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CONTENTS.

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OCTOBER 5, 1895.

CONTENTS.

THE New York grand jury has found indictments for manslaughter in the second degree against Charles P. Behrens, the architect of the collapsed Ireland Building; Dennis E. Buckley, the inspector; Edward J. Youdale, the clerk, George H. Parker, the contractor, Thomas Walker, the superintendent, and Thomas Murray, the foreman mason; and they will be tried in due course. We have no desire to anticipate judicial proceedings, but it seems to us that even grand juries, like the rest of the world, find it easier to blame people indiscriminately than to sift evidence carefully enough to find who really deserves it. Concerning the fall of the Ireland Building, it seems sufficiently proved, by the testimony at the inquest, that the direct cause of the catastrophe was the reduction in the thickness of the concrete footing of the column which gave way, and the collapse of the column was the natural result of reducing the resistance of the footing on which it stood to less than one-third that which it would have had if it had been carried out according to the architect's plans and specifications. This being so, the question is, Who made this change? And if it was made by the direction of any person, who was that person? In that person, as every thinking man must admit, is to be found the culprit who is alone responsible for the deaths of the unfortunate workmen who perished in the crash. So far as we have been able to follow the evidence, there is not the slightest reason for supposing that either the architect or the district inspector knew anything about the wilful departure from the plans and specifications which had been approved by the Department. Of course, the idea of the grand jury is that they ought to have known of it; but, even supposing that reasonable care and skill on their part required that they should dig around every trench in which concrete had been laid to ascertain whether the thickness of the concrete agreed with the specifications, there is, to us, something monstrous in the idea that a failure to do so made them *particeps criminis* with the person who knowingly and wilfully perpetrated the crime which they failed to detect. That an architect who has carefully and skilfully designed a piece of construction may be held responsible for the contractor's wilful variations from his design is a notion about as well calculated for the encouragement of reckless manslaughter on the part of contractors and their men as any that has ever yet been offered to the community; while the similar idea, that an official is to be himself punished as the author of the crimes which he fails to detect, is one over which the real criminals will shed tears of joy, for it means that, where it prevails, evil intent is to be accounted as nothing, but those who perpetrate a crime, and those who endeavor, unsuccessfully, to prevent it, are to be included in the same indictment, and placed in the dock together for trial on the same charge, with, at least, a fair chance that the real criminal will escape entirely, or, at most, be condemned only to share the punishment of the others.

WE publish in another column the substance of the very interesting bequests made to the City of Galveston, Texas, by the late Henry Rosenberg, who died in 1893. We have often spoken of the artistic greatness which, as we believe, is in store for this country, mainly as a consequence of the generosity of our people in giving their time and money for objects of public interest. Hitherto, this generosity, as was natural in a community necessarily devoted to practical pursuits, has been, as a rule, devoted to promoting works of utility; but the æsthetic feeling, which exists among us in a high degree, is beginning to assert itself, and, by the side of the orphanages and hospitals which bear testimony to the public spirit of Americans, are occasionally seen, even now, works of pure art, dedicated by citizens to their fellow-citizens. Among these enlightened benefactors of their country, Mr. Rosenberg seems to have been one of the most judicious, and it would be difficult to suggest a disposition by which a large property could be made to do more for the mental and moral elevation of a community than that detailed in his will. We once knew a very benevolent man, who, after a life filled with acts of kindness, left most of his property for public purposes. One day, during his last illness, after reflecting, as it seemed, with his usual conscientiousness on his plans for disposing of his property, he observed to some one near, "It is hard to make money, and still harder to keep it, and hardest of all to do any good with it." There is no doubt that this observation exactly expresses what is in the minds of hundreds, or, more probably, thousands, of rich Americans, whose relatives are comfortably provided for, and who, having neither occasion nor desire for purchasing rank or station for their families, sincerely wish to make the fruit of their patience, temperance and self-denial beneficial to their fellow-men, and it is pleasant to find that in the South, where large fortunes are comparatively rare, the question of utilizing them to the best advantage is quite as conscientiously and successfully studied as in the North.

MR. EDWARD ATKINSON has recently urged again upon the Mayor of Boston the admirable plan for placing stand-pipes and hydrants on the roofs of high buildings, as a protection to property in the neighborhood, which he has so long advocated. With the multiplication in the city of high buildings, surrounded, in most cases, by structures of very dangerous character, the subject has taken a renewed importance, and the Mayor and Fire Commissioner, as well as the public, seem to have received the communication with favor; but, in the opinion of the Corporation Counsel, the city authorities have no power, either to put up stand-pipes on the walls of buildings, or to compel private owners to do so, and the Mayor appears to think the case hopeless, unless special legislation can be secured. At the risk of repeating what we have said at least once before, we will observe that the change which Mr. Atkinson thinks so desirable might be made all through the business part, not only of Boston, but of every other large city in the United States, within six months, without any legislation, and without any expense to the municipalities concerned, by the simple method of inducing the underwriters' associations to announce a reduction in insurance rates on property so protected, approximately commensurate with the diminution in the risk of loss from fire which Mr. Atkinson thinks would be the result of carrying out his suggestion. It is not so very many years since the New York Underwriters' Association voted to make a certain reduction in rates where stand-pipes were put up on the front walls of business buildings, with couplings for fire-engine hose at the bottom, and outlets at every story, and above the roof. Immediately, the owners of stores in the dry-goods district began putting up such stand-pipes, not only on new buildings, but on old ones, and architects were instructed on no account to omit

them from their specifications. By-and-by, the Underwriters' Association discovered, as it said, that the stand-pipes were filled up, or defective, or in some mysterious way unsuited to the duty that they were intended for, and the reduction of rates allowed for them was revoked. From that moment the erection of such pipes ceased. Architects were instructed to leave them out of their specifications, and no more money was spent on a device which the underwriters themselves had ceased to approve. It is not likely that the Boston merchants and real-estate owners, many of whom have interests in New York, have forgotten this lesson, and, although the Fire Commissioner charges them with "neglect of duty," in not providing just the appliances which they have seen alternately approved and condemned by the rate-making portion of the underwriters, it is altogether likely that they will wait for some argument more tangible than mere abuse before incurring an expense which, as they may be told, six months hence, the underwriters consider useless.

THE French Courts have been turning their attention to the "scab" question, in its concrete form, with a vigor which promises well for the future. It will be remembered that, ten years ago, official France was almost as much given up to fawning upon the trade-unions and their tyrants as England has been since; and, in 1884, a law was passed, repealing the Article 416 of the Code Penal, which provided penalties for conspiracy to proscribe or injure any person by preventing him from carrying on his legitimate business. The law of 1884 was unquestionably intended to facilitate the systematic persecution and oppression by which the trades-union leaders gain and maintain their power, and it has been constantly utilized for that purpose. Now, in France, as here, the victims of this infamous tyranny are beginning to find courage to complain, and there, as here, the courts listen to their complaints, unterrified by the threats which the tyrants mutter against them. Two recent cases, decided by the Court of Appeals, one at Lyons, and the other at Paris, are interesting, not only by their circumstances, but for the vigor with which the Court pronounced its opinion of union practices. In the Lyons case, a man named Bernichon, a brass-worker by trade, was employed in the factory of one Curbillion. Curbillion's factory was "struck" by the union, and Bernichon lost his place. He had been a member of the union, but had fallen behind in his dues, and had been expelled on that account. On applying for work elsewhere, he was informed that only union men could be received. At the factory of M. Blanc, he was rejected by the foreman without his master's knowledge on account of his not having the union ticket, but M. Blanc testified that he had twice been compelled, by delegations from the union, to discharge non-union workmen, so that he would not have taken him if he had known of his application. M. Mallet, the head of another factory, testified that Bernichon applied to him, and that he would have taken him, but his foreman told him that Bernichon was not a union man, and that all the other workmen would strike if he came in; and, having had his factory previously "struck" for two years, because he had refused to discharge a foreman at the demand of the union, he was unwilling to risk any more encounters with the union, and, therefore, refused Bernichon's application. Several other brass-workers testified that they had been kept out of employment by the union, because they did not belong to it; and M. Mallet, in a conversation with the commissary of police, which was admitted as evidence, said that he could not employ non-union workmen without having all his union workmen leave him; adding that this system was as tyrannical for the workmen as for the masters, but that the latter could not help themselves. The same commissary of police testified that he had spoken on the matter with two members of the union, who said that Bernichon, finding that he could not get employment without the union certificate, had applied for reinstatement, but that he had not paid union dues for three years, and his application was refused. He was kept out of his employment in this way for two years, during which he picked up a little money by working as a laborer, and in other ways. On this showing the Court observed that, by the repeal of the penalties attached to such acts, the union could not be pursued criminally, but that the change in the penal code did not in the least abrogate the civil responsibility incurred by persons who unjustly deprive others of their rights. The testimony showed that Bernichon could earn, in his own trade, five francs and a half a day. In two years, this would amount to forty-five hundred francs. Deducting what he had been able to earn in other ways, with something for what he would probably have lost by not being constantly employed, the court estimated the remainder at two thousand francs, and ordered the President of the union to pay to Bernichon that sum forthwith, with interest from the date of the writ, and to pay into court all the costs of the original case and the appeal.

THE second case is a still more interesting one. In 1885, a certain Terrier, who was influential in the brass founder's union in Paris, took it into his head that he would like to be foreman of the shop in which he worked. The first step in the accomplishment of this object was, naturally, to get rid of the foreman who was already there. Utilizing the advantages offered by an industrial system which certain people who ought to know better profess to regard as a foretaste of the millennium, Terrier obtained an order from the union unceremoniously demanding the discharge of the foreman whom he wished to supplant. The proprietors of the shop refused to obey the order, and the shop was struck. Some of the workmen stayed by their employers, and were put on the black-list of the union, and their names published as "scabs" in the union newspaper, *La Fonderie*. One of them, named Bonnissent, seems either to have incurred the particular rancor of the union tyrants, or to have been less easily intimidated than the others, for his name was kept on the black-list for ten years. During that time, he was unable to find employment in any shop except those which were for the moment themselves under the ban of the union, and his work, in consequence, was very precarious, and interrupted by long periods of idleness, which, as the Court said, were all the more distressing, as he had four children dependent upon him. Two or three years ago, one of his sons, Victor Bonnissent, came to an age at which he could earn something, and also entered a brass-foundry. As soon as the union tyrants discovered this, they included him in their persecutions. The testimony showed that he was earning nearly four francs a day, and that his employers were pleased with him; but the union officials demanded his discharge, and they were obliged to send him away. He succeeded in finding employment in another shop, but the union hunted him out there and ordered his discharge again. Finding it impossible to get employment at his own trade, the poor boy went to work in a shoemaker's shop, and afterwards in a glass manufactory, at wages much less than he had been earning in the business for which he had been trained. At last, the idea occurred to the elder Bonnissent to seek in the courts, for himself and his minor son, redress for the persecutions which they had endured for so many years.

THE union magnates fought hard, for the final decision was given by the highest court in France; but it left no doubt of the view which the law proposes to take of the subject. After summing up the evidence, the Court said: "In "acting as it has, the Union has committed a grave fault, of "which it cannot possibly be allowed to escape the responsi-"bility. It is useless for it to pretend that it has not exceeded "its rights in inscribing Bonnissent's name in the black-list; "such a measure, taken in regard to a workman against whom "it had no legitimate grievance, constitutes the most revolting "abuse, and the most crying violation of the fundamental "principle of the liberty of work and industry. To admit its "propriety would be to confiscate, for the exclusive profit of "the unions, who would thus become, against all reason, and "all justice, the absolute masters of every trade, the individual "right to labor which our modern laws have never yet ceased "to protect with jealous care; and to reëstablish, a hundred "years after the French Revolution, and by the abandon-"ment of one of its most beneficent conquests, the oppression "of the ancient guilds and corporations in its most odious "and tyrannical form." The counsel for the union claimed that no damage had been done to Bonnissent and his son, since they were able to find employment of some kind; but the Court said that it was perfectly evident that they had been out of employment more of the time than they would have been if the unions had not pursued them, and that the son had been obliged to take less wages than he could have earned if he had been able to work at the trade for which he was trained. It therefore condemned the union to pay to the elder Bonnissent five thousand francs, forty-five hundred for himself, and five hundred for his son; and to pay all the costs of the action and appeal.

ART IN THE MODERN CHURCH. — I.

INTRODUCTION.

From the *Building News*.

IN the following papers an attempt will be made to examine the present position of church architecture in America from the standpoint of Christian art. The building of churches consumes the energies and commands the attention of many people. The architect is, perhaps, the least interested; certainly his interest cannot be as intense as that of a minister and a congregation in the structure they are themselves building for the worship of God. And after the church has been built it continues to be to them a never-ending object of tender and loving regard. Affectionate memorials to the dead are constantly adding to its adornment; the pious offerings of some wealthy member are ever being lavished upon it; additions are made to its structure from time to time; so that once begun, it is seldom finished, in the sense of being unalterable and complete. Thus, the interest in the art of the church is continually growing and widening, and must always be a matter of the supremest interest, binding together people of many tastes and widely-diffused occupations, uniting all in one common bond of artistic and religious fellowship.

Each day brings forth new developments. Not only are our churches numerous, but a more or less extended attempt is now made to apply to them that decorative art that the popular taste of the day demands in ordinary and secular structures. Whether this so-called religious art is good and true, whether it is fitting for the Lord's house, whether it is appropriate to the buildings it is intended to set off and ornament, we shall presently inquire; meanwhile, it is proper to remark that, apart from its propriety and reality, such a feeling for art is itself significant of an increasing and fresh interest in the artistic aspect of the church, its architecture and its decoration.

