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A VERY important and interesting decision has been given by the Supreme Court of Ohio in regard to liens on real-estate for materials furnished to contractors. As every architect and builder knows, material-men have for years been trying, in nearly all our States, to have themselves put by statute in the same privileged class as the mechanics who work on other people's land or buildings. The latter, in the mediæval-socialistic view which affects so much legislation, are supposed to be more helpless, as well as more deserving, than the rest of mankind, and special statutes arm them with power, if the person who owes them money does not pay them, to get the money by force from some one else who does not owe them anything, but whom the statute designates for the sacrifice. There may be a reasonable doubt whether the intellectual effort expended in devising mechanics' lien laws would not have been better employed in providing for all citizens alike, means for securing payment of debts due to them; but, on the whole, the mechanics' lien laws have been useful, and it is not surprising that, seeing their effectiveness, the material-men, tired of trying to collect bad debts, have longed for legislation which would enable them, also, to secure payment of their bills by statutory mortgages on the property of innocent people. In most States, by persistent effort, they have managed to obtain something of the statutory privileges of mechanics, and are trying to get more, but the courts seem to look with less favor than the Legislatures on their efforts. By the Ohio decision, which was rendered on a case in which a material-man's lien was involved, the statute giving such liens was clearly declared unconstitutional and void. The Court did not consider the matter of the liens of mechanics for their labor, but it denied the constitutionality of such liens for material of any kind. The liberty of contract it declared to be one of the inalienable rights of man, and, as it said, "No court can see that it is for the common public welfare that the liberty of contract should be taken away from the owner of a building to enable the seller of materials to collect their value from a man who never purchased them, and has already fully paid the one with whom he contracted for all that he has received." The curious plea was made, in favor of the constitutionality of the statute, that it tended to drive out the small and irresponsible contractors, and leave the business in the hands of the richer men, but the Court could not see that it was for the public welfare to foster monopolies in the building business. A similar decision has been given in Michigan in regard to such liens, but their validity has been upheld in other States.

A LARGE number of persons have been killed recently in and about Boston by inhaling illuminating gas. The gas now supplied in the city is an enriched water-gas, and is, like all water-gas, very poisonous. It used to be the fashion to ascribe such deaths to suicide, but there can be no doubt that most of them are due to accident. The little pins, which prevent the keys in gas-fixtures from turning too far, often fall out, and a vigorous twist of the key turns it so far around as to shut off the gas and extinguish the flame, and then turns the unlighted gas on again from the other side. If any one will make the experiment, he will see that after the light is extinguished it is by no means easy, without the help of the pin, to ascertain when the key is at right angles with the pipe; and a leak so slight as not to awaken persons sleeping in the room may, in the course of hours, prove fatal. Of course, gas-fixtures ought not to be allowed to lose the pins of their keys, or to leak gas in any way to the risk of the public health, and a bill is now pending in the Massachusetts Legislature providing for the regular inspection of gas-pipes and fixtures, and requiring gas-fitters to be licensed, in the same way as plumbers.

THE members of the Master Builders' Associations who wish to exclude the lesser men from contracting for building work ought to take notice of the fact that, in the suburbs of Cincinnati, an organization has been formed for the purpose of assisting small mechanics and workingmen in taking contracts for building houses, by advancing money, and providing a certain amount of protection against the swindles by which so many contractors of the kind are robbed of their pay, through fictitious mortgages, assignments, or attachments. We have not the highest opinion of the financial wisdom with which small contractors are likely to conduct their affairs, if they think that some one will step in and make up any losses that they may suffer through their own carelessness; but the idea of advancing money to them, on suitable security, is a good one, and that of utilizing their collective means to save one another from being robbed is a still better one; and we wish them all the success that they may merit.

