal of the old work on the side façades; but the recollection of the bald *mesquinerie* of the new front of Santa Croce will breed a little anxiety in the architect who has not yet seen the work on the Duomo. Mr. Jarves expresses a natural apprehension lest the Florentines should decide to abate the contrast between the brightness of the fresh marbles and the mellowness of the old by their favorite device of scouring the old with acid. A more promising expedient would be that which is mentioned by a correspondent of the *London Times*, who describes the restoration of St. Mark's, of treating the new marble with sulphate of iron; but it is no doubt pleasanter to experiment with chemical reagents on the work of one's predecessors than on one's own.

It is sometimes said — and the remark was repeated by Mr. Atkinson, a few days ago, in the discussion on his address concerning the Relation between Architects and Underwriters — that there is no such thing as fire-proof building. This is to be accepted or disputed, according to the meaning given to the word fire-proof. It is therefore a statement to be made with caution, since it depends on a question of terms. So far as it is literally true, it is of no great significance; as it is likely to be understood by the unthinking, if freely used, it is liable to check endeavor for improvement in a community which is only too ready to shirk the labor and cost of doing things in the best way. If we mean by a fire-proof building one that cannot be injured by any amount of fire, there is certainly no such thing. If we mean a building that is absolutely safe from injury by any conflagration of its neighbors, or of any material that can be burned in it, there is no such thing. These are truisms; but if we mean, what people commonly do mean, a building that does not contain in itself enough of combustible material to do it serious injury by burning, one that is not liable to be destroyed if the buildings about it burn, nor by the burning of such materials as are the usual contents of ordinary buildings, such buildings are common, and are the rule in cities which guard themselves carefully against fires. This degree of security is practicable, is worth attaining, and we attain it in special cases. We have not yet adopted in this country the most thorough-going means of protection against fire, yet during the great fire in Portland in 1866 the post-office in that city stood like an island in the middle of the fierce conflagration. Everything about it was burned; the stone-work of the outside was cracked and scarred, but the contents were uninjured, its interior untouched except at points where the warping of the iron shutters let the flames into it, and it was only taken down because the authorities preferred to do that rather than to recase it in granite. In the great fire of 1872 the Boston post-office served as a fire-dam, and was scarcely injured. If our buildings were as a rule built as securely as these, they would be proof against any fires to which they are likely to be exposed, except in case of buildings put to extraordinarily dangerous uses; and large fires would be almost unknown among them. In some foreign cities, notably in Paris, this is really the case. In Paris a few companies of enlisted men with small hand engines or pumps that would look absurd to our firemen are enough for the fires of the city, and have little to do. American travellers speak with astonishment of seeing the inhabitants look calmly out of their upper windows to watch the *pompiers* putting out a fire in the lower stories. When these things are accomplished we can safely say, in the sense in which the term is commonly understood, that there is fire-proof building. There is some time to wait before we can make such building obligatory, or even usual, in our cities, and in the mean time we shall do well to encourage as much as possible methods of slow-burning construction. But it is best, after all, to keep it in mind that the slow-burning methods are stepping-stones in the way to still better things.

THERE are those who would take this matter of building for protection against fire out of the hands of the law, and trust for amendment to private judgment or enterprise and the influence of underwriters. Our correspondent E. A. has intimated his distrust of the efficacy of building laws; another correspondent in an article which we print to-day argues for a union of insurance companies, and a system of inspection and discriminating premiums to be maintained by them, which shall influence owners to build securely. While we have argued for the importance of an active influence to this end on the part of underwriters, while we think that such an influence is most important in the absence or imperfection of building laws which is common, and a valuable ally to them when they exist, there are several reasons why it is not a sufficient reliance. In the first place, it is desirable that any rules upon which depend the security, not of individuals, but of a whole city, should be of universal application and supported by an authority that reaches everybody. There is no such authority except the law. There will always be persons who will prefer to run risks rather than pay for insurance; there will be others who will prefer an indulgent company to a strict one, and there will be indulgent companies for their encouragement. These cases will be always a source of danger to the community. The insurance companies' influence cannot protect one man from being endangered by his neighbors who are not

insured and whom they cannot control. It is necessary, nevertheless, to protect men from their neighbors, and this is exclusively the function of the law. The influence of insurers, moreover, must be by nature intermittent. In proportion as it was successful it would lose its power, for as building grew safer from better construction the inducement to insurance would grow less and the habit would decline. It may be said that the need for a restraining influence would diminish with the danger; but security would bring recklessness on both sides. There would be a constant tendency of builders to relapse into bad building if they were not checked by law, and a parallel tendency of insurers to loosen their restrictions; for, except when the insurers and the insured are the same, a certain amount of risk is necessary to the business of the companies. They are not to be expected to permanently undermine a prosperity which is tempting enough to excite a keen competition. The ideal of the companies may rather be expected to lie in a nice balance between security and apprehension, with fires frequent enough to make owners eager to insure, and premiums large enough to make insurance profitable.

ANY efficient control on the part of underwriters would of course mean a system of discriminating risks and graduated premiums, and this would imply some such system of examinations as our correspondent argues for. That insurance examinations should be more searching than they are, and companies more discriminating, is certainly much to be desired; but it would not be well to put any absolute reliance on them. To make a thorough-going examination of buildings finished and in use is next to impossible. It could be approximated to in a mill or a warehouse, but in most buildings it would be apt to cost more than the premiums for insurance. On the other hand, to keep a record of the construction of all buildings that go up is a thing that building inspectors may do, and are expected to do when they are city officers; but we doubt if any insurance association of underwriters could be expected to do it, or indeed could afford to on the chance of the houses being ultimately insured. Even when buildings are insured while they are going up, there is no disposition on the part of underwriters to examine them carefully, since the risk to which they are exposed by the work that is done in them is greater than that due to their construction. There is no doubt that insurers might do much good by such a classification of buildings as they might base on an examination of plans and specifications, and on a careful scrutiny of the buildings themselves by a keen, trained eye, and by graduating their premiums according to it. For anything more than this that they may be willing to do we can give our hearty encouragement, and be thankful; but we cannot afford to relax our efforts for a steady improvement of building laws and the municipal inspection of buildings. The records of these inspections are exactly what the underwriter needs for his own security, and indeed there is no way in which he can better help the cause than by joining hands with the architect in the endeavor to raise the standard both of laws and of inspections.

SINCE we last took occasion to refer to the Inter-Oceanic Canal question, M. de Lesseps, having arrived in Panama and found there an enthusiastic reception, has made a formal beginning of work on the canal; though a serious beginning is probably still some months in the future, the final surveys of location being still to be made, as we understand it. Meanwhile, politics and journalism are pressing upon our people the importance of an American canal, and that the Nicaraguan, though not without an occasional demurrer. Dispatches sent to the State Department in October, by Mr. Dichman, our Minister to the United States of Colombia, which have been lately published, urged upon the Government strongly the importance of interference with M. de Lesseps's scheme, for political reasons, and the inconvenience to us of having what he calls "an Egyptian question" opened on the continent. At a late meeting of the American Society of Civil Engineers, Mr. Julius W. Adams, ex-president, read a paper, wherein he brought forward the merits of the Tehuantepec route, which he held to be on account of its nearness to the United States the best for us, and for its ease of construction and maintenance the most feasible of all. Mr. Evarts, for political reasons and for the commercial development of the West, is said to favor this line. Admiral Ammen, on the other hand, has published a manifesto, in which he altogether scouts the Tehuantepec project, saying that "the only two routes worth looking at are Panama

and Nicaragua, and they [the first, rather, we take him to mean] only to establish the relative approximate cost of execution."

It is said that articles of incorporation have been prepared by him and other interested persons, at the head of whom is General Grant, and are ready to be laid before Congress. As reported, they engage the Government to a very close and fatherly protection of the enterprise, even to requiring the Treasury to assure the care of the deposits of the company, and the army to furnish inspectors of the work. In the February number of the *North American Review*, Admiral Ammen publishes a paper in answer to that by M. de Lesseps in the previous number. It has an air rather of personal controversy than of judicial argument. It insists upon the difficulty of providing for the excessive rain-fall of the Isthmus, which seems to be the greatest natural obstacle in the way of the Panama Canal, but adds nothing of value to the discussion of routes. It is unfortunate that the canal question, so far as the United States are concerned, seems in the way of being settled by politicians and newspapers; neither of the two classes whose interest in it is most immediate and their judgment most to be trusted, the commercial capitalists and the engineers, having as yet any special part in the projects that are before the country. One conspicuous naval officer and a prominent engineer attached to the army are the only specialists who appear in the movement to which a host of inexpert and, we must believe, mostly ill-informed people are urging Congress to commit itself. What is the opinion of the capitalists whose interests are to be most directly affected by the result, — and who will be expected to furnish the money for the work, except so far as it can be educed from the Government Treasury, — we cannot judge. Probably their judgment is not formed as yet, and if they were left to form it in their own way it would probably be greatly influenced by the prevailing opinion of American engineers. We do not see that the persons and newspapers that are pressing the canal scheme concern themselves much about this prevailing opinion. If they did, they would find, we think, that it did not favor the Nicaraguan scheme, whatever it might say to the rival routes.

WE notice that the United States Senate has passed the bill to provide a site for a new Naval Observatory; also that the joint committee on the Congressional Library has reported a bill for the appointment of a special joint committee to provide more room for the library. This time the proposal, as it has been so many times before, is to adapt the Capitol, that is, to enlarge it. The bill instructs the committee to employ three experts who shall consider what changes can be made in the Capitol for the better accommodation of Congress and its library, and to report a scheme with an estimate of cost. A bill has been introduced into the House, by Mr. Urner of Maryland, for building a monument to Key, the author of the Star Spangled Banner, a project which we should suppose that Baltimore, known as she is for the Monumental City, could becomingly and easily carry out without help from the General Government. We note with encouragement that the Mayor of Chicago has vetoed the ordinance we mentioned last week, which allows wooden buildings sixteen feet high to be put up about the city. It is less encouraging that he favors an ordinance which should permit the building of frame houses on the borders of the fire-limits.

THE *Architect*, to which we owe many favors of the involuntary kind that clever journals offer to the scissors of their fellows, adds the more direct favor of a long notice of one of our numbers — taken at random, we should say. It proffers us a New Year's salute with a courteous profession of respect, for which we are grateful. We are not quite sure how much justification for its esteem its readers will find in the detailed comment; but will hope that they may draw a distinction between the respect we would fain justify by our general record, and its estimate of the particular number that it has chosen for notice. We return its salutation with equal respect, and a cordial acknowledgment of indebtedness. Since we are fortunate enough to have had files of the *Architect* from the beginning of our career, we will not assume to meet it as a new acquaintance. When we find an occasion to give our own readers our appreciation of its character, we shall rest more confidently on the abiding excellence of its quality and conduct than on the chance reading of a single issue.