Modern taste demands church buildings of a certain artistic quality. Oftentimes this quality is more decorative than artistic. Above all, it is important to note that the present movement towards artistic church-building is dictated purely by questions of taste, which has affected our churches just as it has affected our homes and our office-buildings. In no sense whatever is this movement a religious one, nor is it inspired by any religious impulse. It is true, the High-Church branch of the Episcopal Church has set up, in a certain sense, some standards of church architecture, and openly contended for beauty and art in God's temples. But the High Churchmen are not the only ones who wish for beautiful churches. Scarcely a religious body, except it to be the Society of Friends, but has now its splendid modern church that testifies to the wealth of the society and to the taste of its members. On every side, therefore, there is a vast interest in church architecture and all that pertains to it.

It is not the purpose of the present inquiry to enter into an exposition of such patent facts as these, but to plainly ask if the cause of religion is helped by these artistic attempts, and to apply to the church building and its artistic aspects the simple requirements of religious art. What these are, and how they are illustrated will presently be set forth; at the outset of our study it is sufficient to remark that the artistic and religious standard of the American church is extremely low. In the overwhelming number of examples our so-called religious art is not religious at all, in so far as it illustrates a religious feeling, a pious reverence, or a Christian fellowship in the work. Many of our churches are beautiful; certainly a number of them are costly and elaborate; often no effort has been spared to endow them with a rich and impressive art; a few even are entitled to stand upon the highest pedestal of modern art; but there is nothing religious in this, nothing holy, nothing consecrated. It does not appear to be known that a religious architecture implies a spirit of religious reverence, love, faith, hope, in structural expression; that a religious building must not only be put to religious uses, but be at least religious in aspect, even though it does not fully set forth the glory of God. We have gone far astray from this in our church-building, though it is one of the first things taught by Christian architecture, and continued to be taught for centuries, until the pronounced development of secular architecture turned men's minds from the building of churches to the building of houses. And this process has been continued so long that the primitive meaning of church architecture has been forgotten, and our church architecture has been as secularized as our house and civic architecture.

Is it necessary to argue that this is wrong? Does it require a treatise to demonstrate what should be self-evident to every Christian mind? An infinite number of opportunities have been wasted because this plain teaching of religion has been neglected. Ugly, eccentric, picturesque, beautiful churches have been built, the beautiful expressing no more religious sentiment than the ugly. Were it possible to wheel all our churches into line, a most pitiable tale of irreligion they would show, a sad commentary they would make upon the estimation in which religion and its art were held by their builders!

Pain, distortion, folly, caprice, foolishness, thoughtlessness, stupidity, neglect, a disregard of proprieties, a wanton carelessness of ends, self-consciousness, worldly pride, a puffing-up of individual work, an orgy of form, a mania for variety, a collection of separate entities, a perpetual doing of things that ought not to have been done, and a steady undoing of things that ought to have been done: these and many other like qualities dominate our church architecture. The minister, rising in his pulpit to denounce in vigorous language and in no uncertain manner, the onslaughts of the devil upon his flock, is seldom aware that Satan has put his mark upon every stone of the building he is speaking in, and has placed his seal upon the much-prized artistic adornments with which it is decked out.

But we need not attribute the extraordinary state of our church architecture to demoniac possession. Of the many human faults and failings it illustrates, none is so marked as ignorance, nor is any one cause the production of more architectural evil. If our churches are bad, if they do not illustrate Christian feeling, if they do not give testimony to Christian ideas, if they fail to manifest a reverential feeling and those lofty and pious thoughts associated with the Christian religion, it is because our architects, our clergy and our people are ignorant of the principles of Christian architecture, and fail to understand its application to modern needs. If our churches express the sins of their builders, they are not less expressive of their ignorance. Christian architecture, its meaning, its intent, its necessity, is the one form of architecture we, as a people, are least familiar with. We build many churches, we call ourselves a religious people, we spend huge sums on religion and in its interests; but with all this our interest in true religious architecture and our appreciation of it are so infinitesimal as to scarce be apparent.

This ignorance of the sacred office of architecture — for to what nobler uses can it be put than the glorifying of God and the setting forth of His honor and might? — is not confined to one set of people nor to one section of our country. It is universal: architects, clergy, laymen do not differ in the profundity of their ignorance or in the depths to which the secularization of religious architecture has been dragged. And this ignorance is not only widely spread, but it is fostered by the ungodly churches that are constantly being built, and which are often praised as successful by those who make it their business to instruct the public in things whereof they know nothing, but need an authoritative guide.

In the following papers an attempt will be made to show wherein Christian art, in its application to the modern church-building, consists. It is not reasonable that our ignorant and degraded condition towards the highest form of architecture should continue, the more especially as the church building is almost the single structure that in our time is capable of idealistic and purely artistic treatment. If it is an inspiring task to praise God in the art of speech, it should be not less inspiring to praise Him in the art of architecture. If we are to bring our choicest gifts to the altar, if we are to give to God the best of our lives, that we may have eternal life and joy everlasting, it is equally incumbent upon us to praise Him with every thought and in every deed; surely, as well in the buildings we set apart for His service, as in the prayers we utter and the hymns we sing. That we have long forgotten to do so does not alter the fact of the Christian and consecrated nature of religious architecture.

A CHURCH LIKE A CHURCH.

A church is a building that, by its purpose, stands apart from all other architectural creations of mankind. This is true not less in

our own day than in the past, when the church, and even its predecessor, the temple, had a firmer hold on the affections of the people, filled a larger part in daily life, and was, in truth, the first building of every city. To-day we have reached a point at which the church building has ceased to be even an important factor in the city's outline. Huge masses of business buildings now dominate our American cities, where formerly a church spire was the most conspicuous object. The building of a church no longer excites keen public interest, though a local and individual interest may be quite intense. Its place in our life has undergone a change. Yet, notwithstanding all the Church's modifications, its battle with modern unbelief, its conflict with modern indifference, a church building of to-day is still the expression of the most sacred possession of the human race. The changes the Church itself has undergone in ritual, in belief, in doctrine, in form, in method, are small and insignificant when placed beside the great fact that the church building is the House of God.

Whatever one's belief may be, whatever one's faith or thought, that, at least, is a fundamental fact from which there is no escape, and on which, moreover, there is no room for difference of opinion. For the believer, there is no need of argument; and even the sceptic must admit that, from the church-builder's standpoint, his church building is what he asserts it to be, the house of God. It was a recognition of this mighty fact that, in the Middle Ages, impelled the building of the great cathedrals. But church architecture in America has removed so far from the standpoint of the mediæval builder, which is the standpoint of the earlier Christian builders enlarged and glorified, that to talk of a return to the principles illustrated in such buildings seems both foolish and unnecessary. It is a most mistaken notion to imagine that in arguing for a return to the *spirit* manifested in the church-buildings of the Middle Ages a return to mediævalism is advocated. Not at all: I do not argue for mediævalism in our modern life, but I do ask that some little thought be given to the present state of our church architecture. Its position certainly cannot be better shown than in contrast with the greatest church-building era of the past. We may not approve of that time, we may not be willing to tolerate the beliefs its buildings illustrate, but of the purity of their architecture, of the nobleness of their intent, and of their manifestly sacred character there can be no question.

Can this be said of the churches of our own time and land? If our churches are the houses of God, and if they have ever been such, how can we compare the honor done Him in the nineteenth century with that of the thirteenth? Have we proved worthy of our trust? Do our churches reflect our faith and our confidence in God? Can we, to be plain, inscribe in very truth the words "To the glory of God" upon every temple we have built?

I know of but one answer to these questions, and that is the same to them all. No. The idea of an architecture that shall be truly religious, that shall speak of God's truth and man's faith in God, is scarce known by name in this land of ours that so prides itself on its Christianity. An architecture for religious uses is different from a religious architecture, for religion only enters into it in so far as making use of buildings supplied for its needs. A religious architecture is religious not in name alone, but in purpose, in intent, in quality, in expression. It is endowed with the pure and holy spirit of religion. It redounds to the honor of God. It sets forth the inestimable benefits God has conferred upon man. It speaks of reverence, of faith, of love, of charity, of humility, of peace and of eternal rest. It is not the art of the skilful arrangement of masses and materials, of voids and solids. It is not composition nor proportion. It is not archæological research nor profound wisdom in statics. It is Christian.

This one word sums up the whole of church architecture, modern and mediæval, old and new. It is the single quality that is needed in the modern church, just as it is the single quality that is most conspicuously illustrated in the churches of mediæval Europe and in the early Christian buildings of Italy. It is a refined and subtile quality whose presence in the older buildings is more readily recognizable than defined. Not only does it speak for itself of the consecrated nature of the churches, but it places an indelible mark of distinctness upon them, separating them off from other buildings, and marking a church as a church and nothing else. This would seem to be at no time of more importance than in our own, when we use all sorts of architectural forms for all sorts of purposes, and confuse lay and sacred buildings with scandalous recklessness, it is, therefore, at the outset, a matter of the first importance that our churches should look like churches, and that a primary condition of their design shall be that they may stand apart in quality from other buildings.

The history of Christian architecture shows the development of four leading ideas that have been utilized to obtain this result. These are: (1) The distinguishing of the church building by form; (2) Its distinction by size; (3) Its distinction by ornament; and (4) Its distinction by quality. These four elements may be briefly considered.

The Church Building distinguished by Form. — This is, perhaps, the simplest, easiest and earliest way in which the church building was differentiated from other structures. It is a distinction obtained through the plan and elevation. These have varied in all styles of architecture, as every student is aware. But we are not concerned with the evolution of architecture or its history, but with a study of the principles that lie behind its growth. Whatever the plan of the church, however much it may have varied with progress in construction, or have been influenced by ritual or ceremonial requirements, there runs the common fact through all of this change and variety — and the history of architecture shows it to have been not small — that it differs from the plan of other buildings. Churches have, indeed, in debased periods, been put to all sorts of uses, but never in their original form. The church plan has always been distinct from the plans of contemporary buildings, whatever may be its relationship to previous or succeeding plans. And with the plan, so with the elevation.

In the historic periods of architecture a church always differed in structure and in form from other buildings, as it differed from them in plan. A church always looked like a church, and by this, perhaps more than by its distinctive plan, it was recognized by the people, by believers and by unbelievers. The forms used in other buildings — the openings, the columns, the doors, the detail — were often the same as those used in the church, but the combination, the completed structure, the finished edifice, was like unto nothing else. Even in the decadent period, when the grossest forms were used, when ornament and decoration were vulgarized and ugly, when all sense of religious proportion and perception seemed lost, this still remained as an identifying characteristic of the church. In our own day it is scarcely less true; for the modern auditories and lecture-halls, in which the traditionary form of the church building is wholly lost, still retain the outward characteristics of a church building that differs from all other buildings. Distinction by form, by elevation, by design, by plan, is one of the simplest and most direct ways in which the church building has retained its identity of structure.

The Church Building distinguished by Size. — Of the early and obvious applications of this element to architecture there is little to be said that has not, time and again, already been said about it. Size is the most easily comprehended of architectural properties. A mighty building pertains naturally to a mighty subject. The wandering savage who worshipped a huge block of stone or a mountain; the pagan monarch who built a gigantic tomb for himself; Justinian when he built the vast church of Sta. Sophia; the builders of the mediæval cathedrals; were all alike in expressing this feeling for size. It was right that the monuments of the kingly power should tower above the lesser buildings of the pagan city; it was right that the temple of the Most High should arise above the surrounding structures of the mediæval city; right and natural that the glory of God, the faith of His servants, the love and fidelity of His followers should be thus exalted above all other objects, that it should stand out as a beacon beyond all other structures, that the Cross of Christ should be supreme among the monuments built by men.

Size, in itself, is the least important of architectural characteristics. A thing that is big is easily built, if one has the materials and means with which to build it. But a survey of the history of Christian architecture shows that the Christian builders did not employ size in a wanton fashion of human boastfulness and pride. When they built a castle and a palace it was rather laterally that they expanded it, than vertically. When they built a church it was upwards their thoughts were directed, and it was upwards their structures were expanded. Size, with them, meant more than mere bigness, expansion, bulk. It was part of their system of religious building, part of their faith, part of their love for God. And so, while all churches are not big, while size in itself is not an essential property of the church building — save that the larger the church the greater the number of the faithful that may be accommodated within it — it is one of the elements most frequently employed by Christian builders to secure the individualizing of their church-buildings.

And how they used it! The world knows only two groups of buildings in which the element of size is used in a supreme manner: the Egyptian temple and the mediæval cathedral. Truly speaking, there is but one, and that the cathedral, for the Egyptian temple was a succession of courts and buildings, of galleries and of ornamental adjuncts; all but a monumental city in itself; while the cathedral is a single structure, standing alone and complete, even when its cloister, its episcopal palace, its chapter-houses, its subsidiary buildings are removed and taken away. The unrivalled splendors of a Gothic vault, the myriad soaring columns, the vast and splendid windows, the endless perspectives, the overpowering immensity of the height and size; surely that is the noblest and most Christian use of size in building — that the most overpowering, yes, the most awesome way of obtaining an effect of sublimity! Walk through the naves and aisles of Amiens, of Notre Dame at Paris, of Rheims, of Laon, of Chartres, of Le Mans, of Bourges, of Cologne, of Westminster, of Canterbury, of Lincoln, of Durham, of York: there is size in its most Christian form; there is grandeur put to its most sublime uses; there is reverence in its most exalted manner; there is joy in divine love and pure delight in human ability to glorify God in human labor!

