

The
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CHOICE IN ARCHITECTURAL STYLES.



THE architect of our age finds himself in a position in which no architect of any other age ever found himself. He has to choose his style. Nothing like this has ever happened before. There have been periods of transition in which an architect has had to choose between two styles; but he has never had any choice wider than that. But the architect of the nineteenth century can choose among all the styles that have been in use since men began to build. If he chooses some out-of-the-way style, something of which nobody in his own time and place has seen the like, he has to take his chance, as all revolutionary innovators have to take their chance. He may be laughed out of court at once, or he may make a revolution in the taste of his age. But he can make the experiment in a way in which nobody in earlier ages could have made it. We talk of the style of this or that century; the nineteenth century stands distinguished from all earlier centuries by having no style of its own, but imitating the styles of all earlier centuries.

It is perfectly certain that a Greek architect of the fifth century before Christ could not have built in any style but the natural Doric of his own age and country. Nothing else was likely to come into his head; there was nothing to put anything else into his head. He was not likely to imitate an

Egyptian or a Persian building. Even those who hold that the first rudiments of Greek architecture were learned from Egypt would not deny that, at the time of the building of the Parthenon, Egyptian and Greek art had parted so widely asunder that they had nothing in common except their simple constructive elements. The Egyptian and the Greek alike made columns support an entablature; but neither was likely to imitate the particular kind of columns and entablature which the other built, and, we may add, could not help building. In the like sort, an English, French, or German architect of the fourteenth century after Christ could not help building in the style which we commonly call Gothic. As the Greek could only set columns to support an entablature, a particular kind of columns to support a particular kind of entablature, so the mediæval architect could only build with arches, he could give his main arches none but the pointed form, he could give his ornamental details only such shapes as were in harmony with the pointed arch as the main feature of construction. Each had a necessity laid upon him. We may say that neither could, if he had wished, have built anything different from what he did build. It is quite certain that none of them ever wished to build anything different from what he did build. Each built according to the universal taste of his time, a taste which he himself shared in all its fulness. It does not in the least

follow that the thoughts, even of the Greek, much less of the mediæval architect, were at all kept in hard bondage. The Greek had some freedom; the mediæval architect had much more. Greek architecture was always changing; mediæval architecture was always changing much faster. The Doric column and its adjuncts were constantly losing their massiveness, from the seven at Corinth to the two or three that stand up at Nemea. The correct belief is that the Nemean architect went too fast, that he should have stopped at the exact proportions which were lighted on by Iktinos and Kallikrates on the Athenian akropolis. Sculpture too advanced, and architects knew how to make use of its advances, from the grotesques at Selinous to the works of Pheidias. Presently new forms of capital came in, new proportions of columns, new adornments of entablatures. The Ionic and the Corinthian, the Greek and the Roman forms of each, the Roman combination of the two, all had their day. The Olympieion of Athens was finished by Hadrian after a widely different sort from that in which it had been begun by Peisistratos. There was constant change, if less speedy change than in some other times and places. The architect had often a good deal of room for choice. The Nemean architect might have made his columns of exactly the same proportion as those of the Parthenon; he chose to make them more slender. One architect chose to adopt the new Ionic forms; another claved to the elder Doric. In the age of Hadrian, Doric became fashionable again, just as Italian became fashionable in England in the seventeenth century and Gothic again in the nineteenth. Some daring men ventured to bring together the features of two distinct orders. At Aosta, Corinthian columns may be seen supporting a Doric triglyph. The breach of rule is frightful; but the actual building does not look amiss. Here was choice, but choice within certain bounds. There must be columns and entablatures, there must be columns and entablatures of a particular kind. For wide as is the difference between the simplest Doric and the most en-

riched Corinthian, the difference is small compared with the difference which parts both from the buildings of Egypt. Both speak the same language, though in different dialects, in different stages. All buildings which cleave to the Greek construction and do not bring in the Roman feature of the arch, belong to one general style; but within certain bounds the taste of one age might depart from the taste of an earlier age, the taste of one man might vary from the taste of another man.

The Greek architect then had some measure of choice. The mediæval architect had a much greater measure. First of all, he had a much wider choice than the Greek architect as to the shape and outline of his buildings. One can hardly say that there were any Greek buildings besides temples; there certainly were no other great architectural buildings. The rest are either military works, works of engineering rather than of architecture, or else small things like the monument of Lysikrates. A gateway is simply the columns and entablature over again, and in a theatre there is as little building as possible. Wherever there was a chance, the theatre was not built, but cut out of the hillside. The different varieties of temples allowed a certain amount of choice; still all followed one general pattern, and in their main outlines there can hardly be any difference. With the mediæval architect churches came first, as temples did with the Greek; but there were many other types of buildings besides. Monastic, municipal, and domestic buildings supplied endless varieties of form; a castle was not purely military, and gateways were of many designs. The churches too were not, like Greek temples, all of one outline; there were infinite shapes to choose from. Each kingdom, each district, had its favorites, and there was a wide choice even within a small district. The mediæval architect could give his building almost any outline and proportion that he liked best, and his choice in his architectural detail was equally free. He could choose, he could invent, amidst endless varieties of pillars, mouldings, windows. The prevailing taste in such matter was constantly



Buffalo, N. Y.

TEMPLE BETH-ZION.

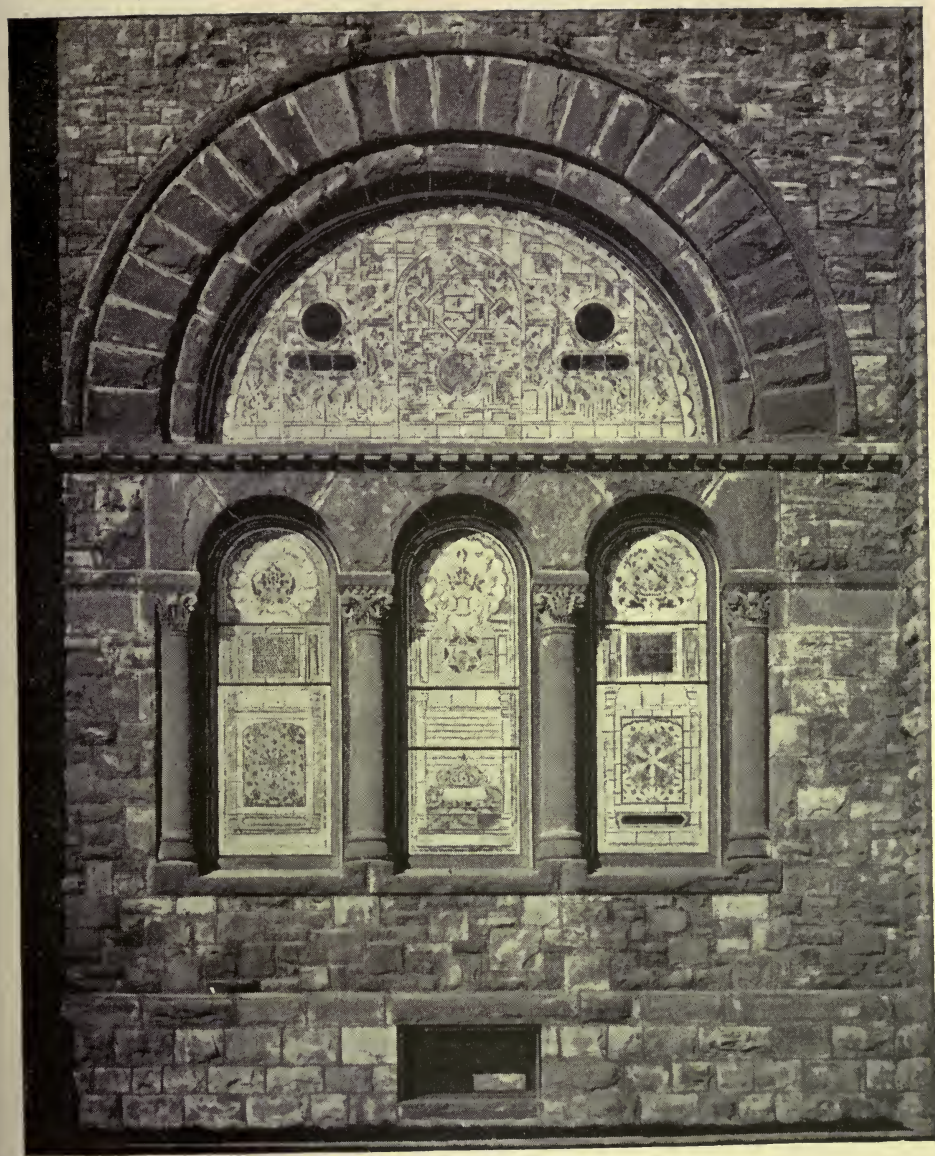
E. A. & W. W. Kent, Architects.

shifting, and even within the prevailing taste the choice seemed boundless. Who could check the fancy of the carver of a flowered capital in the thirteenth century or of the designer of a traceried window in the fourteenth? Yet the mediæval architect, with his wide choice, the Greek architect, with his far narrower choice, both worked within certain bounds. Neither brought in, neither thought of bringing in, anything inconsistent with the general principles of his style. One built in the Greek fashion; he could not build in any other; it never came into his head to build in any other. The other built in the Gothic fashion; he could not build in any other; it never came into his head to build in any other.

In the history of architecture all times are in a sense times of Transition. The art never stands still; it is always changing. But certain times are specially times of Transition, times when the change that is gradually going on is change not merely of detail but of principle. There are times in which one style in the widest sense supplants another, when some new principle of construction is brought in, when it gradually makes its way and supplants some earlier principle, and lastly, gradually like the rest, works out a system of ornamental detail suited to its own construction. I have always held, though I know that to many the saying must sound like a paradox, that the whole time of the classical Roman style was a time of Transition. It was a time in which men were trying to bring into union the construction of the Greek, with his columns and entablature, and the construction of the Roman, with his arches and piers. Diocletian showed at Spalato that the arch and the column could be combined; he made therein the beginning of Romanesque. Then again, there is the time of Transition between Romanesque and Gothic, when the pointed arch has been adopted for the main constructive features of the building, but where it is still gradually working out for itself a system of ornament which shall suit the pointed arch, instead of the earlier system of ornament which suited the round arch. In both these times builders had a

wide range of choice, and in the latter Transition especially the combinations are singularly instructive. And be it never forgotten that in architecture, in language, in everything else, the choice of particular men is being ever exercised, even if sometimes unwittingly. We talk of growth, development, decay, corruption, and so forth; but styles, fashions, modes of speech, do not really grow like a tree or decay like a tree. The growth and the decay is really the result of a vast number of voluntary, if unconscious, acts on the part of particular men, each of whom might have acted differently, if he had chosen. All architectural development is the result of a series of experiments, sometimes perhaps unconscious, but still voluntary. And changes in the great features of a style must have been deliberate acts. He who at Spalato first set an arch on a column, he who somewhere first set a pointed arch on a heavy Romanesque pillar, must have known perfectly well that he was making a bold experiment, though he could not have known to how great a revolution in art his experiment would lead.

In these two times of Transition there must therefore have been a large exercise of individual choice, but we cannot say that there was any deliberate choice between two styles. The innovators were not consciously devising a style or changing one style into another. There was no thought of exchanging one kind or style for another. That process could not come till it was proposed to forsake the existing style of an age and country, and to adopt instead the style of some other age or some other country. This, in the form of an attempt to exchange the prevalent Gothic for the supposed classical style, went on in Western Europe in the fifteenth, sixteenth, and seventeenth centuries. In this case men make a deliberate and avowed choice. They said: We will leave off building in one style and will build in another style instead. In Italy indeed something of the kind had happened already. Italy had in the twelfth century developed for herself one of the noblest styles that the world ever saw, her own natural Romanesque, the admirable style which may be so well studied



WINDOW IN TEMPLE BETH-ZION.

Buffalo, N. Y.

E. A. & W. W. Kent, Architects.

at Pisa and Lucca. Presently came an attempt, a most unsuccessful attempt, to imitate the Gothic style of the lands beyond the Alps, a style thoroughly at home in England, France and Germany, but which never took any real root in Italy. The older ideas were never quite driven out; the round arch never went altogether out of use; it was easier therefore in Italy in the fifteenth century to supplant both the natural Romanesque and the imported Gothic by an attempt to fall back on the classical Roman style. Here was a distinct case of choice, such as had never been before. And when the so-called *Renaissance* crossed the Alps, the choice was still more deliberate. Some said: We will give up the style in which our forefathers have built for three hundred years, and we will build instead in the style which has lately been invented in Italy. And others said: No; we will have nothing to say to this new foreign style; we will go on building as our forefathers built before us. So, almost in so many words, said the chapter of Beauvais in the sixteenth century. They determined of set purpose to finish their church in the old style and not in the new, and to build them a tower which should be higher than the cupola of Saint Peter. So in England more than a century later, Sir Christopher Wren, called on to rebuild Saint Paul's, said deliberately: We will rebuild this church in the new style and not in the old. And the most instructive thing of all is that for a long time neither side could do exactly what it wished to do. Each was unconsciously influenced by the other. Those who wished to build in the new style could not wholly get rid of the tradition of the old. Those who wished to build in the old style could not wholly escape the attraction of the new. The result is one of the most curious pages in the whole history of architecture, the record of the times when some were consciously striving to build Italian and others were consciously striving to build Gothic, but when, as a matter of fact, both built something which was not exactly either the one or the other.

This Transitional style, this most in-

structive mixture of Gothic and Italian detail, is in England chiefly to be studied in houses; but in France many great churches were built in it. In most of them the general design is Gothic; it is most curious to trace how the Gothic detail is gradually supplanted by the Italian. Sometimes, both in England and France, there is a conscious return to Gothic. This revival is specially seen in the college buildings at Oxford. The attempt is seldom quite successful; but it is often near enough to produce the general Gothic effect. Here was deliberate choice, here was deliberate reaction, an intentional falling back upon older forms. But there was something more than mere imitation. The Gothic tradition was not quite dead, and some of the builders of the seventeenth century certainly knew how to breathe a new life into it, if only for a moment.

In all this there was, what there had never been before, not mere gradual and silent development, but a conscious struggle between styles, an avowed battle between two rival artistic ideals. The Italian style succeeded throughout Western Europe. In Italy at least it became a really new style; for the revival Italian is something quite different from the classical Roman. Choice too, less lucky choice than that of either Gothic or Italian, came in when men tried simple imitation of the old Greek architecture, and set the portico of a Doric or Corinthian temple to act as the incongruous shell of some English building of the nineteenth century. At last there came another time of conscious struggle, another distinct battle of styles, when the Gothic revival began. First in churches, then in other buildings, men tried to bring back the Gothic of the past days of their own land instead of the Italian which had been brought in from other lands. Or more truly, art had fallen so low in the nineteenth century that the question often did not lie between Gothic and Italian, but between Gothic and no style at all. But we can hardly expect that the buildings of the Gothic revival of the nineteenth century will have the same interest for the architectural inquirer two hundred or three hundred years

hence, which the buildings of the sixteenth and seventeenth centuries have for us now. The revival has been too conscious, too purely imitative, purely imitative in a way in which the revived Gothic of the seventeenth century was not. After the Gothic revival had got beyond its first rude beginnings, there has often been

ers of our age than ever was open to the builders of any other age. The strife has not been simply a strife between Gothic and Italian. Every age of English Gothic has found its imitators, and many foreign forms of Gothic have found imitators also. Meanwhile some have stuck to the Italian of the past generation, while others have



INTERIOR OF TEMPLE BETH-ZION.

Buffalo, N. Y.

E. A. & W. W. Kent, Architects.

a good deal of knowledge, but there has not been art in proportion. Our modern Gothic buildings, being simply imitations, skillful or unskillful, have had nothing of that mixed character, mixed in spite of the architect himself, which has been the most instructive feature in all earlier Transitions, and which has been a sure witness to the true life of both the contending styles.

Still, as far as choice goes, the Gothic revival and the opposition to it have made a wider choice open to the build-

brought in various styles from various quarters and various ages, and some have found an artistic relief from strife in that absence of style which is called the style of Queen Anne. The result of all this is that the architect of the last years of the nineteenth century has an absolutely free choice; he is, unlike the architect of any other age, fettered by no traditions. In the younger lands no traditions have grown up; in the older lands all traditions have been cast aside. For the first time in the history of art,

it is open to the designer of a great building to build it after any sort that seems right in his own eyes.

Such freedom is hardly wholesome; for it is simply freedom of imitation. The modern architect does not, like the architect of any earlier time, feel called, by some delicate touch of detail, to improve a style whose general principles

for the unconscious impulse which constrained the architects of other ages to build after this fashion or that. But it would be better than every man doing simply what is right in his own eyes.

The unlucky thing is that we are all so used to do what is right in our own eyes, and we, not unnaturally, so thoroughly enjoy the freedom,



Buffalo, N. Y.

ENTRANCE, TEMPLE BETH-ZION.

E. A. & W. W. Kent, Architects.

he cannot help following. He sits down and thinks which, of all the styles that have been since men began to build at all, he shall imitate. This is not a good state of things; but it cannot be helped. We have at this moment no style, no traditions; we must imitate something. The only way either of developing a new style or of really falling back on an old one would be a general agreement as to which style should be imitated. Such a conscious agreement would be a poor substitute

that such an agreement is not likely to be reached very easily. Still there can be no harm in talking about the best way of coming to such an agreement. First of all, we need not look for an agreement of the whole world, not even for an agreement among those parts of the world which have most to do with one another and most largely influence one another. That is, we need not constrain all Western Europe and North America to make the same choice. It is as reasonable

that the different nations of those lands should build in several different styles as that they should speak several different languages. It does not even follow that countries which speak the same language should build in the same style. The choice in each country should be regulated by the history of that country. I should say to each, Fall back on the latest really native style of the country, and develop from that point. You must thus be imitative for a while; you need not be imitative for ever; and it will be a gain, while you are imitative, to be imitative on some intelligible principle. I should therefore say that in England, France, and Germany, the right thing is to fall back on the latest Gothic of the three countries, the latest Gothic untouched by Italian, and to develop from that point. We cannot be sure that the process of free natural growth will ever begin again; but it has surely more hope in this way than in any other. I should say that in Italy the right thing was no less to fall back on the latest native and natural style of the country, the noble Romanesque of Pisa and Lucca, before the unlucky imitation of Gothic began. Each nation would thus have a good starting-point in its own artistic history. It would start from a point at once good in itself and suggested by its national traditions.

But what shall we say where there are no national traditions on the subject? How shall we build in a great country which, as far as history is concerned, is a purely open field, a country whose speech is English, but which is placed in the latitude—we cannot always say in the climate—of Italy? In other words, how shall we build in the United States of America? On this head I made up my mind when I was there ten years ago, and what I have seen and heard since confirms me in the opinion to which I came then. I put forth that opinion in a little book called "Some Impressions of the United States." It came to this, that on the whole it is best for America to take as its starting-point the same point as Italy, the true Romanesque of Italy. The first thought, at all events to an Englishman of Britain, was that

the English starting-point should be chosen. A land English in speech and English in law might seem to be called on to be English in architecture also. But the case of architecture is not quite the same as the case of law and language. In America the English speech and the English law are traditional. The first colonists took them with them; they took root on the new soil, and the law at least threw out new shoots of its own, living shoots from the old stock. But no form of English architecture is in this way traditional in America. The first colonists took no architectural style with them. They had no great opportunities of doing so. They were not likely to think much about such matters, and one may further say that in the artistic state of England when they crossed the Ocean, there was no one very marked style for them to take with them. It was different with the colonies of some other European powers. Some of the Portuguese settlements, as Madeira, were settled so early that late mediæval buildings are to be found in them. And there are, if I mistake not, considerable buildings of revived Italian in those American lands which once were Spanish. There was no chance of either of these in the early days of the English settlements. When I went to America I certainly did not look to find anything earlier than English houses of the seventeenth century. Those I did rather expect to find; but I did not find any. If there had been such, I might have thought it a sign that the English starting-point should be also the American starting-point. As it is, it seems to me that America has in this matter perfectly free choice. And, on thinking the point over carefully, I came to the conclusion that, on the whole, it would be better for America to choose the Italian starting-point. I looked at the modern buildings in the United States, and it struck me that there was a nearer approach to life and art in those which might pass for imitation of Pisan Romanesque than in those which were clearly imitation of English Gothic. In some of the churches the notion of an English spire had been well caught, to the im-

provement of the general view of several American cities. But, as I have said more fully in the little book to which I have just referred, I saw more of hope in the other class. I will add only one word more. Whatever is the point taken, there must be one style only for buildings of all classes. There used to be people whose notion was that a church should be Gothic, and every other building something else. It is easy to see how this feeling came; but it was a foolish one none the less. At no time of good archi-

ture, in any country and under any religion, was there ever a special style for religious buildings. Pagans, Christians, Mussulmans, such of them as have had any architecture at all, have always had one style only for their religious and their secular buildings. If the starting-point is to be the last days of English Gothic, then houses and public buildings must be late Gothic, as well as churches. If the starting-point is to be the Pisan Romanesque, then churches must be Pisan Romanesque as well as houses and public buildings.

Edward A. Freeman.





ARCHITECTURAL ABERRATIONS.*

No. 3.—THE BROOKLYN REAL ESTATE EXCHANGE.



THE Brooklyn Real Estate Exchange would be an exasperating building anywhere; where it stands it is simply infuriating. In truth the Brooklynites seem to have devoted themselves of late to disfiguring the part of their city in which the new building stands with great energy and with a success which cannot be questioned. Unfortunately for them this, the region round about the City Hall, is the most conspicuous, the most thoroughly "in evidence" of the whole city, and it is also the most outrageous of aspect. The elevated road is the chief factor in this disfigurement, and perhaps remonstrance about that would be foolish as well as futile. "Business" is the Juggernaut before which we meekly prostrate, not only ourselves, but all our civic adornments and proprieties. Twenty years ago the surroundings of the Brooklyn City Hall were by no means unpleasant. The aspect of things was a little provincial, perhaps, and certainly more than a little suburban, but it had a certain seemliness and a certain keeping, which have now fled away. Anything like the congeries of ten-story office buildings and two-story sheds and litter and confusion that now char-

acterizes it can scarcely be seen anywhere else this side of the Rocky Mountains. It looks, indeed, like a mining camp with a "boom" in active operation. It does not look like a Western city. It is much too "Western" and too crude. The inhabitants of Western cities are not remarkable for their æsthetic perceptions, but they are remarkable for civic pride, and the architecture of the City Hall Park in Brooklyn would be impossible where civic pride asserted itself. Such a spectacle could not be seen and would not be suffered in St. Paul or Minneapolis or Omaha or Kansas City. Yet it is suffered without remonstrance by the inhabitants of the fourth city of the Union with a history going back two hundred years.

It happens that not only a good, but a singularly admirable, beginning of appropriate architecture was made a quarter of a century ago, in one of the streets that lead into this Babel of to-day, and that is Montague street, to which one of the latest architectural accessions is the Real Estate Exchange. It would be hard to name three more admirable examples in secular work of the Gothic revival in this country than the Brooklyn Academy of Music, the Brooklyn Art Building and the Brooklyn Library. The two former adjoin each

* We are making a collection of "Aberrations," and shall present one to our readers in each number of THE ARCHITECTURAL RECORD.



THE REAL ESTATE EXCHANGE.

Montague street, Brooklyn.

other on one side of Montague street and confront the last just across the way. One can hardly instance three other buildings in either city in a like proximity which manifest so much architectural scholarship and so much architectural thought. A street built up with such things would be by far the most interesting thoroughfare in the United States. But our Juggernaut has rolled remorselessly into Montague street, and the Real Estate Exchange is the awful result.

The three buildings we have been praising were built in the pre-elevator era. "All the better for them," the architectural critic is tempted to exclaim. It happens that the street contains a commercial building, also of the pre-elevator era, which is almost a model of design in its kind, although it is very unnoticeable—nay, because it is very unnoticeable. It adjoins the Library, is of the same height and the same material, but is strictly subordinated to it by being a perfectly plain wall with perfectly plain openings, and serving as an effective foil to the richer front of a building devoted to a higher purpose. If it be not the work of the author of the Library, its architect deserves very special commendation for effacing himself to aid in the production of an architectural *ensemble*.

This kind of commendation cannot be bestowed upon the architect of the Real Estate Exchange, nor indeed, in his capacity of designer, any other kind of commendation. That he had to build a commercial building twice as high as the public buildings in its neighborhood is his misfortune and not his fault. It is his misfortune also that he had to build a commercial building twice as high as it is wide. In truth, he could not have prevented himself from spoiling the street, whatever he did, and even if he had produced something that was in itself worth looking at. He could not have subordinated his commercial building to the public buildings. But he has produced, in the face of studied buildings, a building so reckless, in the face of quiet buildings a building so noisy, and in the face of harmonious buildings a building so discordant as to prove that he went about

what to an artist would have been an ungrateful task in gaiety of heart; and he has produced a monument of what may be called aggressive and militant insensibility to architecture.

Look at it, and bear in mind that you do not appreciate its enormity unless you see it in its relations, or rather in its violent denial of its relations. Considered in itself, what strikes one first is perhaps the extreme activity and busyness of the front, or perhaps the miscellany of things. These two qualities, the absence of repose and the absence of homogeneousness, react on and promote each other. It is first impure and then unpeaceable, or *vice versa*. A rational designer, given such dimensions, would have tried to simplify his front as much as possible, but this designer seems to have aimed at getting in as many things as possible sideways so as still further to exaggerate the disproportionate height. The continuous bow windows are a common enough device, sometimes justified by the increased outlook they give the tenants, though here the tenants on the sides benefit at the direct expense of the tenants in the middle. Architecturally, the effect is to emphasize the height of the building by cutting it into three vertical slices, in comparison with which the horizontal lines are almost effaced. In fact so unfortunate is the designer that the chief horizontal line above the basement is one that had much better been omitted. A two-story basement of red granite is proportionate enough to a superstructure of seven stories of brickwork. But obviously the treatment of the stories through which the bow windows continue should be similar. Here the openings in which the bow windows are placed are closed above the sixth story, without rhyme or reason, and the bow windows thus rudely interrupted. The interruption is the more inexcusable because it divides the front into four parts, between which there is no harmonious relation: $2 = 4 = 2 = 1$ is not a proportion. If the designer had not interrupted himself he would at least have had a threefold division of a kind, which would be so much gained. The interruption consists of distress-

singly weak-looking segmental arches, which cross the front in a feebly wobbling line, much more conspicuous than the horizontal moulded course above, while the bow windows go on for two stories more as if nothing had happened. Meanwhile the flanking piers are variegated by the introduction of pilasters running through those two stories, and the central piers by pilasters on corbels—actually pilasters on corbels running through the upper of the two stories so as nicely to thicken and strengthen the pier at the top. The top is a wonderful thing. There is a segmental gable which would indicate a curved truss roof, if anything in this kind of design ever indicated anything, and this should complete the front. But an inability to stop when one has done is another mark of this kind of design and is manifested here in the protrusion of all the piers into uncouth terminals and in the addition of crow steps over the segmental gable.

It has been intimated that the expression of structural facts is not the basis of this architecture. None of the detail, indeed, has any significance. All these terminal features are obviously unmeaning. So is the corbelled pilaster. So is

the detail of the entrance. A pilaster of polished granite seems here to convey a pier of rough wall, which would be a delightful arrangement. But it is not the fact. The pilaster and its capital are projected from the wall so as to show that it is not doing anything, but is only just architecture. There is not a studied or scholarly detail in the whole front; that is, not one that need detain the observer, or has detained the designer, with the possible exception of the heraldic beasts over the arch of the second story; and it does not seem a hazardous conjecture that these were designed by the carver and not by the architect.

It may be doubted, however, whether this rampant and riotous structure can properly be called an aberration. It is terribly typical of the work of the untrained and reckless American "architect," whose self-complacency is unusually conspicuous in this edifice, merely because it has encouraged him to put up such a building in such company. To compare this edifice with its neighbors is to get a very good lesson in architecture, except for the unteachable, of whom seems to be the designer of the Brooklyn Real Estate Exchange.





THE BATTLE OF THE STYLES.

(CONCLUDED.)



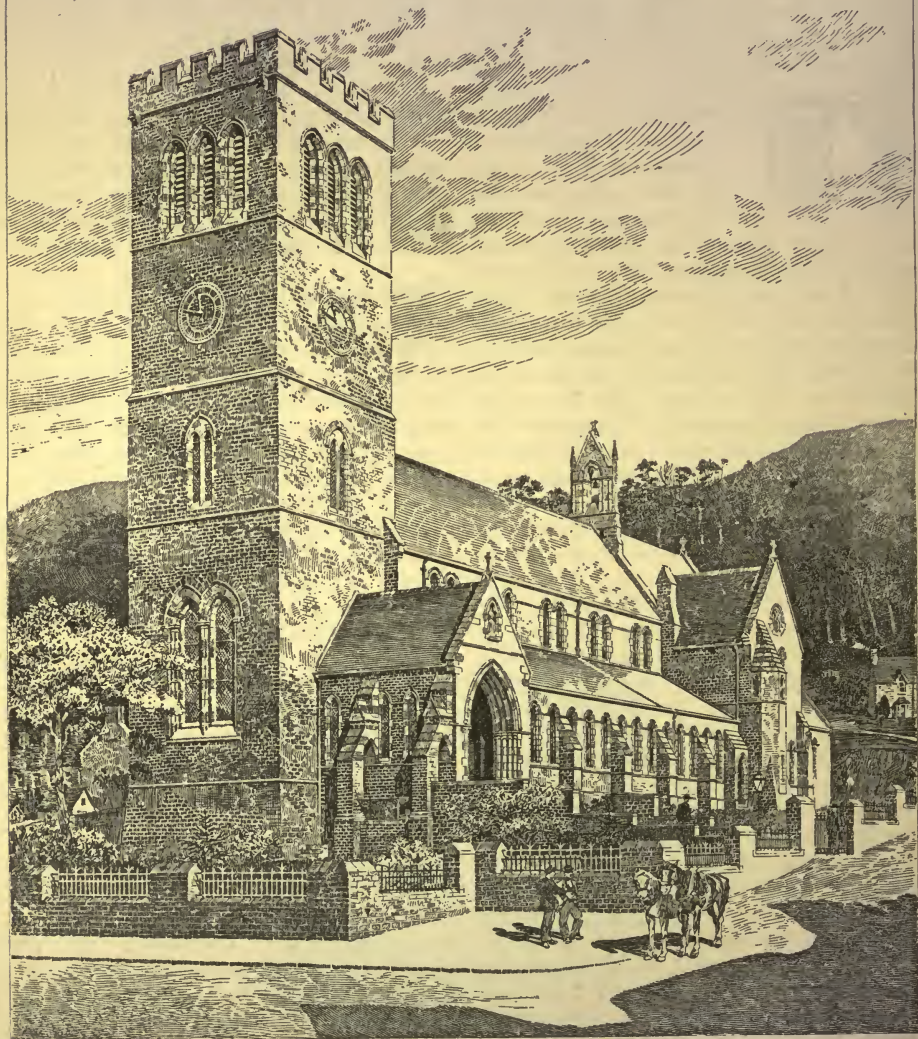
BEFORE entering upon our third inquiry it may be well to recapitulate some of the conclusions reached in our first paper. It was there contended, as the reader may remember, that of the two alternatives between which the non-existence of a true modern style places the architect—namely, the employment of historic styles or the invention of a new one—the latter has been proved hopeless by the lamentable and grotesque failure of every attempt it has prompted; and that the real question before the architect is as to the way in which historic forms should be employed. The writer endeavored to show what were the true principles underlying the rational use of historic forms, and called attention to the necessity of thoroughly mastering at least one historic style, and to the difficulty, not to say impossibility, of mastering more than two in an ordinary lifetime. It was pointed out that the style selected should be one possessing the seeds of vitality and progress, and consequently one not already developed into final completeness in the past, and that it must be capable of adaptation to our special needs. It must in some degree correspond to the movement and demands of modern taste, which though it may lead and develop, it must not too far outrun. Convenience and logic should not be overridden by the demands of mere historic precedent; the ordering of plan and mass and the general composition should be determined by modern requirements, and the historic style employed to give body

and clothing to the structure so contrived, furnishing the details of form and decoration as well as the principles to guide in their combination. And in all these operations the dictates of a cultivated taste are the final law.