SOME CAUSES OF FAILURE IN AMERICAN ARCHITECTURAL DESIGNS.¹ II.

ANOTHER reason why many architects fail lies in the fact that they do not realize the dignity and importance of architecture. If any one art can claim the first place among the results of human genius, I think the strongest claim to that place rests with architecture, the art "which presses the noblest of other arts into its service and bends them to its will, at once their beginning and their end, the most lowly in its origin, the most glorious in its perfection." But while any discussion as to the relative dignity and position of the arts must be held as unwise and unprofitable, this is no reason why an architect should not be fully impressed with the dignity of architecture and of the responsibility which its practice lays upon him.

From the dim days of Egypt down to the present day no other art has been so clear an exponent of a nation's intelligence and culture as architecture; so much so that one might almost read the history of the human race in what remains of its buildings, and voiceless as these ruins may at first seem, they are full of utterance, for or against the people under whose hands they were first raised. Are we to be judged by any such standard in the future? Who can look at the calm grandeur of Karnac, or stand at the foot of those stately towers of Notre Dame, or thrill before the solemn splendors of Canterbury or York, and fail to feel that in espousing the cause of architecture, in becoming its votary and exponent, he has taken an enormous responsibility if he would do work at all attuned to the keynote which has been struck in these almost eternal symphonies of stone? He need not feel discouraged; quite the contrary; but he should labor so to learn the principles which guided the builders of these works that no matter how small the work he has to do he may do it in their spirit and with their wisdom.

And this leads me to a third cause of failure, which springs both from lack of education and from a want of appreciation of the dignity of architecture. It is that very many architects practise the art, more often than not, not as an art but as a trade. Pitiably as this may be, it is in no way surprising. What other result could follow? Ignorant of its principles, the knowledge of which might unlock some of its mysteries to them, might draw the veil and let them see with what almost God-like business they were concerned, ignorant of it and blind to its character and responsibilities, they rush in where angels might fear to tread. They drag down to their own level an art whose proper business it is to glorify and beautify our lives, and they make it the ignoble means to an end. Ignoble, I say, for any means must be ignoble which deals with prostitution. Have they not adopted the art, should they not strive, therefore, to protect and prosper her? and yet ignobly they prostitute her. Do not think that I wish in any way to ignore the necessity of toiling for one's daily bread, for bread is as necessary to an architect, certainly, as to any one else, but this, it seems to me, has nothing to do with practising architecture in such a way as to render the architect unworthy of his art. How many men work with pride, with love for the art, or for the art's sake? I venture to say not one in twenty. It is impossible, looking at what we must see in walking the streets of the cities of America, to believe that the men who designed the buildings about us love the art which made these buildings possible. I do not ask any to give up their five per cent, or any part of it; rather would I urge them to insist on more; but can they not practise architecture for something more, for something higher, than this five per cent? Yes! For the love of the art! They cannot love it if they do not know how worthy it is of their highest love and devotion, and they cannot know this unless they know how great things it has done, and what noble principles lie at its heart. If they know it, and if they love it, — and so alone — can they so practise it that the reproach which to-day must be laid at their doors can be withdrawn? Then, and then only, can the architects say, We have given you the best that our brains informed could imagine, our judgment exercised could correct, and our hands trained could fashion, but you, blind Public, you will not see our good work, and you refuse us your sympathy and your encouragement!

That they will some day be able to say so if they will it, I do not doubt, but only in so far as regards their share, for then the public will not be blind, it will see their good work and it will not refuse them its encouragement and its support.

A few words will suffice to set before you those causes of failure which lie beyond the direct control of the architect, and which, though now active in their influence against the successful accomplishment of any architectural problem, will in time, let us hope, be less powerful in their influence.

In any country or in any age, where no fixed principles are held as the foundation for architectural practice, where no limit is imposed upon individual taste or personal bias, a wide range must naturally result. This country, receiving, as it does, accretions to its population from every variety of foreign source, bringing within its borders men from the remotest parts of Europe and Asia, with their tastes and habits of life and thoughts distinctly developed, must, for the present, be the scene of great license in the character of any works of architecture which it may produce. We see the strongly marked influence of English, German, French, and Italian taste in any works built either by or for persons whose sympathies

lead them back to styles prevailing in their fatherlands. The intelligent German desires the forms and characteristics of German architecture reproduced in the design of any work in which he is interested and likewise the Englishman and the Frenchman, and so much so is this the case that from the architecture of certain cities or towns one can judge readily from what part of Europe the majority of their citizens has come.

We have no distinctly American architecture, but rather a free admixture of all sorts and kinds, drawing its inspiration from many fountains. This state of architectural practice is in no way calculated to produce a national architecture, nor to lead the practice of the architects towards or into any one style. Whether or not in time the habits of American life, the character of the people, and the necessities of climate and other natural causes will fuse all these varieties of style into one homogeneous form, answering to the requirements of our civilization, harmonizing with the eminently practical spirit of the people, and meeting the exigencies of our climate, must be left for time to decide, but to-day no such individual style exists. Our streets might be the streets of the modern part of any European town, so far as any distinctive architectural character is to be found in them.

That this has its influence in the creation of any architectural work cannot be denied, for had we a style in which those elements were strongly marked, and in which the majority of our architects practised, the very return of things would result in a far greater number of successful designs; but we are too young a people to have created a style of our own and to have developed and perfected a form which should be the type of all American buildings. In this we are at no greater disadvantage than all nations who have in past times erected a style peculiar to themselves, and so far as we can judge many circumstances connected with our national life are in favor of a successful solution of the problem — the nature of the government, the general intelligence and education of the masses, and the wide distribution of wealth, all of which are influences, having been powerful factors in the creation and development of more than one of the great family of styles.

The newness of architecture in America, then, is one of those causes which are by no means to be overlooked in defining the causes of failures in the architectural designs of the present time. And directly contingent upon this is another cause which must be included among those influences adverse to the production of successful designs, and this is the absence in this country of any great monuments of architecture, which, while they may be taken as models for the formation of the architect's taste, at the same time act as a stimulus and incentive to his efforts. An architect producing a design as good as, or even better than, the average of those produced around him will naturally rest satisfied with his work. He has done as well as any one about him, although he may have been capable of doing much better, but of this he is either ignorant or indifferent. His powers have not been taxed to the utmost, and so long as he has to measure himself with men less able or no more able than he is, they never will be. Had he around him such monuments as English, French, or German architects must meet at almost every turn, he would have a stimulating power at work quite independent of any current competition; an incentive as powerful as it would be beneficial. No matter how good his work might be, we should be very sure that it fell short of the point of excellence reached in those structures of more distinctively artistic periods.

While this disadvantage is inseparable from the newness of architecture in this country, it will depend very much upon us of this generation and day whether we advance or retard the time when the architects may have some good models around them. We cannot hope to erect cathedrals in all our towns, nor to scatter abroad through the land such works as the architects of the Middle Ages left to posterity, but we can, even in the smallest and least important works which we may have to do, leave results embodying principles of right, results which, so far as they go, are instructive and creditable, calculated like seed sown to grow in time into something higher and better. If on the other hand we work in a slipshod, indifferent, ignorant way, just so much longer will be deferred that era of intelligent work which we should all wish to advance, and just so much more difficult will it be for those more intelligent and conscientious architects who may follow us to undo the harm which we have done. All our indifferent works, all the ignorance and carelessness with which we stamp the architecture of the present, will receive, perhaps, some admiration, and find imitators, and so its evil influences will spread farther and farther; but if we learn some true, fixed principles of the science and beauty of architecture, and embody them in our works, we will commence at least the accumulation of some works worthy of study and of imitation.

It is a law quite as true of art works as of anything else produced, that the supply equals the demand; that is, if good architecture is wanted by the public, it can have it. Here again is another reason why we do no better things; they are not wanted, much less insisted upon. We have an ignorant public to deal with, which is without any general art culture, and which even, when somewhat familiar with the principles governing the representative arts, is for the most part ignorant of and indifferent to that art whose connection with its life is most absolute. We deal with a public which too often likes what it should despise, and which sees no difference between a building with a soul and one without. There can be but one effect

¹ A paper by Mr. W. A. Potter, F. A. I. A., read at the late convention of the American Institute of Architects, held in New York in October last. (See page 27, ante.)

produced upon a thoughtful, studious architect left without encouragement and support while some charlatan or mountebank builds up his impertinences to be admired and quoted. Is it a wonder that when he is employed he works with indifference, and without joy or enthusiasm? He sees with what worthless results the public is content, and that stimulus which ought to be added to his love of his work being wanting, his indifference and finally his despair creep out and show themselves in every line he may draw and in every effect he may create. If we could look to the public for discrimination, for appreciation, for censure, for rebuke, how much better our designs would be one can hardly realize; but the indifference which passes by our best efforts, and the ignorance which applauds our failures, cramp us, and leave us without the best promoting and correcting influence which could possibly be exerted through us upon our art.

If then, we are and must remain without that correcting influence which intelligent public criticism would furnish, the responsibility is all the greater with us to be our own intelligent, thoughtful, honest critics, our own judges, impartial, severe, fearless. It is essential to the development of any art, that its work should be tried in the crucible of honest, intelligent criticism. If the architects as well as the public are ignorant, they may as well lay aside any hope for better things in the near or in the remote future, for they will not get them.

But if they inform themselves of the principles which are the groundwork of the past, if they study to acquire the spirit which has produced the greatest results of the art, if they reach a fair appreciation of its beauty and dignity, if they become possessed of some convictions as to what is right and what is wrong, then the profession may do without that public criticism for which it now looks in vain, and in some measure fill its place. At least we will not then be the blind leading the blind.

Along the devious, dim path through which we must lead the public to the point of intelligent appreciation, grateful approval, and honest reproof, let us see that our lanterns burn brightly with the light of the true principles of architecture; that no ignorance and conceit of ours dim and retard the radiance.

Small though these points of light may at first be, their accumulated power may at some time reach a splendor of effulgence which shall spread out in all directions, and become a very beacon light, burning with all the brilliancy and purity of those two great lights, Greek and Gothic, and, like them, may mark one of the splendid periods of the building art.

GOTTFRIED SEMPER. I.

Born at Altona, November 29, 1803.
Died at Rome, May 15, 1879.