Size in its religious use did not expire with the mediæval cathedral. The builders of the Renaissance were quick to recognize its value as an expression of religious hope and faith and love, albeit they used it otherwise than it had been used before. Brunelleschi and Michel Angelo were animated by a common thought when they reared their mighty domes, Sir Christopher Wren followed them closely in giving expression to the same feeling. A mediævalist may not always find satisfaction in the churches of the Renaissance period, but the unbiassed student must see the same expression

through magnitude that is seen in the mediæval churches. The forms are different, even the plan is changed, but the vast churches of the Renaissance give expression to the same value of size as an element in religious architecture as do the mediæval cathedrals. The spirit is the same, though the difference in the forms and the structure oftentimes hides and covers it.

Our own time has given many testimonies to the same feeling, which surely we must count one of the oldest and most firmly rooted ideas in the human mind. A vast church to-day is looked upon with much the same feeling — as a votive offering — as a vast church in any preceding time. But huge churches are no longer built as frequently as formerly. Only on rare occasions is a church of really great magnitude now undertaken. Size enters into the structure of our modern churches to a relatively slight extent. And more than that; a new spirit has come upon the building genius of the age, and the loftiest structures of our modern cities are no longer the churches and the church towers, no longer the houses of God, but vast structures given up to business, rearing their huge and ugly bulks until the once aspiring church tower is hidden in the depths. This does not imply, as some may think, that an epoch of money-getting has settled down upon us to the peril of our souls and the undoing of our faith; it is a change in methods of building, a change in the ordering of our daily affairs, a change in economics. A change in faith, in love for God, in hope for the future it need not be, nor is there ground for so thinking.

I have dwelt at some little length on the element of size in church-building to develop this last point — that it has almost disappeared as a distinctive element in modern church design. The few instances in which it has recently appeared, such buildings as the votive church of Montmarte, at Paris, or the Protestant Episcopal Cathedral, in New York, are entirely exceptional. The modern tendency is towards small churches. Doubtless the exigencies of Protestant worship, the putting of the sermon in an important place in the divine service, the necessity of having a building not too large for a single human voice to be heard distinctly in it, and the doing away with chapel services, still common in the Continental cathedrals, have all helped to bring about this result. But whatever the reason, it is, at least, well to note that it is no longer necessary to build big in order to obtain a truly churchly effect. If the house of God is less imposing than it was, if it has lost its vast and overpowering bulk, its splendor of size and its magnificence of dimensions, it has multiplied and increased in lesser ways, extended its work in less pretentious buildings, carried the story of the gospel in a less lordly manner, but in a way entirely in keeping with the needs of modern life and its customs. Churches have diminished in size but increased in number. Less splendid in form, they may be more useful in the end.

The Church Building distinguished by Ornament. — Leaving the special question of the suitability and adaptability of the decoration of the Christian church to a later time, it may be well to note, in the present connection, that it is one of the most direct and simple ways of distinguishing the church from other buildings. In the Middle Ages they did, it is true, place images of the Blessed Virgin and of the saints upon their houses, but such decorations never concealed the structurally unchurchly nature of the buildings. On the contrary, the church building was distinguished from other structures not only by the quality of its decoration, by its religious significance, its sacred meaning, but it was the most richly decorated structure of the city. Men showed their love for God in the beautifying of His house. The beauty of its decoration, the sumptuousness of its apparel, as it may be called, was as important, as exalted, as essential as the building on an individualized plan or on a scale of great magnificence. No church was ever deemed completed until it had been decked out with sculpture, until its windows had been filled with glass of gorgeous hues, until its walls and sometimes its carving had been colored. We do not think so much of this now as it was once thought of. At a later time I shall have somewhat to say on this aspect of Christian architecture and its relations with the church building of our own day.

The Church Building distinguished by the Quality of its Art. — Form, size, ornament are all-important and essential elements in giving the church building distinctive character, but over and above these, more important than any of them, singly or together, giving the church its true character, entering into its structure in every part, is the religious quality of its art. A church must look like a church, must be possessed of churchly quality, it must speak for what it is, it must tell every one, the believer and the unbeliever, the pagan and the infidel, that it is something differing in every way from all other structures. For the house of God can be like no other house; it can have no quality in common with other structures; consecrated to sacred ends, put to sacred uses, intended for sacred purposes, it must speak of these things with no uncertain voice. The awe that fills one in a mighty cathedral, the wonder and amazement that stirs the soul, as one walks beneath its lofty vaults and amid its ponderous columns, is not occasioned by long aisles and ample arches, does not come from rich carving or brilliant glass, is not dependent on lofty vaults and distant perspectives, but arises from the deep religious feeling and the holiness of mind with which it is permeated; the exaltedness of purpose, the confidence in eternity, the hope, the faith, the love, the veneration.

This is the essence of religious architecture; this the basis on which it rests. We may reproduce the plan of the most churchly church in Christendom, we may build it higher than ever a human building was reared before, we may cover it with ornament and decoration, people its walls and columns with images of all the saints, fill its windows with the costliest of colored glass, reproducing sacred legends and pointing holy lessons, yet if this is not done in a religious spirit, if it is not filled with a holiness of feeling, with a love for God, with an appreciation of the sacredness of the place, its purpose, its end, then the structure will fail in the first and greatest essential of religious art.

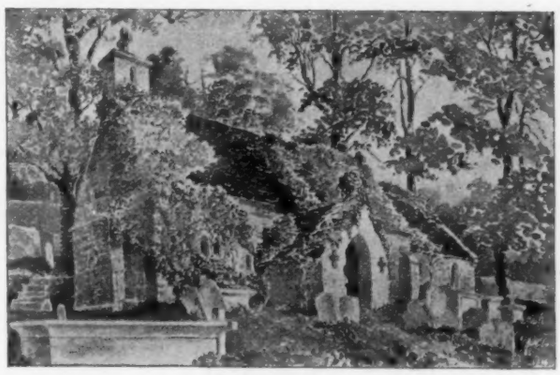
Need it be argued that the church building — even though we dispense with images and with glass, with carving and with decoration — the structure must be, first, last and all the time, religious? Is it not agreed that the church is the house of God, be the worship that is carried on within it, the creed that is preached within it, the forms and ceremonies that are practised within it what they may? To those who use it, it must be so, whatever their beliefs, whatever their ceremony. The builders of a church must start from this elemental proposition. And so no argument is needed; for being the house of God, it must have a quality that shows this. This, then, is the base on which church design rests. It is the starting-point that must be kept in mind when the church-building is criticised. It is the standard by which the success of the church is to be measured. It is easy to remember, and indisputable, for a church must always look like a church.

Barr Ferree.

[To be continued.]

SMALL CHURCHES IN THE ISLE OF WIGHT.

BRADING.



St. Boniface, Bonchurch.

THERE are a number of small churches in the little towns along the south coast, and several in the interior, of the Isle of Wight, which offer to the casual tourist, to artists, and especially to students of architecture very many points of interest. They are wonderfully picturesque in their settings of island landscape, seated usually in the midst of old graveyards full of mossy aged tombs. They are rambling irregular buildings, the outcome of many periods and styles, the accretions of generations of priestly builders.

The island abounds in good building-stone, much of it, indeed, having been carried away and used in churches along the mainland. The walls of nearly all the churches of the south side of the Wight are of a local sandstone, of greenish color and very soft, easily worked when first from the quarry, but becoming very hard on exposure.

Many of these churches have suffered from lack of means to repair them in times past, in fact in one or two which I visited there is at present very urgent need of a considerable outlay to make good the ravages of the weather, but in the main they strike one as being particularly well kept up. Happening upon one or two of them casually in looking up subjects for sketching I became so interested that I finally made a pilgrimage afoot from end to end of the Wight, in the course of which I collected the data and made the drawings given in this paper.

I subsequently found in Southampton a very handsome book on the subject, "*The Antiquities of the Isle of Wight*," by Mr. Percy Stone, F. R. S. A., in three volumes, 1893, from which I was enabled to obtain through the courtesy of a friend some of the historical and archæological points which I have briefly noted about the churches. I had unfortunately a very limited time at my command, and had only a hasty glance through the volumes, but they are full of interesting matter and valuable illustration, the work being gotten out in a style of paper and printing which makes it worthy a place in the library of the antiquarian or architect.

Although St. Mary's Church at Brading is not the oldest in the island, it occupies ground which is said to be the first used for Christian worship in "the Wyght."

As one approaches Brading from the station the church is seen upon a green hill across the meadows, a long broken gray mass with a square tower surmounted by a stone spire at the western end, standing amid a field of old graves.

There is a pleasant short cut making off here across the meadows to the church, but it is a pity not to walk up through the long straggling village, past the "Wheatsheaf" and the "Sun" and other quaint old houses which line the way. The church is at the upper end of the street and the tower stands close to the road. The square portion is not very high, but the broached spire above gives the tower quite an appearance of height.

In the base are four bold arches, with gates, leaving the tower standing on four massive piers. This part of the tower at least dates from the thirteenth century, and the spire is probably of the same period. The latter has a very perceptible entasis.

The church itself, of which the oldest portion is the nave, is of the end of the twelfth century. The arches are very pointed. The aisles were added in the thirteenth century, but the only discoverable remains of the aisles of this period are in a lancet window in the end of the north aisle.

I remember a very happy morning when I sat for many hours under the pleasant shade of a tree in the churchyard making a water-color sketch of the church from the northeast. There are delightful tones in the walls and roof on this side. It was a Saturday and the verger and her children were very busy making things tidy for the morning, and they were constantly coming out of the little north chancel door to beat red pew-cushions and add vigorous touches of life and character to the picture. This was called the priest's door. In the stone above it on the inside there is incised in deep lines a double cross, "engrailed." The chapel into which the priest's door opens was reconstructed at the end of the fifteenth century, when the south porch was added and the aisles were enlarged. As in most small English churches, the south porch is now used as the principal entrance. The south chapel, the mortuary of the Oglander family, was built by John Oglander, who died in 1530, and sleeps in the tomb in the southwest corner of the chapel. A later Sir John lies under the polychrome wooden effigy of a knight in armor lying at length, slightly raised upon the elbow, his crossed feet resting on his dog [lion]. In the niche above is a small copy of this carving, a memorial of George, son of Sir William, of the same family. An interesting tomb has in the panels, on the chapel side, reliefs of Sir Oliver Oglander with his wife and children: Sir Oliver, in full armor, except his casque, kneels with folded hands, facing the east; in the next panel is his heir, in a sort of kilt dress, such as is now worn by little boys, and behind him a couple of smaller boys; Lady Oglander, robed in a sober nun-like mantle, fills the next panel, followed by a group of their little girls in the fourth. On the back, next the chancel, are carved some crippled beggars, a monument to the charitable deeds of the good Sir Oliver and his lady. A weekly offering of loaves for the poor was for a long time placed upon this tomb of their ancestor by the bounty of his descendants.

The tombs of the Hawley, or de Auld, family are also noteworthy, and in another part of this church is a very interesting floor-slab of Purbeck marble, much worn, bearing an incised figure of an armored knight, at full length, resting each mailed foot on the back of a couchant dog [lion]. He has long spurs, and a great sword lies by his side. The hands, quite lost, were evidently folded on his breast, and he wore his helmet. In the border are traced a succession of canopied niches inclosing various saints.

The plan of the church may be readily understood from the above description. Its characteristic feature, from the east, are the triple gables of the chancel and the chapels north and south of it, the latter being simply eastward extensions of the aisle, independently roofed.

The rusty iron arm in the parapet of the square tower held a flaming beacon in the olden time, kept alight on stormy nights to guide the ships at sea in the Channel. The church towers all along the island shore were known landmarks by day, and showed their beacon-lights across the darkness to the coasting sailors when the night and storm gave need. Aloft on the finial, the brazen cock of Peter turns him to the wind. From the belfry comes the music of eight good bells, four of which wear upon their collars the dates, 1594, 1604, 1622 and 1709. Behind the chancel end, there is a perfect wilderness of tombstones, some of whose shapes are quite full of art. Time has painted them in a glorious decoration of moss and lichen and ruin.

SHANKLIN.

The Church of St. John Baptist, the old rectory church of Shanklin, has very little about its present aspect to indicate so great an antiquity as is suggested by its having been enumerated in the Roll of Arms of Edward III, in which it appears as a parish furnishing one bowman to swell the ranks of the men-at-arms of "the Wyght." All of the structure which has come down to us from that remote day is comprised in a bit of the south wall, where you will observe a small one-light fourteenth-century window, and the old piscina in the chancel. The original church thus existed prior to the year 1336.

In the Domesday Book, the manor is mentioned as held by Gozelin, son of Azor, under the Normanized name of "Seneliz." It became a Royal manor in the time of the Confessor.

William of Wykeham included it in the register of churches, 1367 to 1404, as the Chapel of St. Blaise.

Early in the sixteenth century it belonged to the rectory of Bonchurch. The transepts and the lengthened western end are modern work. The treasure of the vestry is an old oaken chest carved with the date 1512, and the name of Thomas Silkstead, the last prior of Winchester.

Mr. Stone speaks of its ornamentation as a good example of decorative work, showing the infusion of Classic feeling into the late Gothic motives. But, aside from its archæology, the old church is interesting for its picturesque beauty. It stands among some old trees at the head of the main road, coming up out of the town by the old Crab Inn and the mossy thatch and Elizabeth chimneys of the Pencil cottages. Beyond the graveyard wall is a wide open field sweeping away upward into the slope of Shanklin Down, which rises behind it to a height of eight hundred feet above the Channel water.