III. While the rational application of these principles still leaves open the third query, "Can several distinct styles be concurrently employed without inconsistency," the contentions just rehearsed throw light on the answer. For if historic styles may and must be used in modern work, we must expect to see the forms of different epochs used side by side in our streets until architects be found all of one mind and clients all of one taste; or until the widely varying practice of our time shall converge into the uniformity of a new and vital style, under the pressure of new conditions and a more perfect civilization. So long as one architect finds the sturdy forms of the Romanesque better suited than all others to express his conceptions, while another, with a different cast of mind, prefers the more sumptuous and delicate Renaissance, and a third draws his suggestions of design from the ecclesiastic art of the fourteenth century, this variety will continue; and the question resolves itself therefore into the simple inquiry, "Are these men all pursuing a rational course?" Those who reply in the negative must bear the burden of proof. If but one style must prevail, which shall it be? And no one can answer this. The mere fact of the diversity of modern practice is presumptive evidence against the possi-

Saint Peter's Church
PENTRE Glamorganshire

Messrs Kempson & Fowler Architects



bility of final agreement upon any one system of historic forms; and two other important facts stand opposed to any such united action. The first is the extraordinary increase in the number of kinds of buildings erected, and in the variety of requirement in buildings of the same kind in our times, as compared with any former period in history. All the great styles of the past have been developed in one, or at most two or three classes of structure. Classic Greek architecture was an architecture of temples. The forms used for stoas and gymnasia were those which had developed in temple design. The Roman styles were developed primarily in theatres and amphitheatres, their temples being free imitations of Greek models. A second and more magnificent phase of Roman design was worked out in the great *Thermae*, which were the prototypes of many features of Byzantine art. The latter in its turn was an architecture of churches, while in the Middle Ages three or four centuries successively made their contributions to the elaboration of a single type of building, the Cathedral. In the Renaissance the variety of architectural problems was greater; and yet palaces, town halls and domed churches constitute nine-tenths of the architectural monuments of the centuries from the fifteenth to the eighteenth; and in them we trace the whole evolution and decline of Neo-Roman art in Italy, France, Germany and Spain. No commercial buildings (if we except a few *loggie* in Italy, the Bank at Genoa, the Halle aux Blés in Paris, and one or two other scattered examples); no theatres; no railway stations; no parliament houses nor capitols; no post-offices; no museums;* no concert halls; no hotels; no exhibition buildings; no hippodromes; no manufactories; no observatories; no private architecture worth the name, except the palaces of the great lords and merchant princes; none of these multifarious, ever-changing, ever more perplexing problems of our day ob-

truded themselves into the quiet development of palace-designing.

The second of the two facts referred to is the rapid development in modern times of wholly new principles of construction and of new materials for building, involving changes in architectural practice which soon outrun the slower developments of style and form. The men of historic times never had to deal with the perplexing problem of adapting their customary methods to new and suddenly-appearing materials and to suddenly-revolutionized methods of construction. These difficulties, unknown to them, are so common among us as to pass unnoticed; they are accepted as matters of course. We forget that while it takes decades for a style to crystallize into form, it takes but a year or two, in these days, to revolutionize methods of construction; and the historic style which suits well enough the constructive practice of this year may be wholly incompatible with that of 1893. The architect who uses classic sculptured pediments and Corinthian colonnades upon the legislative palace he is planning, would certainly turn to other resources of design for his railroad station or armory. In other words, there has never yet been developed a system of forms and combinations, an "understood way of building," equally applicable to requirements so various as those of our modern civilization. Whether among the historic styles there be one capable of ultimate development into such diverse adaptations is another question: none has yet received such a Protean development.

Thus, even if architects could unite upon some one style as the basis of their work—an impossible thing in itself—they would find themselves face to face with a problem more difficult than any they have heretofore encountered: that, namely, of adapting a single basic system of form and composition to narrow "sky-scrapers," as well as to long and low and broad railroad stations; to street façades composed of 25-foot slices and to the huge masses of exhibition buildings; to churches and to theatres; to skating-rinks and prisons; to triumphal arches and to

* It must be remembered that the great Renaissance collections of antique art, like many of the modern museums of painting and sculpture, were housed, not in buildings specially designed for the purpose, but in palaces, villas and garden casinos.



CHURCH AND PARSONAGE FOR FRENCH PROTESTANT CHURCH.

London, Eng.

Aston Webb, Architect.

clock towers; to market buildings and to State capitols. The style must be equally adapted to hard and unfeeling granite, to noble and delicate marble, to the sturdy and sober limestones and the coarse-grained sandstones; to brick and terra cotta, to wrought and cast-iron, glass, tile, timber, shingled, slated, concrete and plaster buildings. No style that falls short of such universal adaptability need present its claims for universal adoption. It cannot fill the bill presented by the advocates, if such exist, of uniformity in the use of historic architecture. Until such a style be produced, and its claims at least presumptively established, the "concurrent use of several historic styles in the work of our time" will be inevitable, and therefore consistent with reason and common sense, however undesirable it may seem from an abstract and purely philosophical point of view.

But the concurrent or contemporaneous use of several distinct styles may be practised in several different ways. The mixing up in one design of several styles is one thing; the use of different styles in different works or classes of work by the same architect is another; still another case is presented in the contemporaneous use of different styles by different architects, each retaining some one style as the basis of his work.

The first of these three cases gives us eclecticism in its extreme form. It is inconceivable that two or three different systems of design, developed in different ages and for widely separated purposes, and each associated with a particular system of planning and construction, should be equally appropriate for one and the same problem, and at the same time harmonious with each other. The mixed forms of transitional periods mark the tenacious hold of long-established uniformity of practice struggling against innovation and change. These periods are brilliant and brief; brilliant, because of the sincerity, simplicity and earnestness of purpose and the artistic vitality which characterize them; brief, because such sincere and earnest effort is soon rewarded by emancipation from the old into the free atmos-

phere of the new. The difference is heaven-wide between this and the deliberate and intentional mixing of incongruous styles. Not conviction, not necessity, but affectation is stamped upon such work, unless, indeed, the mixture be the product of dense ignorance.

Moreover, no man can reasonably hope to completely master more than two really distinct styles in a lifetime; but to combine harmoniously the elements of even two requires a masterful knowledge of both, except when, as in transitional times, it is done naively under the pressure of circumstances. And it may well be doubted whether any man, having mastered two styles, would venture to attempt marrying them. He, far better than the neophyte, comprehends their incompatibility. I do not refer to the occasional introduction of details, hints and suggestions from one style into work mainly based upon another. We may fairly be accused of having studied to very little purpose if after all that archæology and draughtsmanship and photography have done for us in bringing the past within reach, we can find absolutely nothing in one style in the way of suggestion, detail or spirit which may serve us in our use of another. But it must be confessed that to attempt to do this has its dangers, and none but the most experienced men, with the most cultivated taste, can safely venture upon a path where indiscretions and mistakes of taste are so easy and so disastrous.

Again, styles historically diverse may occur in different works by the same hand, and may be justified on the ground just stated, that there has thus far been found no style capable of immediate adaptation to all the variety of purposes and types of building of our day. The classicist may well be excused if he turns to mediæval models in designing churches, and the mediævalist in like manner may find his customary methods inappropriate for a museum of classic sculpture or a State capitol. No one thinks of blaming him if his open-air theatre or *café-restaurant* in a park—structures in their nature trivial, playful and gay—are

Moorish with cusped horse-shoe arches and plaster diaper-ornament. But these excursions into other styles than that which is one's own by choice and by long practice should be the exception, dictated by strong conviction of necessity. As time goes on, the work of our men of longest and most thorough experience is generally seen to be increasingly dominated by the style which each has found most congenial; practice and study and experience constantly enlarging the scope of its applications, and subduing to its control a larger variety of the knotty problems of modern design.

And if there may be variety in the use of styles in different works by the same designer, still more must we look for variety in the works of different hands. Indeed, there is a touch of the absurd in the outcry against such mingling of styles. It is hardly rational to demand uniformity in the use of historic styles in this age of rampant eclecticism in all fields of life and taste, of triumphant individualism, when authority sits so lightly on men's interests and lives; in this age of archæology, when the different periods of history are made to live again in our imaginations, and one man is an Ægyptologist, and another a Hellenist, and a third an enthusiast in Roman or mediæval lore; in this age of rapid change and transition, when the garments of custom are outgrown in a day, and new discoveries overturn the established order with every decade. The universal adoption of any one historic style would be perfunctory at least; our architecture would lose all spontaneity, vitality and snap; and become monotonous, stiff and formal. No unity of art can be desirable which is not free and natural, like the unity of a plant or tree, a product of the soil and sun and atmosphere that give life to the vital seed. To such free unity of style, consistent with our modern civilization, we must surely come in time, out of this seeming chaos of transition. But we must await the processes of evolution, which may be encouraged, but cannot be hurried. The marshaling of so many styles side by side in modern work is a necessary outcome of history, and some

of us can see even here the "promise and potency" of a coming crystal of twentieth century architecture which shall be worthy of its day.

And, indeed, there is nothing absolutely anomalous in this modern mixture. We find something like it in the mediæval art of Italy, where the Byzantine and Lombard and Roman styles were being practised contemporaneously in the same or in neighboring cities and provinces. In Sicily, Norman work jostles the Arabic and Byzantine in many a town and building, and the Byzantine of Venice was at first an out-and-out importation from abroad into the midst of the then-prevailing local style. The same is true of the German Gothic of certain North Italian monuments; and so careless were the Italians always about consistency of style, that round and pointed arches were used again and again in the same buildings long after the first introduction of Gothic forms into that country.

It may still be objected that this concurrent use of various styles, however unavoidable, is not on that account "without inconsistency." To which the reply is fair, that beyond the consistency of perfect mutual harmony, which no one would claim for these juxtaposed examples of various styles, there is the higher consistency with the spirit of the times and with reason and propriety; and this is what was contemplated in the third query. But before proceeding to the brief consideration of the fourth and last question let me pray the patient reader not to confound the ideal concurrence of styles treated of in the foregoing paragraphs with the wretched actualities of which too many examples are scattered about us. That our streets are full of terrible abortions of architecture in various dress is painfully true; but their abominableness lies in their bad design, not in the diversity of their styles. And, on the other hand, the reasonableness of the variety of practice which we have been discussing is proved by the fact that those of our buildings which by general consent receive the highest praise, exemplify a considerable variety of styles. No one would condemn Trinity Church because it is Gothic



Genoa, Italy.

DOORWAY OF THE PALACE BRIGNOLE.

nor assert that the Madison Square Garden would have been better if "done in Romanesque," nor wish the national capitol changed into a Francis I. design; nor the "Ponce de Leon" converted into a Roman palazzo. We all recognize that the excellence of these buildings results in large measure from the right choice of the historic dress in which these architectural conceptions are clothed; that is to say, from the appropriateness of the style of each to the special purpose of the building.

IV. To the final question, "Is there hope of developing a distinct system of architectural forms appropriate to our age and civilization," we can only offer a suggestive, not a prophetic answer. But there are one or two considerations full of significance. The first is the vitality and freedom of the best American work in design. This is becoming more and more generally recognized abroad. In wooden architecture applied to dwellings we have evolved a truly national type, belonging to our civilization and easily recognized under all the variations caused by climate and locality.

In the more monumental branches of our art we have by no means emerged into any broad generality of character. But that very vitality and freedom of spirit which in untrained designs takes the form of a wild aspiration for originality, and perpetrates those eccentricities and vagaries which are a cause of weariness to cultured natures, brings forth rich fruit when subjected to the restraints of thorough training and cultivated taste.

The second consideration to be noticed is the earnest purpose and conscientiousness of the practitioners who give tone and character to the profession. They are the true exponents of our art, and no one can be intimately acquainted with them, follow their discussions, visit their offices, mark their desire for the highest good of their art and their disinterested devotion to its cause, without a strong conviction that however faulty their works may sometimes be, they are not thoughtless, nor careless, nor foolish, nor unreasonable

designs, and that with such a spirit animating its leaders, our architecture must advance in both artistic quality and national character; must be better in 1895 than in 1892; must be nearer the goal of unity in spirit and system and appropriateness to its age and environment.

Thirdly, our large buildings furnish striking suggestions of convergence towards something like unity of style. Of a number of the best of these, if the mere details of their decorative treatment were suppressed, it would be hard to say whether they were Renaissance or Romanesque in design. That is to say, our modern commercial architecture and methods of construction have developed a style of composition of high basements, many-storied piers and arches, with attic arcades and heavy cornices, to which the details of either of these prevalent styles may be applied at will. Different in detail and even in general aspect as are, for example, the four great hotels just built or building on Fifth avenue in this city, the Holland House, the Waldorf, and the two at Fifty-ninth street, no one could possibly fail to recognize them all as examples of American architecture of the last decade of the nineteenth century. Does not this point to an ultimately consistent, not to say uniform style, characteristic of modern American civilization? And is it not significant that in this battle of the styles the contestants have practically narrowed down to two—the Romanesque and the various forms of the earlier Renaissance? Perhaps neither may finally become supreme; their elements fused in the heat of architectural competition, and subjected to the irresistible forces of environment and practical needs and a purified taste, may finally emerge indistinguishably combined in the crystal of a new architecture, as perfect, as rational, as noble as any that has gone before. If so, it will be an architecture bound by no stiff canon of formulated rule and precedent, fitted only for one narrow zone of climate and of population, but strong enough, and free and large and flexible enough for all the boundless variety of climate, and habit, and mate-

rial and surroundings of this great land. Our "architectural aberrations" are the slag and scorïæ thrown off in this crystallizing process. Our worthiest performances, whether Romanesque or Renaissance in detail, are strongly American in character, and I cannot

help thinking them finger-posts (if I may here change my metaphor) pointing to a still more truly American architecture which in some future time, nearer or more remote, shall be worthy of the age and of the people that gave it existence.

A. D. F. Hamlin.





HOTEL WALDORF.

Fifth avenue and 33d street, New York City.

Henry J. Hardenbergh, Architect.



57th street, New York City.

CARVED OAK PANEL IN RESIDENCE OF EDMUND COFFIN, JR.

Bradford L. Gilbert, Architect.

THE CHICAGO AUDITORIUM.



THE Auditorium Building illustrates how the versatile Western American can combine sentiment with thrift, and demonstrates how he can endeavor to cultivate the service of Mammon simultaneously with an effort to attain his higher artistic ideals. The wish of Chicago to possess an Opera House larger and finer than the Metropolitan, a hall for great choral and orchestral concerts, a mammoth ball-room, a convention hall, an auditorium for mass meetings, etc., etc., all under the same roof and within the same walls, gave birth to the Auditorium proper. The desire that the Auditorium be made self-sustaining, and not like the Metropolitan Opera House, a perpetual financial burden to its owners, rendered necessary the external subordination of the Auditorium itself to the business building and hotel, which, together with it, form the Auditorium Building.

When the design of the Auditorium Building was first intrusted to its architects only two-thirds of the ground and less than one-half of the money finally absorbed by the work were placed at their disposal. But, little by little, the enthusiasm of Mr. Ferd. W. Peck, the chief promoter of the enterprise, met

with such response from the business men of Chicago as to warrant the acquisition of greater area for the building site and expansions of scope and scale far beyond the limits contemplated in the conception and development of the original design.

The form in which we find this building is, therefore, the resultant of many conflicting causes and influences. At first glance it may seem a most delightful state of things for the architects of a great building to be compelled by force of circumstances to erect a larger and more costly structure than that called for by the first instructions of their client. But the situation appears far from delightful when viewed more subjectively. After months of arduous toil the many conflicting conditions of the various problems have been harmonized and adjusted to each other, and the many thoughts brought forth by their study have been crystallized into a complete and well-rounded design and expressed in nearly two hundred plans and diagrams. Presto! the conditions change!! All that has been so laboriously thought out and so carefully adjusted must be retraversed and readjusted; not once, but a score of times; in fact, for each successive widening of the financial horizon of the enterprise. While there is an obvious gratification and pleasure



Adler & Sullivan, Architects.

THE AUDITORIUM BUILDING—VIEW FROM MICHIGAN AVENUE.

Chicago, Ills.

in the consciousness of the widening of one's opportunities, yet this pleasure may be bought at too high a price. Such was the case with some of the developments in the growth of the design of the Auditorium, particularly after building operations had been fairly inaugurated and many conditions had thereby become fixed and inflexible.

But we are dealing with the Auditorium as it is; not with the Auditorium as it might have been had the original project been carried out, nor as it would have been had the final intentions and resources of its owners been known to its architects at the outset.

Considering first the exterior of the building: it is found dignified, impressive, simple and straightforward. Every square foot of street exposure serves commercial purposes, and serves them well. Utilitarian interests have nowhere been sacrificed, not even in the great tower, which, primarily conceived, without thought of its commercial utilization, as a means of indicating the main entrance of the Auditorium and giving it accent and emphasis in an expanse of utilitarian frontage, is now filled from cellar to roof with hotel rooms, and with offices which extend even into the machicolated cornice. Still one sees that the Auditorium is not an ordinary business building, but that its exterior is the embodiment of something nobler and higher than the desire to erect an inclosure for a rent-trap.

As the Auditorium, as such, nowhere penetrates to the street fronts, but is surrounded and surmounted by office building, hotel, etc., the wants and peculiarities of these became dominant in determining the fenestration, and with it the general expression of the exterior. It is to be regretted that the severe simplicity of treatment rendered necessary by the financial policy of the earlier days of the enterprise, the deep impression made by Richardson's "Marshall Field Building" upon the Directory of the Auditorium Association and a reaction from a course of indulgence in the creation of highly decorative effects on the part of its architects should have happened to coincide as to time and object, and

thereby deprived the exterior of the building of those graces of plastic surface decoration which are so characteristic of its internal treatment.

In taking up the consideration of the interior, the office building presents no features worthy of especial remark, except perhaps regret that it should have been pressed to completion so long in advance of other parts of the structure as to deny it a share of the richer material of finish and the more elaborate detail accorded to the hotel and auditorium.

The hotel is in one sense a marvel of planning. It is only a fringe, showing a street frontage of 587 feet with an average depth of but 45 feet skirting two sides of the auditorium, the predominant claims of which for space absorb the area usually devoted to the "working department" of hotels. The difficulties arising therefrom appear to have been overcome, for space has been found for kitchen, laundry, bakery, store-rooms and the other adjuncts of the hotel. All appear to be conveniently located and to communication with each other and with the parts of the hotel which they are intended to serve. Despite the limitations of space incident to the peculiar formation of the site, the hotel contains a number of public rooms of decided architectural pretensions and character. The main dining-room in the tenth story is architecturally noteworthy. Its ceiling is a barrel vault, divided into panels by the arched top chords of the supporting roof trusses, in which are set incandescent electric lights as an important part of the decoration. The vault is intersected in each panel by two lunettes which, however, are rather bald in treatment. They should have had sculptured or painted decorations in keeping with the mural paintings in the large segmental tympani at the ends of the barrel vault. (See illustration, page 424.)

The banquet hall is an unusually interesting room, not only because of its construction and location, which is over the auditorium, between trusses of 118 feet span, but also because of its peculiar artistic conception and treatment, at once aggressively unconventional and original and still extremely delicate and



From photographs
By J. W. Taylor, Chicago, Ills.

ENTRANCE HALL—AUDITORIUM HOTEL.



STAIRCASE—AUDITORIUM HOTEL.

refined. In fact, the banquet hall is the culmination of the boldness, originality and refinement which are characteristic of the decoration of this building.

The hotel office, the restaurant, the café and the main parlor are all rooms worthy of notice and study. The latter, 45x95 feet in size, is remarkable because of its connection with a loggia extending along its entire frontage,



NEWEL POST—AUDITORIUM HOTEL.

giving a most interesting outlook upon Michigan avenue, the lake front and over Lake Michigan.

In its construction the hotel presents many interesting features. As a multiplicity of pillars would have been objectionable in the public rooms which occupy the first story of the Congress street front, and which were intended in the original design to take up all of the second floor of the same, the floors from the first story upward are carried

on 140 riveted girders 2 feet high and of 36 feet clear span each. The front on which these girders occur is 360 feet long and being but 40 feet deep, is given lateral stiffness by four heavy brick walls extending from bottom to top of building. The absence of interior columns resulting from the use of the girder construction permitted a degree of freedom in the handling of partitions and the division into rooms that was found quite useful.

The most daring and conspicuously successful structural features of the hotel are the truss constructions of 118 feet span carrying the banquet hall, weighing 660 tons, over the auditorium, and those carrying over the stage, with a span of 110 feet, a load of 2,500 tons composed of stage machinery, rigging-loft, fly-galleries and four stories of hotel rooms and working departments, all of fire-proof construction. None of these were contemplated in the original plans of the building or prepared for in its foundations. The modest eight-story European hotel first contemplated would have been amply served by the present restaurant and by auxiliary eating halls intended to have been located above the same in the second story. With the increase in area and height of the building came the necessity for a large table d'hôte dining-room and for the banquet hall, as well as for the enlarged kitchen, store-room, servants' quarters, etc., etc. The dining-room itself was placed in the tenth story, with a frontage of 187 feet toward Lake Michigan, while the space required for all of the others could only be secured over the ceilings of the auditorium and stage. An effort was made, by the introduction of long



CORRIDOR—AUDITORIUM.

beams and rails in the walls, to distribute this unexpected additional load, as far as possible, over walls and foundations. Eleven auxiliary trusses of from 75 to 118 feet span were constructed, and connected with the original roof trusses with the utmost care as regards general design and detail, and then protected against injury from fire by incombustible non-conducting inclosures of porous terra cotta and plastering upon wire cloth.

Another remarkable piece of construction is a trussed girder of 40 feet span carrying a centre load of 230 tons in the second story over the main staircase of the hotel. This, however, seems to have been uncalled for. Equally good results as to plan and artistic design could have been attained without the structural complications resulting from the omission of the pillars whose work this girder is intended to do.

The Auditorium proper, with its accessories, occupies an area of 35,800

square feet, out of a total area of 63,500 feet for the site of the building. Its cubic contents are 2,800,000 cubic feet out of a total of 8,300,000 feet for the entire building. Its general dimensions are 118 by 246 feet. To this must be added the spaces occupied for entrances and exits, for parlors and smoking-room, organ chamber and stage dressing-rooms, which encroach upon and penetrate the surrounding business and hotel buildings, some in one story only, others through from two to six stories. Again stair and elevator shafts of the business buildings and hotel make encroachments upon the auditorium. These overlappings and interpenetrations form a Chinese puzzle, which cannot be understood unless illustrated by a complete set of plans and sections. On the main floor the stage occupies a depth of 70 feet, the orchestra 12 feet, the parquette 104 feet and the main foyer 60 feet. The main floor contains about 1,400 seats, arranged in generous sweeping curves



BAR—AUDITORIUM HOTEL.

and stepped up upon the lines of Scott Russell's isacoustic curve, with a total rise of 17 feet. Advantage is taken of this rise to obtain under the higher parts of the parquette an entrance foyer 80x118 feet, and a series of wardrobe and cloak rooms of quite generous capacity. These are at the end of the auditorium, partly under the main foyer and partly under the parquette, opening from the entrance foyer and extending along both sides of the parquette. On the outside of the same are corridors 14 feet wide.

This unusually great rise of the main floor has also made practicable the arrangement of six entrances, similar to the "vomitoria" of the Roman amphitheatre, by which the lower half of the parquette seats are reached without rendering it necessary to climb to the upper level of the main floor. Excessive crowding upon the main stairs is also avoided. The boxes, forty in number, are arranged in two tiers upon each side of the parquette. The lower tier forms an arcade of semi-circular arches with rather light treatment and but little effect of inclosure, while the upper boxes are entirely open. In fact, there is nothing at all of the boxlike and stuffy effect produced by the conventional treatment of the open box. When these boxes are filled with richly-dressed women, the mass effect of the rich colors and stuffs is exceedingly fine and blends quite harmoniously with the forms of the architectural detail and the colors of the decorations.

The main balcony, elliptical in plan, is 80 feet deep at the end, but quite narrow at the sides. It covers the main foyer and overhangs the parquette 20 feet at the end, but is not wide enough at the sides to completely cover the boxes. The seats are also arranged on the lines of the Scott Russell isacoustic curve, which here develops into a rise of about 40 feet from the lowest to the highest seat. Advantage has been taken of this to form two foyers, of which the lower one is 40 and the upper one 20 feet wide. Both have ample retiring and cloak rooms for the exclusive use of the occupants of the balcony. This balcony contains about

1,600 seats, the lower two-thirds of which are reached through twelve "vomitoria" opening out of the balcony foyers. The upper part of the balcony has no foyer, but free communication is established by a broad cross aisle.

Above the balcony are two galleries, each with about 500 seats. The second gallery is not over but in front of the first gallery, advantage having been taken of the favorable sight lines, due to the great depth of the house, to interpose the second gallery between the first gallery and the stage. Approach to the second gallery is had by way of horizontal bridges from the first gallery.

It will be seen from the foregoing that the Auditorium contains (including the boxes) 4,200 seats. Among the various uses to which the house is applied are many which do not require so great a seating capacity. Arrangements for reducing the size of the house have therefore been made by providing over each of the two galleries a section of movable ceiling, hung on hinges at one side and on chains passing over winches at the other. When the entire house is open, these sections of the gallery ceilings are turned upward on their hinges until raised so as to fold into panels provided for the purpose in the ceiling decoration. When it is desired to shut out either gallery from the house, these sections of their respective ceilings are lowered and turned downward on their hinges until the lower edges come down to the gallery railings, which are especially prepared for their reception. The lowered portions of the ceiling then form part of the general ceiling treatment of the hall, and the galleries are entirely shut off without impairment of the general architecture or decorative effect. If still further reduction of seating capacity is required, it is effected by a system of vertical curtains between the pillars on the line of the middle of the main balcony, by which means a further reduction in seating capacity of about 700 seats can be effected, so that when reduced to its smallest dimensions the house will contain but 2,500 seats. On the other hand, increased seating capacity for



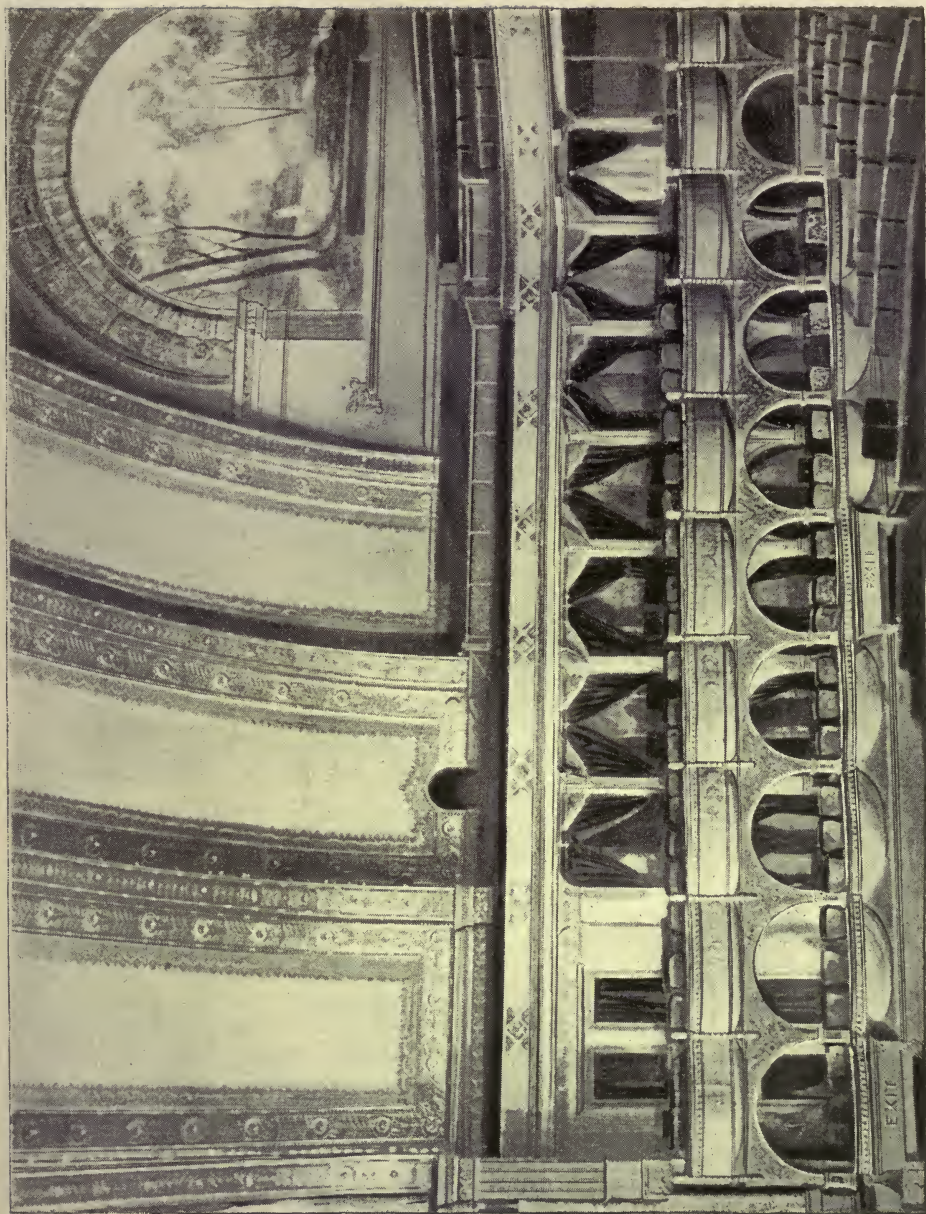
DINING ROOM—AUDITORIUM HOTEL.

(See page 417.)

conventions, etc., is obtained by continuing the stepping of the parquette seats into the main foyer, by forming two floors of seating upon the stage, by reseating the boxes and the box corridors, etc., until a total capacity of 7,000 seats is reached. Throughout this article capacity refers to numbered seats, and is independent of standing room, etc.

The dimensions of the stage are 70x 110 feet. The height from the floor to the rigging loft is 95 feet. The stage floor is divided into sections, all of which are separately or jointly movable in the vertical plane. This movement is effected by twenty hydraulic jacks, the plungers of which range from 6 to 24 inches in diameter and which are operated under a pressure of 100 pounds per square inch. The valves controlling these jacks are concentrated in such a manner that the person operating them is always in communication with and under the control of the stage manager.

The possible downward movement from the stage floor varies for different parts of the stage from 8 feet 6 inches to 18 feet 6 inches, and the range of movement above stage level is for parts of the stage as much as 18 feet. It is possible with this apparatus to create variations and gradations of level of stage floor almost instantaneously in any direction, up or down or oblique, for any part of the stage floor. Simulations of steps, terraces, rocks, hills, caves, pits, can be produced by the mere movement of a few levers. So also can wavelike or rocking motions of greater or smaller portions of the stage floor be effected in open scene. This hydraulic apparatus is modeled upon that patented by the "Asphalia," of Vienna, and applied by it in the opera houses of Buda-Pesth, Prague and Halle. The ingenuity of American builders of hydraulic elevators and the special conditions prevailing in this building have, however, caused the in-



VIEW OF BOXES—AUDITORIUM.
(See page 423)



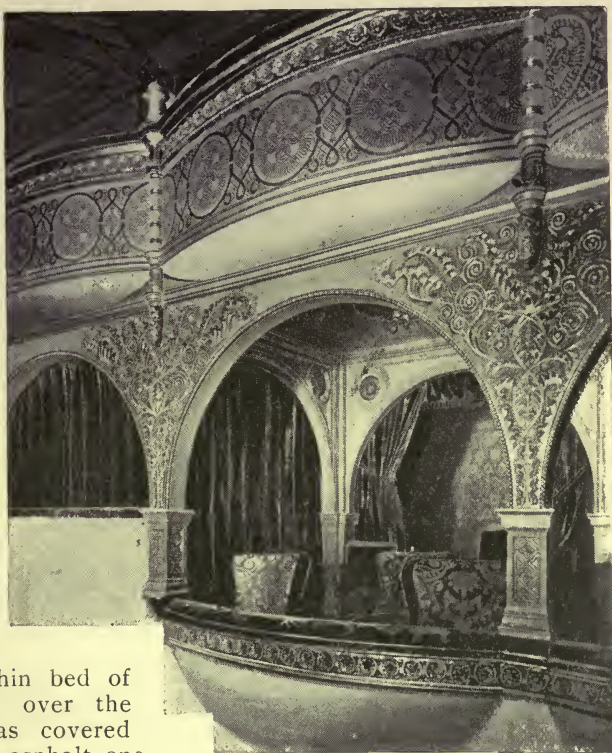
VIEW OF BOXES—AUDITORIUM.

(See page 423.)

roduction of many improvements and modifications of the European apparatus.

It has been stated that parts of the stage have a downward movement of 18 feet 6 inches. This brings the floor of the cellar under the stage to a general depth of 6 feet below high water of Lake Michigan, or to 4 feet below the average level of the surface of the lake. Four pits, of an area of about 150 square feet each, extend still 30 inches deeper for the purpose of receiving the framework of the lowered platforms. As the stage is only about one thousand feet distant from Lake Michigan and the intervening soil is a mixture of clay, sand and water, the influx of this water had to be guarded against. This was accomplished by excavating under the entire area of the stage to a depth of averaging 3 feet below that of the finished floor. A sump had first been dug to a somewhat greater depth and the excavation kept free from water by the action of a steam pump. A thin bed of concrete was first spread over the entire surface. This was covered with a layer of Trinidad asphalt one inch thick. Over this were laid four sheets of heavy felt paper, each well saturated with asphaltum. These were again covered with an inch of asphalt. Then another five layers of felt and another inch of asphalt. At all the edges abutting against the inclosing walls the asphalt and the felt are carried up to high-water level. To resist the upward pressure due to a possible head of over 8 feet of water the asphalt was covered with Portland cement concrete and steel rails of aggregate weight somewhat in excess of that represented by the aggregate water pressure over the entire area of the excavated space and of sufficient

transverse strength to take care of the irregularities of strain caused by the varying depths of the different parts of the cellar. Where the asphalt and felt are turned up at the inclosing walls they are held in place by special retaining walls calculated with reference to the hydraulic head to be resisted. The area so treated is nearly 8,000 square



THE DETAIL OF BOXES—AUDITORIUM.

feet. The treatment has been entirely successful. There have been two leaks, one caused by the breakage of a pipe, brought about by the settlement of a wall, the other caused by the melting of asphalt next an inclosing wall, due to the proximity of the furnace of one of the steam boilers. Both leaks were stopped without difficulty and before any damage had been done by the inflowing water.