THE past year has deprived us of two of the greatest architects of modern times.—Viollet-le-Duc and Semper. It is a phenomenon worthy of note as a characteristic of the groping and unsettled state of present architectural civilization, that minds so different, advancing in directions so diverging, could attain in the same age to so high an eminence and to so great influence. Viollet-le-Duc is too well known with us to here need a tribute to his memory, but it seems otherwise with Semper, who was, as I think, far more suggestive and powerful than his better regulated French contemporary. A comparison between the two men would offer little else than contrasts. A parallel of their buildings is one-sided. While the theatres and museums of Semper must take a high position in the architectural work of the nineteenth century, the conscientious restorations and unfortunate designs of Viollet-le-Duc have already less architectural importance than psychological interest when compared with his literary labors and drawings. Viollet-le-Duc's writings are, on the other hand, widely popular, voluminous, and well-arranged, while those of Semper, if more valuable, are abstruse, few in number, and scattered in the proceedings of societies and the catalogues of Italy, Switzerland, Germany, and England. Those of the former are translated into various languages and lie upon the shelves of every bookseller; those of the latter are, with few exceptions, out of print, and attainable only in large libraries. This want of popularity, though it does not greatly detract from Semper's real worth, may account for the comparative ignorance of his life and works which prevails among his profession.

Gottfried Semper's was by nature one of the most gifted minds that have made architecture their study. He possessed characteristics which would have made him prominent in any age or in any calling. As a boy he was noted for a firmness of will amounting almost to obstinacy, for a strength of constitution which in later years enabled him to withstand the shocks to which an adventurous life in every part of Europe exposed him, and which assured the counterbalance of logical and penetrating common-sense to his impulsive and ideal imagination. The sight of the siege of Hamburg and the entrance of the victorious allies is said to have moved him to choose the vocation of a military engineer, which afterwards led to architecture,—somewhat in opposition to the plan of his father, a well-to-do merchant, who, desiring that his son should become a lawyer, insisted on his completing classical studies which in later years served in good stead for his architectural investigations.

A historical and classical education is of the utmost importance to the designing artist, who needs, in general, cultivation, just that which our high and technical schools do not teach. It was one of the

wisest laws introduced by that great promoter of the arts, Louis the First of Bavaria, that an architect, to be admitted to governmental practice, must have passed the so-called gymnasia or humanistic examination of the German classical schools.

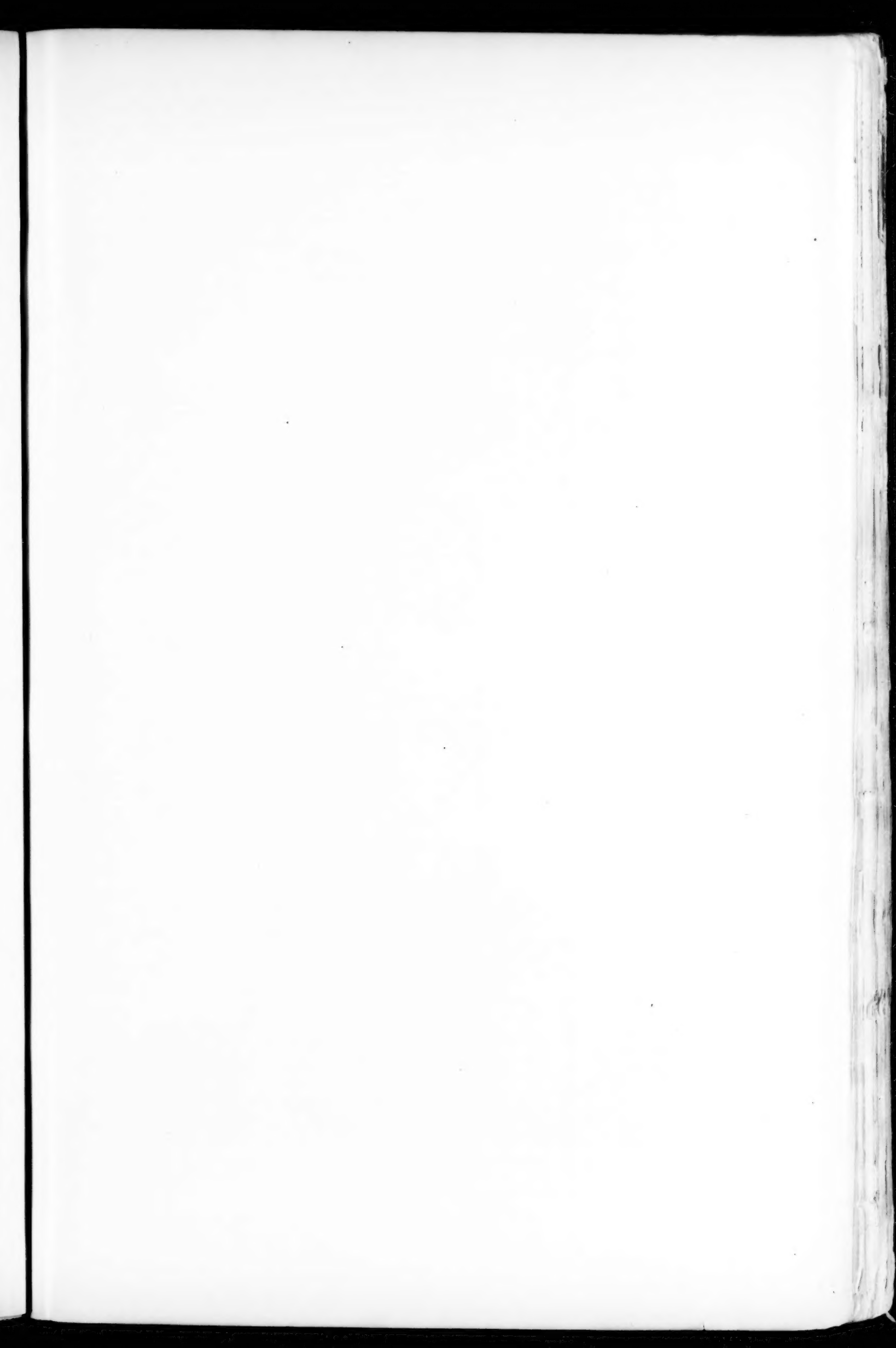
Semper's student life in Göttingen was wild; but it is evident that he was deeply influenced by Karl Otfried Müller, at that time professor there, an archæologist whose monument upon the sacred hill of Colonos is so well deserved a tribute to his self-sacrificing zeal in Greek research. Müller's comprehensive knowledge was blended with an enthusiasm and living interest which naturally made itself felt upon so plastic and receptive a mind as that of Semper, who left the university with the broad foundation of intellectual gain and appreciation upon which his subsequent investigations have been erected. His first professional work was in the growing Munich, with Gärtner, an advocate of a species of Byzantine-Romanic style, the author of many of the dreary structures which make the long streets of the Bavarian capital so wearisome. The jumble of architectural styles then practised there left no impression upon Semper, whose studies were wisely confined to a mastery of the necessary practical bearings of the profession. He soon received a commission to prepare measurements and drawings of the Cathedral of Ratisbon for Bülan's work. But the Gothic was foreign to his clear mind; he could find in that style no possible solution of the problems offered by the civilization of to-day. It may be regarded as fortunate for Semper's further artistic development that, after a short stay in Ratisbon, he so seriously wounded an adversary in a duel that he was obliged to fly the country. He took refuge in Paris at a time when French art was at its greatest brilliancy,—when the École des Beaux-Arts and the Palais d'Orsay were building, when the contention between the classic and romantic schools had enlisted so many great names on either side. This restless activity reached its climax in the revolution of July, 1830,—an event greeted with enthusiasm by Semper, who was always an impetuous republican.

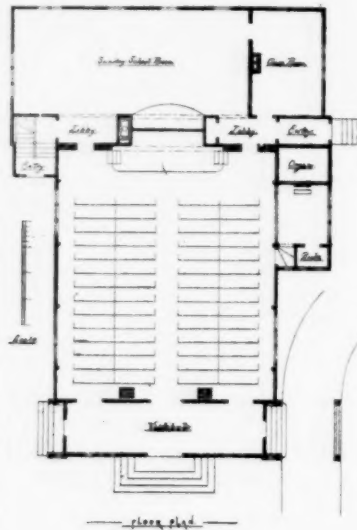
Politically disappointed by the results of those disturbed years, he recommenced his wanderings, going from the Italian cities, whose masterpieces of Renaissance architecture he so thoroughly studied and understood, to Sicily, and finally to Greece. Here, "an obscure workman in a linen jacket," he laid, by long study, the foundations of his professional mastery, and gathered many of the materials for his later writing, gaining an understanding and an insight into the art of building which is hardly otherwise to be obtained. The artist became for years an investigator; not, however, seeking mere facts or archæological curiosities, but methods of thought; not observing the admirable solutions of former problems merely in their peculiar manner of expression, but in their guiding principles. His companion in Greece was the talented Jules Goury, whose early death, while on an expedition to Syria with Owen Jones, has been so much lamented.

Semper confined himself in his Greek studies very much to a thorough investigation of ancient polychromatic architecture and the coloring upon buildings of the best periods. The results were astounding revelations to those who could only conceive the perfected forms of Greek architecture in the prudish pallor of white stone. Returned to his home, he published his first work, Preliminary Remarks upon the Painted Architecture and Sculpture of the Ancients, little more than a pamphlet in extent, but fresh and powerful—a welcome contrast to the torpid professional literature of that time. A vigorous attack upon empirical and unreasoning formalism, it made upon Semper's former friend and teacher in Paris, the talented and cultivated Gau, "the effect of one of Beethoven's overtures." It is to be regretted that the projected work upon the subject of polychromy, a publication of various drawings of Etruscan, Greek, and Roman painted architecture, among which a colored restoration of the Athenian Acropolis was prominent, never appeared.