The weather-beaten walls are clothed in glorious masses of ivy, and the red tiles of the roof are stained and moss-grown. There is a fine black yew-tree at the western end. There are no very interesting tombs or gravestones.

Among the several handsome new churches in Shanklin, Saint Savior, on the cliff, is particularly noticeable in respect of a well-designed stone spire.

BONCHURCH.

There is a most delightful walk from Shanklin down over the cliffs to Bonchurch. A narrow path follows the edge of the cliff, which rises in sheer monumental grandeur from the broad flat beach. Seaward, the blue Channel runs to the horizon. The passing ships, of which from that part of the island shore there are usually from twenty to thirty sail of all classes in sight, form a picture of never-failing interest. Landward, the furzy side of the Down slopes upward.

At Luccombe, a wild "chine," or gorge, cuts well into the shore. By a small path and steps cut in the sand and chalk on one side, one may descend the little cañon, in which nature has done some wonderful bits of ferny detail, and from the stones and seaweed of the beach get some impressive views of the castellated cliffs from below.

Beyond Luccombe the path crosses the "Landslip," winding in and out and up and down among the wildly tumbled boulders, the little hollows and hillocks, and all the strange broken landscapes of that wonderful place, which with its strange gnarled trees, its fern forests, its great mossy rocks, its sudden changes of form, seems designed by Nature as a little fairy world of delightfully varied miniature landscapes.

The shore descends toward Bonchurch. The old church of St. Boniface is beside the road leading inward from the shore. It is a long, low, narrow building, very worn and old in look, glorified by a wealth of trailing vines which tenderly clothe its ancient walls and cluster upon the very roof-ridge. The building is old in story, having been, according to an old manuscript of Sir John Oglander's, "erected in ye reygne of William ye Conqueror by one Joannes de Argentine, a ffrenchman," probably of Argenton in Normandy. An older legend has it that an earlier church, built in the eighth century, stood upon the same ground.

The form of the building will be sufficiently indicated in the hasty sketch I have been able to give of it. It is very narrow, probably not over twelve feet wide inside. The chancel is cut off by an arch of severe plainness. This was the plan generally used for private chapels belonging to the great manors, built by the lords, but under the control usually of some neighboring house of monks, and used by the people generally as places of worship.

The Conqueror brought over a lot of his Norman monks with him, and they spied out and siezed upon all the fat places of the land without loss of time.

The most successful of these were the monks of the Abbey of Lire, in Normandy, who held all the best church property in the Isle of Wight, until they were dispossessed in Henry V's suppression of the alien monasteries.

The stone used in the building of the Wight churches was quarried in the island, where there are large deposits of the hard, shelly limestone used in Winchester Cathedral and the "green-sand" freestone, of which I have already spoken.

Bonchurch has a modern south porch, within which the door into the church belongs to the early building. The door itself, hanging in a low pointed arch, is a heavy one, of oak planks rudely put together in a double thickness, the planks horizontal within and vertically fastened together with heavy stud nails, the heads of which, broad, square and hammered to a cone, are made ornamental by impressed lines or cuts, radial from the point of the head — a simple but effective decoration which was not done without some little trouble of the patient smith, but which gives life and interest to the plain old door. The bell-cot is by no means a thing of beauty and is incongruous enough to have been done, as it doubtless was, in the Georgian period.

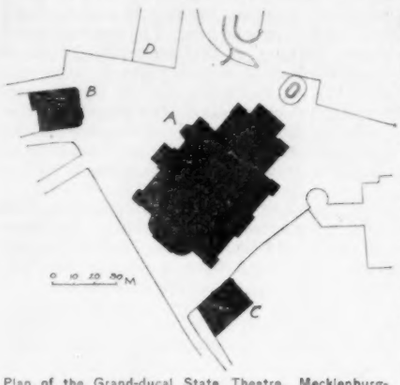
The windows cover a range of time from the twelfth century, the narrow single lancets, to the fifteenth.

A. B. Bibb.

Historical Exhibitions to be held at Vienna. — Vienna is to have a unique exhibition from January to May, 1896, in commemoration of the Congress of 1814, comprising portraits, autographs, personal mementoes and illustrations of scenes connected with that memorable event, together with china, glass, tapestry, embroidery, linen and other clothes, etc., illustrative of the early years of the century. Aside from the interesting historical collections that will thus be brought together, it would take a diplomat to tell why there should be any special commemoration of the Congress of Vienna. — *The Interior.*

THEATRES.[1] — XXI.

THE GRAND-DUCAL STATE THEATRE, MECKLENBURG-SCHWERIN.



Plan of the Grand-ducal State Theatre, Mecklenburg-Schwerin. *A.* Theatre. *B.* Workshop. *C.* Machinery-house. *D.* Museum.

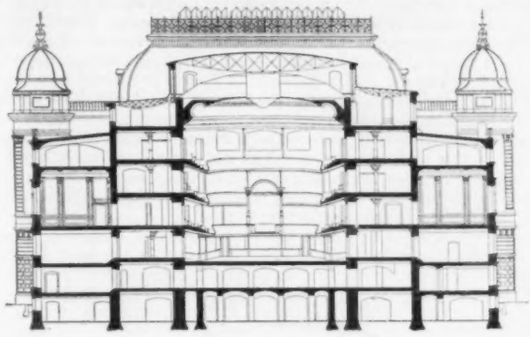
On April 16, 1882, the Grand-ducal State Theatre of Mecklenburg-Schwerin was destroyed by fire during a performance of "*Robert and Bertram.*" This catastrophe was fortunately not attended with any loss of life.

Immediately after the loss of the building the authorities decided to rebuild the theatre without any delay. At first it was intended to re-use the external walls of the old building, but it was eventually found that the effect of the fire had rendered them too weak for the purpose.

The block plan of the site which accompanies this article shows the relative positions of the theatre and the museum. The proximity of the museum to the theatre was looked upon as a probable source of danger to the former, and it was, therefore, resolved that the play-house should be reconstructed upon fireproof principles, and not too near the museum, as another conflagration might imperil its contents, so the new building was erected upon the site shown in the accompanying plan. The theatre really consists of three distinct and separate structures: the play-house proper, the store-house for scenery and property and the machinery-house, all divided from one another by open spaces. The architect of the theatre was Herr Daniel, present Government Surveyor of Public Buildings, who was assisted in the preparation of the plans and details by Herr Raspe, and in the supervision and direction of the works by Herr Hamann. The erection of the building was begun in the year 1883.

As in all great projects, difficulties arose from the very outset which had to be overcome — on beginning to dig for the foundations a bad bottom was found to exist; special care had, therefore, to be taken, and the construction of the building had to be carried out with the greatest precaution both as to stability and safety from fire. The general construction of the building has, therefore, been executed with solid walls and ceilings arched with fireproof floors above, a roof of iron construction, and side roofs in the form of asphalt flats.

The peculiar feature of the building is that the space over the grand vestibule, usually devoted to the foyer and grand staircases, is designed for a concert-hall, extending to a height equal to two stories of the theatre and in length the whole front of the building. The area-level of the concert-hall is accessible from the first flight of

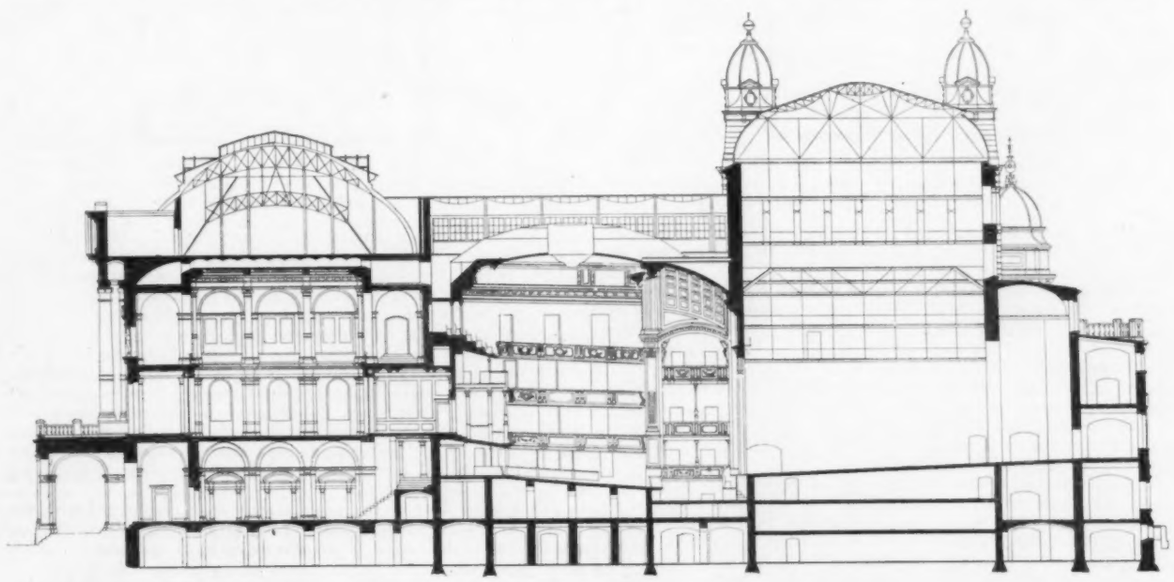


the staircases which lead into the theatre, while the gallery of the concert-hall is also approached from the third flight of the theatre staircases.

The state, or court, box, is placed in the centre of the auditorium on the first tier; behind this box and between the theatre and the concert-room is the Royal saloon which can be used by Royalty both for the concert-room and the theatre. This saloon has a separate entrance from the street and is approached by a staircase placed on the right of the building.

In addition to the state-box here described there is on the right of the auditorium the grand-ducal stage-box, generally used by high personages. The approach to this box is arranged in the centre of this side façade with an enclosed carriageway. A special staircase serves for this entrance. On the ground floor large doors open from the vestibule into a corridor behind the auditorium, the central door leads to the parquet or stalls on the first floor, and the two side doorways lead to the staircases on the right and left of the theatre which serve as the approach to the second and third tiers of seats. These staircases have special exit-doors of their own leading directly into the street without re-entering the vestibule, so that people can depart from the tiers above without mixing with any of the audience leaving through the vestibule.

The staircases are planned with more steps in a flight, without intercepting landings, than are accepted by authorities as wise for the safe construction of staircases, where large crowds have to descend rapidly: in many cases there are as many as nineteen steps



without a break. The circular staircases near the proscenium are also of a form which would seldom, if ever, be found in a theatre of the present day. The method of bringing all the people in at one entrance and trusting to chance for their ready escape by "*extra exits*" is unsatisfactory, as fully explained in a former number when M. Baes's reasons for planning the Theatre Flamand upon these lines were recited, although in this case the exit-door is placed at the foot of the staircase and would be easily found. Yet the "*way out*" is not the same as the "way in," nor is there any special reason for the audience becoming acquainted with the way out unless directed

The grand vestibule is approached from the main entrance, which, together with the grand buffet serves as a general foyer, and affords an entrance for the public to all parts of the house.

The front façade is carried out in granite, sandstone and Schwerin cement, Italian Renaissance being the style adopted.

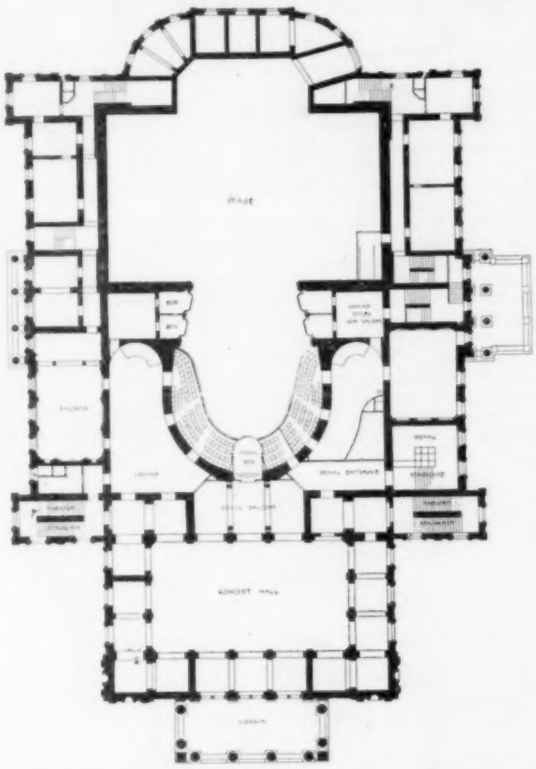
In front of the main entrance is an arched, covered carriage approach, connected with the vestibule by three pairs of double doors. On the left side of the vestibule is the box-office and porter's office.

[1] Continued from No. 1030, page 120.

thereto. It is, however, difficult in designing opera-houses where most of the people arrive in carriages at the front entrance to devise separate entrances for the various-priced seats at the higher levels, and the number this theatre will hold is very small.

We understand that the concert-hall is never used at the same time as the theatre, as the entrances and exits are common to both and a crowd coming with a rush from both would cause fearful panic. The holding capacity of the theatre is comparatively small considering the amount of ground covered, as it is designed to seat only one thousand spectators.

The corridors behind the auditorium at each level are spacious, and with them are connected the cloak-rooms and lavatories, but these do not always appear to be judiciously located, as in many places on the plan the water-closets are shown not to be next to an external wall, an arrangement never satisfactory under any circumstance, as they are sure to be ill-ventilated, badly-lighted, stuffy and unhealthy, besides enforcing much unnecessary soil-piping within the building and adding thereby chances of escape of sewer-gas from bad or defective joints. There are on the first floor, on either side of the theatre, smaller foyers in addition to the concert-hall over the vestibule. The chief usages of this concert-hall I must



not omit to say are for state and other functions as well as for concerts. It can be much enlarged by the removal of the partitions enclosing the state-box.