SOME evenings ago the editorial dining-room, in which the children had been left to amuse themselves, was the scene of a reprehensible tumult. Chairs suffered violent shocks, the table was marked by small fingers, and an unseemly noise pervaded the neighborhood. On investigation, it appeared that the culprits had been playing "microbe"; that is, each of them in turn represented a "microbe," and had to chase the others about the room. That this idea of microbes is precisely similar to the one generally held, it would be too much to say, but the world has certainly made up its mind to defend itself from such organisms with all the diligence possible, and has made much progress in the art of doing so effectively. It is said that according to the mortality returns of Great Britain during a recent week, only one death was caused by small-pox, indicating that this dreadful disease, which has caused, probably, more deaths than all other contagious maladies put together, leaving out of the account tubercular disease of the lungs, is nearly extinct. Even tubercular consumption itself, which is now placed in the list of microbial ailments, shows signs of losing its hold over the human race, not so much through the application of any specific treatment of the kind which has proved effective against small-pox, as by the more general and intelligent avoidance of the conditions by which the multiplication and dissemination of bacterial germs are favored; and the same improvement in the sanitary circumstances of modern life has undoubtedly led to the mitigation of other diseases. This is strikingly shown in a comparison of city death-rates made the other day by Mr. John Wolfe Barry, the newly-elected President of the Institution of Civil Engineers. In London, from 1840 to 1870, the average annual death-rate was 24.4 per thousand. In 1870, the great intercepting sewers were brought into use, and since then the death-rate has fallen, until it is now only 19.5 per thousand. In the other great cities of the world a similar change has occurred within a still shorter time. In 1882, the death-rate of New York was 30.6 per thousand; in 1896, it was 22.4. In Paris, during the same period, the rate has fallen from 26.3 to 21.1; in Berlin, from 26.4 to 19.0; in Vienna, from 29.2

to 23.1; in Rome, from 26.1 to 20.8; and in Amsterdam, from 24.3 to 17.6. This would make Amsterdam much the healthiest city in the world, and it is not impossible that there may be some error in the figures, for Holland, presumably on account of its wet soil, is especially the country of consumption, and modern sanitary methods have hardly yet been applied to pulmonary diseases as they have to typhoid fevers and diphtheria.

OUR readers have probably already turned pale over the announcement made by no less a personage than Mr. Sovereign, the Master Workman of the Knights of Labor, that "one million voters in this country lost faith in the ballot," as a result of the last election, and that, in consequence, "secret revolutionary societies are now being organized in every part of the country." These revolutionary societies have repeatedly made to Mr. Sovereign "offers of money and arms" if he will "give his efforts to the cause of revolution." Hitherto, he has, with Spartan fortitude, resisted the tempter, but, if a revolution should come, he "will not be found among the cowards, nor on the side of the plutocratic classes." Judging from the record of his public services hitherto, Mr. Sovereign can safely be counted upon to be found on the side which he believes most favorable to the interests of Mr. Sovereign, but it seems a pity that he should be suffered to promote those interests by a sort of talk which has already cost our people enough in incendiarism and blood. Every one knows that, without the efforts of Sovereign and his kind, riots and revolutions would be impossible in this country. The vast majority of our people, a majority so enormous that the minority is scarcely perceptible, labor side by side, with each other and for each other, in mutual harmony. No one pretends to be perfectly unselfish, or quite as industrious and efficient as he might be; but on the whole, the work of this country is done honestly and faithfully. One would suppose that this fact was sufficiently evident to every one; but, within the last half century, it has occurred to certain people to spread the suggestion that the mutual kindness and good-feeling of human beings to each other, which, as most people imagine, is rather increasing than diminishing, are a pretence, and that the world really consists of a mass of demons, "struggling for life" with each other, and putting on the mask of affection and honor, the better to conceal their infernal malice. As no one can possibly know the secret motives of others, this theory can hardly be logically refuted, and the idea that everybody is really a hypocrite greatly tickles college sophomores and young ministers in search of a sensation. With people of the Sovereign stamp it takes a different form. "The professors tell us," they say, "that the people who employ us, instead of trying to treat us fairly and kindly, are really using their superior knowledge to deceive us, and deprive us, in the struggle for life, of what properly belongs to us; then, what we ought to do is to 'strike the shackles from our limbs,' and seize again that of which we have been deprived." The fact that neither the professors nor the anarchists can furnish any details of the methods used in this general robbery does not mitigate the rage inspired by the idea that it has been committed; and nothing more is needed than a vigorous preaching of the new doctrine to stir up the ignorant and violent to murder and robbery, or, as the Michigan school would call it, to an effort to repossess themselves of the privileges of which they have been despoiled. To this "reformation," as the anarchists call it, the most ignorant inhabitants of this country are called, day after day, by people who get their living by the noise that they make, and no one tries to stop them; yet nothing is more certain than that their activity constitutes the most serious danger that threatens the Republic. A man who holds up another to scorn, accuses him publicly of dishonest practices, and exhorts persons who dislike or envy him to attack him, is promptly put under bonds, or shut up in jail; but one may, day after day, call a large part of his fellow-citizens "plutocrats" and "despots," and say that they do not vote fairly, but win elections by "cunning and craft," and declare himself to be in favor of immediate "war at home,"—without danger to himself, although with very great peril to the innocent persons against whom his malice is directed.