The hydraulic jacks which furnish the motive power for the movements of the stage floor extend from 12 to 24 feet below the cellar floor, and from 7

to 19 feet below the foundations of the surrounding walls. The shafts containing these hydraulic jacks were cut through a soft and treacherous soil, some almost adjacent to foundations loaded full up to the extreme bearing capacity of the soil. The shafts were polygonal in plan, lined with 8x8 inch timbers cut to fit accurately at the angles and inserted from below, around the excavation as rapidly as the same progressed, and carefully wedged in layer after layer. Whenever necessary a steam-pump was used to free them from water. After the shafts were completed the foot of each was filled with concrete, the cast-iron cylinders were set, and after being fixed in proper position in both the vertical and horizontal planes, the spaces between the cylinders and the shaft walls were filled with sand. With the exception of a movement sympathetic with that of the foundations of adjacent walls, the shafts and cylinders are in the position and condition in which they were originally set. The movement due to the compression of soil under wall foundations was to a great extent anticipated, and arrangements for compensation for the same, by wedges and screws, were part of the design. Of the two floors below the stage, so much as is not required for the movable parts of the stage floor and the mechanism connected therewith, is utilized for dressing-rooms, store-rooms, workshops, etc., the entire construction being of incombustible material, except only the floor of the stage proper, and of the intermediate stage and traps, all of which is made of 3-inch plank. On this stage there are no "sky borders," and in fact no "borders" or "flies" of any kind. The entire stage is surrounded by the "horizon," which is a panoramic representation of the sky in every gradation from clear to extreme cloudiness. These gradations are painted on an endless canvas, so mounted and attached to a special mechanism, that changes of sky effects can be made in open scene, either gradually or quickly as the action of the play demands. All scenic effects are produced by drops extending across the entire stage, perforated where necessary, and so treated as regards per-

spective effect as to produce all the illusions of closed stage setting.

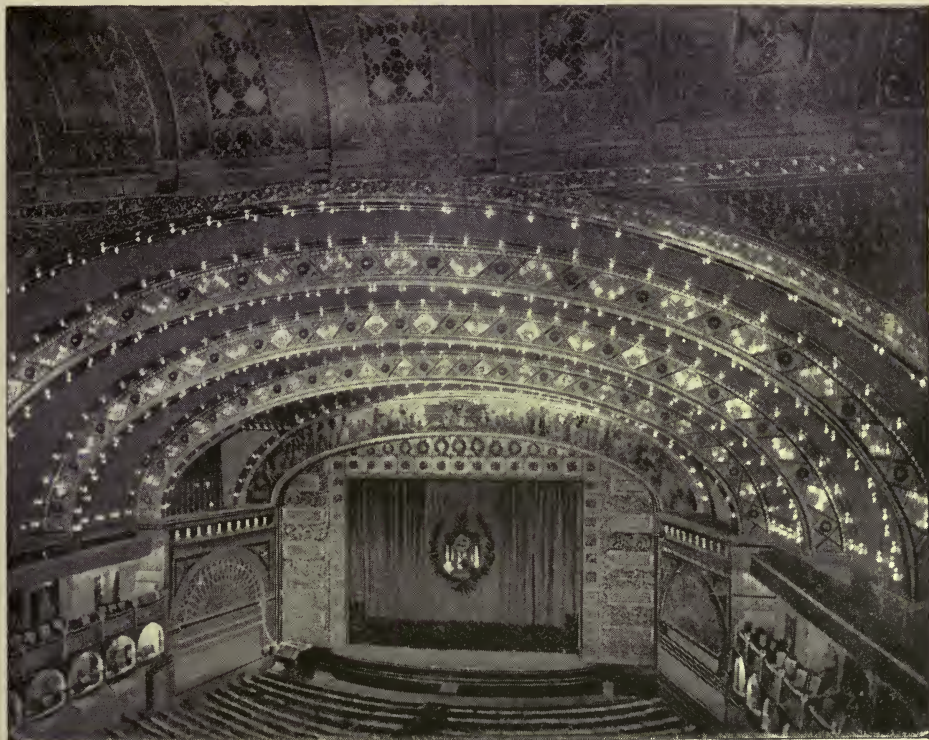
All of these drops as well as the border lights are counterbalanced so that they can be raised or lowered from the stage floor, and not from the fly galleries. The fly galleries are utilized as stations for light effects and for storage of scenery. Fly galleries, as well as rigging loft, are built entirely of iron, the floors being made of iron strips 3-16x2 inches, placed one inch apart and riveted to the floor-beams. All suspension ropes for drops, etc., are of steel, and all sheaves are of cast-iron. Even the battens to which the drops are fastened are made of iron, the only combustible used in connection with stage construction and mechanism being the cables, by means of which the counterweights of the drops and the drops themselves are raised and lowered.

As the curtain-opening which is required for scenic representation upon the stage is but 47 feet, while for choral concerts, conventions, balls, etc., a much greater opening is desirable, there has been provided to meet this exigency, what has been called "the reducing curtain." This is an iron framework 75 feet wide and 40 feet high, covered with plastering on wire cloth richly ornamented on the side facing the audience. Within this reducing curtain there is an opening 47 feet wide and 35 feet high. The smaller opening within the reducing curtain is closed by an iron curtain of ordinary make, and within this is the regular drop curtain of silk embroidered with gold thread. The reducing curtain weighs 10½ tons and the small iron curtain weighs 5 tons. For raising and lowering each of the three curtains there is a separate hydraulic apparatus, also for the horizon and for the paint bridge. The valves regulating all of these are on the stage within easy control of the stage manager. On both sides of the stage, to a height of four stories above and two stories below the same, are dressing-rooms, and the space between the ceiling of the auditorium and its roof is utilized for storage of scenery, properties, etc., the iron trusses being protected from fire by coverings of porous terra cotta.

Turning now to the consideration of the artistic development of the interior of the Auditorium proper we find that the color scheme of the decoration is extremely simple. The prevailing tone is ivory—gold leaf has been liberally used in connection with the same. The plastic decoration is

ing-rooms, etc., and is repeated in the Recital Hall—a small concert hall seating 500 people, placed above the auditorium.

The architectural and decorative forms found in the auditorium are unconventional in the extreme and are determined to a great extent by the

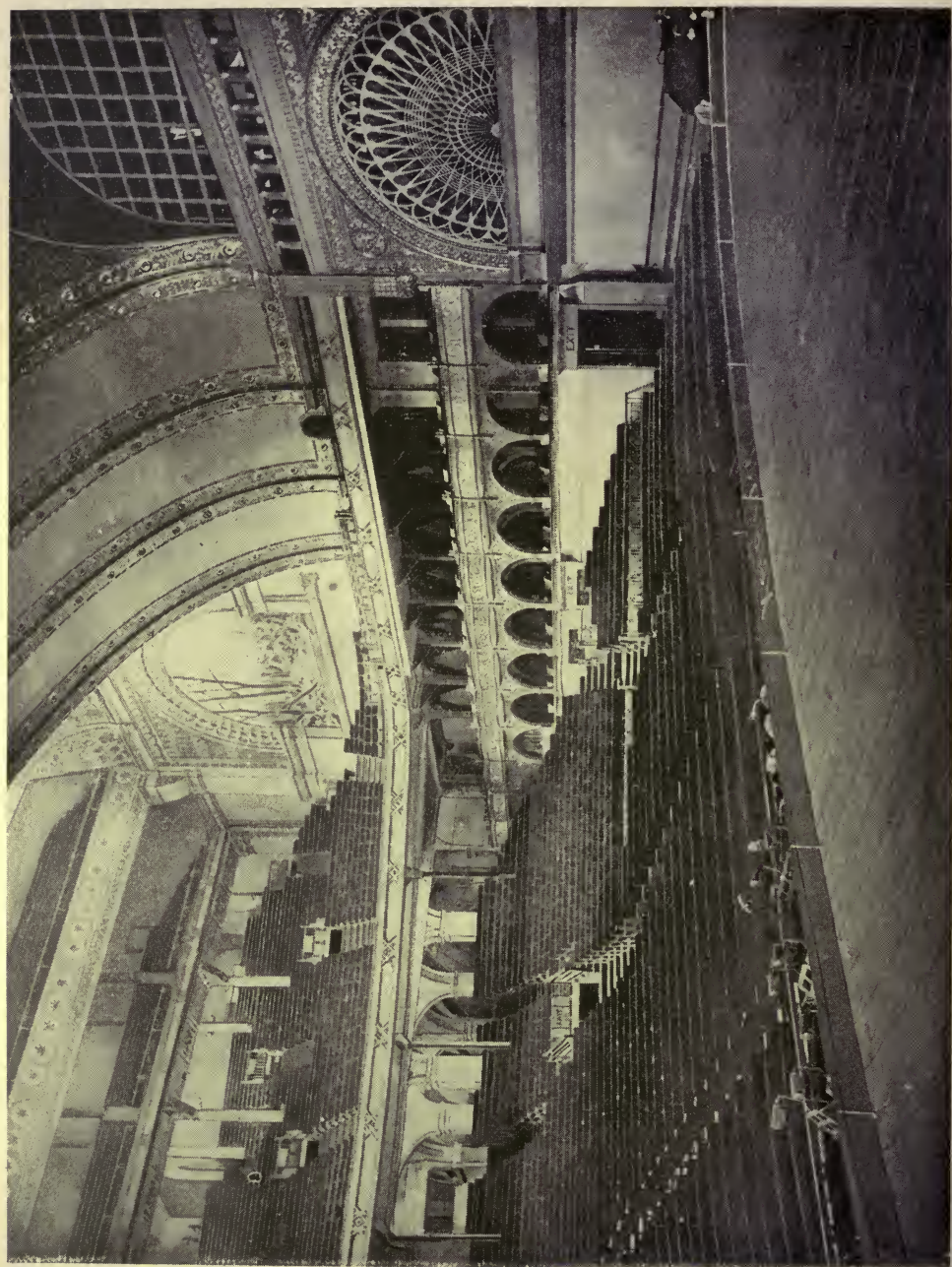


VIEW OF STAGE—AUDITORIUM.

either shaded as old ivory or incrustated with gold.

Over the proscenium arch is a painting in the nature of a processional, the figures being life size upon a background of gold. Upon the walls inclosed by a framework of architectural forms are two large paintings. All three of these paintings are illustrations of passages in Mr. Sullivan's essay on "Inspiration," read before the Western Association of Architects some years ago. The entire color effect is at once rich, quiet and delicate. It is carried through lobbies, foyers, retir-

acoustic effects to be attained. Hence the house is low—lowest at the stage end, thence flaring outward and upward to the extreme width and height of the room. The surfaces of the walls and ceilings are well broken. A series of concentric elliptic arches effect the lateral and vertical expansion from the proscenium opening to the body of the house. The soffits and faces of these elliptic surfaces are ornamented in relief, the incandescent electric lamps and the air inlet openings of the ventilating system forming an essential and effective part of the decoration.



VIEW FROM STAGE—AUDITORIUM.

The elliptic curves of the balcony are complementary to those of the ceiling. As the ceiling finally resolves itself into rectilinear forms these are taken up, and, when the galleries are shut off, continued by the fronts of the two galleries. The fronts of galleries and balcony have a plastic treatment accentuated by groups of incandescent lamps which continue the effect of the ceiling illumination and decoration. The organ occupies on one side of the house the space ordinary given up to proscenium boxes. The organ pipes are concealed by two grilles and a colonnade. The arrangement and treatment seem quite spontaneous and do not betray the fact that up to the time when the walls had been carried 30 feet high and the architecture and decoration of the interior drawn, it had only been intended to have a small stage organ concealed somewhere in the "flies." Still, not only has the organ been made to play an important part in the architecture of the house, but room has been found for its 7,000 pipes, and its bellows, also for its complicated electric mechanisms, for the carillons, drums, echo organ, etc., the chimes in one of the fly galleries, the echo organ between ceiling and roof at the farthest end of the house.

Much attention has been paid to the heating, cooling and ventilating apparatus. Fresh air, taken from the top of the building, is forced into the house by a fan having a wheel 10 feet in diameter and 4 feet 6 inches in face. The fresh air comes down through a shaft in which it is subjected to the action of a heavy spray. This, at all seasons of the year, washes from the air much of the dust and soot with which it is charged. In winter, warm brine is used to prevent the shower from freezing. In summer from twelve to twenty tons of ice are used for cooling the shower and with it the air. Salt is mixed with the melting ice to still further lower the temperature. For warming the air in winter it is carried through steam coils so subdivided and provided with valves that very minute gradations of temperature can be affected. A system of ducts carries the air into the different

parts of the auditorium, to the stage and to the various corridors, foyers and dressing-rooms. The general movement of air is from the stage outward and from the ceiling downward. The air is removed from the house by the operation of three disk fans, two of 8 feet diameter and one 6 feet in diameter. Ducts are carried to these exhaust fans from openings in the risers of all the steppings for the seats throughout the house, and from registers in every foyer, corridor, cloak-room, dressing-room, toilet-room, etc.

Besides this main ventilating apparatus there are ten smaller fans used for the ventilation of the engine rooms, stores, kitchens, laundries, banquet hall, bath-rooms, water-closets, etc. Especially noteworthy is an exhaust fan, connected by means of suitable ducts with every one of the four hundred rooms containing plumbing fixtures in the hotel.

But a description of the machinery plant in ever so sketchy a manner would far exceed the possible limits of any magazine article. A mere enumeration of the parts of the same will convey an idea of the difficulties encountered by its designers. There are in use eleven boilers, capable of evaporating 54,000 pounds of water per hour, the equivalent of 1,800-horse power. There are fourteen steam engines, aggregating 1,200-horse power capacity. Of these, three serve for driving fans and laundry machinery while eleven are used for generating electric current, there being the same number of dynamos, which furnish current for over one thousand lamps and for fifteen electric motors of which eleven are used for driving fans, two for the organ, the other in connection with kitchen mechanisms. There are in the building ten passenger and four freight elevators; all hydraulic power for the same being generated by four compound duplex pumps. For pumping drinking water there are six pumps; for boiler-feed and for raising water of condensation, seven pumps; and for the air-washing apparatus, one pump, a total of eighteen pumps of various sizes. There are also seven hydraulic motors for driving such mechanisms as ice-

crushers, knife-cleaners, etc. The entire apparatus is divided into two separate and distinct plants, one for the hotel only and the other for the auditorium and the business building combined. The heating apparatus of both plants is so arranged and connected that the exhaust steam is fully utilized. This is so effectively done that in cold weather steam is rarely seen escaping from the exhaust pipes, all being utilized and condensed in the heating coils and radiators. Circulation through the miles of pipes is maintained with a back pressure upon the cylinders, never yet exceeding three pounds per square inch, and in the early days of the apparatus, before the gradients of the pipes had been disturbed by settlements of the building, with a back pressure of less than one pound per square inch. An object of interest is the switch-board on the stage of the auditorium, which controls and regulates 4,000 lamps. This is set behind the reducing curtain and is hung on hinges in such manner that when the reducing curtain is down and the house is used as an opera house or theatre, the switch-board is to the right of the curtain opening, as in all theatres. When the stage is to be widened, the switch-board is turned outward 90 degrees so as to leave clear the entire opening of 75 feet, produced by raising the reducing curtain.

But there has been enough discursive statement of details of arrangement, construction and appointment, and it remains only to attempt to summarize briefly the results achieved.

Regarding business building, hotel and external treatment enough has already been said. There remain the Auditorium proper in its relations to its various purposes and the structural and the financial problems and their solutions.

Before disposing of the Auditorium proper, attention must again be called to the reducing curtain and its functions. For operatic and dramatic performances, for lectures and for concerts not involving the use of a mass chorus the reducing curtain is down and the house is simply a mammoth theatre or opera house with a proscenium or curtain opening of 47 feet. When, however, the house is used

for a concert by a great chorus, for a political convention, a ball or a fair, the reducing curtain is raised and the entire stage becomes part of the auditorium. The chorus seats rise tier upon tier 75 feet wide, 70 feet deep, closed in on the sides with suitable decorations and covered with a series of sounding boards suspended from the rigging loft. If used for a ball the entire parquette, orchestra and stage are floored over and the stage inclosed by a continuous set scene in panoramic form, apparently a continuation of the arcade formed by the lower boxes, the arches filled with tropical foliage and flowers, in the centre of which is the orchestra. The arrangement for conventions has already been referred to.

The success of the room is greatest when used as a hall for mass concerts. The chorus seems thus to blend with the audience, and the house is so open that one can see at a glance almost the entire audience and the whole chorus. The sight of thousands of men and women in festive array is always pleasing, and when every one of these has ample space for sitting in comfort, has fresh air and can see and be seen and hear every modulation of sound in its full effect the result is inspiring. But little less effective and successful is the Auditorium as an opera house.

The stage settings are generally complete and sumptuous, the effect of the music as perfectly transmitted to the farthest corners of the house as the most critical can wish. It should here also be stated that the value of the stage appointments and mechanisms asserts itself at every performance. With stage hands one-third in number of those required for similar work in the Metropolitan Opera House all changes and transformations are made quickly and smoothly and there has never yet been a case when the actors have waited for the stage. On the contrary, the stage is always set before the actors or singers have made their changes of costume, etc.

All of this is, of course, also of value for dramatic performances, of which there has been a number of successful ones in the house, the two galleries be-

ing shut off. While the actors were easily heard and understood in every part of the house, objection was made by many to the fact that distance from the stage made observation of play of features too difficult for full enjoyment of the performance. As a hall for orchestral concerts or for virtuosi on individual instruments the hall has proved all that would be wished for, as also for use as a lecture hall. Its effect as a ball-room is almost that of fairy land, and as a convention hall it permits every spectator to see and hear all that is being said and done upon the platform, and would in this particular also seem to have fulfilled its purpose were it not for the demand in the case of National Nominating Conventions for a greater seating capacity.

The many peculiarities of the hall in acoustic properties, brilliancy of illumination, purity of atmosphere, conveniences of ingress and egress, comfort of seats, number, size and elegance of foyer, promenades, etc., and the many coat-rooms, retiring and toilet-rooms, etc., distributed throughout all parts of the house, all these assert themselves in each of the many uses for which the Auditorium has been built, and leave no doubt of its unqualified success and show that it fulfills the expectations of its founders.

As to the success of the building considered as a piece of architectural engineering, the verdict while in the main favorable, must be qualified by the regret that the preparations for resisting the strains caused by the growth of the building into larger proportions and heavier weights than at first contemplated had not been confined to the superstructure, but had been begun with the foundations. But as this could not have been expected under the conditions prevailing, the visible effects of certain irregularities of settlement of foundations must be considered as the price paid for many admirable features in the completed building, which had been deemed financially unattainable when the foundations were designed and built.

The problems in steam, mechanical and hydraulic, engineering have been successfully solved. The only difficul-

ties encountered in the practical operation of the plant were remedied without great labor or expense. It may interest many to know that the source of complaint was the noise produced by the rush of large columns of water under great head through the supply pipes of the Tower Elevator. This was remedied by substituting a compression tank for the gravity tank as a source of water supply for these elevators. Another was the difficulty of maintaining the water column in the long suction pipes of the elevator, the service of which was from the nature of the case very irregular. In the case of one set of pumps a special contrivance for "priming" was provided, in the case of the other the tank was raised above the level of the pump valves. Minor difficulties in regulating air supply from and to fans were remedied by readjustment of dampers, valves, etc.

In quite a number of instances the folly of a municipal regulation prescribing vent pipes for traps was demonstrated. Owing to the great height of the building the friction of the air in these vent pipes became so great that they failed to do their intended duty. "Sanitas" and other anti-siphoning traps were substituted for the S traps, and the inoperative trap vents were disconnected, since which there has been no further trouble.

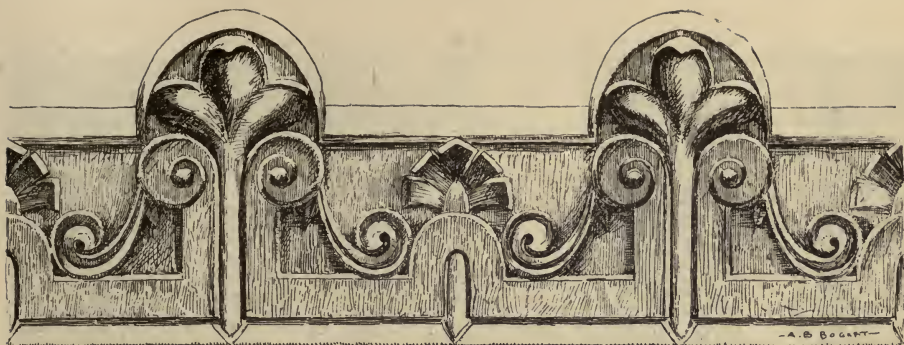
The two electric light and power plants, each at the time of its construction the largest in the world, were really an evolution brought about by a series of experimental efforts which after many vexatious failures finally produced an efficient and easily controlled apparatus.

Whether or not the enterprise is an unqualified financial success can hardly be definitely stated. So much, however, is certain: Chicago has an Auditorium far better as an opera house or a concert hall or a ball-room than either the Metropolitan Opera House or the Music Hall of New York, and the certainty that its owners will not be assessed to assure its maintenance is already established beyond the possibility of doubt. That a dividend will be realized upon the investment is more than probable. Time is,

however, required for a southward small surplus revenue, which, how-
movement of the business centre of ever, is being applied to the pay-
Chicago sufficient to fill all the stores ment of a floating debt incurred
and offices with tenants at rentals by reason of the failure of the
approximating those paid in similar management to dispose of a part
premises a few blocks north of the of its capital stock which is still held
Auditorium. Even now there is a in the treasury.

Dankmar Adler.





A MODERN CATHEDRAL.

[SECOND PAPER.]

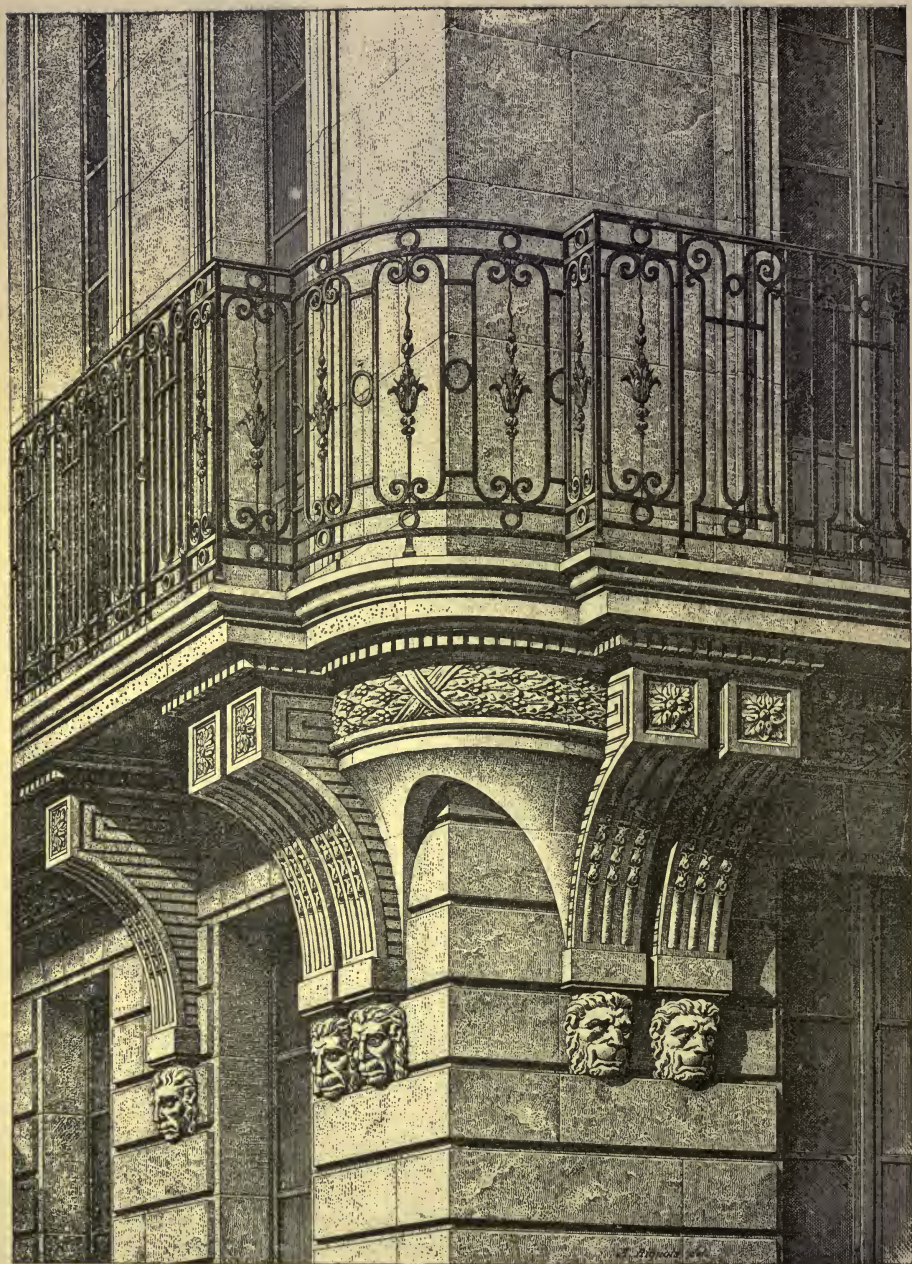


It is probably no exaggeration to say that of all modern efforts in architecture, more than one-half are æsthetically disappointments and failures. Religious architecture is not exempt from this accusation; on the contrary, the higher ideal imposed by the purpose of the building and the absence of the element of material success, as distinct from artistic, which commercial buildings often enjoy, makes failure less tolerable in a church than in a business structure. Hence arises a feeling of trepidation in approaching the task we are considering, not only on the part of the artists engaged upon the work, but even before that stage is reached, on the part of those who feel instinctively that they are really chiefly responsible; that is to say, the committee or others who select and limit and control the artists. This timidity is, unfortunately, most likely to bring about the fulfillment of its own prophecies. Lack of confidence adds to the difficulties, already many. And the over-elaborated effort to surpass excellence, too often puts itself into the prominent place belonging to sincerity of purpose.

Fortunate is the project which has a chief champion inspired by this sincerity of purpose. Who has not realized the value in great undertakings of a simple

sturdy adherence to the original motive and idea? Who has not experienced the destructive effect of the thousand and one questions and propositions which rise to obstruct and conceal the great object, and which divert all attention and energy from its simplicity and sincerity into a variety of devious ways where they are lost? The man who can resist these tendencies becomes a leader. Such a leader is the first necessity for the success of a modern cathedral.

It would be a startling list which showed how many of the grand works of mankind had been achieved by the inspiration and labor of single individuals. Of all the monuments received as witnesses to the faith and reverence, to the art, or science, as the case may be, of nations, cities, races, how many were due in their beginnings to the efforts of men with single motives. The unanimous and spontaneous action in such matters which we are apt to ascribe to the past is true in only a few instances; in many others its appearance is due only to our far-removed and careless view. When we burrow into the vaults and muniment rooms, and pore over the quaintly-worded records and get ourselves down to the details in which all projects, great or little, have birth, we find much the same dependence upon a champion a hundred years ago, or a thousand, as among us to-day.



Bordeaux, France.

BALCONY.

In one place we find a grateful warrior expresses in an architectural gift to the Christian Church his thanks for victory. In another, a prelate, by devoted, persistent zeal, founds and builds an abbey in the face of, not only opposition, but persecution. And again, a king, just recovered from sickness, or converted from barbarism, gives his enthusiasm form in votive offerings in architecture. And in engineering and civil works, as well as in religious, individual action is found to be often the origin or fountain of the idea. From this we see that those are in error who argue in our own times that the lack of support for such propositions is a sign of their lessening usefulness. There is now less frequent and violent opposition, and there is more ardent and better support to the efforts of individuals for religious architecture than in any past age. A modern cathedral enlists a host of supporters, with an amount of sympathy and (what is more to the point) wealth, fully equal to what came in a like period of time to ancient foundations.

Next to the devoted champion, a modern cathedral stands in need of a skillful architect. It is not expected that this essay will make much impression on the adamant prejudices as to the best mode of selecting an architect. It is safe to say that the usual modern method of competition decided by inexperienced committees is as bad as any could possibly be, and that decisions reached with the help of expert advice can be but little better until great improvement is made in the manner of instructing competitors.

In order to obtain the best attainable design, as well as to insure fair contests (if contests are to be), there must be a programme in which are determined certain elements, and these, because of their importance, cannot be properly done by an ordinary committee.

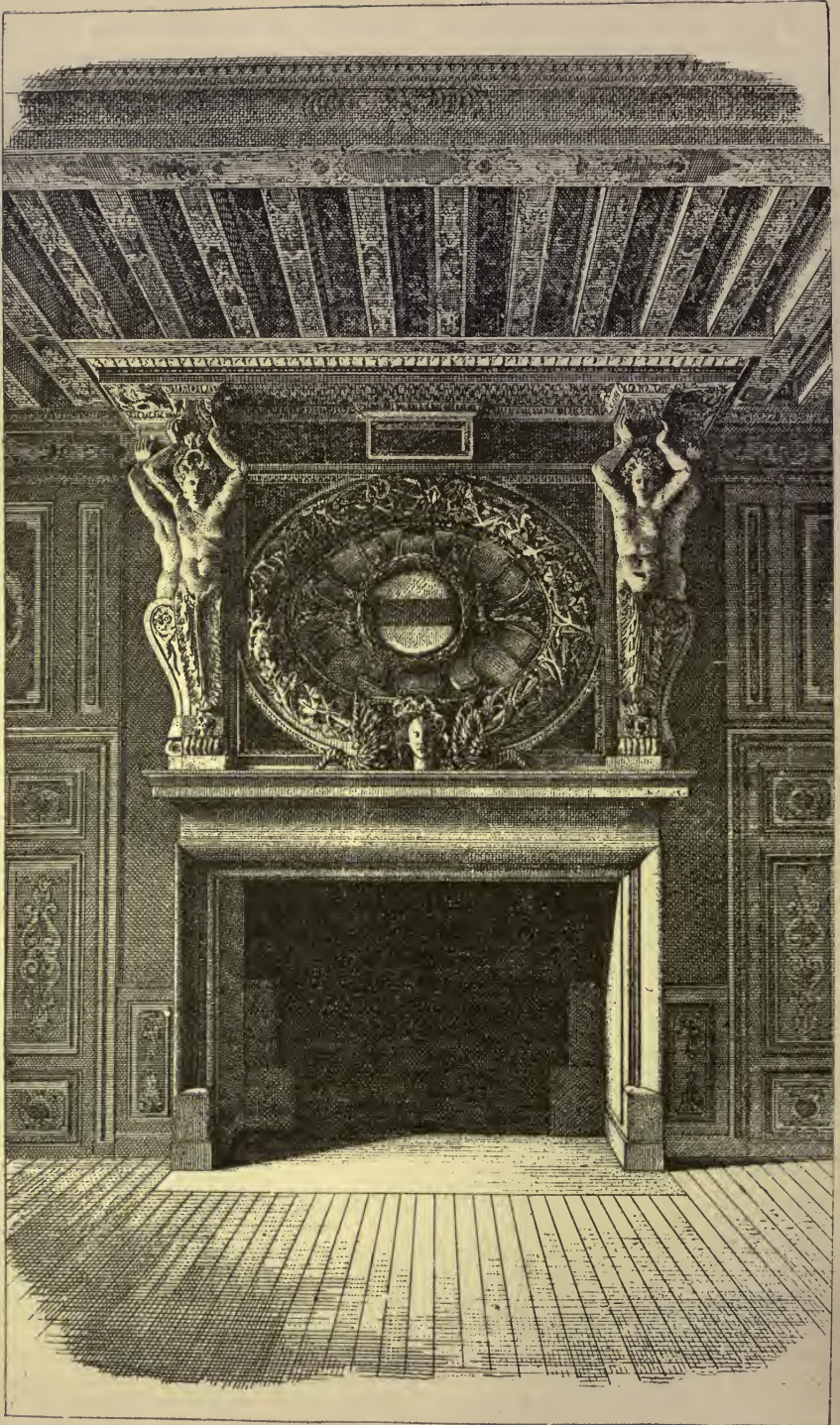
In a recent competition, for example, only two matters were regulated, namely, length and aspect; and the unwisdom of these peremptory directions is shown in the fact that in the finally accepted design both are disregarded. On the other hand, the questions which

could have been determined first, such as general type and style, were left to the guesswork of each competitor, so that opinions or prejudices in these matters, which are always strong, were unknown quantities. Yet many a good design was work utterly wasted because of this lack of programme. It was a race where the runners were not notified of the course until the end, and where but few ran in the required direction. This is not the way to secure excellence. To be successful, a design for a cathedral cannot properly begin in an architect's drawing office. It should commence in the minds of those who desire it, and must start in vigorous growth like a young tree. Then the architect may take it in hand, as would a gardener, and train and prune and develop it.

How gratifying it would be to the whole world of religion and art if the first part of the story of a great cathedral might be told in some such form as this:

"The Bishop of the new Diocese of — has accomplished the most weighty part of the task to which he is devoted; namely, the building of a cathedral, and his method is interesting.