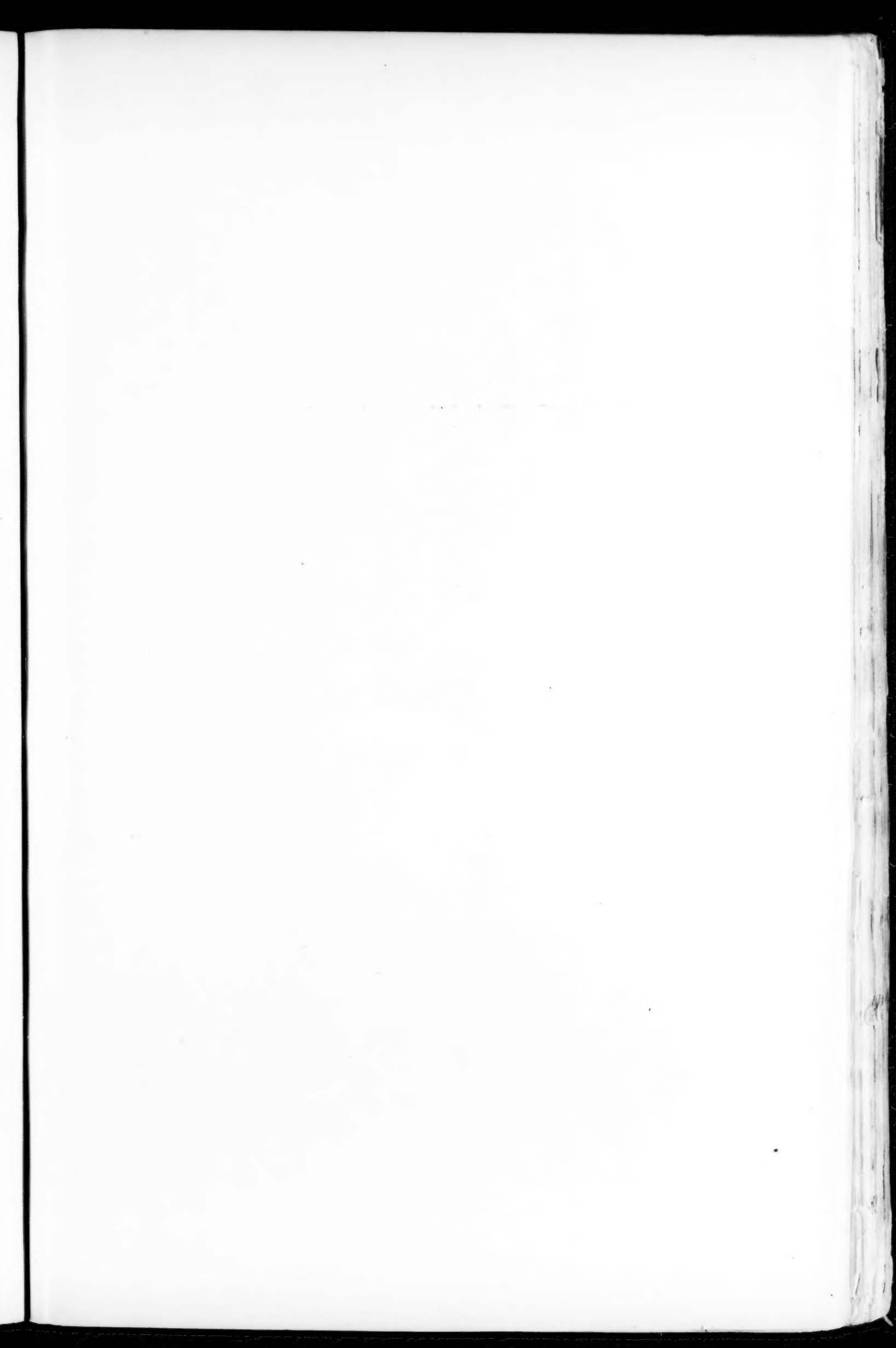
Meanwhile Semper received, by the good offices of Schinkel, an appointment to a professorship in Dresden. The fourteen years in that city were the prime of his life; his work during that period has, for extent and quality, seldom been surpassed. A new dawn of the architectural art of Saxony, and even of Germany, may be said to date from his advent. Chief among the buildings which he designed are the great barracks of Bautzen, the synagogue of Dresden,—an experiment of architectural characterization,—the well-known Villa Rosa, the Oppenheim palace, and above all the celebrated theatre and the museum.

The part of the city where the theatre now stands was formerly an unclean crowd of irregular houses,—the so-called "Italian village," put up for the hosts of Italian stone-cutters and stucco-workers who were employed during the last century upon the enormous buildings of this vicinity, the Catholic church, and the Zwinger. This quarter had become a notorious locality, a blot upon the trim and not altogether unpretentious city of Augustus the Strong, which was to be swept away at one stroke. In its place Semper projected a collection of mighty buildings,—the new museum, the orangery, the theatre, connecting porticoes and broad terraced steps rising from the level of the Elbe. This grand forum was to be closed by the three sides of the Zwinger already in existence. But, in the same manner as the gigantic palace projected by Pöppelmann had itself left but that court as a fragment of the intended complex, did Semper's plan suffer dismemberment until the theatre stood alone upon an open expanse, unassisted by any of the structures which were to have surrounded it. But the architect so well fitted the