In case of an outbreak of fire, it is claimed that there are five staircases available for the use of the "parquet," two leading directly into the open air — which two I would point out can be also used by the whole of the audience seated in the balconies and galleries — and three into the vestibule.

Much valuable space, which might have been devoted to providing separate staircases for each division of the audience, seems to have been employed in constructing special "*grand*" staircases for Royal and official personages, but then it must not be forgotten how small the seating-capacity of the auditorium is.

In the description of the building supplied me with the loan of the drawings for this paper, it is stated that the orchestra is placed so low that the musicians cannot be seen from the parquet.

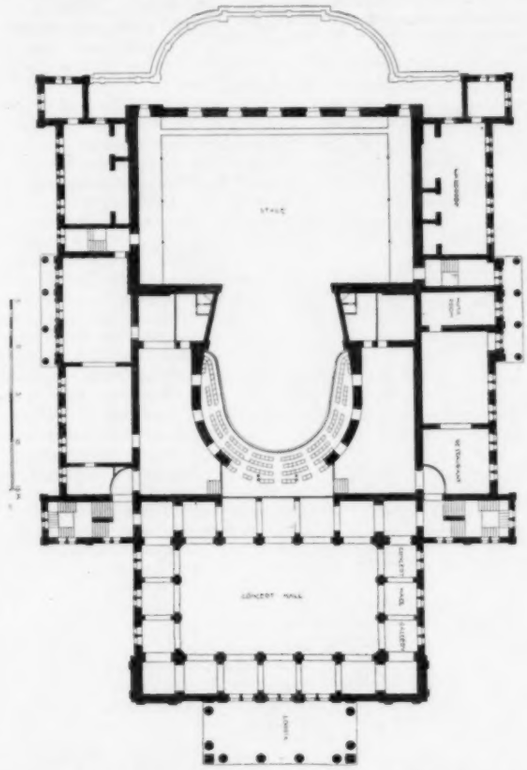
The auditorium, it is said, was made small to ensure the better hearing and seeing from all the seats, and in order to improve the view the tiers, including the private stage-boxes, decline gradually towards the stage.

The basement is, with the exception of the part under the stage, used for the ventilating and heating chambers and various workshops and lavatories. The heating of the theatre is very necessary on account of the severe winters experienced. In the stage portion of the building are situated the dressing-rooms for both soloists and chorus, the property-rooms, hair-dressers' saloon, furniture stores, florist's room, manager's dwelling-rooms and offices. There are also large chorus rehearsal-rooms as well as practice-rooms for the ballet, and armory and wardrobe rooms for the theatre. All these can be studied in greater details from the drawings.

The stage is a large one, being 92 feet in width with a depth of 56 feet which can be increased to 72 feet 6 inches by including the back stage. The machinery below the stage is constructed of wood, the reasons given for which are economy and that it may be more easily handled. The upper machinery is of iron. The stage is lighted by day from windows placed high up, so that no artificial light is needed during the day-rehearsals, thus reducing the fire-risk and the expense of artificial light. By night the electric light is employed. An iron curtain is provided to divide the stage from the auditorium and it can be worked from either side of the stage. The curtain is supplied with a small automatically-closing door, so that one can pass through it to the front of the stage without raising the curtain.

The whole of the building, including the concert-hall and the auditorium, is heated on Käuffer's combined system of hot-air and hot-water. The hot rooms of this system lie above the auditorium, the heated air is forced into the ceilings of the side galleries through lattice openings, and extracted through a shaft in the middle of the auditorium ceiling.

The theatre receives its water-supply from the town aqueduct, but in a case of necessity it can be provided with water from the



neighboring lake by means of the pumps placed in the machinery-house. The four reservoirs situated in the towers over the stage contain 40 [*sic*] litres of water: altogether the building is protected with 60 hydrants, and 100 minor hydrants are available. The system by which the theatre is protected from fire would allow 6,500 litres to be poured onto the building per minute.

It is lighted by gas and electricity, oil lamps being used as a subsidiary illuminant. The electricity is produced in the adjacent machinery-house by steam-engines and five dynamos; reserve engines are kept for cases of emergency. There are two distinct installations of the electric light in the theatre, either of which can be supplied from the dynamos in the machinery-house; there are two compound engines, 125 and 187 horse-power, and 2,400 incandescent-lamps can be lighted in the building.

The ground floor of the machinery house is connected with the theatre by a subterranean passage passing under the street, entering the theatre at the stage. This subway contains the electric cables, water-pipes, etc.

The storehouse for the scenery serves the purpose of keeping away from the theatre much of the combustible contents usually stored within the building, reducing the danger from fire thereby.

This building is not strictly a *fireproof* one, as it was considered useless constructing the tiers of iron on the supposition that with such quantities of inflammable material stored therein, even the best ironwork would not afford sufficient resistance to a raging fire.

The cost of the whole of the theatre with the machinery and scenery buildings as well as the fittings of the interior, but without scenery, wardrobes, etc., reached the sum of 2,500,000 marks.

E. A. E. Woodrow.

(To be continued.)

THE OAK SUPPLY.

IT is commonly supposed that there is almost any amount of oak timber in this country. Though it is seen that the demand for oak lumber is steadily increasing, especially in the interior-finish line, and for several forms of cabinet work, it is thought that there is enough for any consumptive requirement for many years to come.

That there is a good deal of oak left in this country is beyond question. The vigorous opening-up of southern resources has enlarged the horizon of supply, but it is probable that there is prevalent an exaggerated estimate of the grand total, and too much confidence in the prolongation of the supply. It is as necessary to look backward in arriving at just conclusions as to look forward into new fields. We should not overlook the fact that the magnificent oak forests north of the Ohio River, in the central part of the northern oak States, have largely disappeared. The oak of Ohio, Indiana and lower Michigan had been nearly exhausted before the country had reached its present development in population and the industries which are yearly consuming increased quantities of oak lumber. It can plainly be seen that within the past five years there has been a great increase of demand for oak despite the two years of depression which have intervened. This is more especially noticeable in the demand for such product as goes into house finishing, namely, plain and quarter-sawed red oak and quarter-sawed white oak. So large and urgent has been the call for red oak that the supply has been rapidly depleted, and what there is left has fallen into strong hands. Operators can now very nearly indicate the duration of the Wisconsin red-oak supply, and the term limit is not many years in the future. It is probable that within five years the amount of red oak remaining in Wisconsin scarcely will be enough to affect the market in any degree. In the meantime, the remnants of Indiana, Ohio, Michigan and southern Illinois oak will have disappeared, except in small holdings on farms. The great bulk of supply will thereafter be south of the Ohio River.

Southern resources for oak are mainly to be found in the States of West Virginia, Kentucky, Tennessee, Arkansas, Missouri, northern Mississippi and northern Alabama. There is oak in all the southern States, but the alluvial bottom lands of the rivers must furnish the great bulk of lumber to go on the market.

There are no statistics to show how much oak has been cut and marketed from the States north of the Ohio River. But we do know that there was never a better growth or more to the acre than abounded in Indiana, Ohio and southern Michigan. These were the banner oak States. Kentucky and Tennessee have produced a large amount of oak, and are among the partly denuded States. The supply of those States, like that of West Virginia, will be verging toward exhaustion, while that of the States north of the Ohio River is being completely wiped out. Thereafter the main supply must come from the lower Mississippi and its tributaries. The world's demand for quarter-sawed oak is now being largely drawn from that part of the country.

There are some special considerations involved in the oak question. We must understand that the demand is not confined to this country. There is a growing requirement in Europe and in the British Provinces. The entire civilized world is to depend on the American supply, when, as a matter of fact, there is no more here than will be required for domestic consumption. If the finest oak area in the world, that in the States north of the Ohio River, has been denuded, while the growth of the country's population and its industries was in its incipient stage, what will be the effect on the remaining supply, now that the requirement is to be measured by present and future population and industrial development? It is only within recent years that oak has been consumed on a large scale for furniture and interior finish. Simultaneously with the growth and establishment of demand for oak, other important cabinet and finishing woods have shrunken in supply, some having nearly disappeared. We have seen the rise and fall of the walnut vogue. The fall came simply because the supply was so nearly exhausted that it could not longer furnish the material for a large manufacture in the lines of cabinet work and finish. Cherry followed, and introduced the taste for the lighter tints in interior furnishings. Birch is now considerably in request, because it can be finished in the lighter or darker red shades, as an accompaniment of mahogany and cherry. Maple is being employed for like results. But cherry, birch and maple will not last many years. They are now in such limited supply, and so difficult of procurement in adequate quantity for extensive cabinet lines, that they simply afford a diversion from the monotony of oak. The truth is, that oak is the only remaining wood which can be employed in a large way for furniture and hard-finishing purposes. Thus we can see that the demand for oak, though large and growing in recent years, is to be much greater and rapidly increasing from the present time onward. It, hence, follows that the supply in the South will be depleted much more rapidly than was that north of the Ohio River.

The growth of oak production in the South promises to be one of the phenomenal experiences of American lumber history. This prospect should enhance the value of oak lands. Sagacious lumbermen are seeing that which is coming, and many are buying up oak areas. This movement is bound to increase.

There is this to be said in respect to oak-timbered lands: They are invariably areas good for agriculture after the timber is cut off. For this reason denudation will go on with relatively greater rapidity than on lands covered with the softer woods. It was this that cleared the forests north of the Ohio River, and it is the same influence which is rapidly denuding the maple lands of the northern counties of lower Michigan. When the tide of emigration shall set strongly toward the alluvial areas of the lower Mississippi and tributaries, the hard-wood forests will melt away before the onslaughts of the farmers. For this reason those desiring large holdings of southern oak and other hard-woods will need to secure them within a very few years. Having purchased the lands, they will have both the timber and the richest agricultural areas in the country, and thus doubly insure themselves a good prospect of profit. — *Northwestern Lumberman.*

DESTRUCTION OF THE RED-WOOD TREES.

THE war of the syndicate sharks on our red-wood forests is now greater than ever before, in consequence of the gradual exhaustion of the white-pine forests in the Northwest. For some time the Government officials have been securing evidence against these syndicates, but with little success. The timber speculators employ new settlers to locate Government lands, ostensibly for themselves, but really for the employers, who only want the timber. Thus, one of their "dummies" will locate claim after claim and transfer it. By this means, the red-wood timber belt will soon become exhausted, and the lands be owned by the syndicates, to the exclusion of actual settlers.

When white-pine is exhausted in the "Lake States" of the East our red-wood and pine will be in greater demand than even now, but all the lands will be in the hands of a few large corporations, who have used "dummy" settlers to acquire possession from the Government. A peculiarity of the red-wood is that it grows only along the coast line. These forests stretch out for hundreds of miles from Humboldt County on the north to Monterey in the south. Before the arrival of the timber depredators the belt averaged a width of ten miles, but it has been gradually thinned, and appears to have grown in clusters instead of an unbroken forest. These trees are not only remarkable for their size, but exceptional in quality. Humboldt County is the richest of all the coast counties in its denseness of red-wood, pine and oak and timber, having about 1,000,000 acres of forests, of which about one-half is red-wood. The red-wood yields about 100,000 feet of marketable lumber to the acre. It is estimated that 25 per cent of the red-wood forests of this one county have been used by lumbermen — the great majority locating the lands for agricultural purposes, merely to get the lumber. Many others did not even do that. About 200,000,000 of feet of red-wood lumber is taken yearly from this county, and others are denuded in proportion. At this rate, the remainder of the lumber may become exhausted in the next quarter of a century. There is no equal area of land in the world with such dense forests of merchantable timber, and no other country where such wanton destruction and robbery are permitted.

It is not believed that this wholesale depredation by speculative syndicates will be permitted to continue much longer, and some of these "dummy" settlers will be made to suffer. Red-wood is the only lumber that can take the place of white-pine, or be substituted for mahogany and black-walnut. It can displace oak for railroad ties, etc., is better for shingles than cedar or cypress, and can come in contact with the earth, and be exposed to the elements and outlast them all. It may be sunk in water for a foundation, "never gives," and will endure for centuries. Its color is of a reddish tinge, varying from that of the lightest beech to the darkest mahogany. It is difficult to stain it, and it is lighter and more cheerful than mahogany and black-walnut. It makes up well in cabinet work, the variegated grain being a curly mottled "bird's-eye." Its beautiful color makes it most desirable, especially as it takes a fine polish. Many of the finest residences and offices of this city are finished with red-wood in its original "local" color.

Red-wood makes a lasting foundation, solid, impregnable walls, and an almost imperishable roof. As a finishing wood it is unequalled, and for cabinet materials it is superior to most other wood. Eastern breweries use red-wood in the construction of brewing-vats; it is also used for water reservoirs, and shipped to the Eastern States in competition with their white-pine, which is becoming scarcer through vandalism similar to that which is denuding our forests. The red-wood shrinks less than any other timber, and is all the more valuable on that account. The small shrinkage is lengthwise instead of across the grain.

Man seems to be the only enemy of the forest. Insects, so destructive to other woods, hesitate to attack the red-wood, whether alive or dead. The outer covering of the trunk is decayed by time when the tree has fallen; but the saps and acids in the body of the tree seem to battle with time and to preserve the fallen tree for generations. — *J. M. S. in the N. Y. Evening Post.*

Restoration. — At Padua, in the historic Church of St. Anthony, important "restorations" are taking place. The chief of these is the reconstruction of the famous altar of Donatello. — *N. Y. Evening Post.*

Societies

DETROIT ARCHITECTURAL SKETCH-CLUB.