"He obtained the earliest subscriptions for the express and separate purpose of securing a design for the cathedral. Then, with a fair sum of money available, he persuaded his chapter to engage the assistance of several architects of eminence in joint committee upon the preliminary questions of purposes, size, type and style of the cathedral, and a programme for a competition of architects. Many things were unanimously settled, many were discussed at length, and during a long interval between the two meetings much was done to ascertain public opinion on certain points. The fullest publicity helped every step taken. The final programme was not adopted until it had been provisionally published throughout the diocese, and all suggestions had been considered. When complete, it was full, explicit, wise and instructive, not only to the persons interested, but to churchmen generally. It was declared binding upon committees and competitors and trustees alike, and subscriptions for the purpose of carrying it out



Châtellerault, France.

FIREPLACE, HOTEL SULLY.

were opened. It invited twelve experienced architects at a compensation sufficient to pay their expenses, to prepare designs, and made numerous suggestions of a preliminary nature. It invited all who were willing, to join in the competition without compensation. It excluded the consulting architects from the competition, but retained their services in their previous capacity at a stipulated fee for each meeting attended, and made them a part of the Building Committee. It defined the conditions and compensation to the author of the chosen design, and considered the question of superintendence. In due course, the selecting of a design was done in the same manner as the making of the programme had been. It was publicly done and publicly approved."

Let us now consider a little these preliminary questions, purposes, size, type and style.

In a general way the first named was treated in a previous article.* Its details will vary much in different localities. But we may summarise them as follows:

First, Worship and Communion. Second, Clerical gatherings and services of Prayer and Praise. Third, Services with preaching to the people. Fourth, Meetings of the organizations of the Cathedral. Fifth, Grand functions and ceremonials of the Cathedral or of the State. Sixth, Numerous minor services and ceremonies. Seventh, Public monuments of great men and private memorials. Eighth, Means of access and communication; and, Ninth, Expression of public invitation. These purposes will suggest the following requirements:

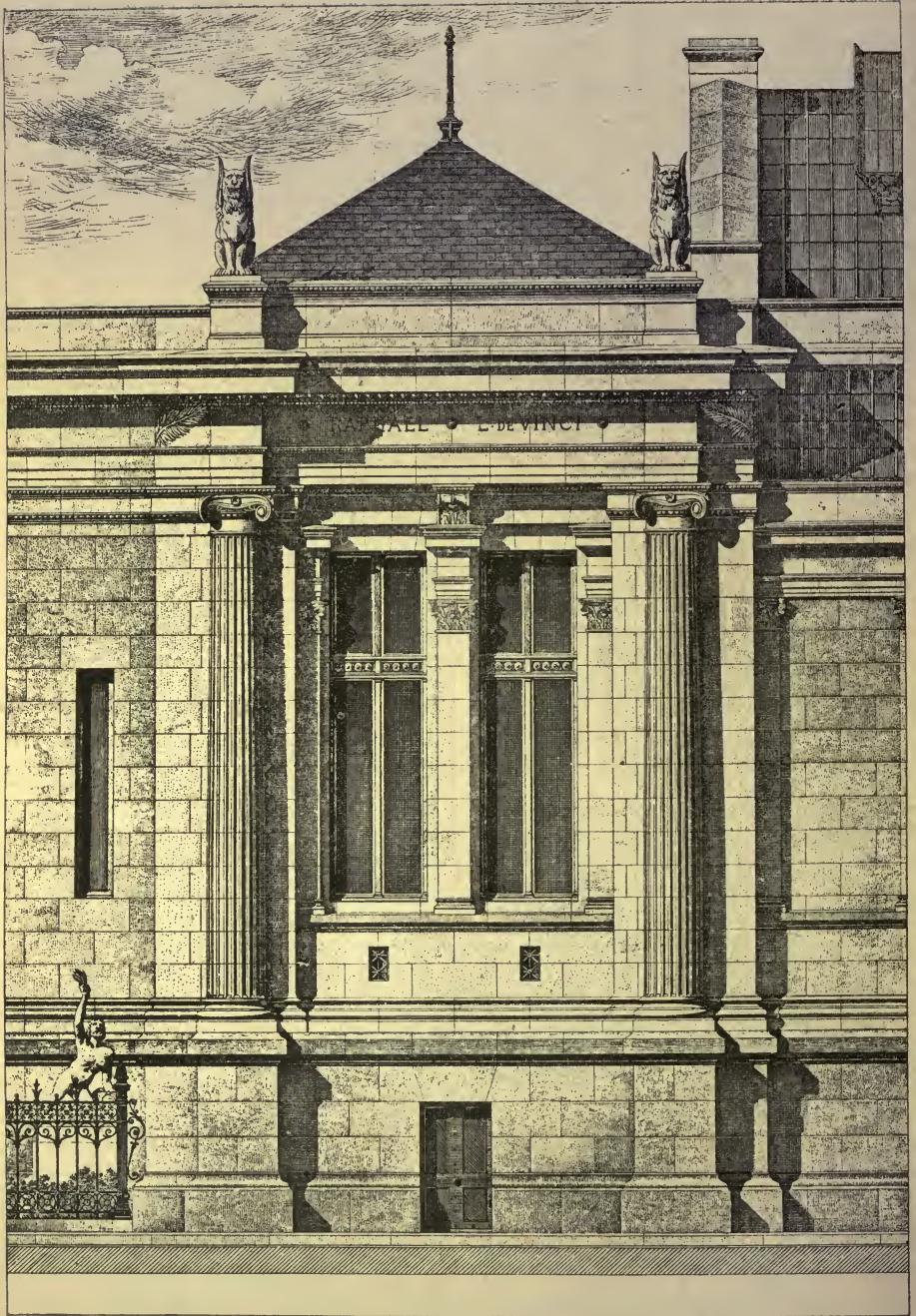
First, A Sanctuary with altar. Second, A choir with seats not only for singers, but for all the clergy of the diocese, or such of them as are likely to present themselves at important functions. Third, An auditorium for as many people as can be reached by the voice of a preacher. Fourth, The necessary chapter house, meeting rooms, vestries and sacristies. Fifth, A great amount

of space surrounding and extending and amplifying the auditorium so as to give impressive architectural effects and to be available for great crowds of people who will be present at grand ceremonies, although they could not hear a preacher. Sixth, Appropriate chapels for minor services and ceremonies. Seventh, Appropriate chapels and aisles for monuments of sculpture and stained glass and other memorials. (The sixth and seventh requirements will, of course, form a part of the fifth.) Eighth, Vestibules, entrances and porches of ample size and of such beauty that they may also be part of the monumental architecture. Ninth, External features, such as open porches and cloisters, not only useful but expressive of invitation and welcome.

In former days, and until very recently, it has been usual to include another great requirement, namely, place or places for the reception of the remains of the illustrious dead, and often, in fact, for the dead not illustrious. But progress in knowledge of the laws of health will prevent this in our time and for the future, unless, indeed, the Church should modify its attitude toward incineration, and so make it possible again to shelter the ashes of its notables within its actual walls. But even this would probably cause only a modification in the design of monuments and the places for their reception, so that it need not change our list of requirements. There may, however, be several additional requirements in any given locality, such, for example, as special chapels for scholastic or military or other organizations, and residences for the cathedral staff.

The next question is of size. This, it is evident, can only be partially determined in generalizations. The cathedral must, to deserve the name, be at least large enough for a congregation of 2,000 persons in addition to the clergy and choir, and to this size must be added something for dignity of architectural effect and for the other requirements before examined. The demands of the diocese, and of the locality, and their financial abilities are more important factors in this part of the problem than

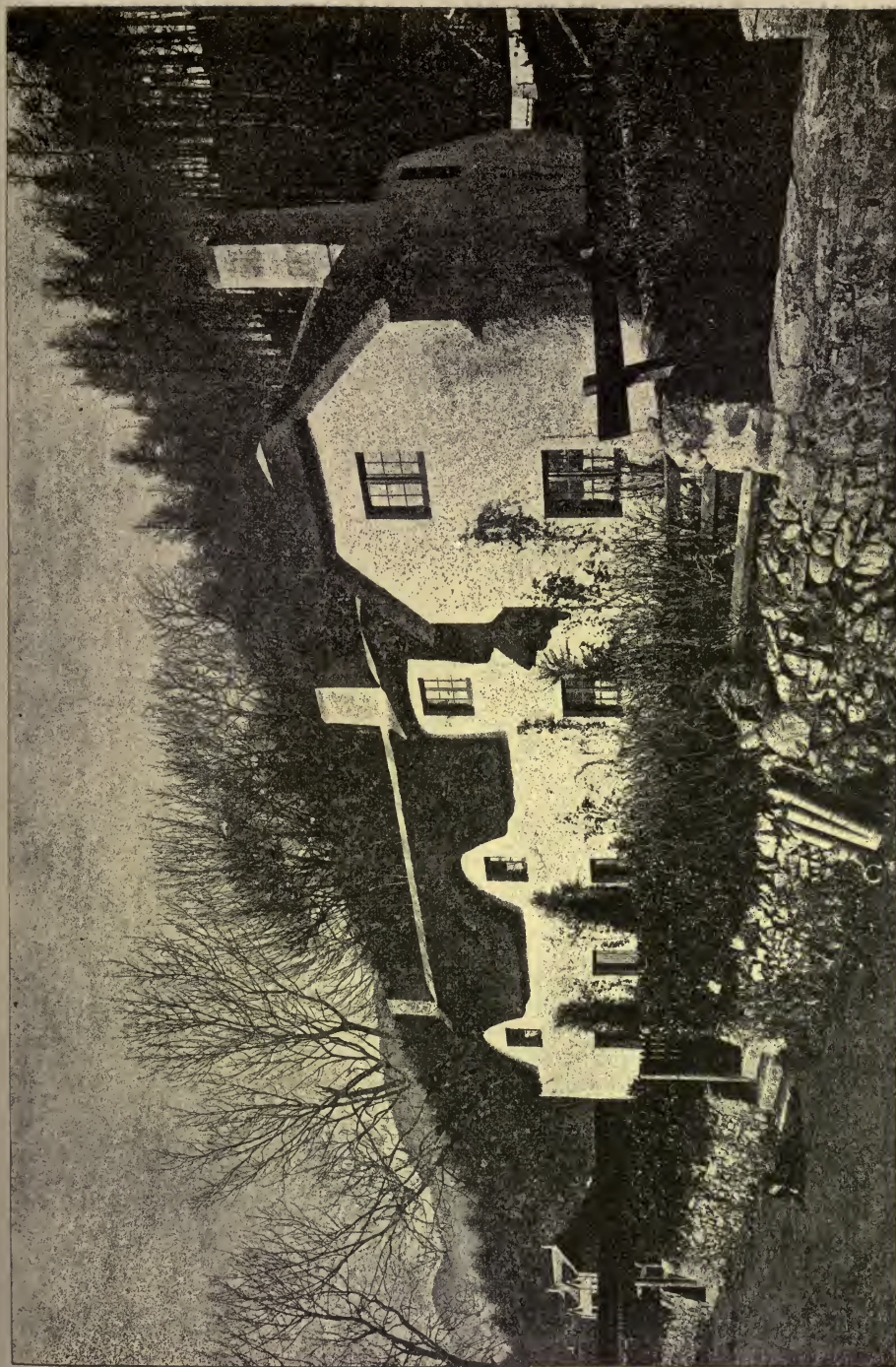
* See No. 3, Vol. I.



Laval, France.

MUSEUM.

L. Ridet, Architect.



Fortingall, Perthshire.

POLICEMAN'S COTTAGE.

The late J. Maclaren, Architect.

any theories. Nevertheless, it will be safe to again urge liberal and even ambitious planning. A portion of a noble building will have better chance to survive than the completed whole of an ordinary one. It is consoling to remember, when forced to economy, that small size still gives great possibilities. The little old twelfth-century Cathedral of Salamanca, in Spain, still stands impressive and admired, although it is literally overshadowed by the later giant of the fifteenth century. No more instructive lesson in size can be found than these two buildings. The old one, with less than 12,000 feet of floor space, surpasses in impressiveness the new, with about 52,000.

And now we come to the question of type. It is the greatest question of all. Yet, so illogically is the problem usually presented, that this is likely to be left to haphazard settlement, or even to mere accident, or sacrificed to some detail of comparatively small import. Let us agree at the outset that there may properly arise in the same age and in the same country more than one type of cathedral. That need not prevent us from seeking to define what, in general terms, are for our own day the best standard types. By type is meant a general form of structure pervading a number of examples. In ancient edifices (not strictly limiting ourselves to cathedrals, since other buildings may afford us useful precedent) we may easily distinguish such types as the Basilican, a rectangular hall being the first element, the domical, having a circular hall, with or without surrounding chambers, the long nave or long cruciform with extensive perspectives, the columnated with columns numerous and equal spaced, and numerous developments and combinations of these.

Type and style are intimately associated, so much so that frequently the latter is allowed to decide the former by including it. But to do this is to reverse the proper order of things. Style arises from and follows type, which should be therefore first determined.

Whence do types arise? In what do they consist?

The most primitive conception of an interior (it is with the interior we have first to do) and the earliest practice deserving to be called architecture would probably consist of four walls inclosing a square, and a flat roof. The first efforts at proportion would be likely to be bestowed upon the height, making it, we may assume, about five-eighths of the width. The next step would extend the length greater in one direction as compared with the other, and a chamber with a width and height about five-eighths of its length may be fairly taken as the simplest expression of internal proportion which can possess character and harmony together. We have here in the added length discovered proportion; a further additional length reveals character. After this character is fully developed in definite fashion, according as one or other dimension is allowed to dominate, it may be said that the *slightly* elongated chamber is negative as regards character, since our position within a hall modifies its total appearance. The emphasis of length begets all the nave types of proportion. From the emphasis of width (approximately returning to the square) arise all the octagon and circular and other spacious types. The emphasis of height (little used for interiors) creates the tower-like types. Broadly all the interiors of the world may be classified under either the first or second of these classes, and their artistic success is very nearly in proportion to their purity of character and type, or, in other words, to their singleness of motive shown in the emphasis of either length or spaciousness (width). Take, as examples, Westminster Abbey for the one, and the Pantheon at Rome for the other. It is scarcely possible to imagine a more splendid development of the character expressed in length than the first affords; in the restraint put upon other dimensions there is as much art as in the generosity of the chief one. Is it not evident that this character, the keynote of style, depends not upon absolute, but upon relative things? Is it not evident that any attempt to add to the subordinated dimension must destroy the force of the chief one?

In the Pantheon we have a perfection of the expression of the space character, depending not only upon the actual existing harmonious things, but also upon the absence of unharmonious things. The length element cannot be introduced without lessening that dominant space idea upon which the great conception is based for character. All this argument may seem very abstract and general, yet it is necessary to a true view of the questions of type and style, and the lack of it has caused many a disaster. Since the close of the mediæval period there have been again and again essays to combine in one building these two characteristics, each one of which depends for value upon the absence of the other, and the inevitable failure has often been masked by great achievements in other qualities. Yet it is none the less true that some of the highest efforts in architecture of our era suffer in this primary qualification for excellence. Who, standing under the great dome of St. Peter's at Rome, has not marveled that such vast, such gigantic size, and such noble elements of design should be so slow of impression? Who, reading the twaddle, repeated sheep-like by dilletanti, that the failure to impress arose from perfection of proportions, has not felt that something was wrong in that argument? The true defect is the length element introduced by the great nave, which, superb in itself, almost annihilates the space value of the crossing and dome. Judging by the Pantheon's impressiveness, it is absolutely certain that a dome the size of St. Peter's could be made immeasurably more impressive if its character of spaciousness were emphasized by a proper subordination of the elements of length and height.

It is not to be inferred that we are limited to a simple square or circle in plan. Those variations, apses, recesses, etc., which are so subdued in the Pantheon, may be with advantage enlarged and cultivated to a high degree. There is no doubt that the extension of the floor by (for instance) a cruciform arrangement of nave and transepts, permits of much greater height in the central dome without loss of the

space character. It seems to be chiefly essential that the extensions should be in all four directions, and nearly alike; but it is not necessary that absolute symmetry should prevail. As witness the superb Sta. Sophia at Constantinople, where the length is slightly emphasized without loss, but rather gain, to the grand spaciousness. This magnificent edifice is full of lessons in the possibilities of the domed type. It probably reaches the limit of permissible length in the perspectives and variety of treatment of its side arches. A little more and it would begin to lose in width.

Just as length may destroy width, so the converse holds good. When we look for an equivalent example of the length character destroyed by spaciousness, we again have to come to the Renaissance. St. Paul's Cathedral at London has a length of nave and of choir which, taken together, would be highly impressive. But they are divided by and for the dome, and separately each half has its length character so impaired as to lose its distinction, and the dome gains nothing, although in this instance it does not relatively lose so much. The architects of the middle ages knew better than to cut their perspectives apart in the middle. The crossing of the transepts in a Gothic cathedral does not do this. It is a sharp, narrow break like an instant pause in music, not a separation, but an emphasis.

No critic contemplating the nave of Rheims or Amiens or any of the typical Gothic cathedrals, could wish those satisfying perspectives broken up or amplified into rotundas or octagons?

The series of Western mediæval cathedrals undoubtedly developed the length character to its absolute and final extent. The number of buildings, the variety of styles, the length of time during which they prevailed, all help to demonstrate this. In such edifices as St. Severin, Toulouse, and Santiago di Compostella, Spain, is evidence that at a very early date (the eleventh century) almost the maximum length had been attained. And it is at least reassuring to see how in the centuries which succeeded the prevailing propor-



Malvern, England.

SCHWEPPE & CO.'S FACTORY.

Truefitt & Truefitt, Architects.

tions of length to width remained unchanged. It shows conclusively that the limits were well understood.

This series of experiments and conclusions ran through the period of the development of the Gothic style. During all this time there was almost no attempt at the adoption of the space type to grand purposes. Not that it was unknown. On the contrary, we find it most ably treated in many buildings. The octagon chapter houses at Westminster and York, and many others afford good evidence that it was well understood. And it is worthy of note, indeed it is remarkable, that there is no confusion of the two characteristics, such as the Renaissance perpetuated, and we have already examined. The Gothic architects felt, and one or two experiments helped them to feel, instinctively, yet definitely, the necessity of purity of character. Hence the abstinence from sensational combinations of spacious octagons with long perspective naves.

Of the experiments just referred to, a most interesting one was that made at Gerona, in Spain, in 1416. Here arose the question of how to complete a cathedral of which the choir had been built with apse and side aisles, all of the usual French type of the fourteenth century.

An enthusiast, a man of great ability, named Guillermo Boffy, succeeding in persuading the authorities to allow him to build a nave of vast width (73 feet) which included on one span of vaulted roof the whole space intended by the original design to be covered by three—a nave as wide as the choir and both side aisles together. It was done; and it is hideous. Not in itself, but in its combination with the older choir and aisles. These, opening into its great straight end wall like caves in a cliff, are utterly ruined in effect. Their length is turned into depth, and, instead of charm, becomes a defect. It is evident that shallow apses would be more in harmony with the great wide nave than they are. As for the nave itself, it is a triumph of skill, and if accompanied by suitable features to complete a design of which it should be the central feature it might be a triumph of

art. But now it is only *tour de force*. In the days when it was built it must have been talked of much. Architects traveled then and studied. We see in their works proofs of the closest affiliations and fullest community of thought in art. But Gerona Cathedral did not prove to be a new starting-point. On the contrary, it made no greater impress than the proven possibility of so great a vault. We can see that it was not considered a success. It violated the principle of purity of type, and its mixture of the space motive with the older length character was offensive.

Another experiment, a notable exception, is the Octagon at Ely, which Fergusson proudly describes as the only example of a true Gothic dome. However beautiful it may be in itself, it is even here evident that it is not an enhancement of the beauty of the whole cathedral. It is in fact the solitary example which should serve all ages as it did its own. It has often been asked why the plan here carried out has not been more general. The answer is not very hard to find. It is the same already given about Gerona.

For architecture in its highest phase the motive and character idea must be single and pure. We must choose therefore either length or spaciousness to be dominant in the design. If both elements must of necessity be introduced then one must be completely subordinated to the other.

Having advanced so far, the question of style will arise much less formidably. There is undoubtedly a very deep-founded and strong inclination in Christian communities of Western Europe and of America to have Gothic styles for religious buildings, and this is not merely accidental or transient; it is natural and lasting, because it is based on the mutual support which began in the infancy of both. What Gothic architecture is, the Christian Church has contributed to make it more than any other influence, and this is the only style of which such intimate relationship can be shown.

There are, however, two other styles very closely allied with the Christian Church in history and in adaptation.

These are, first, the Basilican, grand and impressive, the earliest developed from the negatively proportioned temple and its simple cell, the first stage of the advancement of length as a characteristic. In its cultivated examples, this style has much that commands admiration, especially when, by doubling its outer aisles, and enlarging apses and establishing transepts variety is added to its somewhat severe lines. Yet, even then, its single and similar columns became monotonous by such frequent repetition, and its derivation forbade much departure from details once set. But its chief disadvantage lies in the fact that in the Western Romanesque and Gothic, its length principle was carried so much further, and with such continued advancement from monotony to variety in detail, that usually the argument which would lead us to the Basilican styles would carry us beyond them.

The other is the Renaissance. This, after the erection of St. Peter's at Rome, was the successor of the exhausted Gothic in all Christian countries until the revival of the latter in recent times. The Renaissance is the natural and preferable style of the space type of cathedral, just as the Gothic is the true style of the length type. Yet it must be allowed that there is nothing in either style making it impossible to produce a perfect building even of the type to which it is less natural. It is fair to say that success is more probable in those cases where every contributory circumstance is in favor, and it is therefore wise to allow whichever type is selected to have the advantage of its own favoring style.

The word style has been used in the broadest sense. As to the period or phase of style, it would seem that, economical reasons apart, only the perfected phase can be considered; unless, indeed, there is sufficient ground for venturing to improve even that. There is general agreement that the Gothic and the Renaissance both reached points of highest perfection and then degenerated. During the vitality of art, style never went back, although its steps forward were so slow at times as to be imperceptible.

If we take up any style at any time, for good reasons and understandingly, we must certainly allow those same reasons to lead us to their conclusions; that is to say, as far as they developed the style, without sacrifice of principle or purity. Arguments for Gothic style will lead us therefore to the fully developed period immediately before the decadence commenced. In Renaissance the same rule will apply, although it must be admitted that the order of progress is not strictly chronological.

There is one other halting place not so strongly defined, yet of great value. The Eastern Romanesque, or Byzantine style, which cultivated the space idea more than the Western, was arrested in its development rather than merged into a succeeding style. Its opposition to the length idea would recommend it in some cases. We may well, therefore, take up this style if we must have novelty, for there is in it some prospect of inventing good architecture unlike what has been done before. But it is a dangerous experiment. It is hard to do in a few months what has hitherto demanded centuries, and the style is an exotic. There is a great fund of suggestion in this Eastern Romanesque, even in that one before-mentioned example, Sta Sophia, but without doubt a safer mode of expression is the Renaissance, whose utterances are understood by the people.

Whether Gothic or Renaissance, the detailed arrangements of the plan and the composition from them of the interior design first, and the exterior afterwards, will be the work demanded of the architect in each separate instance. In such a discussion as this it is only permissible to sketch very briefly a few possible models.

First.—A circular central hall with minor chambers around it either as recesses, or connected as an aisle or aisles.

Second.—A square or octagonal or circular central hall in a group rectangularly disposed, forming a square or a short-armed cross. Each arm may be a domed or half-domed chamber, and may in turn have minor chambers or aisles around it.

Third.—A long nave crossed by long transepts, and extended by parallel aisles single or double.

Fourth.—A group as the last enriched by grouped chapels in an outer series.

Fifth.—A long nave crossed by long chief transepts, and also at other points by minor transepts, each of these enriched with aisles or chapels.

The first and second models are of the space-type; the third, fourth and fifth are of the length type.

In adapting the spacious plans of the domed styles, there is far greater invitation to new arrangements and more variety of suggestions for them than in the Gothic. Yet there is so much danger in untried experiments that this is quite as much a drawback as an advantage.

The Gothic plans depend almost immovably upon the Latin cross as a fundamental form. But this can be no objection. The accommodation of the large congregation at the intersection of a Latin cross is much the same as with a Greek cross, if the widths are the same. The width already attained by the naves of existing Gothic cathedrals is equal to the reception of a congregation so large that greater space would be useless for preaching purposes.

Therefore the question of type and style need not, in the case of a large cathedral, be anyway affected by the practical demands for an auditorium. It must be decided by the sympathies and opinions of the promoters of the edifice, and will be judged by the generations who follow them. The experience of the past fifty years would make it probable that the less a modern design departed from the precedents selected the greater would be its success. Yet we are almost justified in claiming, at least, an improving understanding of the art of architecture as distinct from archæology. The greatest misfortune of this day is the restless love of novelty in the masses, who, after all, deliver the verdict—Popularity. It is impossible to advance step by step as the Greeks did, and the Goths. And this is almost equivalent to saying that it is impossible to advance at all. This is why the admired product of one modern generation is scoffed at by the next. There is no doubt that the architecture which shall command the respect of ages to come must be founded in respect for ages past, departing from its models forward and not backward, and only so far forward as is positive gain and not simply novelty.

R. W. Gibson.





IRON CONSTRUCTION IN NEW YORK CITY.

PAST AND FUTURE.



THE writer being recently asked to give an expert opinion as to the best book on the details of modern iron construction, replied that improvements

in iron construction were progressing at so rapid a pace that he could recommend no work, however recent, as being up to the latest standard. Improvements, however, have not progressed with the same strides since New York City began to build in earnest, but nearly all date from a very recent period.

In the days when the wealthy New Yorker's architectural ambitions were satisfied with a three-story brick front, trimmed with sills and lintels of white marble, and crowned with Grecian cornices of painted wood, iron construction proper was practically unknown; it was not even in its infancy. Difficulties in construction were overcome with posts, beams, lintels and trusses of wood, and yet if we look back but half a century we almost touch that period. Since then what a change in our buildings, and what a difference in construction!

The modern successful New York City architect must be not alone an artist, but he must have marked abilities as a civil engineer; he must outrank, if possible, the mechanical engineer in his knowledge of electricity, hydrostatics, heating and ventilation, and the sanitary engineer in the knowl-

edge of plumbing, and withal be an accomplished financier; then, too, it will not do for him to acquire merely a knowledge of these varied sciences, he must keep abreast of the constant improvements in them, and, above all, he must not copy slavishly what his confrères and rivals are doing, but must constantly invent something new.

This state of things is largely brought about by the rapidly developing and changing character of the Metropolis, and its unsuitable shape for rapid expansion. The island is so narrow, and its trade centre, the "Stock Exchange," so near one end, that the tendency of each trade not only to flock to one spot, but to crowd as near to this centre as possible, has made the price of land down-town simply enormous. There are many sales on record where the price was so great that if the property had been covered entirely with silver dollars two layers deep the owner would have scorned the offer. To place low buildings on such property would necessitate the charging of enormous rents to derive income on the ground value; but even if the paying of such rents had been feasible, more room had to be provided to accommodate those clamoring for it. As the old low-priced ground leases expired one by one, owners were called upon to build taller buildings, to give more room and to get more rent. But this was impracticable, for tenants would not mount stairs above four or at most five stories.



LANCASHIRE FIRE INSURANCE CO.'S BUILDING.

No. 25 Pine street, New York City.

J. C. Cady & Co., Architects.



OLD GIRDEES.

It was here that the inventive genius of our race stepped in, and the "elevator" solved the problem.

Daring builders went as high as six, then seven, eight or nine stories, and the climax seemed reached. A few years and the lesson was learned that such buildings were a menace to the city. They could not be controlled in case of fire. Hence the law requiring them to be "fire-proof." This brought about the first great step in the improvement in iron construction. Wood in floors, trusses, stairs, elevator inclosures, in fact every constructive or exposed part had to be replaced by iron, not only to prevent decay and burning of the wood, but because the fire-proof construction in partitions and floors added so greatly to the weights to be borne. Soon, however, nine-storied buildings no longer sufficed; office rents which in the cheapest parts of a building brought at least \$2 for each square foot of floor space, no longer made sufficient income. More room was needed and prices continued to rise, therefore buildings had to go higher; hydraulic and electric rapid-running "express" elevators, with a speed of 600 feet a minute or more,

solved that part of the problem, and buildings could and did rise to thirteen and fourteen stories.

But here arose a new problem; the brick walls at the base became so enormously thick that their cost was very great, their weight excessive for the poor foundation in many parts of the island, and above all the valuable ground space occupied by them a great loss of income to the owner; so much so that, if a man had a narrow lot, little more than an entrance hall-way would be left between the side walls on the ground floor, and this too on his most valuable renting floor.

It became necessary, therefore, to make the walls thinner; and iron construction was resorted to, culminating in what are now called "skeleton" constructed buildings. To show how rapid is the progress in such matters, it is but necessary to state that the foundations of the first building of this kind, the Lancashire Insurance Company's building at 25 Pine street, in which all the walls are built with skeleton wrought iron construction, so that though the building is ten full stories high above the ground the brick side walls are only

12 inches thick at the ground level, were laid but little over two years ago, and yet it has already been adopted as the standard of construction for nearly all the new tall buildings, some of which are now rapidly rising towards their proposed seventeen stories.

Where this growth will stop no one can predict. Weight on the foundation may be the limit mark, but aluminium construction in the near future may even overcome that difficulty.

In thus briefly outlining the causes for our recent remarkably rapid progress in iron construction, the writer has hesitated before claiming as modern inventions even the elevator or the New York City "sky-scraper," for as archaeologists rob modern civilization of all that makes life worth living, yielding the palm for luxury to Rome, for art and literature to Greece, for construction and enterprise to Egypt, so he may by such claims arouse a controversy as to whether or no the skeleton-constructed "sky-scraper" with its "express" elevators, is not after all but a feeble imitation of the Tower of Babel.

Iron construction in New York City can easily be divided into distinct stages: Infancy, Cast-iron Period, Cast-iron Fronts, Wrought-iron Beams, Riveted Girders and Trusses, Skeleton Construction.

INFANCY.

In this period there is nothing of interest to the constructor beyond such interest as is aroused by curious and odd methods of construction discovered in old buildings as they are torn down. The most curious of these contains the incipient idea of the modern riveted girder. This idea of building up I-shaped wrought-iron girders can be

found in many old buildings. Their construction is frequently so odd and unnatural that the wonder is not what could be made to stand up, but what failed to fall down. Probably the most



OLD GIRDEES.

curious is where two plates, placed parallel to each other horizontally, are bolted together, being separated by one or two vertical plates, there being no method whatever of attaching the vertical plate or web to its horizontal top and bottom plates or flanges, reliance being placed only on the pressure or squeezing effect due to the bolts.

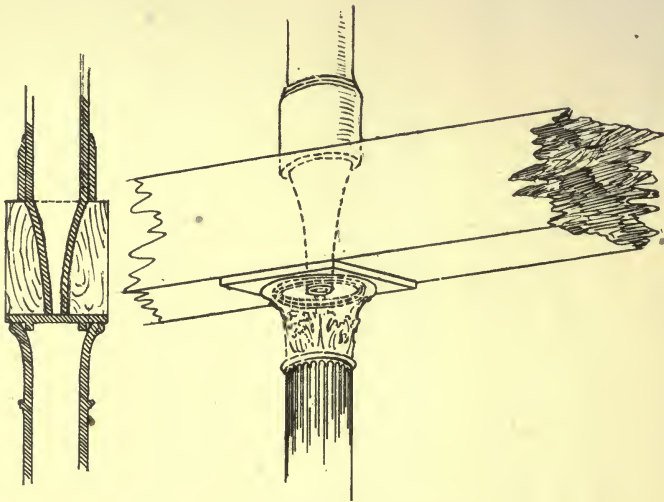
Illustrations of some curious old girders are given on pages 450 and 451. These were evidently removed by some second-hand dealer, and being only a

little too long for his new building, he did not care to stop nor to expend money to cut them off, but built them in as they were, a constant reminder to passers-by of olden times. Such improvised iron girders, and the few curiously-shaped European rolled iron sections, principally channels or deck beams, which found their way at rare intervals into New York buildings, increased spans sufficiently to make iron columns a necessity. These led to the

CAST-IRON PERIOD.

The columns were of cast-iron, usually fluted on the shaft, with bell-

the girder for its passage. Thus the load on the column above is transferred to the columns below, for the depth of the girder, through unshrinkable iron. But to save expense frequently the dowel was cast on the upper column, assuming the shape shown in the sketch below. A thin cast-iron plate was laid over the bell-shaped cap and the bottom of the upper column reduced almost to a dull point rested in the centre of this thin plate, over the hollow of the cap below, ready to punch through the plate on the slightest provocation; an accident which has happened more than once. And yet this construction has been used



OLD-FASHIONED DEFECTIVE DOWELLED COLUMN.

shaped tops or capitals. Later, the caps frequently were Corinthian in design.