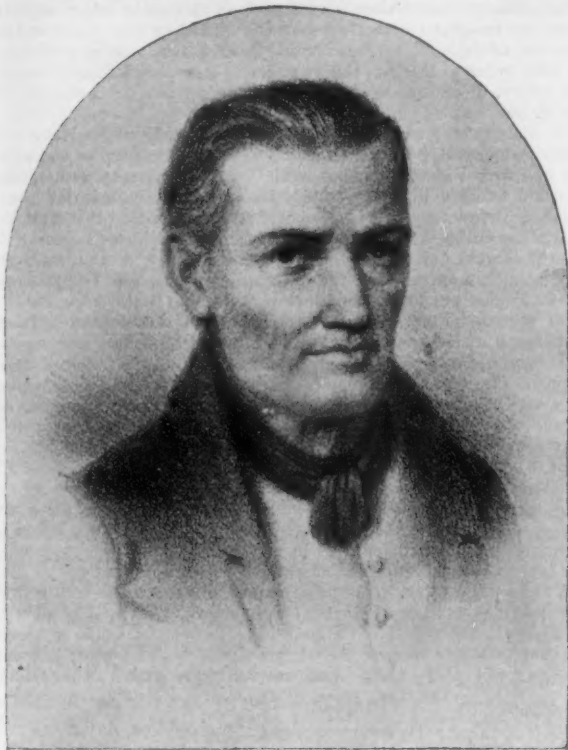
ACCORDING to *Fire and Water*, eight school-houses were burned in the week ending February 6, with a loss of two hundred and ninety-six thousand dollars in money and, undoubtedly, incalculable distress and danger to thousands of children, who, in one case, were turned out of their beds in the middle

of a cold night. Among the provisions which it is hoped that the States may some time incorporate in general building laws, one of the most important is one requiring every school-house, or building in which more than twenty children are regularly assembled, to be of fireproof material throughout. The cost, in these days of cheap fireproof construction, would not be excessive in a structure so simply planned as a school-house, and it would be saved many times over within the next century, while the very fact that, in a certain State, all schools must be held in fireproof buildings would attract to that State, as it seems to us, great numbers of families to whom the danger of school-house fires is a serious and ever-present anxiety.

A LADY in Paris, who does not wish her name to be made public, has placed at the disposal of the management of the School of Fine Arts a country villa not far from Paris, which she wishes to be used as a dwelling for three artists, who are known to the authorities to be at once deserving of such assistance, and in such narrow circumstances as to be glad to receive it. There are a great many artists in Paris, and most of them are not only poor, but not ashamed to confess it, and to be grateful for a favor of this sort; but one cannot help speculating a little on the way in which such benevolence would be received in this country. Among us, unfortunately, there is no established authority to say what artists are deserving of such assistance, and the volunteer claimants would not, probably, be the best persons to encourage. Still, it seems quite possible that some abandoned farm, perhaps, in Vermont or New Hampshire, might be rented for a nominal sum by the town authorities who hold it to a colony of artists for the summer months. We remember a deserted farm of the kind in one of the most beautiful parts of the White Mountain region, and there must be many others where pure air and beautiful scenery could be had for a very small price.

SO many architects use photography in their work that it may be of interest to say that a real process of photography in colors seems to have been discovered, far simpler and truer than those of Ives and Lippmann. According to Sir H. Trueman Wood, who, with Captain Abney, Professor Thomson and Mr. Hubert Jackson, of King's College, has seen the process carried out, the inventor, M. Chassigne, of Paris, who has brought to perfection a plan originally suggested by Dr. Adrien Dansac, takes a negative on a gelatine plate, previously prepared by treatment with a solution the nature of which he, for the present, keeps secret. Development and fixation are carried out as usual, and the negative presents the ordinary appearance, with no trace whatever of color. A positive print is taken from the negative, either on glass or paper, bearing a sensitive film previously treated with the same solution. The print does not differ in appearance from an ordinary positive; but on washing it successively with blue, green and red solutions, it absorbs these in the proper places, so that the finished picture exhibits all the colors of nature, even the details showing their proper color under the microscope. Some negatives taken by the visitors on the spot were treated by M. Chassigne with success, and it seems to be certain that a real discovery of the greatest importance has been made.