MONDAY, September 16th, thirty-five draughtsmen met at the Museum of Art and effected a temporary organization of the Detroit Architectural Sketch-club, Emil Lorch being elected *Chairman*, Alex. Plumberg, *Secretary*. A committee consisting of W. E. N. Hunter, R. Mildner and G. H. Ropes was appointed on Constitution and By-laws.

The report of this Committee was adopted at last evening's meeting and the following officers and directors elected: *President*, Emil Lorch; *Vice-President*, G. H. Ropes; *Secretary*, E. A. Schilling; *Treasurer*, R. Mildner; *Directors*, W. E. N. Hunter, F. G. Baxter and Alex. Plumberg.

The object of the Club and its proposed methods of study are like those of similar organizations elsewhere.

E. A. Schilling, *Secretary*.

The Illustrations

[*Contributors of drawings are requested to send also plans and a full and adequate description of the buildings, including a statement of cost.*]

ALLEGHENY COUNTY COURT-HOUSE AND PRISON, PITTSBURGH, PA. H. H. RICHARDSON, ARCHITECT.

[Gelatine Print issued with International and Imperial Editions only.]

SKETCHES IN AND ABOUT THE BARGELLO, FLORENCE, ITALY, BY MR. W. T. PARTRIDGE, LATE HOLDER OF THE ROTCH TRAVELLING-SCHOLARSHIP: TWO PLATES.

[Issued with the International and Imperial Editions only.]

ST. MARY'S CHURCH, BRADING, ISLE OF WIGHT. SKETCHED BY MR. A. B. BIBB, ARCHITECT.

For description see article elsewhere in this issue.

HOTEL ST. NICHOLAS, ST. LOUIS, MO. MESSRS. ADLER & SULLIVAN, CHICAGO, ILL., AND C. K. RAMSEY, ST. LOUIS, MO., ASSOCIATED ARCHITECTS.

McDONALD & TAYLOR BUILDING, FORT WAYNE, IND. MESSRS. WING & MAHURIN, ARCHITECTS, FORT WAYNE, IND.

STAIRCASE-HALL IN THE HOUSE OF DR. W. S. BRYANT, NO. 1 CHARLESGATE EAST, BOSTON, MASS. MR. W. Y. PETERS, ARCHITECT, BOSTON, MASS.

[Additional Illustrations in the International Edition.]

THE SMOKING-ROOM: NEW YORK ATHLETIC CLUB, SIXTH AVE. AND 55TH ST., NEW YORK, N. Y. MR. C. W. CLINTON, ARCHITECT, NEW YORK, N. Y.

[Gelatine Print.]

DOORWAY OF THE CHURCH OF THE CONVENT OF S. LEONARDO, APULIA, ITALY.

[Copper-plate Photogravure.]

FUNERARY MONUMENT, ST. RAPHAEL, VAR, FRANCE. M. FELIX NARJOUX, ARCHITECT.

[Copper-plate Photogravure.]

SESSIONS HOUSE, WESTMINSTER, ENG.: TWO VIEWS. MR. F. H. POWNALL, ARCHITECT.

"DAWN" AND "TWILIGHT," AFTER PAINTINGS BY M. CAMILLE BELLANGER.

"CHALGROVE," HARROW-ON-THE-HILL, ENG. MR. ARNOLD MITCHELL, ARCHITECT.

"GROVE HILL," HARROW-ON-THE-HILL, ENG. MR. ARNOLD MITCHELL, ARCHITECT.

Communications

[*The editors cannot pay attention to demands of correspondents who forget to give their names and addresses as guaranty of good faith; nor do they hold themselves responsible for opinions expressed by their correspondents.*]

"A SERIES OF FIREPROOFING TESTS."

Boston, Mass., September 13, 1895.

To the Editors of the American Architect:—

Dear Sirs, — In your issue of September 7, 1895, I read with much interest the article headed "A Series of Fireproofing Tests," and thought, much as the writer states in his last statement, that the tests were far more suggestive than complete or convincing. But as the suggestions were not new or conclusive, the advantages of the tests are very indefinite.

It is difficult to understand what conclusions the architect could reach as the result of these insignificant bonfires, and it is our belief his judgment would have been better before than after witnessing so incomplete or misleading a series.

The question of confining heat is distinctly different from that of confining fire, but it is not difficult to answer either case when confined in a practically air-tight compartment; but when we furnish such compartment with a door for the feeding of fuel and air, and a flue for egress of smoke and heat, the test to the surrounding material is slight, as both heat and fire will travel in the current of air produced by the fire, travelling in the most direct course to the flue; and all walls or ceilings, not intercepting this course, are only affected by the heating of the dead air, and air at rest is the most effectual barrier to the progress of fire or heat.

The conclusions of the writer, as expressed in his statement — "the results of these tests have demonstrated the fact that, when proper care is taken to fill all air-spaces and holes in the different stories, especially where the floors join walls and partitions, and where pipes and wires pass through them, a building is practically safe from fire extending beyond the room in which it was ignited, and, in an office-building, apartment-house and buildings of like character, if the fire were to be allowed to burn out the contents of the room without water being thrown upon the fire, less damage would probably result than if water were thrown upon the hot plastered concrete, which might crack and become loosened from the metal lathing, and cause damage in adjoining rooms," — do not seem to be borne out by the facts as shown by the tests, nor at all consistent with practical dangers of fire. As in the first place, we find no method of fireproofing, as yet, which has a connected or continuous air-passage, or one separated by only a barrier of combustible material, that requires any more care at its joining of floors or walls than at any other point, and in a case where such is needed, as in the cases of houses Nos. 6 and 7, we find they did burn through, and with about every condition in their favor; and in the second place, where or when can an instance be found where one had or will have confidence enough in the method of construction to allow all the contents of a room to burn without an effort to extinguish it, when such effort could have been made?

Again, the statement is significant of a lack of confidence in plaster or concrete, as a successful fireproofing, when water is to be used as an extinguisher, which is a fact, and as water will always be used, concrete or plaster never should be.

Again, none of the tests appear to be fair, because the buildings were all erected during cold weather, and frost and dampness were liable to be found in all in sufficiently large quantities to be dangerous, as was shown by the explosions in the plastering of houses Nos. 2, 3 and 5, and no doubt aided in the destruction of plaster in all.

Further, the tests of houses Nos. 6 and 7 could not have been made for the purpose of proving fireproof qualities, as centuries have demonstrated that the materials with which they were built contained no fire-resisting qualities and the only question that could be answered was, how long they could stand the test. This showed, without contact with fire, the material was burning in twenty-five minutes and in forty minutes the whole structure was on fire.

As to the weights of the different materials, it appears some mistake has been made, as while some appear exceptionally light, others are as remarkably heavy. In the case of porous terra-cotta, I have recently witnessed a test of 12-inch arches and 2 inches of cinder concrete, the material showing a weight of only 69.6 pounds per foot, and this with the materials all thoroughly drenched with water and not after a fire.

These tests were unusual and useless as to methods of fireproofing, being simply of heat and not of fire and water — the test to which all are subject when actual fire occurs.

The subject of fireproofing is not one of a single property nor one of many, as fire-resisting qualities, lightness, strength, durability or imperviousness cannot be considered alone, but is a subject embodying them all, and a material or method that does not contain all when in a finished state is not a material for adoption. Cheapness is not a factor in any case unless the systems compared are equally effective when actually tested.

Tests made are not conclusive unless the qualities proved are tested under the conditions and difficulties met in practice, and if a building, of the style described in the article before mentioned, is to be tested, the flue for the conduction of the smoke should be made at several points on the outside walls, at the bottom, so as to retain the heat and fire and not allow them to pass directly out before using all their combustible properties; and the feed for fuel and air should be brought in and made as central as possible. With these conditions, the tests would have shown far greater heat, inside and out, and with the application of water the complete demolition of several of the structures would have been speedy, and those having any wood in their construction would have shown the serious results of such use. Respectfully yours, CALDRON.

IMPORTANT TO FELLOWS OF THE AMERICAN INSTITUTE OF ARCHITECTS.

PROVIDENCE, Sept. 28, 1895.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Permit me through the columns of your journal to appeal to the Fellows of the American Institute of Architects to return to me their letter-ballots on the proposed change in the Constitution of the Institute. A two-thirds vote of all the Fellows, that is, 312 votes, is required to carry a Constitutional amendment.

But a little more than one-third of the Fellows have returned me their votes. It is important that the vote be large enough to show the wish of the Fellows on the proposition of amendment.

Ballots mailed later than October 8th, should be sent to me at the St. Nicholas Hotel, St. Louis.

Yours truly, ALFRED STONE, *Secretary.*

P. S. — Since writing the above, I have read Mr. Macomb's comments upon the proposed amendment to the Constitution, and would say that he has stated correctly the issue, which is, whether the affairs of the Institute shall be managed by twenty-nine Directors or by certain officers of the Institute less in number, and as the Constitution of the Institute can only be altered by letter-ballot, it was thought best to phrase Article IV in such a way as to leave the utmost freedom of choice on the part of the Convention as to the number to constitute the Executive Committee, and as to who should compose it.

If the amendment is approved, the opportunity to discuss the question of centralization or de-centralization of power will be legally before the Convention, and under the proposal to amend the By-laws there will be an opportunity to hear and be heard on the subject, and the adoption of the amendment will not prevent making the Executive Committee of any number that may be deemed best. I therefore do not hesitate to urge Fellows of the Institute to vote for the amendment to the Constitution, even if to some the designation "Board of Directors" is better than "Executive Committee," because by so doing, the whole question will thus be open for argument in the Convention, and I do not feel that I am committing myself on the question of a large or small governing body. A. S.

RAIN-BATHS: A PERSONAL EXPLANATION.

NEW YORK, N. Y.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — The fact that a portion of your issue of February 10, 1894, containing a valuable article on "The Modern Rain-baths" has been sent to me from the Paris office of the "*Annual of the Universal Medical Sciences*," of which I am the associate editor on hydrotherapy, climatology and balneology, convinces me that your journal is influential and the circulation widespread. This fact moves me to ask the correction of an error on page 317, in which occurs the following sentence: "Quite recently rain-baths have been introduced into the United States, largely at the suggestion of a hydropathic physician, Dr. S. Baruch, of New York City, etc." My grievance lies in the epithet "hydropathic physician," which does me an injustice. It seems difficult for lay people to realize that the medical profession regards all physicians as irregular who practice or profess some exclusive dogma. A "hydropathic physician" is one who depends, or professes to depend, upon water as the chief remedy in disease. I beg to say that I do not belong to that category.

Since my first argument for the rain-baths was presented in my report as Chairman of the Committee on Hygiene of the Medical Society of the County of New York (the largest and oldest medical society in the county), I certainly cannot be classed as a hydropathic physician. Moreover, the title-page of my "Plea for Public Baths," which the author of the article in your valuable journal had obtained from me, states my connection with three hospitals in which no hydropathic physician would be recognized.

It has been my endeavor to further the hygienic utilization of water as well as its application in disease in an exact and scientific manner. As a true physician I use water as one of many remedies. This is called hydrotherapy, and differs from hydropathy in that the latter is a system of medicine claiming to be based upon the use of water as a remedy in place of medicines.

It may not be without interest to your readers to state that the New York rain-baths, referred to by the paper in your February number, have been astonishingly successful. Over 175,000 baths were given in 1893. I am just in receipt of the last report of the Peoples' Bath. From October, 1893, to same date in 1894, 80,537 baths were given, an excess of 11,908 over the previous year. When the fact is borne in mind that the entire area of the building (two stories and basement) is only 61.7′ x 27′, architects and all others interested in public baths must realize the superiority of this method over all others (plunge, tub, etc.), as indicated in the excellent article of Mr. Gerhard.

The Riverside Association, at 259 West 69th Street, has constructed a similar bath, in which basement space of 68′ x 25′ is used. Here we have thirteen bathing compartments, a laundry, drying-room, toilet and wash rooms. In this space we have on several Saturdays given 350 baths.

These illustrations suffice to demonstrate that *no public bath should ever contain tubs*, the rain-bath being ideal for this purpose. The free public baths, provided for by the last Legislature and which are now about to be constructed in this city, will be rain-baths, this form having been determined upon by the City Board of Health.

Respectfully, S. BARUCH.

A PROBLEM IN KALSOMINING.

BAKERSFIELD, CAL., September, 21, 1895.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Will you kindly tell me how to treat a plastered wall for kalsomining, when one has to contend with a considerable quantity of alkali in the sand with which the mortar was mixed?

Very truly yours, B. G. MCDOUGALL.

[IT will be found very difficult to do anything with the wall. In England, walls plastered with salt sand are often covered with tin-foil, and then papered, as the only means of getting any decoration to stand on them; and kalsomine, which is easily injured by alkali, independent of the moisture which the alkali may attract, is still more difficult to manage. We should be inclined in this case to try a coat of clear Portland Cement, mixed to about the consistency of whitewash, over the wall, letting this stand some weeks, to throw out the "saltpetre," before kalsomining over it; but we should notify the owners that the experiment would be quite likely not to succeed, and that it might be necessary to take the plastering all off, and do the work over again. — EDS. AMERICAN ARCHITECT.]

THE ROSENBERG BEQUESTS TO GALVESTON.