Where wooden girders rested on the columns, the lesson was soon learned that to run the girder over the column and place another column above the girder, meant serious trouble in the building, as the girder began to shrink and thus lowered each column above it. To avoid this the dowel was resorted to, a construction which, though intended to avoid a danger, frequently became of such a curious design itself as to endanger the building more than the danger it aimed to avoid. The dowel is a short column of diminished diameter, a hole being drilled through

as recently as within twenty years, and buildings with it stand and are still used with immunity for heavy storage and manufacturing purposes.*

From these old columns it is quite a

*The writer has purposely avoided the discussion of the long mooted question, whether cast or wrought iron columns are preferable in case of fire, and to resist rusting. The former are objected to on the theory that they crack and snap off suddenly when heated and suddenly cooled by water. The latter are supposed to bend and let the load down more gradually, but under less intense heat. As a rule both behave fairly well, though the writer inclines strongly to wrought iron; a fire that will destroy either material would probably destroy the masonry over it anyhow. A curious instance, however, was found in the great Western Union fire, where a cast-iron tower corner column actually partially melted, and settling on itself shortened its length, as shown in the illustration; and still the tower stood intact until torn down by hand. The objection to wrought iron on the score of rusting is perhaps more real, and yet it can be readily answered by the fact that we remove wrought iron anchors from old masonry walls unharmed by rust, though frequently more than 100 years old.



Cast column from Western Union Building, New York City.



Column taken from Western Union Building (New York City) after fire.



Sections of column from Western Union Telegraph Co.'s Building (Broadway, New York), showing action of fire.
Removed by Jackson Architectural Iron Works.



PHOENIX COLUMN, ERECTED BY THE JACKSON ARCHITECTURAL IRON WORKS.

(See page 455.)



OLD-FASHIONED CAST-IRON LINTEL.

step to the modern wrought iron column, as seen in the foundations of the building at the corner of Broadway and Eighteenth street. (Illustration, p. 454.)

The use of cast-iron further introduced the iron lintel; then, as the daring of constructors increased, the span of opening was lengthened; and the methods of overcoming these new difficulties led to many curiously-shaped lintels, the best known being the "arched" lintel, a good example of which was seen on top of the rubbish caused by the collapse of the buildings after the fire at the corner of Fulton and Nassau streets. Constructors became so daring at last that the building law took cognizance of these constructions and was largely instrumental in fostering the use of that anomaly, the "bowed girder."

This consisted of an arched rib of cast-iron, with a straight tie rod of wrought iron, the rib being the "bow," the tie rod the "string." These girders, of a highly-ornamental kind, can be seen throughout the old Harper & Bros.' publishing house. The bowed girder was a great favorite, until quite a recent period, for lintels, and the writer can remember many a happy hour spent in his early experiences tracing out the

various strains due to this mongrel combination of metals. The use of cast-iron finally led to

CAST-IRON FRONTS.

Of all periods and styles of architecture which New York City has experienced—and she has had them all from Egyptian to the latest fashionable crazes—the cast-iron fronts were the most abhorrent. It was found that the elaborate Renaissance fronts which were being built of stone and chiefly of marble, were very expensive, and instead of abandoning the style and doing something cheaper, cast-iron was used, modeled and painted in imitation of marble or stone, and thus these, to our predecessors beautiful—but to us hideous—designs could be carried out more cheaply than probably any kind of inexpensive style with genuine material. A. T. Stewart's retail store, Ninth street and Broadway, is about the acme of this period. When, however, designers let the cheapness of the material—cast-iron—run away with their good sense and allowed their fancy such play, when we saw great business structures rise in Broadway, with gilded Moorish fronts, the fashion was doomed, and cast-iron fronts were quickly aban-



New York City.

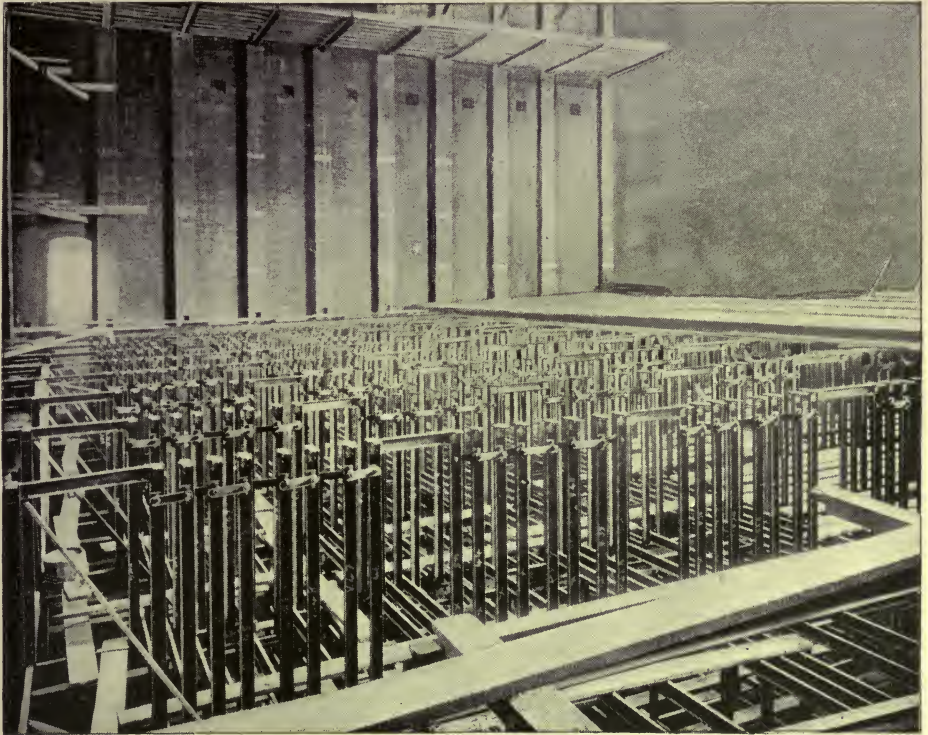
THIRD AVENUE RAILROAD CAR STABLES.

Albert Wagner, Architect.

done, to be chiefly replaced by brick and terra cotta ones.

The writer would not, however, wish to be understood that no front should be of iron; on the contrary, he contemplates building at an early opportunity a skeleton construction with an *iron front*, but the front should be made to express and show the nature of the construction, and of the material, and

stroyed by fire and since rebuilt by the writer's firm, a curious mélange of iron and wooden beams was found, odd bed-fellows used in the same floors. Though the old building was erected only about twenty-three years ago, either the price of iron was too great to use iron throughout for floor beams, so that it was used only here and there with an idea of stiffening the floors, or else the owner's



STAGE SUPPORTS—METROPOLITAN OPERA HOUSE.

New York City.

J. C. Cady & Co., Architects.

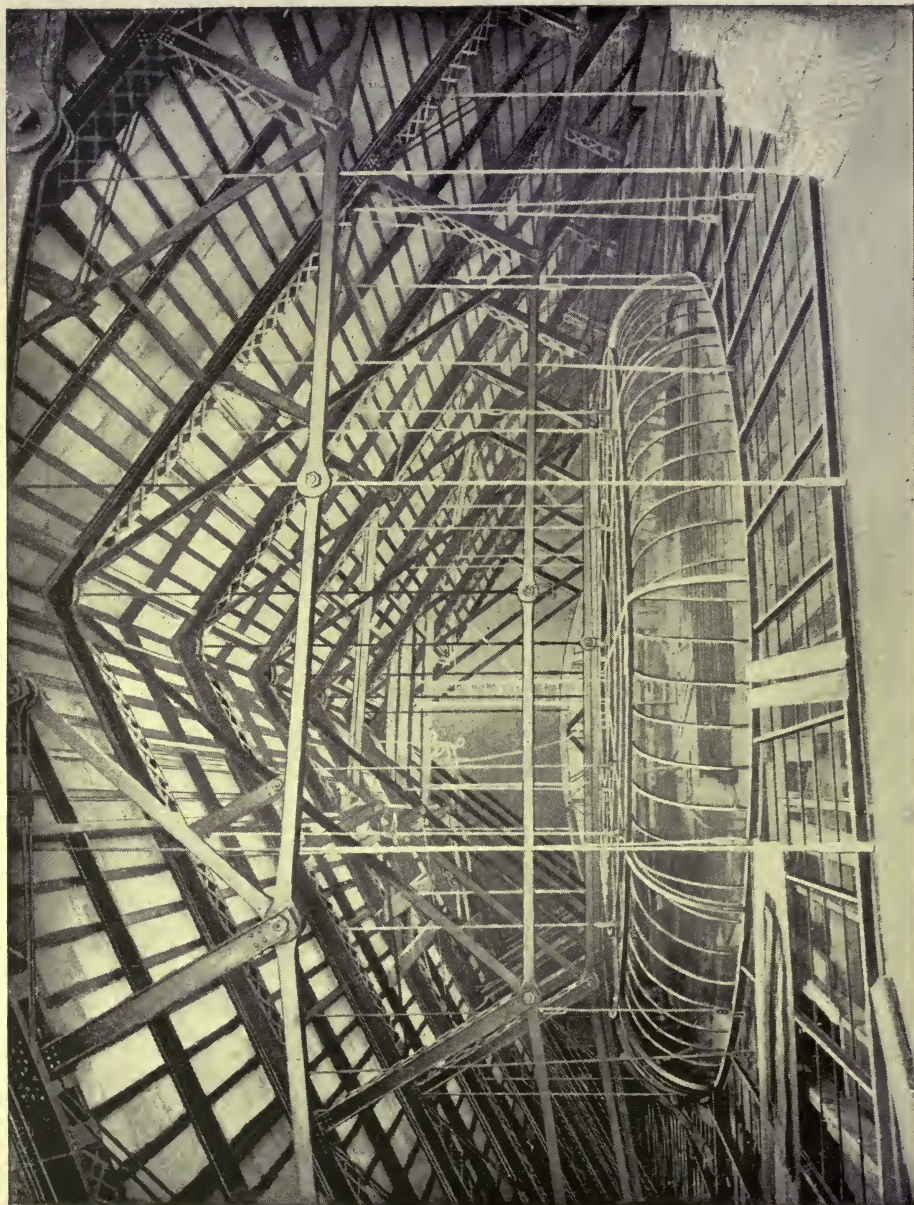
should not imitate the methods of using a more expensive material.

As already stated, rolled iron beams of European make were at intervals introduced into our buildings, and as the demand for them increased they were rolled in this country. But the protective tariff and the pool arrangement of the mills kept the price of structural shapes so high that rolled iron had to be used sparingly.

In a public building recently de-

stroyed by fire and since rebuilt by the writer's firm, a curious mélange of iron and wooden beams was found, odd bed-fellows used in the same floors. Though the old building was erected only about twenty-three years ago, either the price of iron was too great to use iron throughout for floor beams, so that it was used only here and there with an idea of stiffening the floors, or else the owner's

Cooper Union was one of the early structures to have iron beams; but their adoption in such structures as the Post-office, the Western Union Building, and the *Tribune* Building, in the early "seventies," led rapidly to their more familiar use, as illustrated, for instance, in the Third Avenue car stables. (Page 456.)



New York City.

ROOF AND CEILING, METROPOLITAN OPERA HOUSE.

J. C. Cady & Co., Architects.

In the Metropolitan Opera House, built in the early "eighties," the use of iron construction undoubtedly made a big stride. As this was the first theatre building probably in the world to introduce fan ventilation, furnishing to every seat a supply of fresh air, so it

RIVETED GIRDERS AND TRUSSES.

The span of the roofs and ceilings in this Opera House, considerably over 100 feet, gave an opportunity to show what could be done in light iron truss construction.



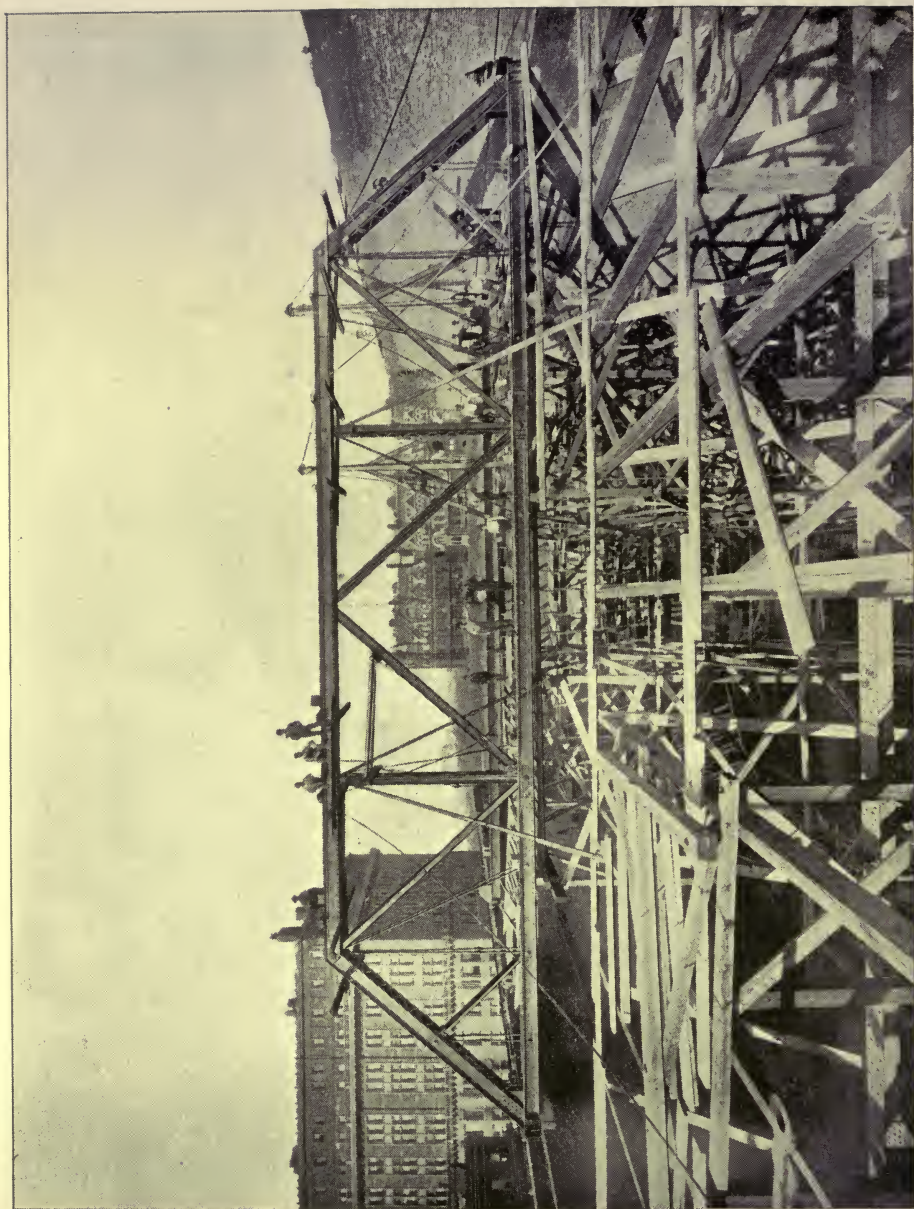
Riveted girder and hoisting engine, new wing, American Museum of Natural History.

New York City.

J. C. Cady & Co., Architects

was also the first absolutely fire-proof theatre in the world. Not only was the ordinary iron construction used, but even the galleries were constructed of iron, though nearly every beam had to be bent to a different shape; the ceiling and stage galleries were iron; and, what at the time was claimed to be an impossibility, iron supports for the stage were invented, to be removable at will, and interchangeable. (Page 457.)

This building, too, was one of the earliest buildings into which the use of riveted girders of modern design entered. The span of these riveted girders was so great, that their weight was beyond anything that had been hoisted before them, and after they had broken down a successive series of derricks, special derricks had to be devised to get them into place. It should be said that this difficulty had been foreseen;



New York City.

TRUSS OVER CARNEGIE MUSIC HALL.

Wm. B. Tuthill, Architect.

for what were originally designed to be "boxed" or two-web girders, were afterwards built in two halves longitudinally; that is, two single-web girders, of only about half weight each, were substituted, hoisted separately, and afterwards bolted together.

Since then the use of this form of construction has increased so rapidly that now, only a decade later, the claim of these girders to be unusual or very heavy would be ridiculed; and they would be hoisted into place in a few minutes by a steam engine, so small that, as a reporter once put it, "it looked as if the girder could 'yank' that little engine all over the place." This was said of some riveted girders used in the American Museum of Natural History some two years ago, which were some 65 feet long, 3 feet deep, and weighed about 35,000 pounds each.

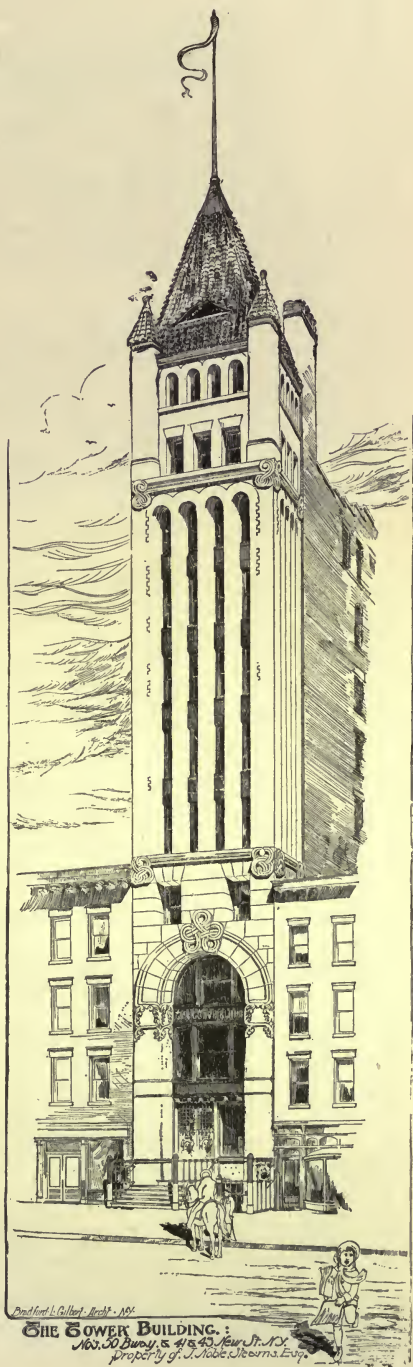
They supported solid tiled masonry floors, for which no columns were used, the unobstructed exhibition space on each floor being about 65 feet by 110 feet. These girders were unparalleled but two years ago; since then they have been surpassed.

In building iron trusses architects copied from the designs of bridge constructors, using the "pin" jointed truss. Good examples are given in the illustrations, showing the great roof trusses over the Metropolitan Opera House; and one of those over the New Music Hall, the latter calculated to carry a load of 678,000 pounds, and weighing 51,000 pounds each. (Page 460.)

It was soon found, however, that for the shorter spans used in buildings, a great saving could be made by constructing the roof trusses largely of flat bars and angle irons; as these shapes, not being controlled by the mill pool, are much cheaper; and as the joints of the truss are riveted together, the cost of the "shop-work" is greatly diminished. This form has been largely used in the last five or six years.

SKELETON CONSTRUCTION.

As already mentioned, the necessity for economizing space on the lower floors led to skeleton constructions; while its rapid and almost sudden introduction was due to the innovation



and successful use of wrought-iron columns and girders in the Lancashire Building, yet for a number of years



Wall street, New York City.


GALLATIN BANK BUILDING.

J. C. Cady & Co., Architects.

constructors had been struggling with the problem.

Attempts were made to build thinner walls by stiffening them with iron columns at intervals, a very bad construction, as the wall joints would shrink, while the columns remained unchanged; or, columns were introduced to remove the weight of floors from the walls, a not much better device.

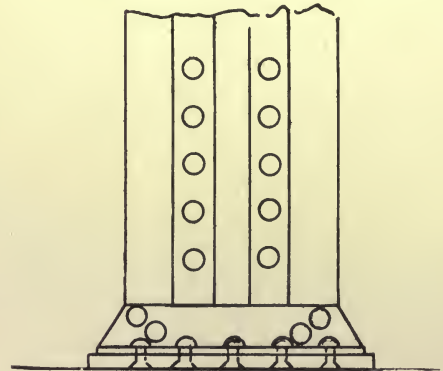
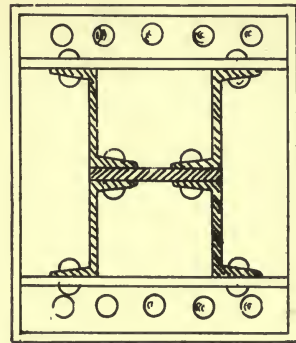
Several buildings finally were built with cast-iron columns and cast-iron lintels or rolled beams between them at intervals, the Tower Building being probably the pioneer of this class. It was found, however, that such buildings, if narrow and tall, lacked rigidity, as columns of cast-iron can only be bolted together and to the horizontal lintels or beams, and the bolts have to be set by wrenches and by hand. This construction allowed more or less play at the joints, and such buildings, if very narrow, had to be stiffened laterally, that is, sideways, by means of vertical trusses running from side wall to side wall and from top to bottom. These form a very serious drawback in planning, as partitions have to be placed wherever the trusses are, and partitions are frequently not wanted there. The Columbia Building, just completed, uses the cast-iron column with greater success, as the base line of the building is quite broad in comparison with its height. The best-planned modern office building leaves each floor as one great loft, to be subdivided by light interchangeable and easily-moved partitions, to suit the tenants' wishes.

In the Gallatin Bank Building the effort was made to economize space by the use of iron-constructed walls. Both cast and wrought iron were used. The entire rear walls were only 12 inches thick, made of cast-iron columns, of  shape, the hollows being used to convey air to the offices. The two interior court crosswalls were built of wrought iron and are largely filled with glass, the solid parts being only 6 inches thick over all.

The wrought-iron construction proved so superior in its economy of space and rigidity, that when the Lanchashire building was put up cast-iron was eliminated from any consideration

whatever. What is known as the Zee-bar column was used, this being four Zee-shaped irons, riveted to a central plate, as shown below.

The Zee bars and plates, where jointed at different points of their height, had wrought-iron plates riveted to the lower column, the next columns above being riveted to these plates; in this way the columns, as they grew in height, practically became of one solid, unbroken length. At intervals of from two to three stories, but always immediately at some floor level, horizontal, single-webbed riveted girders were riveted to the columns at their ends, and on these the 12-inch brick curtain walls rested; the cross girders carrying the floor beams proper were of course at right angles to the wall girders and were also riveted to the columns at their ends. The floor beams were riveted to the girders, and each floor which came

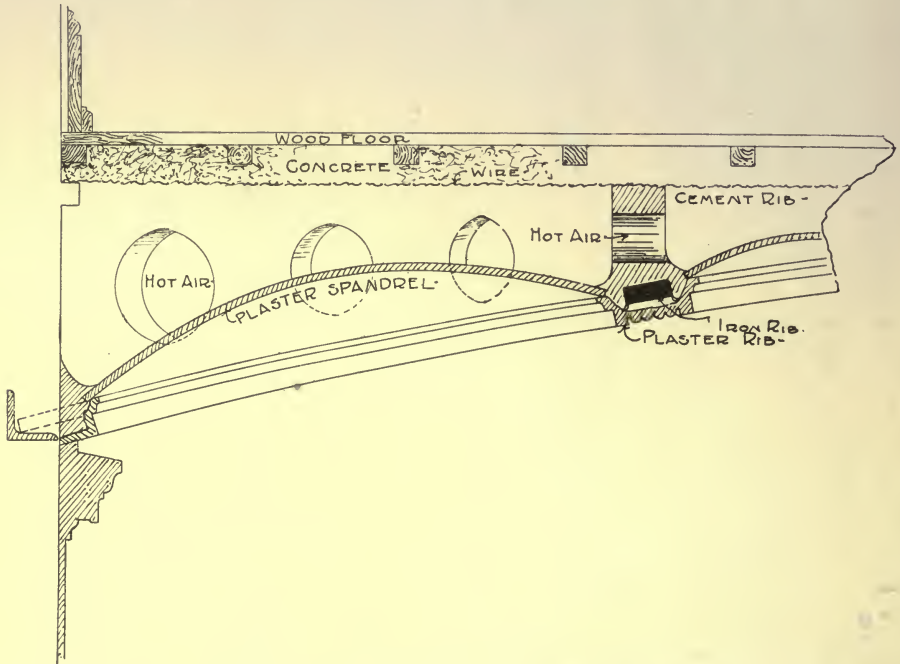


Plan and section, and elevation of Zee-bar column and shoe.

on a level with a wall girder was trussed throughout its entire surface by means of flat-iron diagonal cross bars *riveted* to beams and girders. Thus every such floor became a truss and gave the building rigidity laterally by transferring any tendency to twist or move laterally to the front and rear walls. The latter had riveted girders at every floor level *riveted* at their ends

der, however, was introduced in the Mohawk Building,* where the webs of the girders are made up of diagonal flat bars, which readily allow the wall to be carried full thickness past the web, the inner and outer sections being easily bonded together, and the girder consequently much better protected from fire.

With the great weights of our modern buildings, iron and steel are



SECTION OF N. POULSEN'S FLOOR CONSTRUCTION.

to the corner columns, and the corners above and below the girders, thus formed at the columns, were filled as far as the windows would permit with wrought-iron triangular "gusset-plates" *riveted* to columns and to the top and bottom flanges of the girders. It was thus made utterly impossible for the building, though only a little over 20 feet wide, to collapse.

It will readily be seen how well the Zee bar column and riveted girder adapt themselves to be used in connection with a thin brick wall, as the bricks covering and protecting the columns and girders can readily be bonded with those forming the "curtain walls."

An improvement on the riveted gir-

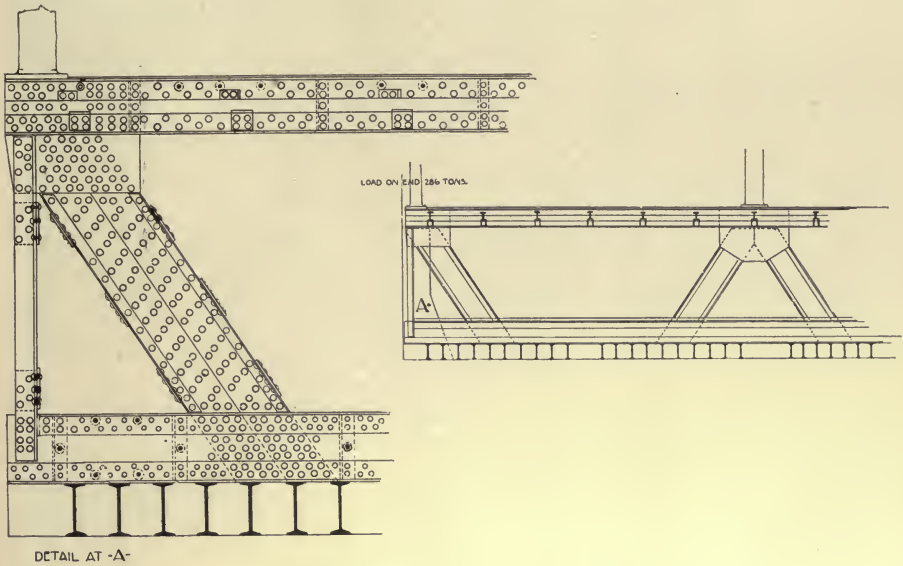
der rapidly coming into use to spread the weight at the footings. A curious and most ingenious foundation construction was used in the new Western Union Building.† It became necessary to transfer a large part of an enormous load, to be placed on the column at one corner of the lot, to more secure footings. To accomplish this an inverted truss was built into the foundation; its extreme end under the column in question. The vertical column under the column above, for the height of this truss, is so diminished in size that, should the full load attempt to settle

* R. H. Robertson, architect.

† Dey street, New York City.

on to it, it would be unable to bear it, and bending or giving away, ever so slightly, under the load, would at once transfer it to the truss. This lower

ported wooden beams at closer intervals and at right angles to the girders; then iron girders supported wooden beams at right angles; then iron girders sup-



FOUNDATION TRUSS—WESTERN UNION BUILDING.

Dey street, New York City.

Henry J. Hardenbergh, Architect.

column could have been omitted, but is counted on to help spread the load over the footings.

THE FUTURE.

With so many ingenious constructors working at the problem of iron construction, as we have in New York, there is no doubt that the rapid strides of the past will be kept up, if not surpassed in the near future. Steel is the material which will probably lead the immediately impending advances.

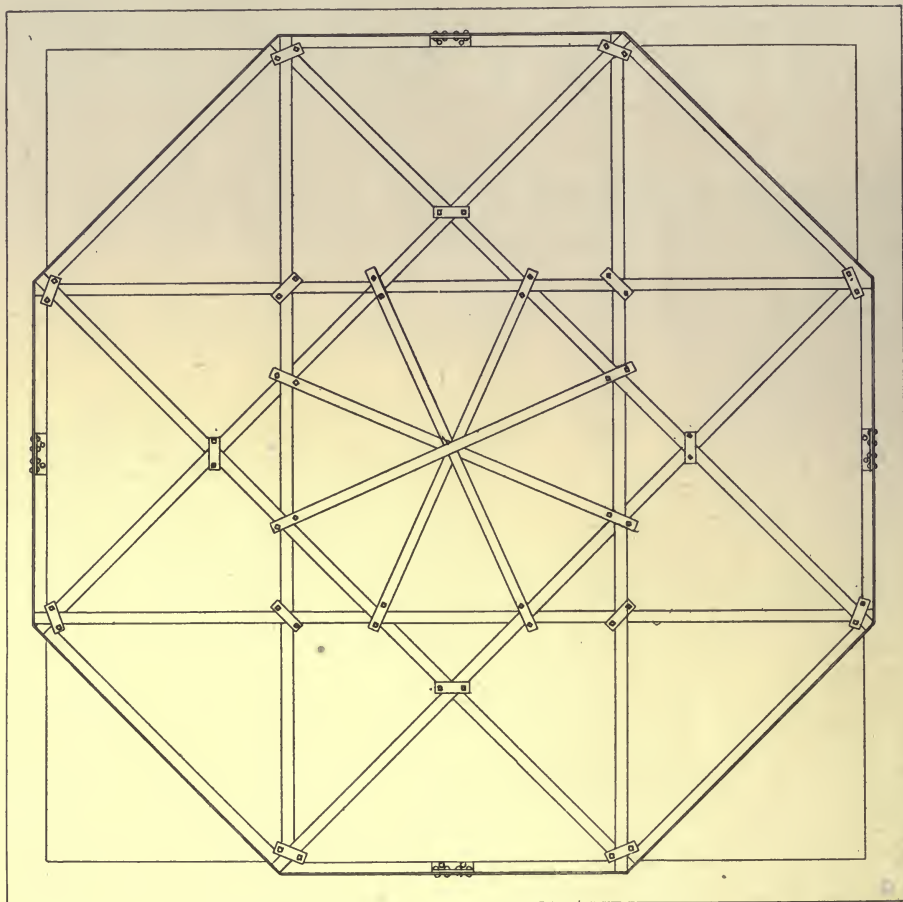
Its manufacture is hardly as yet in that state of certainty where it can be used with perfect impunity and without tests, which latter mean increased expense. But it is rapidly assuming a commanding position in architectural construction, and is pushing out of use wrought iron, as the latter has displaced cast-iron.

The great trouble, however, at the present moment, is not so much the material used, as the slavish following of old constructive ideas. At first wooden girders, at larger intervals, sup-

ported iron beams at right angles to them, and now we make steel do the same. Why! the old Egyptians, thousands of years before our era, put stone girders on stone columns, and at right angles to these the stone beams forming the roof coverings!

Can no one invent some new and better method? Does the "Cambered" arch offer no suggestion? The writer believes fully that before long some one will invent some much cheaper and less clumsy arrangement, for the material is now here that will adapt itself to almost any form.