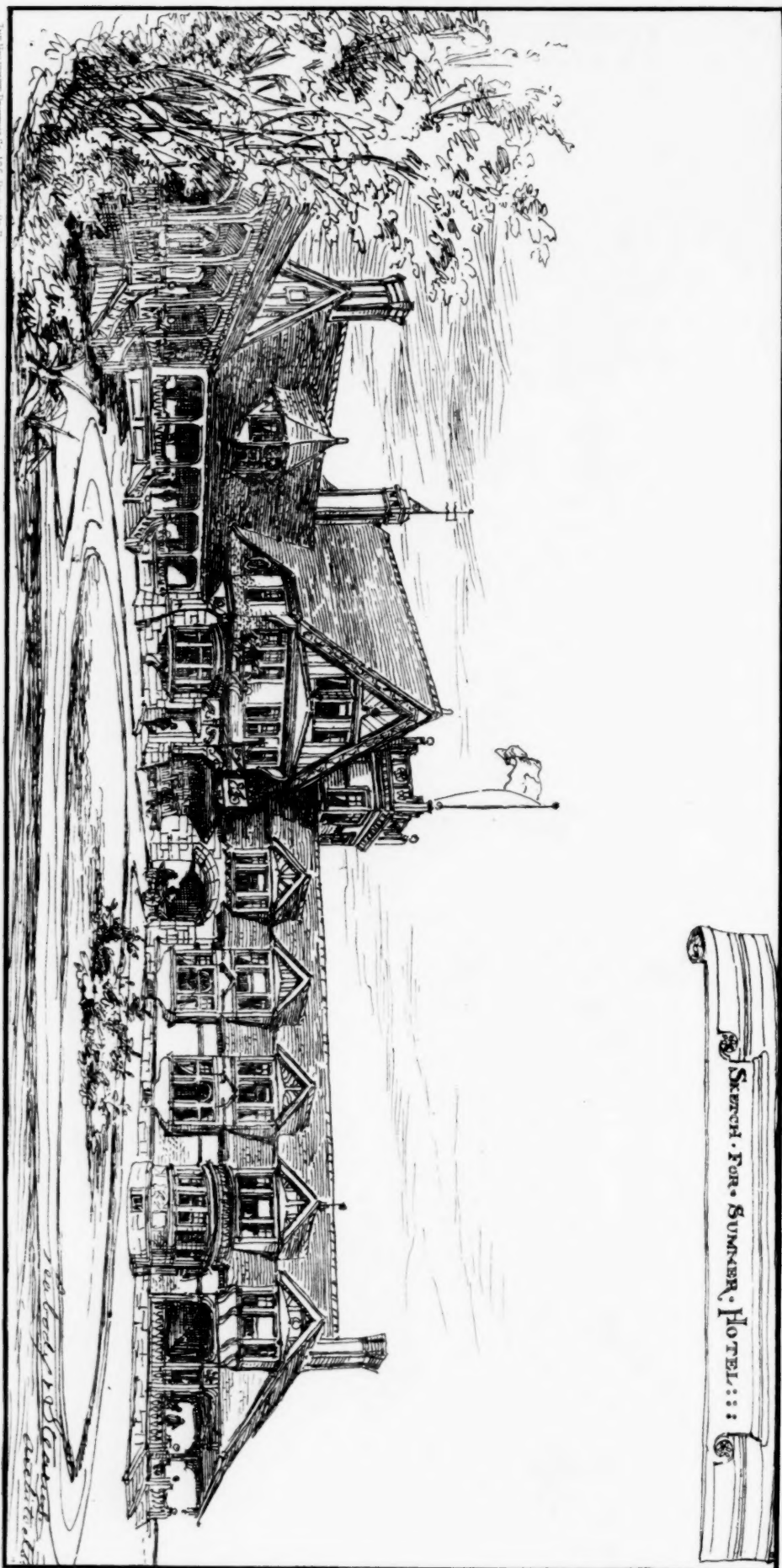


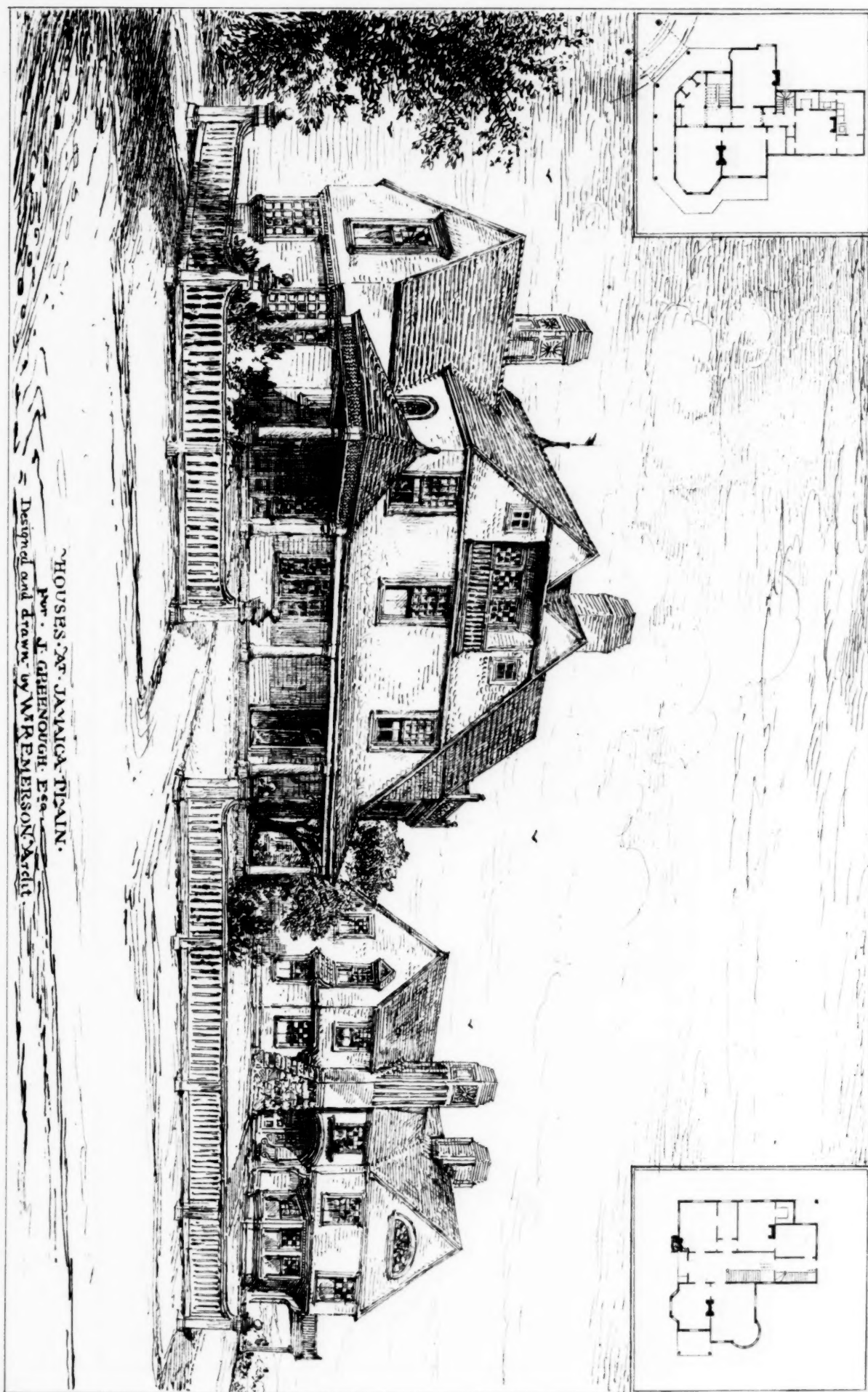


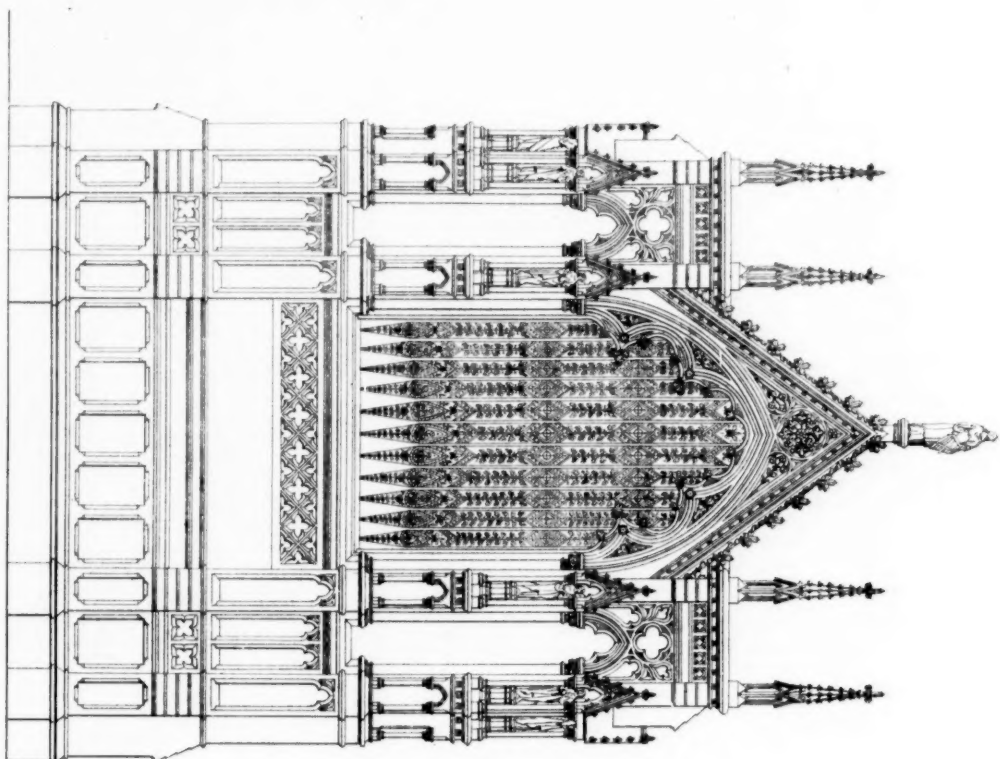
First Baptist Meeting House, East Providence, R. I.



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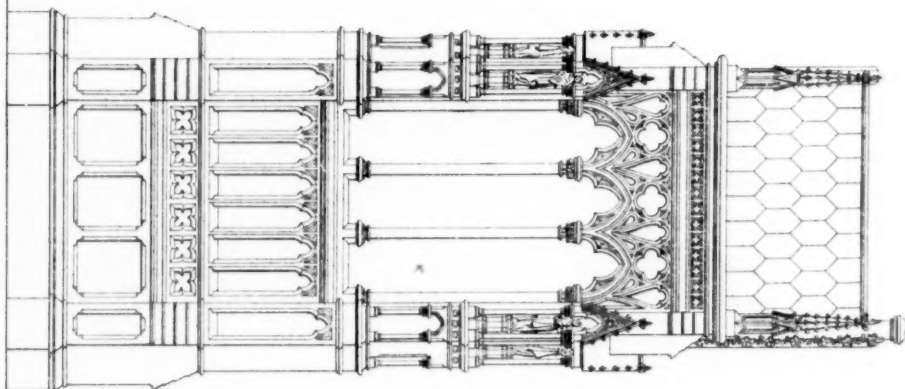






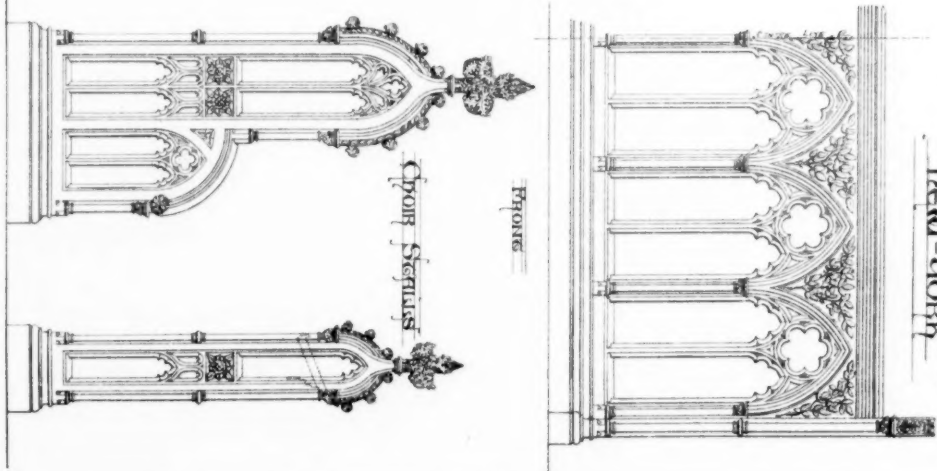
FRONT

Scale
1 2 3 4 5 6 feet



SIDE

Scale to Choir Stalls
1 2 3 4 5 6 feet



FRONT

CHOIR STALLS

ENDS

ORGAN CASE OF CHURCH
OF GRACE CHURCH
NEW YORK

JAMES HENNING
ARCHITECT
N.Y.

building into the great void, so well harmonized it and the subsequently erected museum with the surrounding structures, that this dismemberment is hardly to be deplored, though the intervening spaces are perhaps a little broad and bare. The imposing semicircle of the auditory expressed upon the exterior, the open arched arcades, the closed attic rising behind the crowning balustrade, the unity of the entire composition, as well as the perfection of every detail, made the theatre one of the most beautiful buildings of modern times. It is published in folio with copper-plates: *Das königliche Hoftheater zu Dresden, Braunschweig, 1849.* The writer remembers well the intense feeling of public and even of personal loss felt by those who stood before the fire which entirely destroyed the building ten years ago. The theatre cost Semper many hard battles, and had it not been for the almost demoniac force and impetuosity of the man, which frightened the triviality of the Dresden bureaucrats, the narrow formalism of this gentry would have rendered its erection impossible. Every piece of furniture, every ornamental member, each detail, was designed and drawn by Semper in full size. He worked upon the plans over six years. There was not one piece of ready-made work within the house. The influence of all this upon the arts and manufactures of Dresden may be imagined; still Semper was but one individual, and much sank to its former level of mediocrity after his departure. J. T. C.

THE ILLUSTRATIONS.

DESIGN FOR A SUMMER HOTEL. MESSRS. PEABODY & STEARNS, ARCHITECTS, BOSTON, MASS.

This hotel was intended to be in the centre of a group of cottages, some connected with it by a covered piazza and some detached. The project has been abandoned.

FIRST BAPTIST MEETING-HOUSE, PROVIDENCE, R. I. MESSRS. WALKER & GOULD, ARCHITECTS, PROVIDENCE, R. I.

HOUSES FOR J. GREENOUGH, ESQ., JAMAICA PLAIN, MASS. MR. W. R. EMEYSON, ARCHITECT, BOSTON, MASS.

ORGAN-CASE FOR THE CHURCH OF GRACE CHURCH, NEW YORK, N. Y. MR. JAMES RENWICK, ARCHITECT, NEW YORK, N. Y.

ROMANESQUE ARCHITECTURE.¹ II.

THE essence of good architecture of any kind is that its constructive system should be put boldly forward, that its decorative system should be such as in no way conceals or masks the construction, but makes the constructive features themselves ornamental. Both in Grecian and in Gothic architecture this rule is thoroughly and consistently carried out. In a Grecian building the entablature is the main feature of the construction, and it proclaims itself as such. In a Gothic building the pointed arch is the main feature of the construction, and it proclaims itself as such. In neither case is there any attempt at concealment or disguise of any kind. But how stands the case with classical Roman architecture? Here we have a style in which the main feature of the construction is not made the main feature of the decoration. Here we have a style in which the great constructive features seem as it were ashamed of themselves, where they try to hide themselves behind a mask borrowed from a different system of construction. The architecture of classical Rome is, like the literature of classical Rome, imitative. Italy, the land to which the world practically owes the great discovery of the arched construction, may very likely have had a native architecture, as well as a native literature, in the days of the Kings and the early Consuls. But the architecture of classical Rome was a mere imitation of that of Greece. It was indeed but an imperfect imitation. The Roman architects were not so besotted as to cast away their own great invention of the arch, and to fall back on the less flexible, less diversified, constructive system of the Greek entablature. But, just as they spread a varnish of Greek forms, Greek metres, and what not, over their native Italian literature, so, in like sort, they spread a varnish of Greek decoration over their native Italian construction. Buildings whose real construction was that of piers and arches were masked with a decorative imitation of the columns and entablature of a Greek portico. But as it was in other things, so it was also in architecture. The true Roman spirit was masked only, and not destroyed, by the fashion of Greek imitation. As that spirit shows itself in the satirists, the historians, and even here and there in the poets themselves, as it stands out more clearly still in the mighty fabric of the Roman Law, so there are classes of Roman building in which the national arched construction stands out, masked but feebly, or not at all, by the varnish of Greek decoration. In an aqueduct or an amphitheatre, Greek features, columns and their entablatures, are either absent altogether or are something so secondary as to have but little share in the general effect. In buildings of this kind, the round arch, the main constructive feature, does really stand out as the feature which gives the building its main architectural character. And, as Mr. Petit remarked long ago, the step from buildings of this kind to some of the plainer forms of the later Romanesque is very slight indeed. Some of the great German churches, such, for instance, as the three great Rhenish minsters of Mainz, Worms, and Speier, where the interior elevations consist of square piers supporting perfectly unadorned round arches, have surely a great deal in common with a Roman aqueduct. In both we see the round-arched construc-