GALVESTON, TEX., Sept. 23, 1895.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — I take the liberty of enclosing copies of clauses 19 and 20 from the will of the late Henry Rosenberg, of this city, who died in 1893. These follow in regular order the Y. M. C. A. building just now being placed under contract. Their publication may, no doubt, prove of interest to those of your readers likely to compete for these works. If such is your own view, you are at liberty to make use of the data they contain. I add for your own information a memorandum of the progress made in the erection of several buildings provided for in his will as bequests to the city.

I am, very respectfully, A. J. WALKER.

Two of the bequests contained in the will of the late Henry Rosenberg, of Galveston, who died May, 1893. These follow the Y. M. C. A. Building which we hope to have under contract early in October.

A. J. WALKER and W. J. FREDERICK, *Executors.*

CLAUSE XIX. I give $50,000, Fifty thousand dollars, for the erection of an appropriate Monument in the City of Galveston to the memory of the Heroes of the Texas revolution of 1836. The execution of this bequest is charged upon my Executors, who shall adopt plans and have the monument erected under their immediate supervision!

NOTE. — This bequest is intended to commemorate the events and incidents, as well as the individuals, participating therein. These can be obtained from the histories of Texas, of which there are a number by different writers.

CLAUSE XX. I give $30,000, Thirty thousand Dollars, for the erection of not less than Ten Drinking-Fountains for man and beast in various portions of the City of Galveston, localities to be selected by my Executors. This bequest however is on the proviso, that the City of Galveston shall obtain an abundant supply of good drinking-water within 5 years after my death. Failing in thus obtaining such supply of good drinking-water, then I direct that after the expiration of the time herein limited, one-half of said Thirty thousand dollars shall be given the Orphans' Home mentioned in the 14th clause of this will, and the other half to the Women's Home mentioned in the 17th clause of this will!

NOTE. — The new system just completed in August affords an ample supply of good fresh drinking-water in great abundance and renders this bequest operative.

MEMORANDUM OF OTHER BEQUESTS TO THE CITY OF GALVESTON.

14. Protestant Orphan's Home, $30,000, three stories: will be completed October 1, 1895.

15. Grace Episcopal Church, $30,000: will be completed and occupied October 10, 1895.

17. Women's Home, $30,000, three stories: will be finished and occupied November 1, 1895.

18. Y. M. C. A. Building, $65,000, four stories: architects' plans adopted and proposals invited.

19 and 20. Monument and fountains, $50,000 and $30,000.

21. Public Library — Residuary — Building, Equipments and Endowments. Balance of the estate, estimated, $300,000.

EXHIBITIONS

Boston, Mass.— *Summer Loan Exhibition; Gobelin Tapestries; Japanese Paintings; Line Engravings, Mezzotints, and Etchings by Rembrandt:* at the Museum of Fine Arts.

Triennial Exhibition of the Massachusetts Charitable Mechanic Association, including Art Exhibition and Special Poster Show: October 2 to November 30.

New York, N. Y.— *Twenty-eighth Semi-annual Exhibition:* at the Metropolitan Museum of Art.

St. Louis, Mo.— *Art Exhibition at the Exposition, including Special Collection of "Pictures of the Glasgow School."*

NOTES & CLIPPINGS

Electric Heating at the Vaudeville Theatre, London. — The Vaudeville Theatre, in London, was recently equipped with electric heaters and those interested will find a brief description of the plant, with illustrations of the heaters, in the London *Electrical Engineer*, March 8, 1895, page 285, and in the London *Electrical Review*, March 8, page 293. It appears that there are six box radiators on either side of the theatre, and twelve attached to the partition in front of the orchestra; there are four large portable radiators arranged for use in different parts of the theatre; the average temperature of the theatre is about 60°; arrangements are now being made to heat the stage in the same manner. The current actually used for warming the auditorium is 90 ampères and 110 volts, which, at 8 cents per kilowatt-hour, is 75 cents per hour, which, for an evening of four hours, amounts to $3.00. One of the great advantages is perfect regulation and the conveniencies attending the system. From a comparison with a hot-water system, it is claimed that the electrical system will probably cost considerably less to maintain. The cost of installing the electric heating apparatus was found to be about the same as that for hot-water heating; the advantages of the former, however, are said to be so great that they would have justified even a higher price. Electrical heaters are on trial at several other theatres and public buildings, in some of which they are used for temporary assistance in extra cold weather. The whole installation was completed, at a few hours' notice, early in January of this winter. In connection with the economy of electrical heating, the following from the recent paper of Mr. Crompton (abstracted in the *Electrical World*, May 18, page 587) may be of interest. He claims that the opinions recently stated, that electrical heating for cooking is too expensive to become general, are based on an insufficient knowledge of the economy of cooking as generally carried on; the smallness of the results obtained by the electrical method are astonishing; the amount of heat actually utilized in cooking on the ordinary stove was found by experiment to be not more than 2 per cent; the enormous waste, except in boiling and stewing, being due to the fact that radiated heat was used; in an electrical oven fully 90 per cent of the heat may be used, which represents 4·5 per cent of the whole energy of the coal, which is therefore twice as economical as the ordinary oven; evidently it does not follow that therefore it would be more economical in a private house to generate electricity for cooking purposes only. He believes that in a few years the majority of the consumers of electric light will do all their cooking by electrical means, using solid fuel only for boiling purposes. — *Carl Hering in the Proceedings of the Engineers' Club of Philadelphia.*

A Warning for Travellers in Austria. — Of course, Austrians are treated in exactly the same way as foreigners, the only advantage they possess being a better knowledge of the shoals and quicksands of the law. But even this is only relative, as many a native knows to his cost, a Vienna merchant, Herr Lieweher, among the number. This gentleman was seeing a lady off not long ago, at the Western terminus. In order to meet or see a friend off at the railway station in any part of Austria you must first get a ticket for the platform and then wait patiently in a room until the doors are thrown open, after which each ticket must be duly punched, and then only is one allowed to enter. Herr Lieweher, however, fulfilled all the conditions, and accompanied the lady to the compartment in which she took a seat. Here he engaged her in conversation, and it was only when the third bell sounded that he became conscious how quickly time can fly. He left the train and turned his steps toward the exit, when a railway official accosted him and informed him that he must pay a fine of three florins for having entered the train without a ticket. Herr Lieweher said he had never heard of such a law or by-law, and that he did not think he ought to pay the money, whereupon, without more ado, the official called upon the police to do their duty. This roused the merchant's ire to a degree of defiance, and he said he would not endure such things at the hands of a railway official; that it was impudent and impertinent. Herr Lieweher was then taken before the Commissionary and fined three florins for entering the train, and fifteen florins for the too free expression of his opinion. These sums he was compelled to pay then and there, and only when he had done this was he allowed to leave the station and reflect upon the unforeseen miseries of life. But even then his trials were not terminated. The payment of eighteen florins merely ended the disciplinary punishments. The unfortunate man was brought up a few days later before the district judge to answer to the charge of having used insulting words to a functionary in the discharge of his duty. The case having been carefully and fully gone into, as is usual in Austria, the judge condemned Herr Lieweher to pay twenty-five florins more. This, it is hoped, will be the last of the series of punishments which sprang from seeing a lady off; but one can never tell. — *N. Y. Tribune.*

Progress of the Tunnel under the Thames. — The Blackwall Tunnel is soon to be an accomplished fact. Work is now proceeding very rapidly; that is to say, the human moles shut up in compressed air underneath the bed of the river are grubbing their way along at the rate of from 12 feet to 15 feet a week, and if they are able to maintain this rate of advance for the rest of the distance their tunnel will reach the first caisson on the Middlesex side of the Thames about the first week in October. If that should be achieved, then this subaqueous portion of the work, 1,215 feet in length, will have been got through within a twelvemonth, a feat never before accomplished in the time. It has been a difficult and a dangerous task, and it is to be feared that the portion now remaining to be done, 100 or 125 feet, may prove the most troublesome of any. In evidence of this it may be stated that the contractors, Messrs. Pearson & Son, have just purchased additional pumping machinery, they have applied for and have obtained from the Thames Conservancy permission to throw down into the river an additional covering of clay, and their men are actually working at this moment under an air-pressure of 34 pounds to the square inch over and above the ordinary atmospheric pressure in caisson No. 2 — considerably greater than they have ever had to resort to before. The regulation of this air-pressure is rather ticklish business. They are within 76 feet or so of the low-water margin of the river, but the whole of the river-bed at this point consists of loose porous shingle. Without great pressure below they would have the water in upon them, by its sheer weight; on the other hand if they overdo their pressure, it is liable to blow off up through the bed of the earth and the water above them. Then, of course, the pressure is gone, and in would come the deluge. How real is the peril of this kind of work has just been illustrated by an accident near Melbourne, where a sewer is being constructed under the Yarra by the ordinary shield system. The water came in upon them, and the engineer of the work and five of his men were drowned together. This Blackwall Tunnel is, of course, a much larger and more formidable undertaking, and it is perhaps this very fact that has secured immunity from serious mishap. The possibility of an inburst of water has, of course, been foreseen, and the consequences to life and property that might ensue have been so appalling that no pains have been spared to guard against a calamity. No less than 30,000 cart-loads of clay have been brought up from the Medway and laid down over the tunnel course. — *London Daily News.*

Statuary for the Pont de la Concorde. — It is proposed, says Mr. Parminter in the *Building News*, to restore the original aspect of the Ponte de la Concorde under the Empire and the Restoration, by replacing the statues of celebrated men on the immense pedestals of the parapets, which have remained unoccupied since Louis Philippe. The ten or twelve colossal statues erected on the Pont de la Concorde by the Restoration in 1827, replacing the immense statues of generals raised under the Empire, were taken down under Louis Philippe, and placed in the Court of Honour at Versailles, for it was the opinion of the architects and engineers of that time that their enormous weight was sufficient to compromise the solidity of the remarkable work of Peyronet. This bridge was commenced in 1787, and finished in 1790, and constructed in its upper portion with stone coming from the demolished Bastille; the heavy statues placed on the parapets by Napoleon and Louis XVIII threatened to bring about the ruin of the bridge, and were taken down in 1841. It would, therefore, be very absurd to-day, when the traffic over the bridge is increased tenfold, to re-erect the old statues with their enormous dead weight. It is, however, necessary with regard to harmony and proportion that the statues should be of very large dimensions. It will, therefore, become the duty of chemists and metallurgists to unite themselves with the sculptors, and furnish a light and malleable alloy, such as aluminium combined with some other metal, for the construction of the fine statues with which it is proposed to ornament the Pont de la Concorde before 1900.

The Difficulties of Sewering New Orleans. — When it is remembered that the city of New Orleans is built upon land whose average level is some twelve feet below the surface of the Mississippi River and that the entire municipality will be protected from the encroachment of the water by continuous levees surrounding the city, it becomes evident that the problems of draining and sewerage present difficulties which cannot be easily overcome. The average annual rainfall in New Orleans amounts to sixty or seventy inches, and showers yielding from two to four inches are not uncommon. All this water is collected in drainage canals and is lifted over the levees into the river and into Lake Pontchartrain by means of pumps. The old system, however, is inadequate for the present needs of the city, and a new plan is proposed to drain the central part of the city by means of a great canal finding its outlet through powerful pumping works into the Bayou Bienvenu and thence into Lake Borgne, far from the city and its water-supply. The sewerage system of New Orleans is independent of its drainage system. It consists of sewers emptying into a central reservoir, whence the sewage is pumped over the levees into the river. Recently a plan has been adopted for reinforcing the old system by a new canal and reservoir which shall receive the flow of the old sewers. The new reservoir will be twenty-seven feet below the gulf-level and will be fitted with pumping-engines capable of discharging 45,000,000 gallons a day. It is expected that the system as planned will provide a rapid current in the sewers, and the effective and speedy discharge of all sewage into the river-current at a point far enough below the city to insure perfect sanitation. — *N. Y. Evening Post.*