A curiosity, and possibly a strong hint as to future constructive solutions, is afforded by Mr. N. Poulsen's new patent. Flat iron bars are placed across the entire span of the room, these ribs crossing each other at right angles and diagonally across their corners, the whole bent to the "natural arch curve" by rolling, and riveted together at all intersections. The spandrels between are filled by plaster arches made to a "natural curve" by being moulded over a

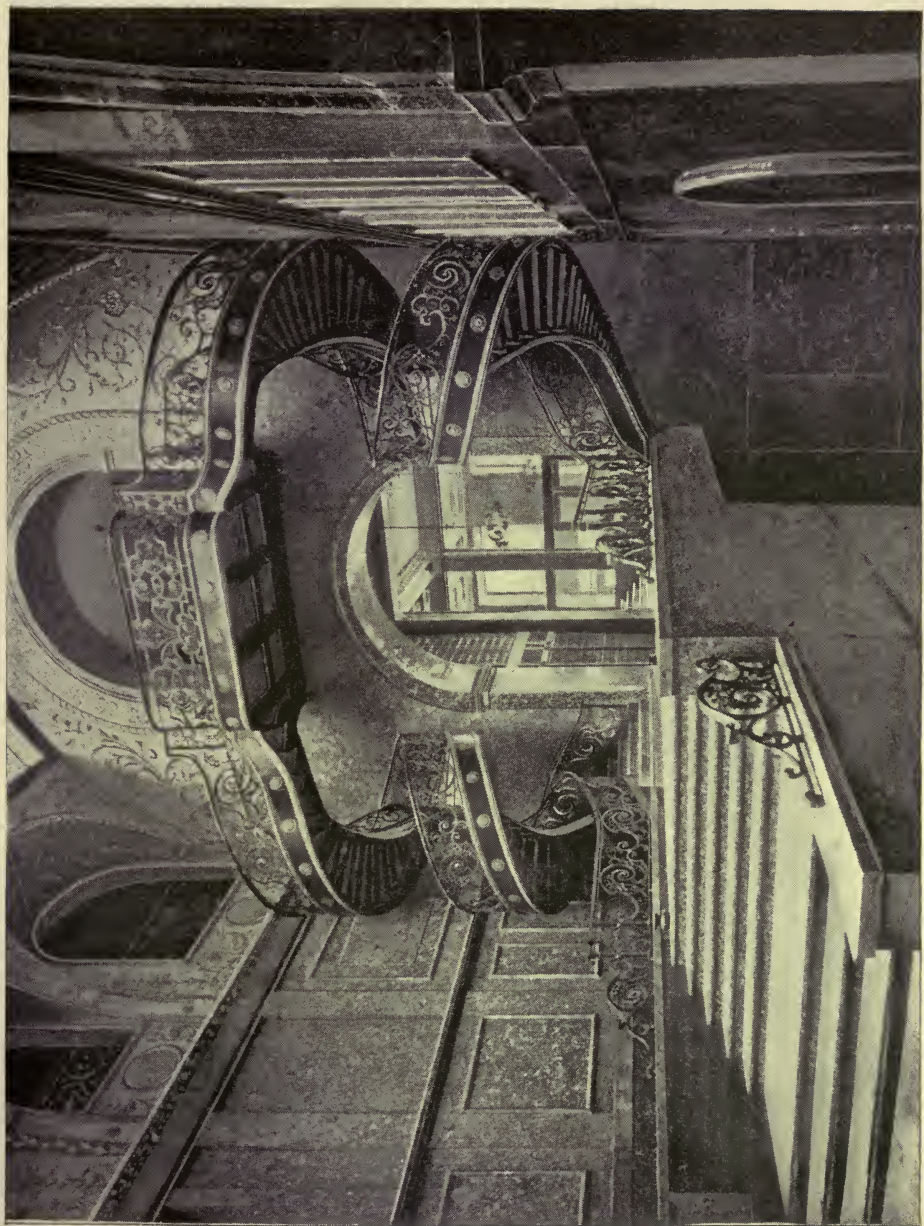


PLAN OF N. POULSEN'S FLOOR CONSTRUCTION.

rubber bag, inflated with gas. All curves being similar, all parts are interchangeable. The ribs are covered underneath with plain or ornamented plaster ribs, which are moulded to the curve, and cut off in lengths to suit. Above the ribs and at regular intervals between them, concrete partitions are built up to near the floor, these are covered with wire cloth, and a heavy layer of concrete over them forms the floor, ready for any finish. Holes through the ribs allow the hot air to enter under the floor at, say, one corner and to circulate all over, under its entire area, doing away with the objectionable "cold floor," and then the heat enters the room near the point of starting through a floor register.

Whatever may be said as to the artistic effect of this arrangement, or as to its practicability in modern buildings, it certainly has the merit of being a long step, whether forward or not—at least, a long step—far away from our present clumsy methods.

And after steel—our present hope—what next? The writer believes that cast-steel has within it immense constructional possibilities. When it can be made to be as strong, ductile and reliable as wrought steel, then the immense advantage of being able to do away with the expense of hand work, and to introduce the facile and cheaper form of casting will again supersede the present "wrought" age. When supports for stairs such as those in the



CAST-IRON STAIRS—NEW YORK LIFE INSURANCE CO.'S BUILDING.

Minneapolis, Minn.

Babb, Cook & Willard, Architects.



CEILING UNDER N. POULSEN'S FLOOR CONSTRUCTION.

New York Life Insurance Company Building can be done in cast-iron, what may we not hope from the fully-developed and perfect cast-steel.

And after steel, what next? The development of the future will probably come with aluminium, a metal combining with strength, lightness. It is not affected by our trying climate, which requires all steel and wrought iron to be carefully and constantly protected from corrosion.

The writer's hope that this material may be accessible to constructors in the near future, is largely based on the already rapid reduction in its cost of production since it was first discovered

and particularly since the impetus for cheapening its price was started by Napoleon III.

It can now be produced for twenty-five cents a pound, several tons being manufactured daily, for use in household and table goods, military equipments, cartridge shells, in connection with machinery and similar purposes.

When the price has been still further reduced, it will be largely used for covering roofs, for gutters and leaders, and sheet metal-work generally; and, as an alloy, if not in its pure state, it will some day assuredly replace the heavier and corrosive iron and steel constructions of the present day.

Louis De Coppet Berg.



HAVEMEYER BUILDING.

Church, Courtlandt and Dey streets, New York City.

(From water-color drawing.)

Geo. B. Post, Architect.



Southeast corner Fifth avenue and 57th street, New York City.
RESIDENCE OF C. P. HUNTINGTON, ESQ.
(From water-color drawing.)

Geo. B. Post, Architect.



THE VICISSITUDES OF ARCHITECTURE.



THE student of Architectural Art History is overwhelmed with the number, magnitude and intrinsic merit of the monuments of the past and correspondingly despondent when he contemplates the efforts of our own time.

The historic past, however, begins with Egyptian remains of foundations, built of dressed rectangular stone, of probable wooden superstructures which date back 6,000 years before Christ. The era of the Pyramids extends from 4,000 to 2,500 years B. C. The past, therefore, as far as concerns architectural monuments which have come down to us, is a matter of 6,000 to 8,000 years. It is not surprising that much good work has been done during that time; doubtless a vast amount of bad work which has been allowed to decay has also been done in the same time, for it must be remembered that monuments of art merit are not only preserved by their superior stability, but also by the fostering care of man. An illustration of this on a large scale may be found in the restoration and completion of the cathedrals of the thirteenth century in our own time.

Moreover, a review of the known monuments of the past will show that the dates of their creation are not equally distributed. They are efforts of special periods separated by centuries of sterility and inactivity.

Another broad view of the subject reveals the fact that the highest de-

velopment of past architecture (Egyptian, Greek and Mediæval) is coincident with the culmination of great religious ideas. In harmony with these ideas, but subordinate to them, secular structures express social and political ideas of lesser import, perhaps, but of undoubted individuality and force. The priest and the soldier, the representatives of human ideas, are celebrated in architectural monuments. Their functions and those of the people in relation with them, form the acts of human groups, which expressed in a building become a monument of a social or religious idea. Without material acts of this description ideas cannot be conveyed to the people at large. In the past this was universally recognized as a fact. At the present time, since the invention of printing, it is unfortunately assumed that the discussion of an idea is sufficient to instruct the masses who are able to read. So it would be if they did read.

Architectural monuments, expressive of social, religious and patriotic ideas, are as necessary to-day as they were in the times of the Parthenon and the cathedrals. It would be unjust to the nineteenth century to say that these ideas are no longer foremost in men's minds—but it is true, that they lack the definite and positive form they assumed in the past. They are under discussion, and more mental energy is engaged in freeing them from the cobwebs of the past than in giving them positive and definite form. Besides, we are busy in improving the material conditions of mankind and are apt to look upon eth-



Milwaukee, Wis.

PABST OFFICE BUILDING.

S. S. Beman, Architect.



Philadelphia, Pa.

BETZ BUILDING.

U. Decker, Architect.

ical relations not so much as paramount in themselves, but as adjuncts to material well-being. The priest and the soldier no longer govern the world. They are relegated to the position of servants of the people, and the merchant, the manufacturer, the builder of railroads and ships are the representatives of material prosperity and have taken the place of kings, bishops and generals.

It is not the province of this paper to inquire whether this condition of things tends to the greatest good of the greatest number, but it may be questioned whether it is conducive to the development of great moral ideas, to their celebration by popular acts, and finally to the fostering of art in general and architecture in particular. Nor has it so far been the motive for the creation and the poetical development of ideas which may serve as a basis for architectural monuments, nor are architectural monuments possible in the absence of such positive ideas.

To illustrate: The majority of buildings which command the attention and services of the architect at the present time and in this country are strictly business buildings. Prominently among them are railroad stations, insurance and office buildings, stores and news offices. Considered from an architectural standpoint these buildings, by their simplicity and economic construction, should express a mere business purpose. Upon them, however, are lavished in costly material and decoration the forms of courts and palaces, in order to appeal to the attention of the community and to a remunerative patronage. Architecture is ransacked to deck these simple clowns of material use with the shields of the warrior, the crowns of kings and the forms of libraries and courts of law. The architect is practically retained to advertise a plain business purpose by clothing these structures with whatever ornate forms he may find handy in his repertoire of architectural monuments.

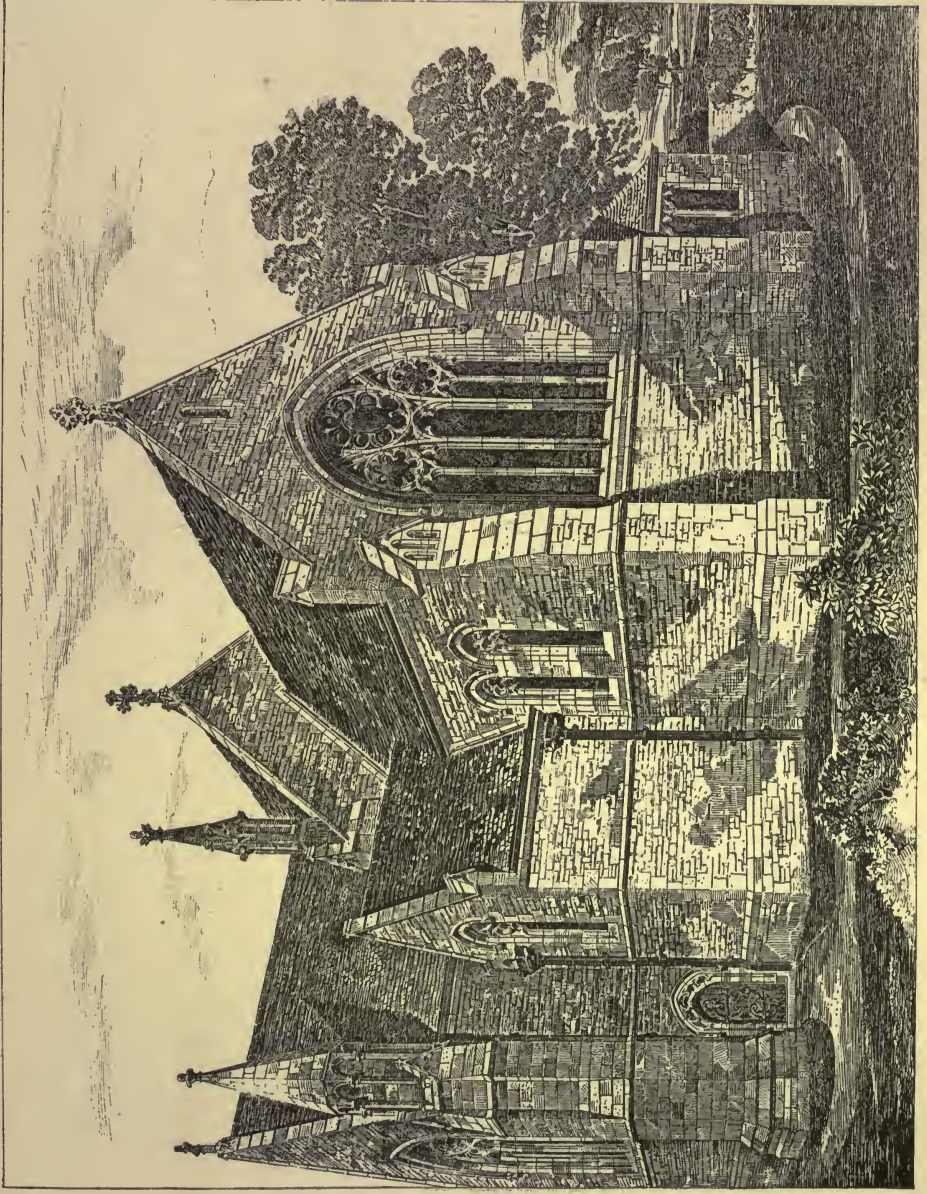
Of course, we build courts of justice and capitols; they, certainly, it will be said, represent vital social and political ideas. True, but these ideas by late definitions have been deprived of their

poetry, hence they cannot be poetically expressed. A judge no longer performs the functions inherent in his office in the past, he has sunk down into a referee who decides upon the cogency of the arguments of contending lawyers, and by a fiction of modern law deposes the cognition of facts to a jury. Hence it is a fact that a court-room is nothing more than a convenient apartment for legal discussion, and a number of such compartments are habitually packed into a rectangular structure which can in no way be distinguished from surrounding business buildings.

The same applies to our State houses, or capitols as they are called. No one can possibly consider our legislative bodies and their surroundings from the standpoint of art as poetical expressions of an idea.

But then we are to have a cathedral.

Let us here express our unqualified reverence for the Ecclesiastical Institution which intends to celebrate its existence by erecting this architectural monument, also our admiration of the men engaged in the undertaking. Their intelligence, moral purity and broad charitable intent must be patent to all. The Episcopal Church has long ceased to content itself with protesting against dogmas, and has turned its attention to the moral and material well-being of its parishioner outside as well as inside of the church. A great work of instruction, material help and intellectual refinement of the people at large is being silently and effectively done, large sums of money and, what is more potent, a great amount of intelligent, personal labor are expended annually upon this work, and magnificent endowments for the same purpose are showered upon the church. A broad and liberal interpretation of charity has thus been added to the conventional formula of Christian faith, but has not as yet been incorporated in its outward manifestation. The positive religious idea of modern Christianity is a mere extract of that of the Catholic Church. Some reductions have been made, but nothing has been added excepting the tacit understanding that Catholic ritual is to be abandoned; and no new demonstrations have been substituted for it.



Bushey Heath, London, Eng.

NEW CHANCEL, ST. PETER'S.

Jas. Neale, Architect.

To-day, as of old, the cathedral is a place where the bishop meets the clergy and people of his diocese to speak to them, not by words but by the help of art, by pictures, music and processions, by the expression of the building itself of the great Christian idea he represents. Catholic methods of doing this are conventionalized into forms which partake but little, not only of modern Christian ideas, but of modern methods of expression. It is not at all difficult to supersede these with more forcible and less conventional forms. This may be the work of time, but it need not be a long time if the necessity of the work is but recognized and is pursued with zeal and energy. Nor need we to enter upon the probable detail of it; it is not the function of the architect to do this at any time, but we may state that with regard to the proposed cathedral no steps have as yet been taken to define modern Christianity other than by a general protest against the Christianity of the fourteenth century, and its forms of art expression. The church has not felt nor expressed the want of a fitting place where the bishop may meet his clergy and people, to address them on the essence of modern Christianity. What has been said, and it is the only reason which has been advanced for building a cathedral, is that New York has now arrived at a state of magnitude and affluence when the world expects that it should possess a cathedral. The only reason for building a cathedral in the City of New York, therefore, is that the great commercial metropolis should be provided with architectural bric-à-brac of this kind. What sort of a cathedral a Protestant cathedral is to be has not been determined any further than that it must of necessity be a Catholic cathedral in some way modified in order to express a protest. No solemn conclave of Protestant divines has convened to determine the positive idea which is the essence of modern Christianity, nor the ritual which will express this idea poetically. A Protestant cathedral, therefore, is as yet impossible.

Similar conditions of architectural sterility, the result of the same cause,

may be observed in the art history of Egypt during ten or fifteen centuries before the Christian era; also at its beginning, in Greece, when the temples had ceased to interpret the religious ideas of the times and Christianity had not yet sufficiently crystallized to generate Christian monuments.

The prime vicissitude of architecture at the present time has been shown to be the want of definite ideas, which must always be the motive of a monument. The second may be formulated as follows: Given a well-defined idea, is the architect of the nineteenth century, by his education, prepared to develop it into a monument?

It is not much more than a quarter of a century ago that in this country no institution existed where architecture was taught in any form. We have now a reasonable number of polytechnic schools and universities where young men may receive an architectural training as good as that of the best foreign institutions of the kind.

In those days, the young aspirant to the profession served an apprenticeship in the office of a practicing architect and acquired a training by absorption in an architectural environment. Of these it is not intended to speak here; nor is the educated architect to be held personally responsible for his shortcomings in dealing with an idea. The question is: "Are the methods of the best obtainable architectural training of such a nature as to enable the architect to develop a monument out of an idea?"

By the scientific branch of his studies the architect becomes familiar with methods of construction, the nature and intensity of forces acting and the resistance of the material employed. The artistic branch teaches mainly architectural history. The student is overwhelmed with a mass of architectural monuments, assorted with regard to style, and referred to the different countries where built and the periods of time in which they were built. The purpose of these monuments, beyond the general indication that they are churches, temples, palaces, theatres, etc., etc., is not especially discussed in



St. Paul, Minn.

THE "PIONEER PRESS" BUILDING.

S. S. Beman, Architect.



• Lamb and Rich • Architects •

• Residence of Mr. John Matthews
• Riverside Drive • and • Ninetieth St. • • New York •

relation to social or religious progress or retrogression, and the influence of construction upon form is not carried beyond the necessary technical description of the monuments.

The impressions on the mind of the student at the completion of his training will best illustrate its efficiency. He believes all monuments of the past to be perfect works of art. They are all equally indisputable precedents for future efforts.

But few architects would be willing to risk their reputation on a Presbyterian Church in the Egyptian style, but many, probably a majority, will consent to build it in any other style whatever, and they will do it with a clear architectural conscience. The facts that Greek Temples were not meant to receive a congregation in their interior, that Roman architecture does not express religious edifices at all, and that Romanesque and Gothic architecture express a phase of Christianity as diverging from ultra-Protestantism as the religion of the Greeks and Romans, are not a bar to imitating these monuments for ultra-Protestant worship. It cannot be said that these architects are entirely oblivious of the incongruity of the problem; they certainly have a feeling (which means a vague impression which is in no sense the result of logical reasoning) that something will have to be done to pacify not architectural objections, but sectarian prejudices; they are content, however, with the conclusion that a certain amount of crudeness, plainness and nakedness of form and modeling will accomplish this purpose.

An architect familiar with methods of art composition before beginning to design would probably address the building committee somewhat in this wise:

You have retained me to build you a Gothic church, but in order to conceive such a church I need some instruction. If by stipulating for a Gothic church you mean that I shall avail myself of the progress of architecture up to the fourteenth century, I will only say that since that time the science of construction has been greatly advanced, and I must ask whether or not I am

permitted to make use of this advance. I quite agree with you that, in the matter of artistic expression, the thirteenth century may be accepted as a culminating era. But if you expect a church edifice which will in form resemble the churches of the Middle Ages, you will probably be disappointed.

In order to arrive at a clear understanding of the subject, permit me to state my impressions of the architectural needs of a * * * church, and I beg you will correct me when I am wrong. In the first place a * * * church is not a place of worship—you say it is! but, pardon me, I speak in an architectural sense. What I mean is, that while an ultra-Protestant Church, theoretically, *is* a place of worship, practically, at least as far as worship can in a building be architecturally expressed, it is *not* a place of worship, simply because the congregation while assembled within the church does nothing that may be construed into an act of worship, hence cannot be visibly accommodated in doing this *nothing* by any modification of the building. I quite understand that the worship of God is fostered and mentally discussed in a church, and is also in a literary way illustrated by prayer from the pulpit. The congregation, however, remains quiescent.

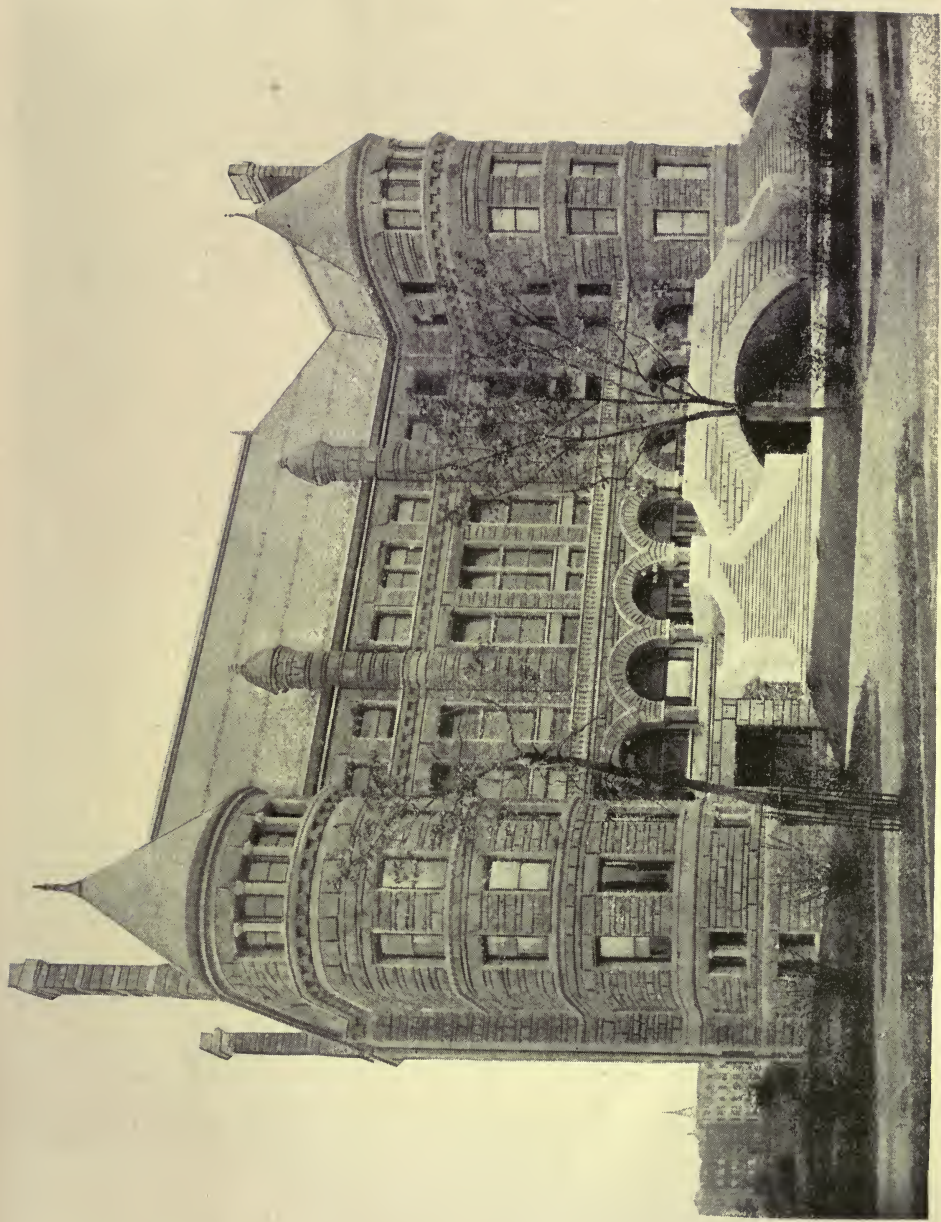
The preaching and praying as performed by the minister, however, is a visible act. There is preaching on the one hand and listening by the congregation on the other. This act requires a structure, and that structure may be made to express the act. Without going into detailed description of the process, I may say that the result will be a form not unlike a theatre, not a modern theatre, but like a Greek theatre, covered with a roof. The scena, however, will be a simple cathedra. The roof may be a light iron construction in place of an awning. This iron construction is capable of expressive architectural treatment if properly understood. To illustrate the need of visible acts let us imagine a future progress of your church in the direction of its present spiritualizing tendencies. The sermon at present is practically a weekly re-



Albany, N. Y.

SENATE STAIRCASE IN THE CAPITOL.

Leopold Eidlitz, Architect.



MUSEUM OF NATURAL HISTORY

New York City

ligious essay read from the pulpit. This may in course of time be replaced by a monthly or quarterly religious magazine sent to the residences of the parishioners; hence you will need no church at all.

I trust you will not think me irreverent because I pursue this argument to an extreme. My object is to show clearly the necessity of a materialized idea for the purpose of art expression in any form, and more especially in that of an architectural monument."

Should an architect be bold enough to indulge in plain truths like the foregoing, his building committee would be surprised to the extent of employing one of his brethren who is willing to design a church without a definite idea, or in other words not to design a church at all, but to compose a picture of a Catholic church which shall be deprived of its architectural expression.

On the other hand, if a building committee should be found bold enough to have a church unlike those built by kindred congregations during the present century, for the sake of artistic truths, is the architect by his education enabled to design it for them? To illustrate: The most renowned prima donna is in the habit of practicing the scales for two or three hours daily. If she should neglect this training she would soon cease to be a prima donna. The architect of the present day never has practiced his architectural scales (*viz.*, the construction and modeling of parts of structure) even during the years of study, and if he has done so then, to any extent he has ceased to do so since. A scientific analysis of any organism, such as a structural part, leads to a proportionate relation of masses (no matter what the factor of safety assumed), and this relation of masses is to the mechanical engineer almost always a surprising result, differing materially from conventional forms. Parts of structure are the elements of a harmony which forms finally the mass of the monument. If these elements are imperfectly studied, the result is a discord, and if not studied at all (and this is the prevailing practice), the result is without meaning or ex-

pression—a jumble of discordant and deformed elements.

His education has measurably familiarized the architect with a series of tunes of which he remembers but a limited number of interesting snatches. The moment he is called upon to design a building, these tunes and snatches of tunes rise in his mind, and if they fail to rise abundantly or to be directly available, he refreshes his memory by a resort to books and photographs. He begins to sketch a completed building by combining various architectural forms as found in ancient, mediæval and modern buildings, always provided that they seem picturesque and do not differ too much in style.

When such a sketch has arrived at a point when the architect says to himself "I like it," he hands it to a draughtsman to be drawn to a scale. In the meantime he proceeds with a similar sketch of the interior. It is soon found that the two sketches do not agree, the one or the other has to yield, generally the interior. Then the whole is turned over to the engineer of the office who is to contrive a construction which shall make this design a possible structure. This part of the work the architect dislikes more or less because, since his student years, he has become somewhat rusty in mathematics and mechanics.

This architectural engineer often finds it difficult to devise a practicable construction. There are loads without or with inadequate support; there is lateral stress with insufficient abutment. He refers the matter back to the architect in the hope of a change in the design which will avoid the defect. In this he is doomed to be disappointed. The architect cannot be induced to believe that his work of art is defective simply because it happens to be an imperfect mechanical organism, he is inclined to believe rather that his engineer but imperfectly understands mechanics. Tie-rods are resorted to in the place of abutments, and artificial trusses are introduced to discharge weights from weak supports upon others at a distance which are stronger than is required for the mechanical work they are doing.



Bar Harbor, Me.

RESIDENCE OF J. S. KENNEDY, ESQ.

Rowe & Baker, Architects.

Now the process of designing an architectural monument is just the reverse of all this. You begin with a single cell and construct it carefully and scientifically, selecting your material and constructive methods in accordance with the degree of strength and elegance due to the nature of the monument. By constructing it, is meant here that you build it in your mind and note your work down in a drawing, testing it mechanically as you progress, which means that you accompany your drawing with a strain sheet of the forces acting and the stress upon the material.

When each cell is separately treated in this manner you place them in proximity to each other in an order which will most effectually respond to the uses of the monument. When this is done, modifications of form and construction owing to the combination must be made to meet changed relations of forces. If you now look upon the exterior of the whole before any

modeling or decoration is attempted you will find its masses and form not only expressive of the purposes of the monument, but entirely new in character.

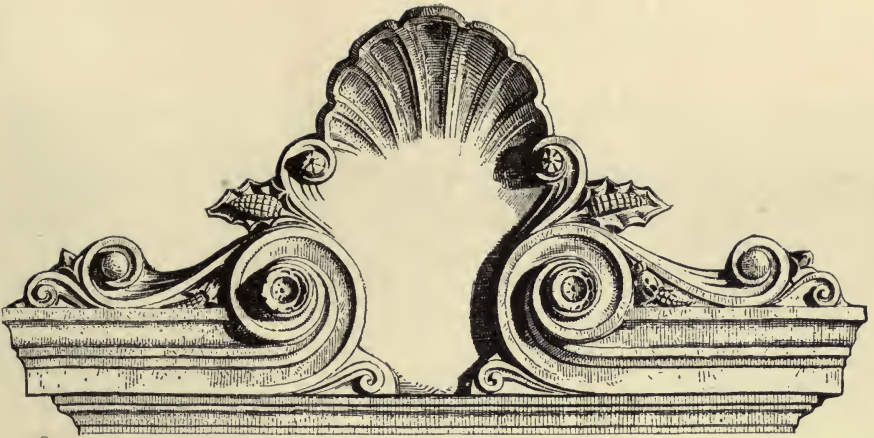
A mechanical apparatus, a machine, is built by this process, and artistic expression is the result without a special effort.

Let us imagine a similar training and its result in case of the education of mechanical engineers. Let the student be instructed by one teacher in mathematics and dynamics and by another in the art of giving form to his engines which will express their functions. Let the latter teacher pursue the system of teaching the history of machines up to the thirteenth century and no further, with the special injunction to pupils that the forms of machines in practice must be purely those of any one era selected and that forms of different eras must not be combined. An engineer thus educated could not possibly design a steam-engine.

Leopold Eidlitz.

(TO BE CONTINUED.)





BYZANTINE ARCHITECTURE.

NEO-BYZANTINE.



THE buildings of Justinian's days must be looked on as the culminating point of the Byzantine style, and the most magnificent memorials of his reign; for I do not know of what value his code, pandects, and institutes are in the present day, but law students have to be examined in them.

Many circumstances contributed to this. We suppose he had the advantage of the architects brought up in the schools founded by Constantine, and of the skill which had accrued to architects by the number of public buildings erected at Constantinople; for when Byzantine became the capital of the empire there was not only Constantine's palace to build, but the public offices, places of amusement, and palaces of the Senators, and, in consequence of the empire having become Christian, innumerable churches and monasteries. It is possible that much of the splendid materials stripped from every province of the empire by Constantine had not been used up; Justinian inherited thirteen millions from his predecessor; the arms of his generals had been successful, so he had the revenues of a good

part of the old Roman Empire at his disposal—every temple had been plundered and its revenues sequestered, and every act of extortion was used to fill his treasury. Had it not been for his cowardice and foolishness in constantly paying heavy subsidies to the barbarians, which drained his coffers, and served only to invite fresh inroads, the expenditure on his buildings would have scarcely been felt, for they were a perennial source of income, as they still are, to the Turkish Empire.

After his time, every sort of disaster fell upon the Empire, the West was permanently wrested from it, and the constantly-increasing conquests of the Moslem were diminishing its extent, both in the East and in the West. Whatever merits subsequent buildings may have, nothing equal to Sta. Sophia is to be found. The Church of the Sti. Apostoli at Constantinople was built by Constantine, rebuilt by Justinian, and ultimately destroyed by Mohamed the Second for his own mosque. In Procopius there are passages which may lead us to believe that neither the drum nor the Latin Cross were after inventions, and, if this be true, we can hardly take either feature as a proof of Neo-Byzantine.



ENTRANCE HALL AND STAIRCASE IN THE RESIDENCE OF BENJAMIN BREWSTER, ESQ.
Cazenovia, N. Y. Stephenson & Greene, Architects.



HALL MANTELPIECE IN THE RESIDENCE OF BENJAMIN BREWSTER, ESQ.

Cazenovia, N. Y.

Stephenson & Greene, Architects.



PARLOR MANTEL IN THE RESIDENCE OF BENJAMIN BREWSTER, ESQ.

Cazenovia, N. Y.

Stephenson & Greene, Architects.

Procopius says (Procopius, Lib. 1, cap. 4): "In ancient times there was one church at Byzantium dedicated to all the Apostles, but through length of time it had become ruinous, and seemed not likely to stand much longer. Justinian took this entirely down, and was careful not only to rebuild it, but to render it more admirable, both in size and beauty; he carried out his intention in the following manner: Two lines were drawn in the form of a cross, joining one another in the middle, the upright one pointing to the rising and setting sun, and the other cross line towards the north and the south wind. These were surrounded by a circuit of walls, and within by columns placed both above and below; at the crossing of the two straight lines, that is, about the middle point of them, there is a place set apart, which may not be entered except by the priests, and which is, consequently, termed the sanctuary. The transepts which lie on each side of this, about the cross line,

are of equal length; but that part of the upright line towards the setting sun is built so much longer than the other part as to form the figure of the cross. That part of the roof which is above the sanctuary is constructed like the middle part of the Church of Sophia, except that it yields to it in size; for the four arches are suspended and connected with one another in the same fashion, *the circular building standing above them is pierced with windows*, and the spherical dome which over-arches it seems to be suspended in the air and not to stand upon a firm base, although it is perfectly secure.

In this manner the middle part of the roof is built; now, the roof over the four limbs of the church is constructed of the same size as that which I have described over the middle, with this one exception, that the wall underneath the spherical part is not pierced with windows. When he had completed the building of this sanctuary, the Apostles made it evident

to all that they were pleased and thoroughly delighted with the honor paid them by the Emperor." ("Procopius," Lib. I., cap. 4.) In this church Constantine and many of his successors were buried. Ducange says, "All the Christian Emperors."

I wish I could give you characteristic specimens of churches from the days

as those of France, Germany, Russia, and Greece. Whenever a sufficient number of examples are accurately drawn, and all the requisite information has been got from books and MSS., we shall be able to classify the churches and other buildings according to their centuries, just as we now can Gothic buildings. The dates of many Roman



Cambridge, Mass.