tion standing boldly out in its most undisguised form. And buildings of this kind, whether aqueducts, amphitheatres, or churches, which rely almost wholly on their unadorned constructive elements, may undoubtedly be grand and striking in the highest degree. Still a style of architecture would be narrowly limited in its resources, if it were forever confined to such elements as these. The massive, unadorned, square pier was suited for many purposes; but there were also many purposes which asked for something more graceful, something which better offered itself for enrichment. There was one feature of the Greek constructive system which the Roman architect could do something more than blindly imitate. There was one feature which he could really adopt, for which he could find a place in his own system as appropriate as that which it had held in the system to which it belonged by birth. The Grecian column was freely employed by the Roman architects, but for a long time, in truth during the whole of the purely classical period, it was used only in a feeble, hesitating, and inconsistent way. Roman architects built porticoes and colonnades after purely Grecian models, without bringing in any feature of the national constructive system at all. Or columns and entablatures after the Grecian model were attached as a mere decorative mask to buildings really built according to the national mode of construction. At last, in days which we are taught to look upon as days of decline, in days which are looked upon as days of degradation both for literature and for art, the great step was taken which was to give Roman architecture a harmonious and consistent form, the step which was to make its chief decorative feature become also the chief feature of its construction. In the Greek system the column had boldly and honestly supported the entablature. In the Roman system of construction, the round arch answered to the entablature. What then was needed to make the column a real feature in the Roman system was to make it discharge in the Roman construction a duty strictly analogous to that which it had discharged in the Greek construction. In the Greek system the entablature had rested on the capitals of the columns; what was now needed was to make the round arch rest on the capitals of the columns also. The simple change at once gave Roman architecture a form both consistent in construction and graceful in decoration. Next to the introduction of the arch itself, no architectural revolution has been so great and so lasting in its results. The man who first boldly set his arch to rest on the capitals of his columns made a change which led the way to all future developments of arched architecture, round and pointed alike.

The first building, as far as we know, in which this great change was made was the Palace of Diocletian at Spalato. No time, no place, no author, could be more fitting for such a great architectural revolution. The change was not made in the local Rome, but on the other side of the Hadriatic, in a land which the Romans of an earlier time had looked on as a distant and barbarous province. But in those days the local Rome had ceased to be the only Rome. Rome was now wherever the Roman law and the Roman language had spread themselves, wherever men submitted to the rule of the Roman Cæsar. And no corner of the Empire was then more truly Roman than the Dalmatian land which sent forth that long succession of wise and valiant Emperors, Roman in every nobler sense of the word, though the local Rome was neither their birthplace nor their dwelling-place. And it was well that the greatest of them all, the founder of the Empire in its later form, should also be the man at whose bidding the first consistent Roman building rose. The keen eye of Diocletian had at last seen that the Roman Commonwealth was at an end; he grasped the fact that the Empire was a monarchy, and grasping the fact, he had not shrunk from putting it prominently forward before the eyes of men. The Illyrian peasant, in the days of his power, had been the first to deck himself with the outward pomp of royalty, when so to do was simply to give an outward expression to what for many generations had been the greatest of practical facts. The same man, in the days of his voluntary retirement, carried out a change in Roman art exactly analogous to the change which he had already carried out in the Roman polity. Alike in polity and in art, he swept away traditions which had become cumbrous and useless, and let things stand forth as they really were. Alike in recasting the constitution of his Empire and in designing the hall of his palace, Diocletian made the real construction of the fabric stand forth undisguisedly before the eyes of men. Alike in his political and in his architectural creation, he put the crown to the work towards which his predecessors had been feeling their way for three hundred years.

The palace of Spalato I have never seen with my own eyes, but the views of it given by Sir Gardner Wilkinson are quite enough to set its main features clearly before us. The new invention is not indeed consistently carried out throughout the whole building; that would have been too much to look for from any architect of any age or country. But it is applied to the long colonnades of the great hall, and noble ranges they are. A consistent round-arched building has at last been called into being, a building of a less massive and a more ornamental type than the aqueduct, or even than the amphitheatre. As the first consistent arched interior, the hall of Diocletian's palace contains in it the germs of all later architecture; the germs not only of Ravenna and Pisa, but of Caen and Durham; not only of Caen and Durham, but of Westminster and Amiens. As such, there is no more memorable building upon earth. But it is in no way wonderful that the great improvement which it offered was not at once universally accepted. Every architectural development has to go through a stage of transition, a stage when the new principle and the old are

¹ See page 28, ante.

striving for the mastery, and when the two are mingled together in various degrees and proportions. The architect of Spálato showed that columns could be used as the immediate supports of arches; he did not at once persuade the whole world to use columns as the immediate supports of arches. Men had been so long used to look upon the entablature as the right thing to rest upon the capitals of the columns that they could not all at once bring themselves to let the arch come straight down upon the capital itself. It seemed as if something must be done, as if some change must be made, to adapt the capital to its new duties. Something must be thrust in between the capital and the arch; some fragment, as it were, of the entablature, must come between the abacus of the capital and the impost of the arch. Or perhaps the abacus itself must be enlarged into something like a piece of entablature, or the whole capital must be drawn out to an unusual size and height, in order to seem more worthy of its new prominence, and better able to bear the weight that was laid upon it. For it is manifest, and it is one of the great advantages of the arched construction, that the columns, or other supports of a range of arches, may be placed at much greater distances from each other than the columns of a colonnade supporting an entablature. It follows that each column and its capital assumes in the arched building a greater importance; it has, so to speak, a more distinct separate existence than belongs to the columns of a colonnade. In the later Roman architecture we therefore find all kinds of shifts to avoid that immediate juxtaposition of the arch with capitals of the hitherto accustomed forms, on which the architect of Spálato had already ventured. In the basilicas of Ravenna I do not think that there is a single case where the arch comes down immediately upon an Ionic or Corinthian capital. These wonderful works of Western Emperors, of Gothic Kings, and of Eastern Exarchs were reared out of the spoils of earlier buildings. Columns and capitals were brought from various quarters; their proportions did not always exactly tally with one another; a column did not always agree with the column which stood next to it, or with the capital which its own shafts supported. But, among all the shafts to which the architects of these churches were driven, in order to keep something like order among the columns which were thus strangely brought together, in every case, whatever may be the form of the capital, a member is thrust in between the capital itself and the arch. For such a member there is no real need, either constructive or decorative; it simply shows how men clung to the idea that the proper use of a column and its capital was to support something like the horizontal line of the entablature. The local use of Ravenna preferred the employment of capitals of the received classical shapes with this needless member interposed—a member which wants a name, and to which that of the *stilt* has sometimes been given.¹ At Constantinople on the other hand,—I speak here not from personal knowledge, but from the Chevalier Fossati's splendid drawings of Saint Sophia,—though the stilt is not unknown, yet the tendency seems rather to have been towards devising new forms of the capital itself. Some of them, with a different proportion, still keep something like the general idea of a classical capital, while others, especially the well-known Byzantine basket-capital, altogether depart from classical models. At Ravenna no difference can be discerned between the works of the Roman Placidia and those of the Gothic Theodoric. The wise barbarian who preserved for the conquered Romans their laws, their language, and their buildings, followed their models also in his own original works. But with the recovery of Italy under Justinian new forms came in. In the Church of Saint Vital, begun during the Gothic dominion but not finished till after the conquest by Belisarius, the new Byzantine forms of capital are seen. But the local custom did not wholly die out, and the stilt appears in Saint Vital also, often taking the form of what we must call a double capital, one being placed over the other. The Byzantine forms, in their later development, are found also among the vast stores of capitals, brought and copied from all possible quarters, which are to be seen in the portico and the galleries of Saint Mark's at Venice. But for true columnar arcades, like those of Ravenna, we must leap over several centuries, till we come to the works of the eleventh and twelfth centuries at Pisa, Lucca, Murano, and Torcello. Here, with the changes of detail which are natural after a space of eight hundred years, we come back to the same state of things which we saw at Spálato. The arch again rests immediately on the capital of the column, and the columns and their capitals are either classical remains used up again, or else they are as nearly imitated from classical models as the art of those ages would allow.

CORRESPONDENCE.

THE PANIC AT THE WEBSTER SCHOOL.

St. Louis, January 15, 1889.

THE fire at the Webster Public School in this city on the twenty-sixth day of November last was in its consequences an important and fortunate occurrence, since it led to an investigation of the condition of our older school buildings, and to certain re-arrangements, especially of their heating apparatus, which have long been needed. In itself it was a very insignificant affair, quite undeserving the promi-

nence it received the next morning in the telegraphic intelligence of the Associated Press. It was extinguished almost instantly without help from the fire department, although it was summoned and was quickly on the spot; the entire damage to the building by fire probably did not exceed ten dollars, and beyond sprains and bruises there was no physical injury suffered by its inmates: still it was undoubtedly a narrow escape, one which could not safely be looked for again under the circumstances, and the fact that providentially rather than through human precaution the lesson was a mild one should not make its admonitions any the less impressive.

What is known as the Webster School embraces two large buildings occupying the centre of a circular plat of ground about three hundred feet in diameter, which provides ample play-room for the scholars; a wide paved street encircles it, thus securing privacy and isolation for the school. The "Old Webster" is of brick, three stories high above the basement, and has four rooms on a floor, twelve rooms in all, each for sixty-four pupils. It was built in 1852. The "New Webster," built some fourteen years later, is likewise of brick, three stories high, and of about the same size as the "Old Webster," which it faces, but at a distance of fifty feet or more. Each school is heated by a furnace in its cellar. The fire was entirely in the old building. It caught from the furnace: this had long been suspected to be in a dangerous condition and to have been the cause of slight fires on several former occasions. Some of the teachers had made complaints, but as they were not supposed to understand the difficulties and mysteries of practical calorics, their remonstrances had slight effect.