EVERY lover of Swiss architecture will hear with regret of the death of Professor Ernst Gladbach, a distinguished teacher in the Polytechnic School at Zurich, and for many years the most prominent among those whose publications upon the beautiful architecture of Switzerland have delighted the whole artistic world. Like Viollet-le-Duc, whose study of the Swiss buildings revealed for the first time the extraordinary historical interest of the style, Gladbach was a foreigner, having been born and educated at Darmstadt. He was even, for a time, an official in the Hessian building-service, but his accomplishments and tastes, acquired through university training and intelligent travel, led him to accept gladly the chair which was offered him in what was then the newly-established Federal Polytechnic School at Zurich. Here he remained and taught for thirty-three years, beloved by his pupils and fellow-citizens, whose affection he reciprocated by a devoted interest in the artistic characteristics of his adopted country, and to his untiring effort, and skilful pencil, the world owes the preservation of at least its most important memorial of an architecture which, after perhaps two thousand years of uninterrupted vitality, is fast passing away.

A GREAT MEXICAN ARCHITECT.¹—II.

Francisco Eduardo de Tresguerras. From "Hombres Ilustres Mexicanos."

FRANCISCO EDUARDO DE TRESGUERRAS was born in Celaya on March 13, 1745. The name, which is also written Tres-Guerras, signifies "Three Wars." It evidently indicates an old Spanish origin, with the founder of the family a valiant soldier who thus transmitted to his descendants the record of his patriotic services as a veteran campaigner. I have read nothing definite concerning his family, but it must have been of high standing in that part of Mexico. Everything indicates gentle breeding, and the possession of an ample fortune appears to have made smooth the path of the artist towards the development of his rich and manifold endowments—notwithstanding all that has been said and preached about the blessing of poverty as a soil for the nourishment of genius.

So far as recorded, this remarkable man did surpassingly well everything that he undertook in the many lines of art that engaged his attention. He has been called the Michael Angelo of Mexico. His versatility was indeed extraordinary, and was not marked by the "fatal facility" that so frequently accompanies a manifold talent. He was an architect, a sculptor, a painter, an etcher, and an engraver on wood. He was also an accomplished musician and a poet. It is notable that this rich development marked an artist who not only never had the advantage of European travel or study, but whose activities were even remote from the splendid capital of his own country, being almost exclusively confined to a group of provincial cities lying far to the northward in the fertile Bajío. A country that could give such an artist his opportunities must have been not only exceedingly wealthy, but possessed of a high degree of culture.

The "Temple of Carmen," in Celaya, his birthplace, is called the masterpiece of Tresguerras. Other important works are the convent churches of Santa Rosa and Santa Clara in Querétaro, the Alarcon Theatre in San Luis Potosí, the bridge of La Laja, and various other works in Querétaro and Guanajuato. The beautiful dome of the convent church of La Concepcion in San Miguel de Allende is also his work. Tresguerras was over seventy years old when the Mexican revolution broke out, and he became an enthusiastic supporter of his country's cause. He was too old to take the field, but he was an impassioned propagator of the revolutionary sentiment. He lived to see his country achieve independence and he celebrated the event by composing a hymn of praise. Unfortunately, no copy of the work has been preserved, so far as known.

Adjacent to the Temple of San Francisco in Celaya, Tresguerras built a mortuary chapel expressly for his own interment. The evening before the day of his death he remarked to a friend whom he met on the street: "Death pursues us all with exemplary persistence, and as for me, I have but a few hours more to live."

"Do not worry about yourself," said his friend.

"Amigo, I have no time left to chat with you. Adios!"

This occurred on August 2, 1833. The next day Tresguerras was attacked with cholera morbus, and died at the age of more than eighty-eight years.

We have seen that Tresguerras was a musician. Near Celaya

there is a country estate called Romerillo. Afternoons Tresguerras was wont to go out there on foot, cane under arm, a cloak about his shoulders, and behind him a dog as his constant companion. As he walked he would fill the air with delicious melody from his flute. This he did almost daily.