HALLWAY.

Chamberlin & Whidden, Architects.

of Justinian to the end of the Byzantine Empire, arranged according to date, so that I could point out the tendencies that culminated in Neo-Byzantine, and follow them consecutively to the end, but there are no accurately published data to go upon. We have the school at Athens pursuing this subject, and several of our English antiquaries are devoting themselves to it. I may mention Professor Hayter Lewis, the Rev. Canon Curtis, and Dr. Freshfield, and it is probable that many other English antiquaries are doing the same, as well

buildings have been ascertained from the stamps on the bricks, which show us at least that the buildings were not erected before the Emperor's accession in which the bricks were made.

In every style that was once alive, and that was not ossified by religious conservatism, there must have been in almost every building some peculiarity of plan, construction, or adornment at each successive period that, if sufficiently studied, would reveal to us its approximate date; but these indications must be studied with due regard to



SCHEME FOR DECORATION IN COLORED GESSO.
Henry W. Batley.

local peculiarities, and to the architectural schools that have produced them.

At present we must, to a great extent, be content with guesswork, and an important and interesting chapter of architectural history must have most of its pages left blank. Tracing the differences in plan, construction, and æsthetic treatment, of a long chronological succession of buildings of the same style, is attractive enough, and marking the various internal and external causes of variation is profoundly interesting, but without proper data it can only lead to false theories. In this case the influence of Byzantine architecture on Saracenic, Romanesque, Russian, and Gothic architecture has been very great—in fact, we may say that up to a certain period Saracenic is Byzantine; so there is all the more reason to encourage architects and antiquaries in their efforts to complete the subject and to solve the problems. The reasons for this neglect are not far to seek: the style itself was till lately looked upon with contempt. Huge gaps have been made in the sequence of buildings by their destruction. The rise of Saracenic architecture did, in some cases, alter the forms of existing buildings, and before and since that epoch successive alterations and re-buildings have left us uncertain as to what is original, what was produced as a colorable copy of the old, and what was entirely new; while the loss of records, the changes of name and their re-dedication by the Mussulmans have rendered it difficult or impossible to identify them. Almost insuperable difficulties existed, and to some extent still exist, in obtaining the requisite knowledge of the subject; many examples are in parts not easy to get at, and when got at the country certainly *was* in so lawless a condition that nothing could be done; violent Moslem fanaticism not only prevented the delineation of buildings, but even prevented their interiors from being seen, and some fanaticism in that direction does even now exist. Ware, in his book on vaults, published in 1822, tells us, in a humorous way, that if you want to get the particulars of Sta. Sophia you must turn Mussulman. It requires a good



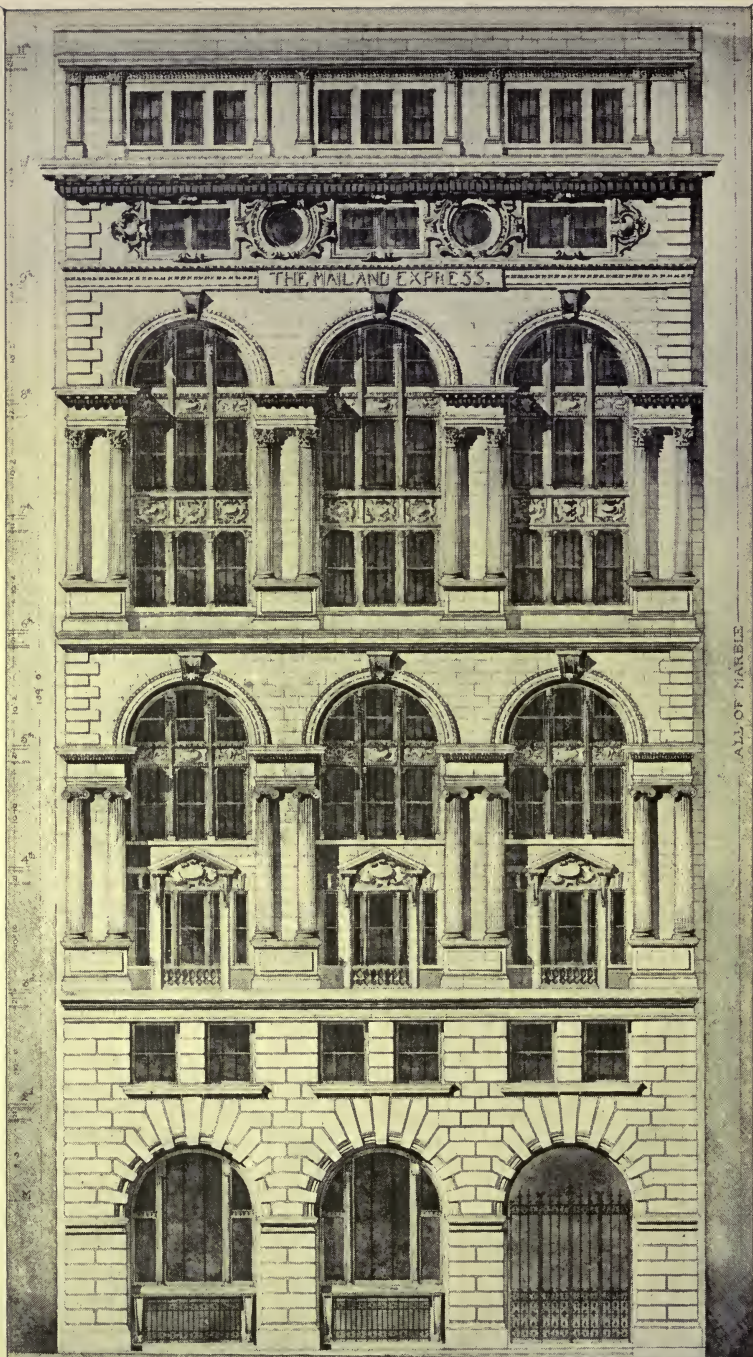
Boston, Mass.

DINING ROOM INTERIOR.

Greek scholar to get some of the facts required from ancient writings, for I believe many of the Byzantine authors and MSS. are not translated; to follow it up locally you want to be a master of modern Greek and Turkish at least; besides, to many persons Byzantine history is not attractive, for, with some notable exceptions, it is the record of turbulent, cowardly and venal slaves, and of astute or worthless despots or their creatures, as destitute of courage as of humanity, playing savages against one another, while the most desperate maxims of Machiavelli were daily put into practice. Shakespeare's play of "Titus Andronicus" will give you some idea of the Byzantine Court. It is one of the episodes of history in which hypocrisy, ingratitude, treachery, cowardice, corruption and bestial vice is portrayed in blood, and accompanied by the groans of an oppressed people and the shrieks of the tortured.

Comparatively little has been published on Byzantine architecture, considering the vast areas over which it extended and the length of time it endured; we have, however, the magnificent work of Salzenberg on *Sta. Sophia*, on five other churches at Constantinople, and on three in Asia; but, unfortunately, the text is in German; if some German scholar would publish the text in English it would be a great boon to the profession.

Couchard published a book on some of the Byzantine churches in Greece, and Labarte on the Imperial Palace at Constantinople, Paspatis on Constantinople, Texier and Pullan on Byzantine architecture, mainly on the churches at Salonica and Trebizond; Texier on Persia and Armenia, Verneil on Byzantine architecture in France; there is also a magnificent work on *St. Mark's*, published by Onigania; the Marquis de Vogüe on Central Syria,

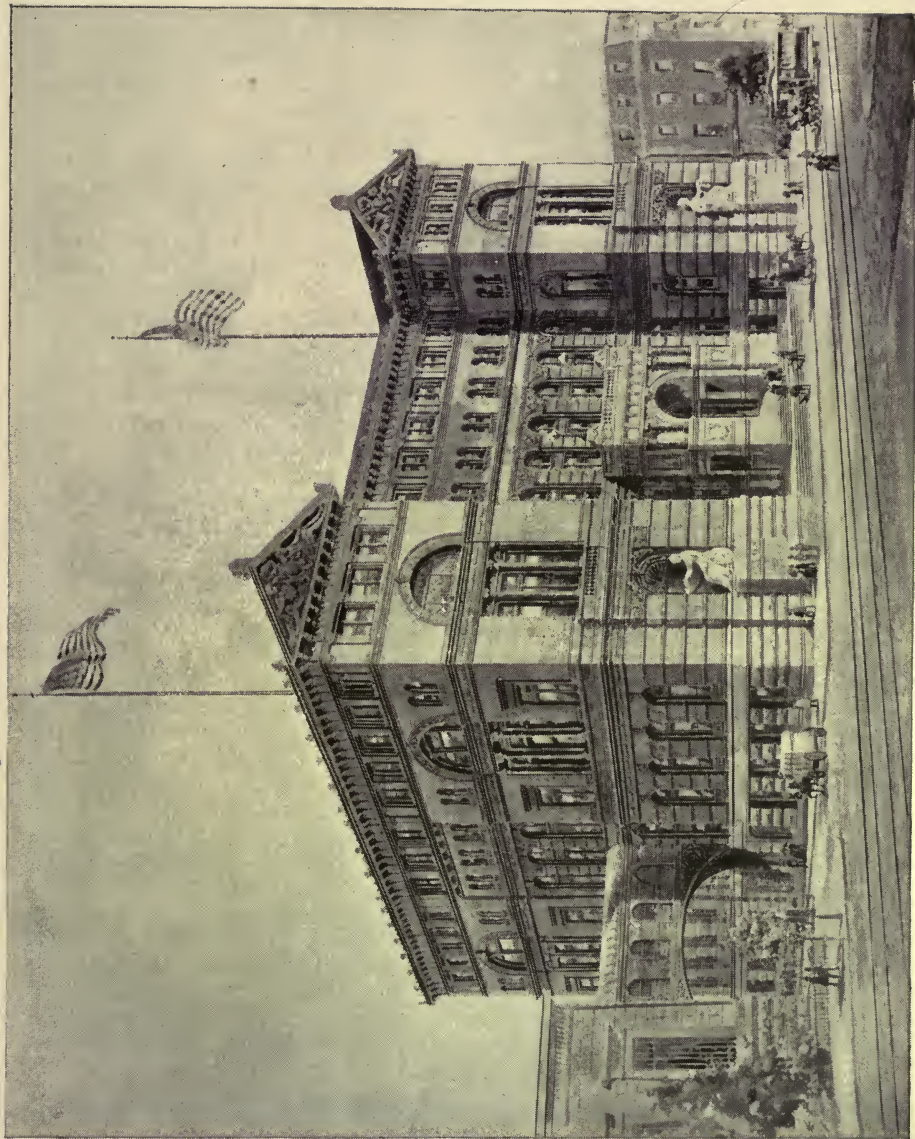


FULTON STREET ELEVATION.

CARRERE AND HASTINGS ARCHTS.

44 AND 46 BROADWAY NEW YORK CITY.

N^o 19



New York City.

NEW CRIMINAL COURT BUILDING.

Thom & Wilson & Schaarschmidt, Architects.

Mr. A. J. Butler on the ancient Coptic churches of Egypt, and M. Choisy's great work on the art of building amongst the Byzantines, and within the last few years a new edition of an interesting little book by M. C. Bayet has been published on Byzantine art; but there are many examples contained in works on other subjects; in Hubsch, for example, on "Christian Architecture from Constantine to Charlemagne," in Isabelle's "Round Buildings and Domes," and in Mr. T. G. Jackson's "Dalmatia," but I know of no comprehensive work on the Byzantine churches of Greece, Asia Minor, Armenia, Mesopotamia and North Africa.

I personally feel towards the writers on Byzantine Architecture as Constantine did towards the bishops, he was ready to throw his cloak over their frailties; so I will only say that you must not be too sure that what is published is correct.

I do not know whether I made it clear that the buildings erected in Constantine's days were purely Roman, saving some little peculiarities that may have been introduced by the foreign architects and workmen, that the shape of the churches, with the exception of a few circular and polygonal ones, was that of the Roman Basilica. During the time that elapsed between Constantine and Justinian, the Christian church had been trying to settle the most convenient form for its ritual, and this form appears to have been pretty well agreed on by Justinian's time; the Basilica seems mostly to have been given up, and the Eastern church had more or less settled on a square for its nave, and on a dome for its covering, but the churches were often lengthened, not only by the Bema, but by other spaces to the East and West, so that in these cases they did not differ very materially in their proportions from a Basilica. When Byzantine architects had fitted a dome to a square by means of spherical pendentives, this dome and these pendentives had to be abutted, and this was done by means of other domes, half domes, or wide barrel vaults. The Church of St. Irene, built in Constantine's days, as an appendix to Sta. Sophia,

was doubtless a basilica of the common form like Eski Djouma and St. Demetrius at Salonica, or St. John's studios at Constantinople. Ducange says it was a triple church, dedicated to the Virgin, to St. Theodora, not the Empress, I presume, and to St. Irene; after the fire in Justinian's days it was rebuilt, and afterwards Ducange says it was shaken by an earthquake in the days of Leo III., the Isaurian (717-741); it is now a Turkish armory, and although I used what influence I had I was unable to get into it. The present building was probably of Leo the Isaurian's time (717-741), for we see that a new system has been adopted to keep the old basilica form and to dome it; three pairs of piers were used after the manner of those at St. Demetrius at Salonica, but bigger and arched over to other piers in the external wall. The columns had been replaced by the piers of an arcade, and over the centre of the nave was a dome about 46 feet in diameter, abutted westwards by an oval dome, eastward by a barrel vault, and the half dome of the apse north and south by barrel vaults. The central dome has a tall drum; pierced with twenty windows below the dome, thus forming a lantern. From the days of Constantine to those of Justinian, the dome windows in the churches that are left, were mostly in the dome itself; and the drum is one, perhaps the chief, sign of the Neo-Byzantine, always supposing that the St. Apostoli had no drum. If S. Irene was still dedicated to the three saints, it had no apses to the aisles, probably following the form of the original basilica. The nave, from the face of the narthex to the end of the apse, is three times the diameter of the central dome, whilst Sta. Sophia at Constantinople, is only two and a-half times. I may as well take Sta. Sophia of Salonica, or Salonico as it is now written, as my next example. This is the church that suffered in the late fire, and is of course now a mosque. It was empty, and mosques have been traditional places of security and of refuge. The unfortunate people who were burnt out in a section of the town adjoining it carried all their spare clothes, carpets, deeds, valuables, and

small articles of furniture into the mosque, which was separated by its garden and by a street from the fire; the wind was high and the mosque windowless; the sparks and embers flying in set fire to the combustible things stowed there. The flames ignited the wooden roofs of the portico, and of the upper galleries, which were all destroyed, and the deeds of the Mosque as well. Some of the Verd antique columns of the nave were shattered and the leaves of some of the white marble capitals on the opposite side were calcined; some of these capitals have their leaves represented as bent by the wind, an idea that excited Mr. Ruskin's enthusiasm when he saw those at St. Mark's, though this form of enrichment seems to have been a stock pattern; still the sculptor who originally observed this effect of the wind on leaves, and was able to represent it in so architectural a way, deserves all the praise that can be bestowed on him; later civilized ages can always refine if they cannot invent. The brick work appears to have suffered no damage, though in many places the plaster was brought off, so

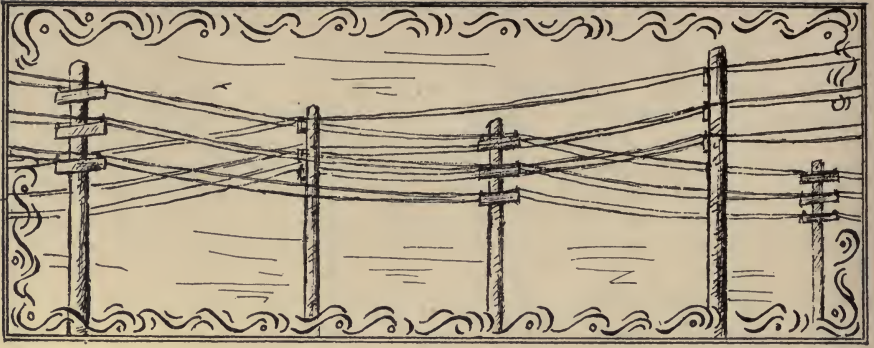
this Mosque may give us a lesson of the advantages of using burnt brick for public monuments.

Texier and Pullan supposed that this cathedral was of the time of Justinian, and was built by Anthemius; but I believe it was of later date, for it has three apses at the east end, a short drum to the dome, and the north and south arcades are set back, so as to get a wide barrel vault to abut the dome. If it were designed by Anthemius, we may reasonably suppose it was so designed before Sta. Sophia at Constantinople, for the following reasons. We hardly believe that Justinian, who was so anxious to get Sta. Sophia done that he had a room built to see the progress of the work, would have spared Anthemius, and Anthemius is said to have died in the second year after the great Sta. Sophia was begun, viz., in 534, yet it could not have been built before, for the extra abutment to the dome was to correct the weakness discovered at Sta. Sophia. The drum is a square one, pierced with three windows on each side below the springing of the dome.

Professor Aitchison.

(TO BE CONTINUED.)





CROSS - CURRENTS.

MAN may be judged by his attitude towards tobacco. If Jones has never smoked he is probably a barren, self-centered, inhospitable person, or else a bit of a squeamish woman. Yet if this same Jones becomes a habitual smoker he is often a no better man, for in that case he may easily degenerate into a formless and ineffectual slave. Although it is something to his credit that he ever began to smoke, it is very much to his discredit that he never stopped it. Once having relinquished the practice he would have been richer by the experience, yet larger by the sacrifice; he would—happy man—have become progressively human.

Alas! how many of my readers have coquetted with tobacco, only to learn that it is a worthless, distracting weed? You number fewer, I fear, than those who with a dull lack of curiosity early shut it out of their lives. By far the majority of you doubtless believe that you smoke; but before you begin to call me names just consider whether in truth you do smoke. Puffing tobacco is not smoking, and nearly all men simply puff tobacco. It is trying to smoke; it may be even the beginning of smoking; but it is not smoking. Because a man "views" exhibitions of pictures and can tell the difference between a water-color and an oil-painting we do not call him an art critic; and because a man can stick a cigar in his mouth, pick a perfecto from a bunch of eschitos, and boast with the best about Arcadian brands, I do not call him a smoker. His use of tobacco may rightfully have begun in imitation and may have settled into habit, but it has never blossomed into affection. The test is easily made. If Jones loves a cigar he will sacrifice something for it; whereas the ordinary tobacco puffer will sacrifice nothing. He tries to walk and smoke, or talk and smoke, or write and smoke, all at the same time, and consequently he talks, walks, writes and smokes badly. Tobacco is

only a weed, but it demands more sacrifices than do the flowers. The practice of using it does not fit amicably into life and aid us in our other occupations, but is imposed on our nature and interferes with our duties. If smoking had ever been necessary to self-preservation, and natural selection had consequently embodied it in our constitutions, we should be using for the purpose not our mouths, which were never designed to be draughty chimneys, but some special aperture in the face, which would automatically puff the cigar. Nature, however, has made no provision for the practice, and although very generally adopted, it never has been and never will be assimilated. Few are foolish enough to pay, except temporarily and at long intervals, the homage which smoking demands.

The psychology of smoking is, then, a phase of the psychology of those who use tobacco with assiduous seriousness. The marks of the class are unmistakable. They always smoke a special brand of cigars, which is generally the best that the money can possibly purchase, although curiously enough this brand is altered several times a year. They lavish infinite patience and grave concern in coloring, flavoring and preserving remarkable pipes, and these pipes, saturated with nicotine and weary with wear, are piously put on a pedestal as warm and trusty friends and illimitable resources. All the incidents and appurtenances of the habit are surrounded with fanciful notions, but particularly the smoker likes to add to the business just a trace of mystery, as if there were some most important element in the relation between himself and his pipe which was solemn, yet inexplicable. And so our smoking friends make much out of what is essentially very little. Only a certain type of character takes tobacco thus earnestly and pervasively into its life, and this type the habit itself tends to harden and settle. All you multitudinous puffers of to-

bacco have loosening moments in which the spirit of the weed enters into your being, and you smoke; but fortunately these moments are rare, and when they do occur they are as ephemeral as the vanishing tobacco cloud itself. There are some men, however, who approach the type, and many are tending that way. Let them beware, lest they become thus formless.

First, then, the smoker tends to become formless, because the habit is fundamentally exclusive. The spirit of tobacco forbids any active participation in the affairs of the world. He whom it possesses must have an indifferent, self-absorbed disposition, which is reserved without being retiring, and which would merely smoke while Rome was burning. As the world in its flood passes by he does not care, but gives undivided attention to Himself, the Weed and the General Aspect of Things. Hence the gulf is great between one who smokes and one who does not smoke. The two cannot live together amicably; they can scarcely understand each other. A number of smokers can live together—after a fashion—but how do they live together? Let one who wishes to know read J. M. Barrie's "My Lady Nicotine." They are like a parcel of owls, each in his own mammoth cave of self, glum, irresponsible, egotistic, fanciful and loose. No wonder society says to the smoker: "Out of my sight. Get you to your own dens. Our common humanity and all the instincts of cleanliness are stifled with your weed." For if the spirit of smoking separates man from man, the physical side of the habit tends to increase the gulf. Chewing tobacco is supposed in polite society to be a vile and filthy habit; but is the smoking of a cigar so very much better? Strip your mind of your prejudices for a moment and think. Suppose that all the world did not smoke, and that a man, whose friends were refined people, should openly indulge in the habit, what manner of man would he be called? But the appearance and the smell of any smoking-room are enough.

All this may not seem to be germane to the psychology of smoking, but it is; for the psychology of smoking cannot be divorced from the ethics of smoking. The physical quite as much as the mental accompaniments of the habit give to it almost alone among our habits an immitigable exclusiveness. Curiously enough, an impression exists—widely, if I may judge from my own experience—that in smoking there is something social, that it tends to stimulation and expansion. Never was there a greater mistake; yet it is easy to see how this mistake originated. Men so very often combine smoking with drinking

wine or spirits that the effects of the two are confused. Take the typical example of an after-dinner conversation. Our diners, let us say, have drunk enough, as diners frequently do, to share a slight feeling of exhilaration. The bottle, perhaps, does not cease to pass after the coffee comes; at all events its effects linger. As the cigars are being lighted, our friends are possessed by great flashing ideas, which, witless, they unbosom to their companions. Has tobacco ought to do with this volubility? It is the liquor and the liquor only. Your solemn and uncompromising smoker is always too much possessed by his cigar to lapse into lengthy and thoughtless conversation. Why should he talk? If he asked a question of anybody else, it might be suspected that there was something which he did not know; and an answer to an ignorant query would imply a call to enlighten a darkling world—a call that the true smoker never feels. His wisdom exists for himself. He regards with pity the spectacle of a man who tries at once to smoke and to talk with interested enthusiasm. As the cigar is sure to go out, say, twice, it has to be lighted three times, and a cigar three times lighted is twice dishonored.

Admit that smoking is exclusive, and I claim that smoking is damned, for exclusiveness has no motion but a false motion. It is cursed with theatrical assumption. By separating himself from the world, the smoker cuts himself in half. One half he locks up in his own bosom, the other he shows off. Both are equally false. Nobody can really smoke without being conscious of so doing; and hence nobody can really smoke without something of an air. It follows that although smokers are unsocial, they are not solitary. Theirs is an exclusiveness which lacks individuality, and which hangs as dependent on what it excludes as actors are dependent on an audience. The beginning of this phase of the psychology of smoking can be observed in the way a child takes up tobacco. At the outset, I believe, it is usually a matter of imitative assumption. The boy gathers that the habit is a manly privilege, in which, as his father tells him, he can have no share until he reaches man's estate, and he is at the same time advised by the sagacious parent, probably with cigar in mouth, that tobacco is an expensive and wicked indulgence. Thus the boy's vanity and perversity, as well as the atmosphere whereby he is surrounded, all drive him to smoking, and very much to his own discomfort he sticks to it until it becomes a habit. But meanwhile it has simply been a piece of bravado, in which he had

to indulge in order to show that he was what he was not. As he grows older he never gets over the way he looks when he is smoking. Have any of my readers noticed an undergraduate at college handle a pipe? It does not take a very keen eye to discern that he is thinking far more of himself and of the great effect he is creating than of his "bull-dog" or of his tobacco. Again, notice the expression of a cigar in a man's mouth. How clearly does it often betray that his smoking is part of his "show" life. I do not say that Jones may not puff tobacco unconsciously, but as soon as the undivided attention which a cigar demands is granted to it our friend becomes heavily conscious and hence passively or actively theatrical. An outsider might be deceived into believing that the good Jones is sedately thinking, but in truth he is not, for thinking implies progression. At best he is merely dwelling on his own thoughts—a melancholy rooster sitting on an empty egg. Like the small boy, he is trying to be what he is not.

The benighted retailer of tobacco is right. The sterile North American Indian not only typifies smoking; he is the typical smoker. Civilized Americans are doubtless in many respects an advance on their aboriginal predecessors, but as smokers they have immeasurably retrograded. The Indian is never at a loss to pass away time. He wraps his blanket around him, sits down and smokes his pipe. What a picture he makes! His lean face is absolutely impenetrable; there seems to be something grand, solemn and stable about his stoic calm. Though the world might shiver and crack he would still sit there in imperturbable assurance, puffing forth murky, fading tributes to his dark gods. The burden of life sits lightly upon him. If there is any hunting or fighting to be done he does not shirk the work or the danger; but when once returned to his wigwam he sinks again into the unspeakable density of the tobacco-self. And what about the smaller, crueller, deadlier duties? If the brave is too deeply self-inwoven to assume them, who should do it but his faithful squaw? This is a very different picture, my friends. Her feet are large, her hands tough and bony, and her back bowed with the burden of the papoose. She labors on, unheeding, tireless, while the mighty brave sits and—well, it is hard for mortal man to do nothing, so he smokes. As we see him we are often abashed by his assurance, but when we turn to the stooping squaw the cloak falls away and we learn the skinny thing he is. Have you ever reflected, good reader, that the advent of smoking is about coincident with the decline of chivalry.

Isabella, Queen of Spain, served her sex an ill turn in aiding Columbus to discover America, for if Adam civilized had never learned to smoke Eve would be a far, far happier person. As soon as she begins to feel, and, in her own way, to think, she is confronted, and for the most part overwhelmed, by the great fact of the alliance between Adam and tobacco. The enmity between the weed and herself is, I think, instinctive, but this enmity is so mixed with a wondering lack of comprehension that she is embarrassed in her pre-ordained fight with the baleful herb. She is disposed to adore Adam; she can understand his love for fine clothes, and the fact that Adam does a thing is doubtless on the whole very much in his favor; but why *must* he smoke? And if he does smoke cigars, why does he always cut off the end that he puts in his mouth? That is, why are not cigars manufactured with their ends already cut off? She wracks her head over these and kindred problems, and in the beginning perhaps she shyly questions Adam, innocently believing that men know why they do things. But not for long are her questions continued. She soon learns that it is Adam's disposition to treat her queries and comments with an amused or amiable disdain, as if there was something in it which she could not *possibly* understand. Neither does light succeed darkness if in a weak moment Adam drifts into explanatory replies, for when she gets down to the bottom she finds that all the sediment is not on top. Thus, either humiliated or baffled, she retires within herself at the spectacle of smoking. The instinctive hostility to the habit which is part of her nature is increased at the failure of her well-meant efforts at comprehension. She declares war upon tobacco and sedulously seeks to destroy its influence.

When Eve is unwise (alas! poor Eve!) her warfare takes an aggressively dialectic form. She errs in arguing the matter, not only because she is weak at argument, but because Adam inevitably casts her out as a prejudiced judge. Equally foolish and futile is Eve to make tobacco, as she often does, the root of all our physical ailments, for when Adam is not permitted to have a headache, pass a sleepless night, lose a pound of flesh or catch a silly cold without having all the blame laid on tobacco he naturally comes to scorn her powers of diagnosis. By such methods she simply alienates him and makes her final conquest all the more difficult. Yet she would be just as foolish to rest discouraged at her failure or to refrain from effort of another kind. Her fight is true and necessary, but, in order to succeed, she must use her own safe weapons. Much as she

may love plain and fair dealing Adam's touchy tobacco-self will not allow her to use it, so she must resort to strategy. Stevenson says that when a man marries he domesticates the Recording Angel. Eve come to wisdom takes this fact to heart; she embodies the Fate which pursues the smoker. Adam has to learn the lesson that his devotion to tobacco cuts him from much in life that is fair and tempting. Now, Adam, who really has a heart, is nearly as much disposed to adore Eve as Eve is to adore Adam. Even when she openly opposes the habit, although he smiles with nose in air and lords himself immeasurably superior, still he is not unwilling to admit (except to her) that she is justified in her opposition—well, just because she is a woman. If she pleads with him and shows interest in himself as well as hostility to tobacco, he may be persuaded to moderate his smoking. Hence he is measurably open to reason—applied in the right way. As soon as he finds that tobacco inevitably ostracizes him from her presence, and that any open indulgence in the weed creates a difference between them, he begins to make comparisons. It is virtually a fight between love of Eve and love of self, and who can doubt the result? For, in spite of all that Adam may say about his attachment to his pipe, it is a marriage without issue, and hence without permanence. So I believe that Eve has it in her power to triumph if only she would be wise. But, foolish, soft and tender as she is, she generally compromises her instincts for fear of losing Adam, or else arouses all of his masculine pride by weak attempts at verbal persuasion. In the latter case she drives him into being too much of a mere man, and in the former case she permits herself to be too little of a woman.

Some profane, insensible and trivially paradoxical scribblers have argued that women ought to smoke—for no other reason at bottom than that convention at present prohibits it. This dogma meets a powerful opposing one, which argues that women should not smoke for precisely the same reason. The philosopher in life, however, goes behind these superficial "views" and finds a deeper reason for Eve's abstention from tobacco—the reason, viz., that she is not Adam. Eve always wants to be doing something, and nobody who wants to be doing something could ever smoke. A woman's energy exists only to be spent; she values time principally because it is capable of being filled. Hence she occupies herself with a thousand little tasks—needle-work, household matters, piano playing, drawing, painting, anything for occupation. Her object seems to be to diffuse as much energy as possible throughout a

life by concentrating as much as possible into every minute. She gives herself to Earth freely, eagerly, for, close as she is to the Busy Heart of Things, she must needs beat with it. Thus her motion through its intensive sympathies is the motion of life itself. She loses herself a thousand times, while Adam, heavy Adam, so much absorbed in his own weight, loses himself but once, or not at all; for Adam, be it observed, acts as if Time existed not only for spending but for hoarding. His gait, varying as it does, is considerably slower than Time's rapid flow, and as Time rushes past there is some little friction. This friction is the source of all Adam's power. Now and then some portion of Time's rich content will stick to his dense surface; he will store up a sensation here, a feeling there, both, perhaps, expanding into thought until he possesses manifold experience. This experience is possible just in proportion as he opens his nature hospitably to all that passes before it. Mother Earth gives more to Eve; by Adam more can be attained.

But Adam, wretched man, separated as he is from Mother Earth, is ever presuming on his freedom. Simply because he can offer some resistance to the torrent of life he likes to play at being his own master. Disdainfully ignoring all that Earth has to offer, he tries to make a world out of his poor little empty self. Fortunately it is not often that Eve permits him to wander far. As soon as his eye catches hers and love shines from one to the other, he returns, heavy Adam, a willing but rather awkward prisoner—returns to Nature's breast, whereof together they feed. But when Adam keeps on straying we may be sure that he has a cigar in his mouth. The serious smoker is all eye for self; he is blind and motionless—a thing apart. Fool! your soul might increase, your vision clarify, and the Glorious Spectacle of Life stretch out before you—Life, rich, vivid, lusty, diverse, ever dying, ever attaining, ever striving—did you not clog your spirit which is given of God with your foggy weed which comes of the Dirt. Eve's vain struggles against your possessing habit are waged for your own good. When you are involved in the smokeland of self-illusion she cannot help shrinking from you, and even though her heart overcomes the antipathy, there must always remain a difference, for she loves Adam because Adam can see. Says Goëthe's Lady:

"Nobler far is what is true,
For fresh blossoms it can shoot,
Even in the time of fruit"

—*Primus.*

RAYMOND LEE.

CHAPTER V.

PREPARING THE WAY.

THE sway of Habit is more pernicious in the domain of Ideas than in any other of the regions of Life, in which that old tyrant makes slaves. I fear he has mentally bound all of us, Ixion-like, to some wheel, the movement of which we call freedom, the round of which we mistake for the undiscovered circumference of truth. Among the ideas which we cling to mainly from habit is the one that the actions of men are not predetermined, so that our careers are to be regarded as manifestations of causeless spontaneity. We look upon every act as a new creation, not as the inevitable consequence of pre-existing conditions that made a different result impossible. Yet, is not the most trivial act the last of a chain of actions long as Time itself. Go back, far as we may, we cannot get within sight of a beginning. The dawn light of the first day lies in the white cup of the lily in the garden, the exact spot where each snow flake falls and dissolves was determined by the beginning of things, and the creation has not ceased but is still continued in us and around us.

I beg you, dear reader, to take this bit of weak philosophy kindly, and if our opinions clash, we can mutually respect one another; for I am sure we both perceive that men philosophize only where they are ignorant, and philosophies represent merely the number of ways mankind have contrived to view the things they do not know.