The heating arrangements of this and others of our older school buildings show that the operation of hot-air furnaces was very imperfectly understood thirty years ago. Possibly the same remark would apply to the present state of our knowledge on this subject, but in some things we have certainly made an advance. For example, it is no longer thought safe to place tall furnaces in low basements, where heated iron will be close to or in actual contact with the unprotected wood of the joists and floors above; nor to conduct hot-air pipes at random through pine floors and stud partitions in the delusion that a tin pipe cannot be made hot enough by warm air to ignite or injure wood; nor to encase such pipes in loose sawdust used for deafening. All these errors of a former day are exemplified in the Old Webster! The janitor reports that the dried and charred sawdust which had surrounded the hot-air pipe where the fire started fell to the floor in heaps as the ceiling was torn away.

The fire was discovered in the morning, soon after the school had opened. There must have been not far from fifteen hundred pupils in the two buildings at the time. A quiet notice to dismiss was sent to all the teachers in the old building, and it is probable that all the children would have been sent home safely, hardly suspecting the reason for their early discharge, had not some unauthorized person grasped the rope and rung a frantic alarm on the large school bell outside. This precipitated the panic. Some of the children in the upper rooms, seized with terror, rose from their seats, rushed past the teachers (chiefly young ladies), who sought to detain them, and began to run through the halls and down the stairs, crying, shouting, and screaming at the top of their voices. The panic spread at once through the building. The inmates of other rooms, over-powering or escaping from their teachers, rushed into the halls and to the stairs, which were quickly blocked, and all the familiar incidents of panic among adults were here repeated by the children. Some tried to jump from the windows, others slid down the convenient bell-rope, others joined the struggling crowd in the halls, treading to the floor the weaker ones in front of them. A stair-railing was broken down by the lateral pressure, and the children leaning on it were pushed headlong to the floor below. Fortunately the fall was but a few feet and no bones were broken. A brave lady teacher who placed herself at the foot of a stair, and tried to hold back the throng which crowded it, was quickly thrown down by them and trampled under foot.

The contagion spread to the new building, and for a time the same scenes were threatened there, although there was no fire or trace of fire. By great exertions, however, the children in the new building were confined to their rooms. The precaution had been taken long ago to have the entrance doors to the St. Louis schools open outward, and as it was finally apparent to the children that there was no fire to fear and a free exit for all, their panic subsided and they were all gotten out of the building, to the infinite relief and joy of their agonized parents, who crowded around the school from far and near.

For several days these schools were closed. Meanwhile the furnaces in both buildings were lowered and the heating arrangements thoroughly remodelled. The bell-rope was also remembered and cased in a manner to prevent its being reached by any unauthorized person. More than this, the School Board, reminded of the complaints of teachers from other schools about their furnaces, expressly instructed their building committee to make thorough and minute inspection of the heating apparatus of all the city schools, with a view to the prompt correction of any defect.

Thus it has resulted that the fire at the Webster School, which for a short time occasioned intense excitement and much mental distress, is looked upon by all interested in our public schools as a happy event upon which we may congratulate ourselves and our children.

C. E. ILLSLEY.

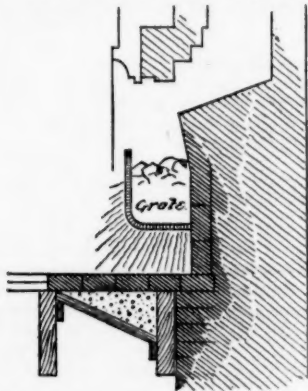
¹ It is worth noticing that something very like the Ravennese stilt is to be found in the ancient Egyptian architecture, in the form of a member, the *de*, interposed between the capital and the entablature. In some forms of Saracenic architecture this stilt becomes a most important feature.

UNSAFE CHIMNEYS.

THERE was a slight fire in the house on Spring Street this morning occupied by Mrs. Tanner. It caught from a stove-pipe which ignited a partition and a bedstead. In extinguishing the flames Mrs. Tanner's hand was severely burned. The department was not called out. — *Newport, R. I., Daily News.*

Accidents like the above are reported almost every day. It is not surprising that they occur; the wonder is that we do not hear more of them — that the hasty construction of our day, the ill-digested plans, scanty use of materials, particularly in the construction of chimneys and fireplaces, are not followed by greater loss of life and property. Many chimneys, particularly in country houses, are built with but four-inch work, — a single brick between flues that are often over-heated, and wood-work, rendered doubly inflammable by constant exposure to excessive heat. If it would add anything to the weight of these words, I could give many illustrations of the reckless manner in which flues and fireplaces are often constructed, but will offer but one specimen of such scamping.

The house in this instance was built for a summer boarding-house. The owner and the builder got it up, after their own ideas, and they worked together very well. It has three chimneys, one of which is used wholly for stoves, and is without a grate or fireplace. The kitchen is in the basement, and is furnished with a range. The thimble for the laundry stove passes through a lath-and-plaster partition and enters the back of the kitchen chimney. The laths touch the thimble, just as they did in the house above described, occupied by Mrs. Tanner. There are five of these thimbles in the house, each two and a half feet above the floor, and all set in the same way. When not in use they have tin covers; one excepted, and over that one house paper is pasted. The laundry stove connects with the same flue. Of the three fireplaces in the house but



one is properly set. The manner in which the others are built is shown in this sketch. The trimmer touches the chimney at a point where the fire is the strongest, and the brickwork directly under the grate rests upon the trimmer. There is consequently but two inches of brickwork above the trimmer. The ash pan and fender help to break the force of the heat; this, coupled with the fact that the grate has only been used in the spring and fall, explains why the trimmer has not been on fire. The fireplace on the second floor is built in the same manner. There are no marble or stone hearths, but in place of them sheets of zinc, fourteen inches wide, are put down for coals to drop upon, should they fall out of the grate.

Any one at all familiar with the subject will see at once that the above is a regular fire-trap; that a more dangerous mode of construction could hardly be devised. And yet the owner of such a house has not the slightest difficulty in insuring it. Were it otherwise we should hear less of this class of fires.

It is hardly worth while to say that this method of building is reprehensible, and should at once be denounced, for it would have but little weight with men who strive to build at the minimum cost, and who rarely ask how their dwellings are put together, if they can get them at their own figures. The builders, not having money enough to do their work as it should be done, do the best they can, and leave the rest to chance. The moment they are paid they lose their interest in the work, and the owner takes care that some insurance company assumes a good part of the load.

The insurance business as now conducted is not a paying one. Old companies wind up their business because they can make no money, and smaller ones come to a stand because they can no longer go on. This state of things is owing in great part to a sharp competition, and the frequency of fires. Competition not only brings about low rates, — rates too low to do a living business, — but it also leads to the taking of risks that should never be assumed by any company, not even as extra hazardous.

Insurance companies sometimes combine, adopt a schedule of prices, to which they engage rigidly to adhere; but when the pressure comes some one yields, another follows, and then the pace is "go as you please," until another effort is made to establish and maintain uniform charges.

Now if insurance companies would establish and adhere to one rule, that they would take no risk on any building that had not previously been examined by their own inspectors, there would be fewer

fires and less complaint of small returns on their capital. The inspectors should be trained architects, acting wholly in the employ of the insurance companies. Every store, dwelling, or church offered for insurance should be examined, from garret to cellar; the inspection to be followed by a report, headed with the name and location of the premises. It should then contain a full and minute description of the manner in which the premises are heated, the location and dimensions of the furnace (if one is used) and of any badly contrived and badly set fireplaces and stove-pipe thimbles, illustrated with diagrams where they are needed to make the text clear, with such advice as to how existing evils should be treated as will readily suggest itself to one competent to fill such an office.

An inspector of this kind might be profitably employed on buildings that have been in use for a number of years, as well as on those that are still in the hands of the builder; particularly at a time when application is made to renew a policy. A favorable report, after an exhaustive examination, would give confidence alike to the insurer and the insured; while an adverse report would put the company on its guard, and at the same time it would be a warning note, that would lead any man of ordinary intelligence to see that defects in his premises were at once removed.

Probably no one insurance company would feel able to carry out a plan like this; but if a number of companies were to combine, the expense to each one would be light compared with the advantages to be derived from such an arrangement. Each company would have a copy of every report, whether it held the policy or not, and these reports could be so made that when brought together they could be classified and bound up alphabetically.

Much has been written about sanitary reforms; this is well. Let the work go on. But while we strive to free our premises from deadly sewer-gases, let us not be unmindful of the risk we so often run, in houses heated in a way that endangers the life of all the inmates.

CHAMPLIN.

THE PERMANENT EXHIBITION.

THE Board of Managers of the International Exhibition Company has issued its third annual report, covering the operations during 1879. This report states that the trust mortgage of \$50,000 in bonds of \$500, with interest at six per cent, was executed under date of February 1, 1879, and that the stock-holders are now the owners of the building, less the mortgage; that the place is now lighted with petroleum gas at one fifth the former cost; that the position of the exhibits has been changed so as to give additional space, and other improvements made; and that the building and grounds are in a fair condition.

In reference to the fence which has been complained of by the Park Commission, the report says: —

"The board fence enclosing the grounds is sound and in good repair, and serves the purpose well for which it was originally intended, and it is deemed judicious and business-like to allow it to remain rather than go in debt for an expensive and showy one, your Board believing that when the financial condition of the company will allow, the surplus funds should rather be spent in making the institution more interesting and instructive on the inside than in spending it for show on the outside."

The receipts were as follows: Admission during 1879, \$104,391.68; during the previous year, \$39,627.21; receipts from other sources, including amounts collected for State Fair premiums, \$29,835.82; from other sources in 1878, \$19,728.24. The total expenditures in 1879 reached \$120,314.03, and in 1878, \$58,302.57. The liabilities consist of capital stock, sundry creditors, etc., to the amount of \$352,450.99. The assets embrace the main building and fixtures, valued at \$346,327.36, and a cash balance of \$13,833.47. The total number of admissions during the year were 450,864, against 297,430 in 1878. The report also states that since the notice of the Park Commission directing the building to be removed the number of exhibits have been very much reduced, many of the exhibitors having sent for their goods under the belief that the notice was final. The exhibits returning from Paris and intended for display here, were not received for the same reason. There remain in the building at present 1,655 exhibits against 2,011 on January 1, 1879.

MECHANICS' APPRENTICES.