In a letter to a friend, Tresguerras once gave some interesting information concerning his life and his artistic development. He says that as a child he was inclined to drawing, and the talent was congenital with him. When he was fifteen years old he had finished his school studies. He wanted to become a friar, but a too merciful God, as he said, frustrated the intention by means of a journey which he made to the City of Mexico, where his natural inclination caused him to give himself to the study of drawing and painting. He remained in the capital about a year, engrossed in his art studies. He was a pupil of Miguel Cabrera at the San Carlos Academy of the Fine Arts. He then returned to Celaya, and was thinking seriously of marriage when the friars sought to convert him back to his original intention of becoming one of them. "They mistook for virtue in me," says Tresguerras, "that which in reality was hypocrisy and worldly inexperience." He says that he was fortunately saved from a course which, with his temperament and inclinations, would have led him to a dissipated and delinquent life.

Having married, he dedicated himself to his painting, but when he exhibited one of his works it was coldly received, although, he says, it was a fairly good picture. But when he decorated a green and red coach, resplendent with gold and grotesquely ornamented, there was a shower of admiration and eulogy. He then took up music, became an engraver for a while, was next a carpenter and wood-carver, and practised land-surveying occasionally. All these occupations were gradually, though unconsciously, preparing him for his grand profession as architect, in which he was to unite and apply the lessons learned from his manifold accomplishments. Tresguerras, whose writings show a strong sense of humor, says that he began to dabble in architecture, stimulated by seeing how one may become an architect by simply wanting to be. "For this it is only necessary to learn a lot of recipes like those of the doctors, slobber round with any of the many architectural authors at hand—in particular, the scales of Vignola—talk very mysteriously about angles, areas, tangents, curves, segments, keystones, etc., but cautiously, and always in the presence of women, shopkeepers and others who know nothing about it; then, between pondering over certain works and



Church of Nuestra Señora del Carmen, Celaya, Mexico. Tresguerras, Architect.

tossing away others, talking ill of the subjects, annulling a thousand rules and delivering magisterial judgments—lo and behold! you are a made architect!"

"Such a man was Paz, who filled Querétaro with ridiculous monuments," says Tresguerras. He goes on to speak of his own

¹ Continued from No. 1103, page 52.

development, and of the obstacles thrown in his path by professional jealousy. He had been accused of designing his masterpiece, the Carmen church at Celaya, in imitation of the interior of St. Genevieve; but he pointed out how entirely different they were; they coincided solely in being of the Corinthian order, which was also the case with the Vatican, with St. Paul's in London, and many other edifices.

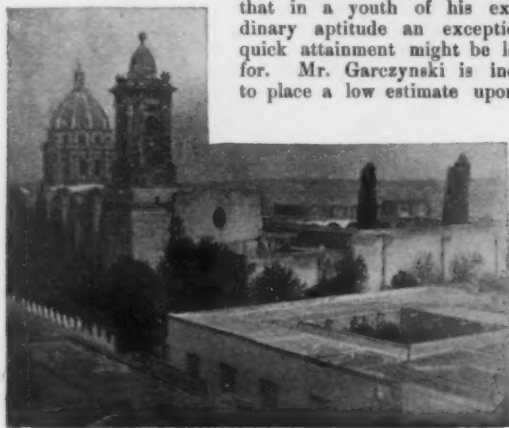


Bridge in Celaya, Mexico. Possibly by Tresguerras.

Some stranger had said it resembled some church or another in Spain; possibly it did, but Humboldt, "the Prussian Protestant," whom he met in the great scientist's famous journey in Mexico, did not find it so. Another celebrated lie about his work which he takes pains to refute is that the Carmen plans came from Rome, and he points to the many drawings from his own hand in his possession, in various stages of execution.

In the midst of the Plaza Mayor at Celaya, directly in front of the city-hall, there stands an attractive monument designed by Tresguerras; a column surmounted by a finely sculptured eagle. The eagle has his head turned backward, and a friend once asked the architect the reason for this peculiarity. "So that he may not see the barbarities committed by our municipal authorities!" replied Tresguerras.

The foregoing facts are mainly obtained from a brief sketch of Tresguerras, which, together with an excellent lithographic portrait, is included in a work of several volumes devoted to the lives of illustrious Mexicans. Mr. Edward Garczynski, an accomplished connoisseur of many years' residence in Mexico, recently looked up all the data he could find in the capital relating to Tresguerras and communicated the same to Mr. Frederic E. Church, who has been particularly drawn to the work of the great architect. Mr. Garczynski reports that the facts available in the City of Mexico are very few. He finds, however, mention of him as one of the pupils of Cabrera, but he holds that his knowledge of painting could not possibly have been acquired in a twelve-months' study at the San Carlos Academy, as stated by Tresguerras under his own hand. It should not be forgotten, however, that the artist had been accustomed to drawing from early childhood, and that in a youth of his extraordinary aptitude an exceptionally quick attainment might be looked for. Mr. Garczynski is inclined to place a low estimate upon the