So far as our history is concerned, the foregoing is apropos of this, which, despite philosophy, or opinion, as a faithful chronicler, I must set down: Long before Raymond Lee put his question to Mr. Fergus, events in the United States were directly preparing an answer to it. These events shaped themselves around one—Ralph Winter; and they carried him by a devious way into Eastchester, where in due time it will be our duty to find him.

* * * * *

Ralph Winter was one of those really good fellows, whom we have all met, who fail with everything. Their destiny never smiles. Poor thing; she is always in tears. These people usually are possessed of uncompromising strength, and, alas! uncompromising weakness; but it is impossible to make a combination of the two, and so obtain a good working average.

Winter's early days were passed in Pittsburgh, and if I speak of them, it is not because his was an exciting or exceptional childhood, but because our character—that troublesome appendage—is born with us, and never really changes; so that between Ralph the man and Ralph the lad there was not any essential difference. He was a loving, sensitive child, serious beyond his years without being manly; solitary and contemplative, yet quick to advance the fullest confidence at the bidding of his affections.

For one's happiness, it is fatal to be too intimate with oneself. Even when a lad Ralph had commenced a close watchful acquaintance with his own personality; the inner eye was always wakeful, and self-consciousness grew until when he reached manhood it completely mastered mental and emotional freedom. The tyranny of that inner self! "Is that feeling real?" it asked. "Perhaps they are laughing at you," it said. "Bah! You are a fool. That scorn, that enthusiasm, they do not deceive me. I saw how they were made." To be happy, we must be the heroes of at least our own lives; and the sundry ambitions of men are in no small part a striving for their own applause. Every man is his own dramatist, and tries to work some sort of a plot out of his own career, tries to subordinate to his *motif* the clashing incidents of daily existence, so that defeated or

victorious, sinning or sinned against, he is the hero. How we have to force the action of our little plays to do this, disregard the eternal verities, and assume that the gods in the gallery are blind and have lost taste for the legitimate drama, and so ring the curtain down on a *succès d'estime*. But the first part of real heroism is the silencing of all questioning, the making oneself "current" with the whole world by the mere stamp of one's own image, after the manner of kings. Ralph was never able to accept himself, even at his own valuation.

He had the misfortune of being a "pretty child." His mother was a weak, good-hearted little woman, known among spiteful neighbors as "The Fountain," because, they said, she was given so much to "gushing" and emotional "outpouring." She was "domesticated," and, like little cage-bred birds, captivity at home was her natural condition. She kept Ralph tied to her apron strings until he was twelve years old, amid a little coterie of female sycophants who surrounded her and chorussed about her because of her wealth. These docile parasites, of course, "idolized the boy," who was "such a dear child." They kissed him and patted his curls—his mother's particular passion—and environed him with an atmosphere of femininity, from which a lad of robus-ter disposition would have escaped. It developed and fixed Ralph's natural weakness. The man in him grew sickly. He was sent to school for a few years, but was too studious to be "a boy." He was one of those sad things—an "example"—which none was wise enough to sorrow at. Parents possessed of prankish children who daily made it clearer that their destiny was to go to the devil, unable to perceive that to be healthy a child must acquire so much more than he ever studies, sighed and thought Heaven had been unfair in allotting so much cleanliness, gentleness and propriety to "that Winter's boy." Erasmus Syllable, M. A., who delighted more in one problem in arithmetic correctly done than in the tempering of character or the increase of mental vitality, loved Ralph, and gave him the best of his pedagogue's store. Those who have studied under Erasmus Syllable, M. A., know how great is his wealth of desiccated knowledge.

At twenty, Ralph was sent to Harvard with maternal flutterings, feminine sighs, exquisite underclothes and ample funds. Miss Dorcas, the regretful spinster, presented him with a pair of embroidered suspenders and a religious note containing the comforting assurance that she was positive he would never do anything that would grieve his dear mamma. Mrs. Emilia Blessing, the rector's wife, gave him "Christian Musings" in two volumes, which is sold only by subscription. Mrs. Asper, who spent so much of her time knitting her missionary ardor into heavy woolen stockings for the East Indian heathen, dropped into silk for him, which the sycophantic coterie were severally permitted to peep at and gush over. The poor, little mother struggled to make a festivity of the occasion, and worked for her prince as though his departure was a gay celebration for her; but, at the railway station, the heart rebelled and found its own voice in the tearful cry: "My own boy. Love me, Ralph. Write to me often."

At Harvard, Ralph was a failure. He was not a hard-working, routine student, and knowledge is not a flighty maiden whom suitors can allure, but a taskmaster exceedingly accurate in counting his tales. Instead of working steadily in the brickfields, Winter wandered off, Bohemian-like, at the slightest provocation in search of sunsets, wide prospects, pleasant sounds, and other matters of which degrees are not made. His acquisitions were vague, obtained rather by intuition and sympathy than by mental grasp. His mother wanted him to be a clergyman, for the Rev. Septimus Blessing was her ideal. If her son were only like that heavenly, eminently respectable man, who was so strong on the family side of life! Her wish crept into her letters, cautiously and timidly at first; but it grew bolder as her son revealed that he had no particular intentions about his own career, and was readier to withhold a decision than to make one.

The appeal in Religion for fervor was powerful with Ralph. Moreover, the seriousness of the calling and the social elevation of the personality which it conferred rather pleased him. It contained a pleasant insinuation for vanity, which was strong in Ralph. There is a sensuality in our higher

nature as in our lower. So, in time, the mother prevailed, and Ralph entered the Divinity School, and would in time have drifted into the Church and been lost to us in some second-rate provincial town had he not run against Ephriam Stacks. They met one evening casually in a debating society, when the subject under discussion was the "Nature of God." Ephriam Stacks, "red-headed Ephriam" he was called at college, was a born anarchist, as some men are by nature musicians, or painters, or moneymakers. Poor fellow, he died, as the reader probably remembers, drinking the health of the devil in carbolic acid. I recollect him well, with his wire-like red hair, stiff as a brush, his jerky manners, his passionate, energetic speech, his untidy habits, his strange fits of womanly tenderness. Unfortunately, on the night of the debate he had been drinking. After Orthodoxy had spoken, he steadied himself against his chair and launched a bacchanalian anathema against all divinities, religions, priests and priest-crafts. Those near to him endeavored to silence him, but before they succeeded the room was half empty, and Ralph Winter was among those that departed.

The next morning there came a solicitous little tap at Ralph's door, and Ephriam sober entered to apologize for Ephriam drunk. But Ephriam in his right mind did not wish to be misunderstood. There was to be no ambiguity in his position.

"Winter," said he, "I was a blackguard. I am sorry for last night. I want to beg your pardon. I intend to beg everybody's pardon. But, mind you, I don't want to be misunderstood. I am sorry only for how I said what I had to say, not for the substance of what I did say. I've no sympathy with your cursed tomfoolery and superstition."

Ralph expanded. He liked to take a "superior" position.

"Stacks," he replied, with the gravity of the moralist, "I must say your apology, in a sense, becomes you, but really I would rather hear you recant the matter of what you said than the manner."

"Bah," said Ephriam. "Stop that, Winter. I'm not thinking of my precious soul. See here; I like you," and a long bony finger was stretched out to Ralph. "I'm sorry to

see a man of your sort training to be a snivelling priest. There—there. Don't mind that. I can't help my expletives. But, really, Winter, you are *not* honest. I mean with yourself, and by and by you won't be with others."

Ralph did not like this manner of speaking; it touched his most susceptible spot. A hero conscious of the excellence and purity of his own intentions and not honest!

"You at least are candid," said Winter, coldly. "Unfortunately we cannot all reach the same heights."

"Bosh, Winter. Please don't give me any of *that*. We're talking seriously, I take it?"

"Oh, certainly," replied Winter.

Stacks paid no heed to Ralph's sarcastic tone and continued:

"Let me explain what I mean by saying you are not honest; for, needless to say, I don't mean you'd pick my pocket. But there is a dishonesty in our higher life which I think is even more censurable than common pelf or fraud. You'll go into the world shortly and pose as a believer, when really you haven't any belief."

"I don't know what reason you have for your belief that I will do anything of the kind," said Ralph, frigidly.

"I'll tell you. Do you think very highly of a cloistered virtue? If I lock myself up in a cell, would you consider me entitled to any great credit for honesty because I didn't steal your goods outside my door? Of course you wouldn't, and a cloistered belief like yours, Winter, shut up from test and trial, existing merely in name, has no greater reality than my cribbed virtue would have. Come out into the world of living faith, Winter, which is the world of ideas; try your belief, and cling to nothing but what you honestly hold. But you daren't be honest."

"I dare," cried Ralph, excitedly, rising.

An idea struck Stacks. "You dare. Then read with me, Winter. Study my side of the question with me and I will study yours with you."

"Agreed," cried Ralph. "It's a bargain."

"When shall we begin?"

"To-morrow."

* * * * *

Ephriam lived in out-of-the-way quarters in a cheap part of the town, for he was poor. He had a large room at the top of an old, shabby house, a room wherein there was no tidiness or order, and which stank like a menagerie; because Ephriam lived with two little blue-faced monkeys—St. Peter and Mary Mag, he called them; a jackdaw—Beelzebub; three parrots—Shadrach, Meshech and Abednego; a hedgehog—Piety; and a serpent, known as Eve.

The following day, when Ralph entered the room the odor nearly sickened him.

"Bah! Stacks," he said, holding his nose. "Great Heavens! What a den! You need carbolic acid."

Stacks was in a despondent mood.

"Yes," he said, in a low tone. "I need sweetness in my surroundings. Everybody kindly shows me that. I am told it in a thousand ways, lest I should forget it. I suppose I'm wrong, but I can't help it. Eh, St. Peter, why is it?"

The little blue-faced monkey in his arms gazed at him nervously for a moment, and then rested its head affectionately on Ephriam's shoulder.

"That's no answer, St. Peter," he said, stroking the little beast. "Winter," he continued, "I'm a born outcast, like the swineherds in old Egypt."

"Nonsense," said Winter, cheerily, touched for a moment by the fellow's despondency. "You estrange yourself from people, Stacks."

"How? Winter, how?"

"Well, for instance, by penning up yourself here with these animals."

"We're all animals, Winter, in a sense other than the physiological. These are my friends, all I have in the world, the only living creatures that have any affection for me or would miss me if I didn't turn up as usual to-morrow. Loneliness is a disease with some people, Winter, with me it's chronic."

When Ralph returned to his rooms he found Bob Sharp waiting for him, deep in the leather arm-chair, enveloped with a blue haze of smoke.

"I discovered your cigars, Win, and made myself at home. What in the devil kept you?"

"I've been with Stacks," said Winter in a preoccupied way.

"With that madman! Didn't you find him dangerous? You couldn't hire me to go into his den. Pott's hypothesis about Stacks is that he is the devil, and those two monkeys of his are two divinity graduates whom he transformed."

"Bob, you ought to know better than stimulate prejudice against a poor fellow who, unfortunately, creates enough enmity himself."

"Ho, ho! Indeed! Say, Ralph, do you know that a good fellow named Winter said to me last night that this very fellow Stacks was a disgrace to the college?"

"Yes," said Ralph; "and do you know that this very fellow Winter has learned to-day that our enmities and dislikes will rarely stand the test of really knowing people?"

"Then you have commenced to know Mr. Stacks?"

"I have commenced to know him," said Ralph.

There was so little of Stacks' nature hidden, he revealed himself almost as a child would to any one he liked, that to "know" him was not difficult. Ralph's pity for him and sympathy was the first touch which the solitary had felt in years of that divine power which is given to us to bring forth water and fertility in the wilderness. Ralph was delighted to see that as his kindness penetrated deeper beneath Stacks' forbidding exterior flowers of that human sweetness which is the very perfume of life budded and blossomed. To please Winter, Ephriam went to work silently, with a desperate, childish effort, to keep his room tidy; and he blushed like a girl the first time Ralph caught him, in trousers and a nightshirt, sweeping with an energy that almost made holes in the carpet, and threatened the existence of his menagerie by reason of the dust. He even consented to follow Ralph's advice about his attire.

"You are making a dandy of me, Winter," he said, when the latter gave him a clothes-brush and extracted a promise that it would be used faithfully every morning.

But, though Stacks was the child in these matters, mentally he was greatly the superior of Winter. Ralph's mind was

of the sympathetic sort that follows, that absorbs unconsciously part of whatever it touches. Over and over again he did battle fiercely with Stacks for his opinions, and the argument always ended undecided, with Ralph stubbornly fighting for a position which at the moment he could not perceive he had abandoned. Yet, very often it happened that the next day he would advance to somebody else the essential part of Stacks' argument and maintain it as his own. The outcome was inevitable. Stacks triumphed; he overthrew every positive fragment of Ralph's faith, so that Ralph was stricken with spiritual lassitude. The ardor which had led him to contemplate entering the Church subsided, and was replaced by an indifference which made him the sport of circumstances.

• CHAPTER VI.

THE ROAD TO EASTCHESTER.

DURING one of his visits home he was taken sick, and when the question of his returning to Harvard arose he said he thought it would be better for him to abandon college and a career in the Church, and adopt his father's profession. Now, Abraham Winter was an architect, the leader, which the reader probably recalls, of the Rococo revival in this country. He was born in England, and coming to the United States before Ralph was born, formed quickly two partnerships, one of a professional nature with Horace Stone—the firm's title being Winter & Stone—and the other of a matrimonial character with Miss Catherine Tee, daughter of Nicholas Tee, the great Pittsburgh iron manufacturer, known outside of trade circles for his fervid advocacy of Protection, and for his philosophic work, the "Rhetoric of Industrial Progress". Ralph was their only child.

It is impossible to say how long the ability of Winter & Stone might have been unrecognized had not Chance, the good godmother of Genius, in the person of a friendly arbiter in the commission appointed by Gov. Boys to build

a new municipal building in Filchburg, worked so hard with his fellow-commissioners in favor of Winter & Stone, that their plans, bearing the legend "Integritas," were accepted. The design was a florid piece of millinery in stone. There was a profusion of sculpture and carving all over the building that convinced the public that it was Art; and when the public "get" Art, they always "get" it as old colored Chloe said she got religion—badly. So when the great manufacturing town of Sootville shortly afterwards needed a new court-house she decided that she, too, wanted Art, and where was she so sure of getting it as in the offices of Winter & Stone? As the great court-house was even more ornate and "striking" than the Municipal Building, it was voted a greater success, and the newspapers, who have so keen an eye for such things, came out, all over the land, and declared, in that convincing, undoubted tone of theirs, that the Sootville court-house was the triumph of American architecture, and demonstrated, in conjunction with the Parthenon and other ancient works, that Republics were the great seats of Art. After this, Winter & Stone could scarcely attend to the business that poured in upon them from all quarters. Their work, all of course in the Rococo style, was soon to be found in every considerable city in the Union. They had forty draughtsmen constantly employed in their offices, and their architectural mill turned out designs by the score, each of which, the papers declared, were so "classic in proportion and detail;"—designs of office buildings, town mansions, country villas, hotels, churches—a facile abundance of design that was the envy of other less prosperous architects, who, to float on the tide of prosperity, cast away their heavy freight of Gothic, or Romanesque, or what not, and strove with might and main to out-Rococo the great Rococo firm. But Winter & Stone were wise in their generation. They left no stone unturned to fasten their art and the success attending it on a sound foundation. They joined all the great social clubs, and hobnobbed and dined and wined with the rich of the land. Then it was that Abraham Winter aspired to and captured the hand of Nicholas Tee's daughter, not because he had any great

affection for the meek little doll, so the envious said—but can we believe them?—but because Nicholas was about to spend a prince's fortune in building the great Tee palace to house his pride, and it was whispered that Ditcher, Clamp & Razee, who were strong in the matter of social connections and pure classic, would surely be commissioned. But Rococo prevailed. Abraham captured the daughter and drew the designs. For two years the world watched the progress of the work, and read with avidity of the \$150,000 grotto bath-room, with its figures of Neptune and Amphitrite, and its nymphs ceaselessly pouring water out of golden urns into the depths of emerald glass cunningly made and lighted from beneath to imitate the bottom of the ocean: and of how the great French painter, Delatête, who hitherto had positively never performed out of Paris, was imported to decorate the quarter-of-a-million-dollar bedroom, on the walls and ceiling of which he depicted Nicholas Tee as a shapely and rejuvenated Vulcan, with Mrs. Tee, minus attire and at least thirty of her years, languishing in his arms as Venus. Enemies of Tee have called this superb piece of work the "Painter's Revenge;" but to this day, for the life of him, Tee cannot see why.

It is hardly necessary to tell the judicious reader that a fellow like Ralph was quite out of place in a firm like Winter & Stone, where the equilibrium between social considerations and Rococo was maintained with so nice, one might say with so exquisite a touch. It was too delicate a mixture, this architecture *à la mode*, to be intrusted to such hot hands as Ralph's. He read Ruskin, and lost faith in Rococo. He told the heads of the firm that for the sake of the eternal verities they should instantly return to Gothic traditions, and when the "traditions of the firm" were advanced as a counter-argument, declared the whole Rococo movement the prostitution of art to commerce. Ralph had not learned that you cannot reform in the adytum. He upset a "big job" by telling the great Jacob Haggelsheimer, of Haggelsheimer & Mosenstein, the manufacturers of the world-renowned Begum corset, that it was not art that he wanted in his fourteen-story office building, but a "rent-trap" with which any Jewish architectural peddler could

supply him. After this episode, Winter *père* suggested that his son had better make the trip to Europe which he had been contemplating, and as Ralph was of the same mind he packed up his trunks and departed for an indefinite period.

* * * * * * *

One of the first manly possessions acquired by Ralph was a piano. The reader, no doubt, will see in this an indication of our friend's character; he was a musician by temperament, if he was not one by skill. However, his musical attainments, even when at college, were not of a mean order. He was naturally gifted, and his taste in musical matters was generally sound and modern—that is, German. Consequently, when, in the course of his wanderings on the continent, he met the great Herr Posner at Hildesheim, at an entertainment given by Mr. Augustus Smith, the United States Consul, a Pittsburgh politician, he, being musically the one-eyed king among the blind, interested the good-natured German, who said after hearing him play his (Posner's) own op. 357:

“Ah, that su-blime gombosition! Mein vriend, you have the music dember: Stud-ee,” and the great man tapped his own broad forehead with one of his big fat fingers. Posner was, if possible, prouder of his English than of his music, as indeed we all are of the accomplishments which are only indifferently ours. This word of encouragement from so exalted a sphere—for did not Posner's admirers rapturously compare his music to that of the spheres?—set Ralph afire with enthusiasm. That night he dreamed that he was a great composer himself, and the friend of Bach and Mendelssohn and Schubert and Posner, and others of the world's great lords of melody. The following morning he made straight for the little ancient, half-timbered house, of which there are so many in Hildesheim, wherein the big musician lived, and did not depart until Herr Posner, despite protestations and excuses of many kinds, had consented to receive him as pupil. Then, for the first time, did Ralph experience the divine sensation of a purpose and a way in life. The old, dull world was transformed. The sandals of Hermes were on his feet, as they are on those of all who lift their eyes, be it ever so little, above the earth. Happy enchantment,

when youth sings in the heart, and the world is a maiden in love with us, courting us with delicious enticements and with promises that are perhaps all the more rapturous because they are so vague. Alas! that youth fails, and the divine enchantress grows old, and by and by beckons us on with hand that has become as feeble and scraggy as our own.

For more than a year Ralph studied with Posner, underwent the most arduous of dull musical toil, scaling the heights, he called it; but then the future, that golden apple of the Hesperides, was ripening for him, and who would shake the tree, knowing the harvest day to be at hand. Posner, whose heart was very big, grew to love Ralph almost as his own son, and said very pleasant things about his musical talent behind his back, but to his face he was forever asserting with many gesticulations that Ralph would have "absolutely no musical existence, unless. . ."

All would have been well, and Ralph might have realized his first dream, had not the greatest popular success, in New York, of Roubleoffski, on the pianos of a rival firm, aroused the ire and energy of the world-renowned manufacturers, Messrs. Keyes & Co. Everybody acquainted with advertising saw that it was absolutely necessary that they should forthwith import some one capable of scoring a still greater success on *their* instruments. And in all the wide world who was there except Posner that could rival Roubleoffski! There was none; so Posner must be procured at any price to play upon the pianos of Keyes & Co., and adds his testimony, in good English, to those of other great musicians (see advertisement for list), that no piano that he had ever touched (and he had used those of all the celebrated makers) could be compared for a moment for sweetness of tone, touch and durability, to the superb instruments of Messrs. Keyes & Co., one of which he would hereafter forever use, not only in his public concerts, but at home; all others being banished as unworthy of a discriminating virtuoso.

The outcome was that a gentlemanly agent, equipped with full powers from the home office, assailed the good Posner in his little home, and with a golden ladder scaled the musicians' objections and fears, and forced him to surrender. By

mere weight of dollars he bent Posner, who mortally feared the sea journey and an undertaking in an unknown land, so far from home.

"Bah," he said, wiping the perspiration from his forehead as he closed his door on the agent of Keyes & Co. "Mein Gott, I am sold to barbarians."

And he sat down to the piano and played dirge-like music, prophetic of his captivity, but catching sight of Ralph, and perhaps noticing his dejection, he passed into a triumphal march ending with "Die Wacht am Rhine." He closed the piano with a bang.

"No more sorrows," he said, cheerily. "When I return that house of Herr Bergomaster Steinitz I will buy."

The departure of Posner for the United States was a great blow to Ralph. It put a pause to his hopes and progress. He would have accompanied the musician to New York, indeed for a time he decided to make the trip. But on second thoughts he doubted the wisdom of the step. What was there for him to do in the United States? he asked. His musical studies would perforce be suspended. Posner would be busy with his engagements and Winter *père* had not evinced any particular desire for the return of his prodigal son. So, finally, Ralph decided to remain in Europe and await Posner's return. He would spend his time, he said, in traveling, and would begin his wanderings by going with Posner as far as London.

Posner had many friends in England. He had visited that country professionally many times, and, before he married, had resided there for three years. The musician arranged to have a month's leisure in London in order to drop in upon his friends and startle them (as he felt sure he would) with the wildness of his new enterprise. Perhaps it is our duty to confess that when the good Posner had subdued his fear of the sea voyage and had grown accustomed to the idea of visiting the United States it pleased him immensely. His big vanity was tickled. The barbarians had at least the discrimination to call *him*, and in a triumph who is over-curious about the captives.

Posner was welcomed with open arms by his friends in London. He strutted among them, we would say like a

peacock if we dared compare the great little musician to that songless bird. Wherever he went Ralph also went. Posner insisted upon his friend accompanying him, not only on his visits to his countrymen, such as Herr Max Pam, who was the leader of the Royal English Musical Society (Incorporated), and Herr Heinrich Himmel, who conducted the Thursday Popular Concerts, but members of the aristocracy, among whom were the Duke of Holborn, whose daughter, Lady Fetter, Posner had taught; the eccentric Lady Wigs, whose house in Harley street was profanely called the "den of lions;" Sir Edward Mercer, M. P. for Battersea; Lord Orkney, son of the Duke of Shetland. But Ralph did not get to the end of Posner's list, much as he enjoyed the society of the great, for at the end of the first week in London he was stricken down with bronchitis, which might have been very serious but for the care he received from the good Posner who, in fear for his friend's safety, summoned a great many doctors, and what I think was of greater account, nursed Ralph night and day with the solicitude of a woman.

The day (inexorably fixed by contract) for Posner's departure for America arrived, and found Ralph just over the first stage of convalescence. Had it been possible, Posner would have remained with his friend, but it was financially impossible, and Ralph, who declared he was "all right," would, of course, not listen to any postponement of the voyage. He consented, however, to leave London, particularly as the doctor advised it. Now among Posner's friends was John Carroll, the organist in the cathedral at Eastchester, and the good German wrote to him and insisted peremptorily that he should make a place for Ralph in his home for a time. The organist consented readily (what would he not do for his old friend Posner, who described Ralph in very glowing terms?). So on the very day when Posner set off, weeping, for America, Winter took the train for Eastchester.

CHAPTER VII.

EASTCHESTER.

THE reader knows that Eastchester—once famous for its flour mills and hops—fell asleep not less than three-quarters of a century ago. The railroad, on its way east passed through it without awakening it. The great modern manufacturing town of Smeltham arose only five miles away, yet its fires and smoke, which have fevered and soiled so many lives, have made no impression upon the drowsy calm of Eastchester. The old town sleeps, and people possessed of modern instincts wonder why the hubbub of its busy neighbor does not awaken it. It sleeps, in the valley among the low hills, — a town of narrow streets and old brick houses and gable roofs and green gardens, all clustered around the cathedral, about which the doves circle and coo as though they were the spirits of the years that have passed away. Time has made a Sabbath in the old town and filled the air with its soft enchantments and its benediction of peace. The hours slip away there with a cadence as sweet as the cathedral chimes. The bells in the tower intone (every quarter of an hour they add a line)—

“ Bitter is life,
Fruitless the strife.
This peace is best.
Weary ones rest.”

And for the hours, Big Tom thunders, “Gone! Gone!” and the reverberations pass, ghost like, through the streets and die tremulously among the hills. Thank Heaven that there are such places left on earth, where (to use a nobler language than mine) it is possible for us “to hush and bless ourselves with silence.”

The railway enters Eastchester as railways enter most towns—by the back door. At the station, Ralph found a dilapidated vehicle which he engaged to take him to the

organist's house, which stood within sight of the western entrance of the cathedral. Ralph had expected to find Eastchester a modern provincial town with wide streets and narrow people. The reader can imagine his delight upon dropping, without preparatory anticipation, into the atmosphere and surroundings of the last century. As the old vehicle jolted through the tortuous narrow streets, passed the Kings Arms, with its bowling-green and Gothic windows filled with churchly little panes of glass, along High street where the shops are, with their ancient overhanging fronts, passed little trim, old-maidish houses and more dignified and masculine residences half hidden among great trees, he could have sung for very delight. He endeavored to arouse his driver to conversation; but that antique little individual sat—hat pulled down, collar of coat turned up, head drawn down—with his whip held out over his horse, dozing like a fisherman waiting for a bite, and refused to be communicative. Occasionally he aroused himself and flicked the horse, subsiding at once afterwards into rigidity and silence. Mr. Carroll lived in a plain, square, red brick house, with a classic porch and square, regularly-placed windows, built, I believe, in the days of George I. The house and the old-fashioned garden in front of it was inclosed with a high wall and an iron gate which swung between two brick piers, each surmounted by a large stone cannon-ball.

Mr. Carroll was a venerable, white-haired man, of quiet, soft manner. He spoke as seldom as possible and then said as little as possible. It might have been thought that he had an aversion to speech, but that wasn't so. His silence sprang from a torpid nature, and a slow mind that was willing to listen but was seldom inspired. His speech was mainly monosyllabic, and, in a way, he intoned his words. His wife was older than he. Her hair was also white—the silver of age—and she always wore a little quaker-like cap. She was a thin, little body, bent, but still quietly active. She moved about noiselessly. Her manner was meek and conciliatory, and when spoken to she had the habit of slowly rubbing her hands one over the other and bowing her head repeatedly in a gracious, assenting way, as though she feared people might think she

dared to differ from them. It seemed that her whole life had been spent in trying to agree with others. Ralph was welcomed in the kindest way by the old couple. They conducted him at once to a large room exquisitely prim and clean, furnished with old-fashioned rosewood furniture. The bed was draped with long curtains, pale with age, and the snow-white sheets smelt of lavender and the sunshine. The windows opened into the garden, then in the glory of June, and one of them was partly screened by tendrils of honeysuckle. Ralph was delighted. He paced about the room when he was alone, surveying it in every nook and corner. He had a keen relish for propriety and cleanliness, and here they were, indeed, in the highest degree. As he said in a letter to his mother, he felt "nice all over."

Ralph unpacked his trunks with a pleasant feeling of being at home, and descended to the parlor. He was greeted by Mrs. Carroll, who had enveloped herself in a big Holland apron, and was busy before a table piled with tea-things and silver, and a number of pots of different sizes sealed with white paper like little bonnets with pink strings—the outward and visible signs, which we all remember, of homemade preserves. Turning to her husband, she said :

"John, dear, what can we do for Mr. Winter. I am afraid he will not feel at home to-night. You see, sir," she continued, addressing Ralph, bowing and rubbing her hands as she spoke, "the Dean and a few friends are coming to spend the evening with us, and while we shall all be delighted if you care to be one of us, perhaps not being very strong, you . . ."

She turned to her husband, inquiringly, but that gentleman merely said vaguely :

"Yes, Martha."

"Oh, I am quite strong," said Ralph, noticing the good lady's embarrassment. "I have picked up wonderfully in the last day or two, and shall be most delighted, I am sure, if you will allow me to be with you to-night."

Mrs. Carroll said "Ah," in a sigh of relief, and smiled and recontinued her work polishing the china.

"You are looking pretty well, sir, if I may say so. John, perhaps Mr. Winter would like to see the garden."

Ralph declared that he would, and the organist, whose movements, like his speech, were languid, arose slowly and fetched an old straw hat and a thick silver-handled cane.

"What a delightful place this is," said Ralph, as they stepped out into the sunshine. "I never dreamed of coming to so beautiful a spot."

"Yes," the old man intoned vacantly.

"This house must be very old, I mean old as we Americans count," said Ralph cheerily, wishing to get on an easy footing with his new friend.

"Yes," said the old man, in the same indifferent tone; "but 'The Oaks' where Colonel Leo lives are older."

"Indeed," said Ralph, as though the news greatly surprised him. "Herr Posner never told me that Eastchester was so ancient a town. Was he ever here?"

"Yes, years ago. Herr Posner is a good man. He stayed here some time."

"What a grand musician he is," said Ralph, enthusiastically.

"Yes—yes," said the old man, brightening, "when I was young I dreamed of music such as he played. Ah! . . ."

He stooped and liberated tenderly a rose which the leaves half covered.

"I see, Mr. Carroll, you are fond of flowers," said Ralph. "Your garden is beautiful."

The organist turned his face full to Ralph's and smiled sadly:

"They are our only children now," he said, simply.

The story of a life's disappointment was told in those words. They quickened the beating of Ralph's heart. Impulsively he slipped one of his hands into the old man's and thus the two paced down the garden-walk.

"Everything is as she left it," said the old man. "I try hard to keep everything as she left it, but the flowers die, too."

"Yes," said Ralph, softly.

"I have never plucked one," the old man continued. "Not one these four years. I watch them all wither as she did. She planted that rose tree, sir" (he turned round

and looked toward it), "and the last buds we gathered from it are on her breast."

He said no more, and Ralph felt that he could not break the silence. They reached the iron gate, and beyond, at the end of the narrow lane which led to the house, was the cathedral. The organist observed that it arrested Ralph's attention.

"Perhaps you would like to see the cathedral?" he asked. But Ralph saw that the old man was not in a mood for the visit and he replied:

"It would be better, perhaps, some other time."

The old man said, "Thank you," and they turned around, and, getting to the porch again, Mr. Carroll, in a tone wherein kindness and courtesy were blended, said:

"My wife may need me. You will allow me to leave you now, sir, won't you? Be at home here. We are very glad to have you with us."

The organist took a seat in the room where his wife was working and for a time was silent. Then he said: "Martha, that is a very nice young man," and Mrs. Carroll, whom Ralph already had pleasantly impressed, said: "Yes, John; I think the Dean will like him."

* * * * *

Ralph discovered a rustic bench under the apple tree on the lawn. He stretched himself at full length upon it, and looking upward through the openings in the leaves watched the clouds as they sailed above him. His conversation with the old organist had saddened him, touched his thoughts, which wandered slowly over his mind like the clouds above him, with a half-pleasant melancholy. His early days returned to him, mute witnesses to so much that he did not perceive when they were living time, and not, as now, the ghosts which the memory conjured up. His mother's love—that divine tenderness—his hopes—for Ralph had always traveled much beyond himself—the faith that he had lost, his father's dissatisfaction with him, his present purposeless existence; dear, dear, how the thoughts at last crowded in upon him, and jostled one another. The retrospect pained him.

"Bah!" he cried aloud, in disgust, jumping to his feet.

"What have I done? Other people have made my life, not myself."

"Oh!" exclaimed some one in front of him, and a girl, perhaps we should say a woman, beside the very rose bush at which he and the old organist had stood, turned quickly around and faced him.

"I beg your pardon," he said, noticing her alarm, and at a loss for something better, continued: "May I go and call Mrs. Carroll for you."

She had taken off her straw hat and tied it over her arm by the strings. Still confused, she hastened to put it on again.

"No, no, thank you," she said, striving with her hair which the wind had loosened. "Please don't trouble, I will find her myself;" and suiting action to word she hurried up the path to the house.

Ah! the meditations of youth, how quickly they change! The soft voice was singing in Ralph's ear, the large brown eyes filled with alarm were still fixed on his, and he could still see the blush on the cheeks, fair as the roses beside her.

"Who is she," he thought. Then he heard Mrs. Carroll's greeting on the porch:

"Well, Marian, at last! I had given you up, dear."

And Ralph whispered to himself as he reseated himself on the bench: "Marian, eh?"

A man seldom wants to know more than that about a pretty woman.

To be continued.