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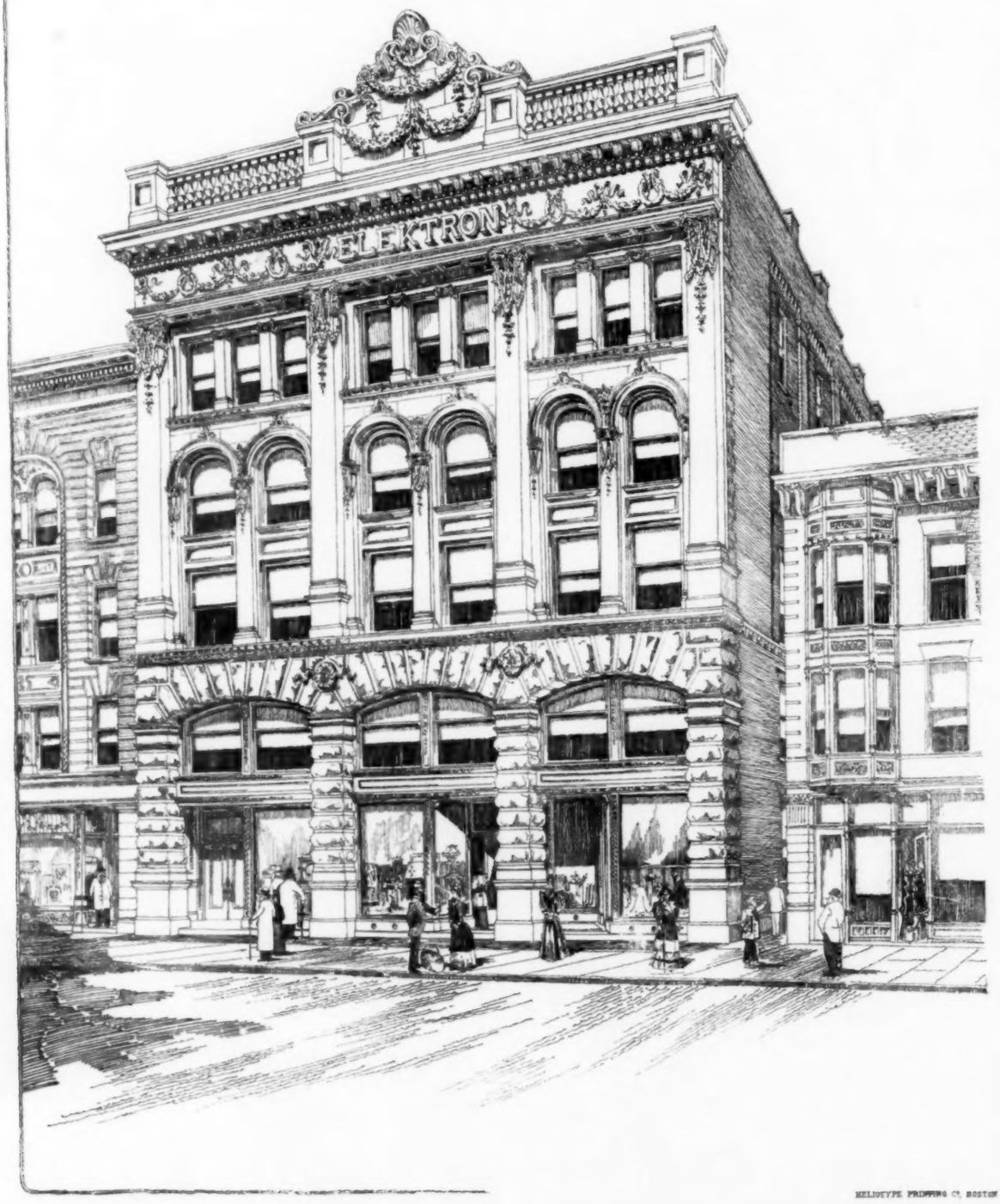

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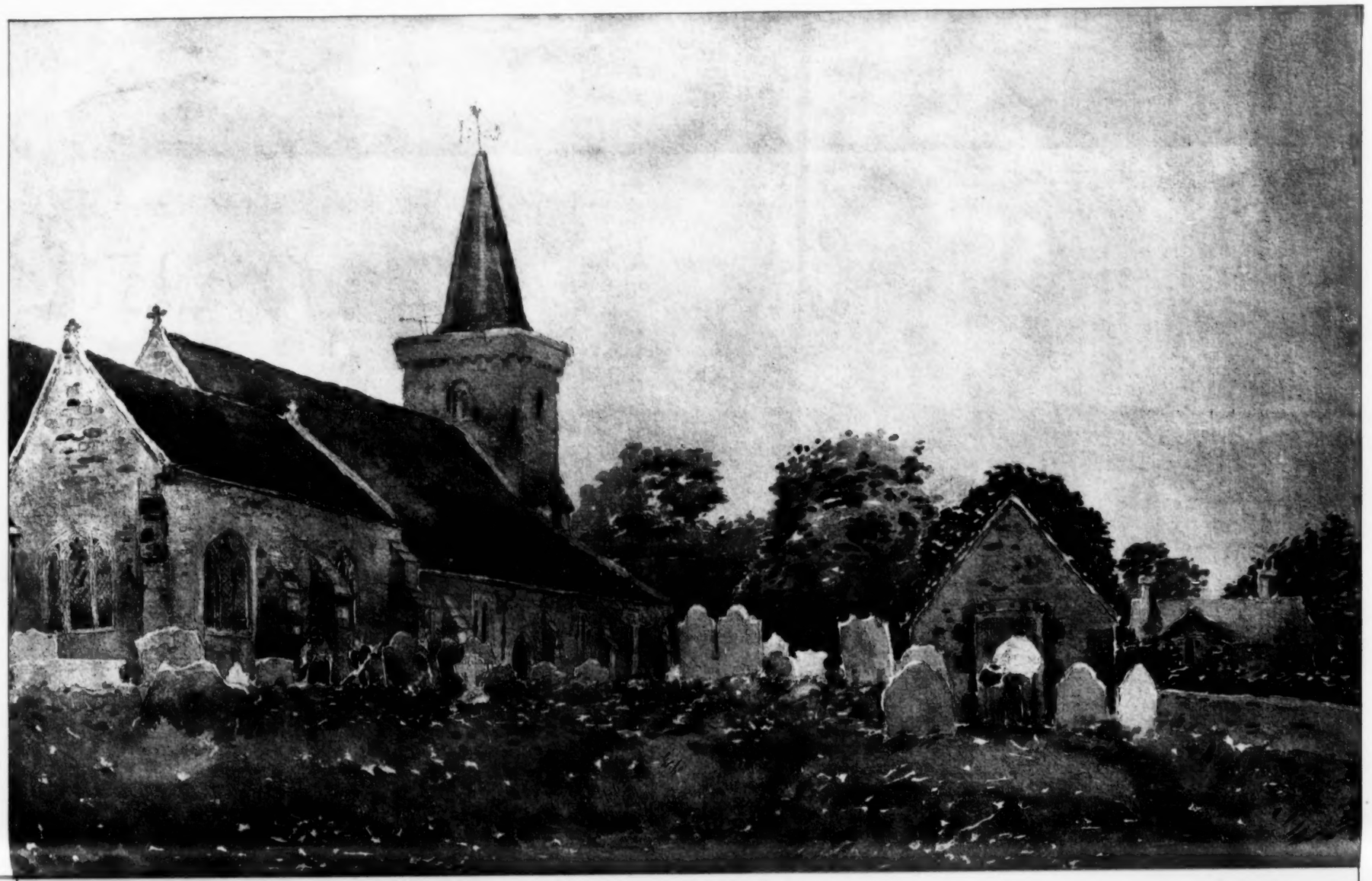

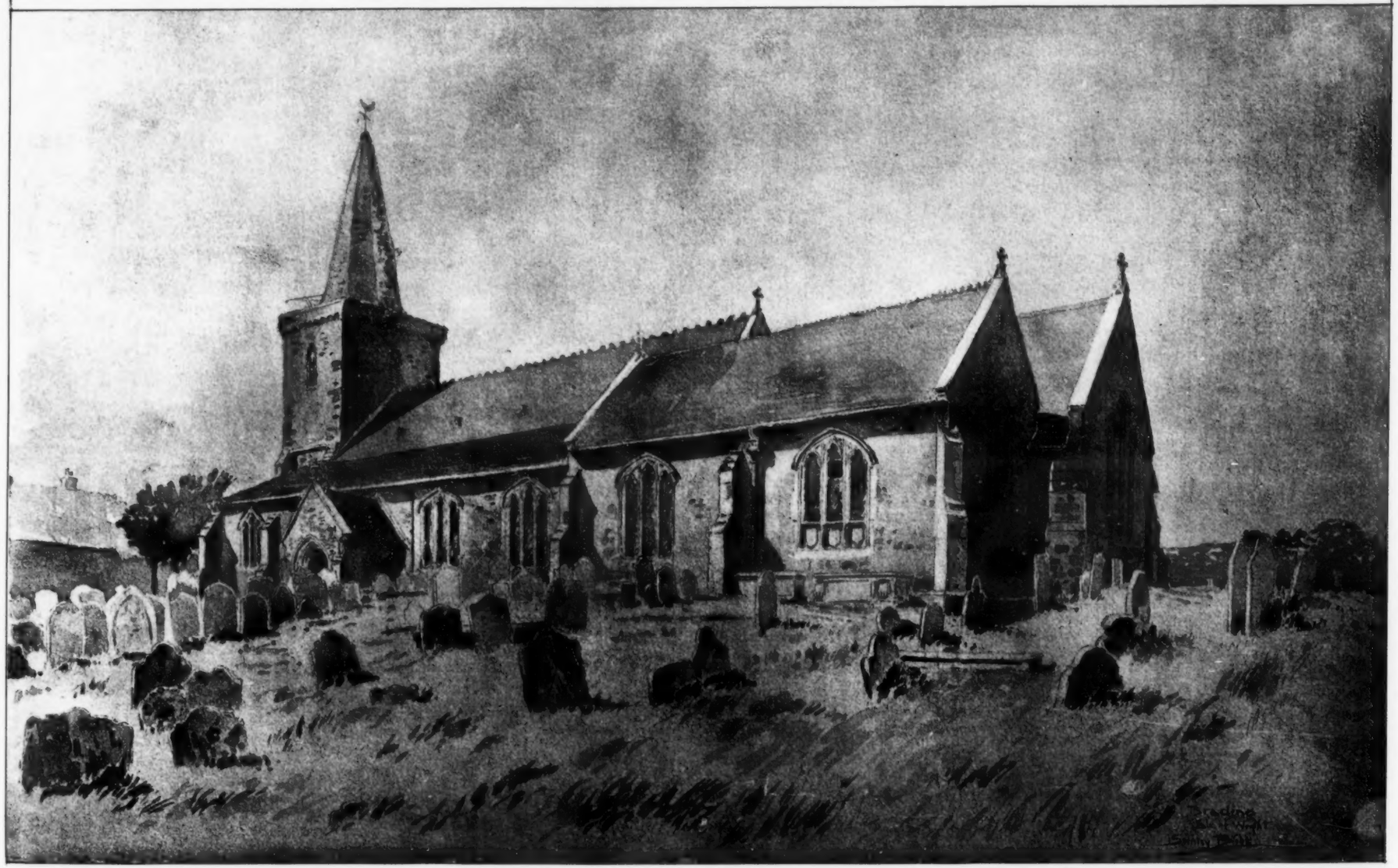

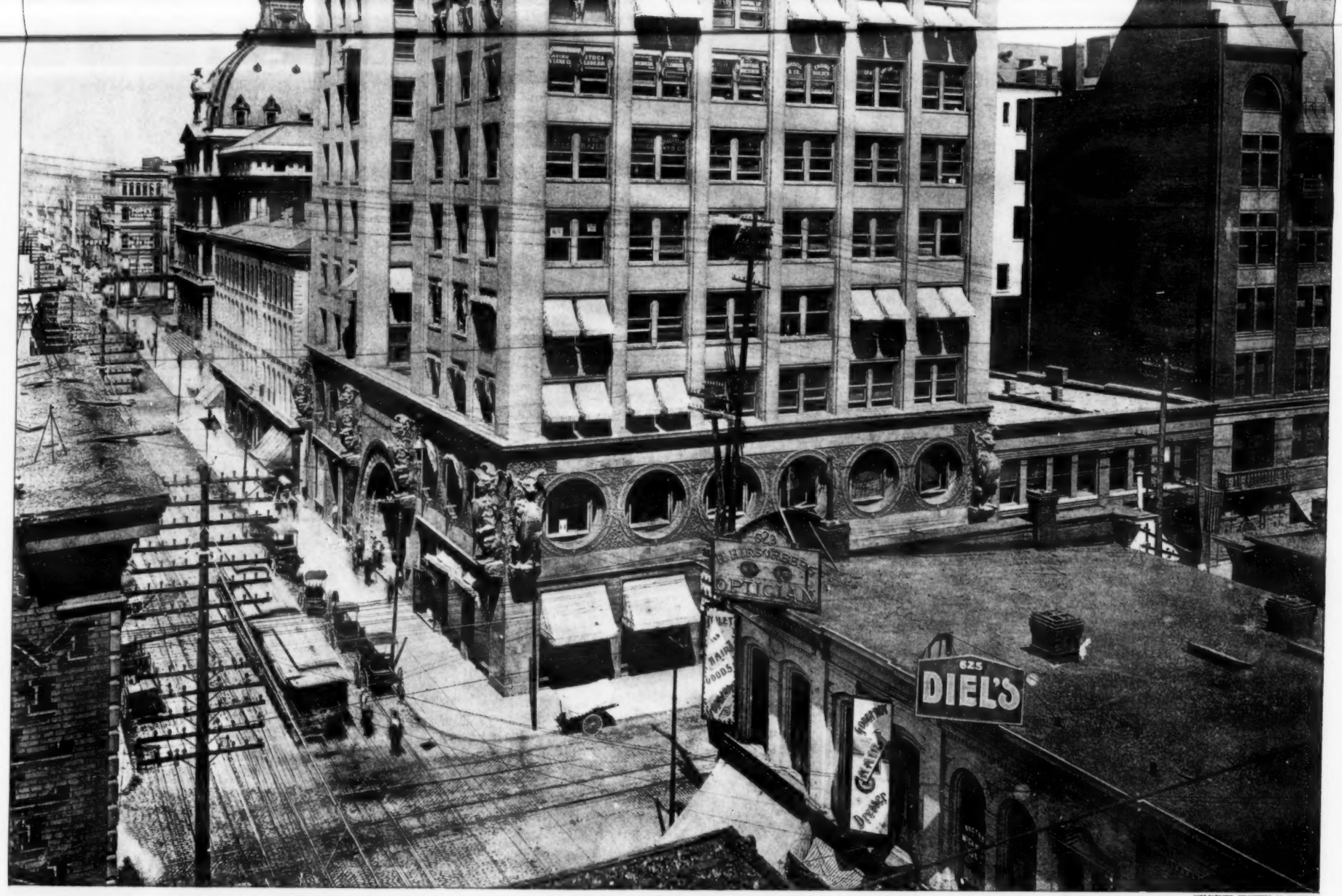

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