Convent Church of La Concepcion, San Miguel Allende: Dome by Tresguerras.

merits of Tresguerras as a painter, but this is formed solely from what he has seen at the capital. "I went to the Academy of San Carlos to see if they had anything by him," he writes, "and my friend, Salome Pina, showed me an 'Ascension of the Virgin' which was less than mediocre. Pina asked me what I thought of it. 'Why,' I replied, 'it is not worthy to be placed where you have put it, among the works of Juan Rodríguez Ibarra (the ancestor of Gomez Ibarra, the architect) and Miguel Cabrera.' 'My own opinion,' said Pina, 'is, that it is distinctly amateurish.'"

While the foregoing judgment would doubtless be correct, if this single picture presented a sufficient basis for the conclusion, what I

have seen at Querétaro in the way of paintings by the master leads me to a different conclusion, for his work in this, as in other departments, has imaginative and sympathetic qualities that place it far above the average achievement of Mexican artists, who in painting, as a rule, so far as the San Carlos galleries show, are uninspired and perfunctory, however skilful their following in the footsteps of Spanish masters.

Mr. Garczynski says that the Jesuits probably noticed the exquisite harmony of proportions in the work of Tresguerras and supplied him with Vignola's famous work; but Tresguerras, strange to say, did not follow Vignola's scale. He had an instinct better than Vignola's perfunctory unit of proportion. He saw that this must be changed according to surrounding conditions, which is precisely what the Greeks did, although Vignola never knew it and we only learned the fact ourselves in the present century. But Tresguerras knew it by that extraordinary inner sight which is the sure indication of genius. Tresguerras at once broke away from that style of architecture which was introduced by the Franciscans and which had become stereotyped. Architecture in his day was absolute stencil work. Tresguerras at once broke with all these traditions as he broke with the formulas of Vignola as to the height and diameter of columns, the breadth of friezes and of architraves, etc. He trusted entirely to his own sense of harmony between related parts; but he had had that training which fitted him for his new profession; he had carved great statues of the Santissima for chancels, and he knew what chancels ought to be; he had made designs for altar railings, and he knew what proportions the high-altar should assume. Tresguerras had for competitors in the architectural line men who were engineers or builders, and who had no other thought than to make solid, substantial work. They had no notion that there was a law of proportion between all parts of a structure, which, if observed, would give harmony. The Cathedral of Mexico is a brilliant specimen of a huge structure, in the design of which there never entered one thought of proportion. Tresguerras, in his wood-carvings, had developed the profoundest sense of symmetry, and when he began to be an architect he was better equipped than any man of his time.

There are positively no statues in wood by Tresguerras in Mexico City, and consequently little is known about him there as a sculptor; but I have seen in other cities the most beautiful statues in wood, and I am certain that Tresguerras founded a school of sculpture in wood which is, or ought to be, the pride of the Republic, although a thing unknown to guide-books. In a letter to a friend, he spoke of himself as having been a *carpintero y tallista* (carpenter and wood-carver). Who would think that in this brief phrase there was so much? It alluded almost mockingly to his sculptures in wood, and it revealed the secret of his success as an architect; for, without doubt, had he not been an artisan he would never have created a new series of laws of proportion.

There is probably more information to be had concerning Tresguerras and his career in Celaya than anywhere else. There is a priest living in that city who knows much about him, and who has a large collection of his books, sketches and other effects.

SYLVESTER BAXTER.

[To be continued.]

ITALIAN CITIES: PADUA.—I.

LYING in the interior, on the banks of the Bacchiglione, a pretty stream which about the middle of the city separates into two canals, one of which empties into the Brenta, the great river that, side by side with the Po, discharges its waters into the Adriatic. Padua is one of the most interesting cities of Upper Italy, presenting all the attractions of a Continental city and all the oddities of a seaport town. Its two canals are navigable and the flotilla of boats that uses them lends great movement and picturesqueness to the scene.