THERE was an apprentice case in one of the courts recently which brought up a very important subject which deserves particular consideration apart from the merits or demerits of the controversy between this one master and this one apprentice. The apprentice sued his master for not having taught him some of the most important features of the trade which he was apprenticed to learn. The jury rendered a verdict in favor of the master, which indicated that they did not think the case of the apprentice a good one. But how many masters in these days do really teach their apprentices all that they nominally agree to teach them? The trade-unionists theoretically base their peculiar attitude toward the apprentice system on the ground that apprentices are, in the majority of instances, not taught as they should be, but that they are, instead of being instructed in all the mysteries of a trade, merely instructed in certain specialties. How much the present peculiar relations between master and apprentices are due to trade-unionism, need not now be dis-

cussed. We have simply to recognize the fact that the old-fashioned apprentice system has completely broken down, and that there is an urgent necessity that there shall be a substitute provided for it, in the interests not only of individuals but of the whole community, which will be beyond the reach of malign and selfish influences, exerted on the one hand by masters who are anxious to get men's work out of boys at less than men's wages; and, on the other hand, by workmen who, in their dread of competition, seek to prevent boys from learning trades at all. — *Philadelphia Telegraph*.

CAST-IRON IN FURNACE CONSTRUCTION.

TO THE EDITOR OF THE AMERICAN ARCHITECT :

Dear Sir, — Mr. Philbrick, in the last issue of your journal, criticises the deductions I have drawn from my experiments on the permeability of cast-iron, and bases his criticism on the supposition that I found a pressure of two or more atmospheres necessary to cause mercury to pass through cast-iron.

Inasmuch as I not only distinctly stated that "the feeblest pressure was sufficient," but also cited in corroboration the experience of Professor Gibbs, in which *no pressure at all* was used above the vessel holding the mercury, I can only account for his objections on the ground of oversight. What I meant by the expression "feeblest pressure" will be seen from my subsequent remarks on furnaces, and might, it seems to me, have been understood by the critic.

As for the matter of drum furnaces, I referred at the time to furnaces as they are and not as they *should be* built, and did not say or imply that this outward pressure existed in all furnaces at all times, but that in all furnaces it was *liable* to exist at any time, and that in ordinary *dome* furnaces it existed in ordinary use at all times.

Respectfully yours,

J. PICKERING PUTNAM.

RIEVAULX ABBEY.

71 BROADWAY, NEW YORK, January 26, 1880.

TO THE EDITOR OF THE AMERICAN ARCHITECT :

Dear Sir, — In your paper of the 24th January you publish an elevation of the east end of the choir of Rievaulx Abbey, Yorkshire, England, purporting to be drawn by D. A. Gregg, and copyrighted by Houghton, Osgood & Co. I think that as it is an exact copy of the lithograph published many years ago by Mr. Edmund Sharpe in his *Architectural Parallels*, there should have been some recognition of the source from which the drawing was copied.

Yours respectfully,

FREDERICK C. WITHERS.

[We regret that the loss of the memorandum which accompanied Mr. Gregg's drawing allowed us to publish as his own work the illustration referred to. Mr. Gregg was particularly careful to explain that his drawing was but a copy from Sharpe's *Parallels*. — Eds. AMERICAN ARCHITECT.]

NOTES AND CLIPPINGS.

THE FREE ENTRY OF WORKS OF ART. — The following circular has been issued by the Treasury Department: —

"Section 2,505 of the Revised Statutes provides for the free entry of 'works of art, paintings, statuary, fountains, and other works of art,' the production of American artists, and requires that the fact of such production shall be verified by the certificate of any consul or minister of the United States indorsed upon the written declaration of the artist. Under this provision the Department has heretofore required the payment of duties at the time of the entry of such articles for consumption unless the certificate alluded to above was then furnished. It has been found, however, that in many cases in which the work of art arrived before the certificate, or in which it was impracticable to produce the certificate until after the entry, the rule caused undue inconvenience to the artists concerned. You are therefore instructed to accept a bond from the importer, with good and sufficient security in a penalty equal to double the duties, conditioned for the production of such certificate within ninety days from date of the entry, and thereupon to deliver such works of art without requiring the payment of duties thereon. Before such delivery, however, a declaration from the artist, under oath, should be filed, showing that he is a citizen of the United States and that the work is his production."

IMPROVED TENEMENT-HOUSES. — The "Improved Dwellings Association" of New York is organized with a capital of \$500,000, for the purpose of erecting improved tenement-houses for the poorer classes of the city. The association has just made the purchase of twenty-one lots bounded by First Avenue, Seventy-first and Seventy-second Streets. It is vacant property near the river, with excellent drainage facilities and good air. The building to be first constructed will be built upon a square of sixteen lots, and it is expected that it will be finished within a year. Efforts will be made to erect tenements upon the most improved plans, which yet can be rented at from \$8 to \$12 per month for each set of apartments. The land was purchased from the Colford Jones estate. The association is looking for some suitable place down town where it can put up similar buildings.

THE NEW PALACE FOR THE EMPEROR OF JAPAN. — The construction of the long-talked-of new Imperial Palace in Japan has at length been commenced. The building will cover 20,000 *tsubo* of ground, and half of it will be in accordance with foreign ideas of architecture and half Japanese. It is supposed that four years will elapse ere the edifice is completed, and the estimated cost is 4,000,000 yen (\$3,988,000). The Imperial Palace at Kyoto, which was built by the Tokuwawa Government, cost the sum of 3,000,000 yen (\$2,991,000).

FOUL CISTERN WATER. — People who draw their drinking water from a tank in the attic, which is too often left uncovered and consequently receives gradual accretions of dust and dead insects, and still more those who drink water from cisterns which receive the wash from roofs, are often annoyed at finding the water no longer potable, because of its unpleasant taste or smell and its probable unhealthfulness. Investigation often shows that while the water near the bottom is foul, the water near the top is sweet and potable. How this condition of things can exist is shown by the experiment which Sir William Thompson made some time since during a lecture at the Royal Institution in London, which illustrates the extreme slowness with which the diffusion of liquids takes place. Nine days before the lecture he prepared several glass tubes, into which solutions of sulphate of copper, common salt, and colored alcohol, solutions whose specific gravity are radically different, were poured carefully, so that they might not be mixed during the operation. The lines of demarcation were carefully noted, and on the night of the lecture it was found that diffusion had taken place only through some three inches in vertical depth. Sir William stated that several years before a tube thirty feet in length had been filled with similar solutions, and the observations then made led to the conclusion that it would take one thousand years to complete the intermingling of the liquids. This shows a bad lookout for the man who, finding by the water he pumps up, that the strata at the bottom of his well are foul, does nothing to cleanse his well, but relies on the spring thaw or the fall rains to bring about a salutary change in the condition of things. Tanks that have become foul, when they are fed through a supply-pipe and ball-cock, are apt to remain foul, until emptied and cleaned, because the inflowing water enters in small quantities, nearly at the level of the water standing in the tank, and flowing over the surface of this water does not so stir up and diffuse the fouling matter that it can be drawn off gradually. The fouling of tanks and cisterns can be prevented in two ways: by introducing the supply near the bottom of the tank, so that any sediment there may be stirred up whenever fresh water enters; or by having the over-flow draw off the water from the bottom of the tank. This can be done by arranging a pipe as if it were to be used as a siphon to draw off all the water in the tank. To prevent the pipe acting like a siphon a small hole is filed in the upper side of the bend, and the pipe can then act simply as an over-flow fed from the bottom of the tank.

STAND-PIPE. — An enormous metallic reservoir or stand-pipe, said to be the largest in existence, has been lately furnished to the New York Water Works by the Cunningham Iron Works of Boston. This structure is 150 feet in height and 6 feet in diameter. The first fifty feet from the foundation is constructed of $\frac{1}{2}$ inch metal, the next fifty feet is of $\frac{3}{4}$ inch metal, and the remaining portion of $\frac{5}{16}$ inch metal. This is double riveted on the round-about seams, these seams being strengthened on the inside by strips of $\frac{1}{2}$ inch metal, 6 inches in width, and the edges of the plates are nicely planed, so that they will *match*, not *lap*, as is usually the case when they are thus riveted to the inside strip. The stand-pipe rests upon a cast-iron foundation, weighing 18 tons, which in turn rests upon a stone foundation, measuring 15 feet square. Around the pipe is built a circular wall of brick, 24 inches in thickness, the distance between the wall and stand-pipe being also 24 inches. This brick wall contains windows at intervals of about 10 feet, which give light to a spiral staircase which winds around the pipe to the top of the structure. There are 32 courses of plates in this pipe and the weight is 60 tons. — *Commercial Bulletin*.

THE THEATRE AT OBERAMMERGAU. — The following account of the new open-air theatre at Oberammergau, which we mentioned a short time ago, has appeared in the Berlin *Börsen-Courier*: The part for the spectators, which will accommodate between 5,000 and 6,000 persons, is built in the form of an amphitheatre, the greater portion being uncovered, and only the part near the entrance, where the better places are, being roofed over. There are 100 rows of seats, each row to contain 60 persons. The cheaper places have wooden benches. The better places, which are raised, will have cane-bottomed chairs. Exactly as in the great theatre built for the Wagner festival at Bayreuth, the orchestra will be placed quite out of view of the spectators. In front of the stage, which will be closed in on three sides and covered, is a great space at the two sides of which the choruses will be ranged. The new building has cost the commune up to the present 40,000 marks (£20,000), which has been defrayed from local sources. If we add to this the expenses which must be incurred for providing new dresses, scenery, etc., we may put the cost of the production of the Passion Play in 1880 at from 60,000 to 65,000 marks (£3,000 to £3,250), without exaggeration. The admission prices will range from 1 to 8 marks (1s. to 8s.), according to the position of the places. The number of persons who will be engaged in the performance, including children, will be between 650 and 700. Of these, 19 will be actors and solo singers. The orchestra will consist of 30 performers. Almost the entire population of the district will have some share in these gigantic representations. Inquiries made at Munich relative to the cost of providing the new wardrobe having resulted in proposals which seemed too high, and which the villagers did not think they could prudently risk, it has been resolved that all the new dresses shall be made on the spot.

KEEPING GUTTERS FREE FROM ICE. — The *Fireman's Journal* says that the Berkshire Life Insurance Company is to try an experiment to rid the roof of its building in New York of snow and ice. A one and one fourth inch perforated steam-pipe is being laid in the gutters on all sides of the building, and another on the centre of the roof. One of the boilers is arranged to be detached from the other, to keep the building's temperature right, and it is thought that after every snow-storm the steam will be sufficient to clear the roof in half an hour.

AN ANCIENT BOTTOMLESS WELL. — There is a remarkable well in the town of Thurman, situated along what is known as the "river road." The well is about three and a half feet in diameter at the top, and its depth has never been ascertained. It has been sounded 555 feet without reaching the bottom. The water is clear and cold, and the well is always full. It was first discovered about ninety years ago, and its sides were then walled up with stones, as they appear at the present time. — *Glens Falls (N. Y.) Republican*.