The political history of the city is extremely interesting. The town is one of the most ancient on the peninsula, and the chronicles carry back the date of its founding to the days of mythology. In the seventh century of Roman rule the town was in the possession of the Fabian tribe and in the year 453 was sacked by Attila: the Lombards almost totally destroyed it some two centuries later, and at the end of the ninth century it was once more devastated by the Huns. Next it passed under the control of the Emperors of Germany, but in 1172 it succeeded in resuming independence and became the head of a confederation of neighboring cities in league against the German emperors. Its liberty lasted but a short time, for in 1257 it fell into the power of the infamous Ezzilino, the most cruel tyrant in Upper Italy, who fortunately was overthrown by a crusade which the Pope, Alexander IV, directed against him. On the death of this pontiff, Padua once more became a republic and extended its control over the communes of Feltre, Belluno, Vicenza and Trent. But internal dissensions were not slow in breaking out, one result of which was that the town passed under the domination of the Scaligers and the Carraras, who quarrelled with one another for the control. Finally, the Venetian Republic seized possession and thenceforward it shared the fortune of that republic.

Padua established within its walls one of the most venerable universities in Italy—which during the Middle Ages contained several, each the centre of intellectual life that made head against the barbarism introduced by the successive invasions—and down to

the beginning of the Napoleonic period this university was the focus to which was attracted a great number of students from all parts of the world. But in 1804 the city was taken by Napoleon and in 1815 it was ceded to the Austrians, who applied to it the system of repression prepared by the Congress of Vienna, the precepts of which provided for the destruction throughout Europe of the work accomplished by the French Revolution. The brilliancy of its university life was extinguished and the university, which was used to count as many as twenty thousand students in attendance, some of whom had been taught by Galileo, and amongst whom had been included men like Dante, Tasso and Petrarch, now had hardly a thousand pupils on its rolls. Padua also glories in having been the birthplace of Titus Livius, the great Latin historian, and of Mantegna one of the greatest of Renaissance painters.

But it is especially through its art history that Padua is worthy of the attention of those who like to understand all the phenomena which have preceded and followed the Italian Renaissance. Just as Venice, its neighbor, was the connecting-link between Oriental and Gothic art, so Padua forms the hyphen between the Tuscan School on one side and the Lombard and Venetian Schools on the other. It is here that were to blend, at the moment when the art of the

some masterly works, which of themselves would be enough to make the city an objective point of an art pilgrimage in our day. Andrea Briosco, called Riccio, whom Cicognara rightly calls the *Lysippus* of Venetian bronzes, also left at Padua works of great merit. In passing, it may be stated that the bronze bas-reliefs framed into the *Porte des Cariatides* at the Louvre are the work of this artist. Amongst other sculptors and founders, who have added lustre to the city, must be mentioned the celebrated Tiziano Aspetti, who died in 1607 at the age of forty-two.

So far as painting is concerned, it would not, perhaps, be too much to say that in the fourteenth century the painters of Padua took loftier flights than those of other parts of Italy, Tuscany alone always excepted. The Carraras, who during this period ruled here, earned a pardon for their despotic acts, just as many other Italian tyrants did, by according protection to artists and fostering the arts.

Unquestionably the Paduan School was at this time a mere ramification of the Florentine. The presence of Giotto, who made a long sojourn here and executed many works of prime merit, especially at Santa Maria dell' Arena and in the Chapter-house of San Antonio, aided greatly in strengthening the studies and cultivating the taste for artistic things. It is especially at Padua that one can follow



Nave of San Antonio, Padua. The Tomb of Contarini on the left.

peninsula was to enjoy its full bloom, the gay and sumptuous tenderness of the Venetians, the correct and instructed tastes of the Florentines and the severe and impassioned sentiment of the Lombard artists.

In the architecture of the city one detects the stamp of German feeling, dominant here before the fourteenth century, but embellished and made more light and graceful by Italian influence. Here the general aspect of the buildings is no longer heavy, like those belonging to the early Gothic period. It is especially in the churches and palaces that one can study how and under what agreeable forms the style of the north became married under Italian skies to that of the south, losing its original harshness and dryness. The tower and gate of the Palazzo del Capitano, built by Falconetto, the Veronese, at the beginning of the sixteenth century are the two monuments in which a recurrence to the school of Vitruvius and Roman traditions is most to be marked.

In the field of sculpture it is particularly curious to seek out the indications of the influence of the Pisan School, particularly of Giovanni Pisano, in the funerary monuments of the fourteenth century, which in such great numbers people the churches and in which all the allurements of the arts of architecture, sculpture and painting are found united. Donatello also made a sojourn here and executed

through its successive stages the movement that began with Giotto and ended with Mantegna, who became the patriarch of the school that in the north of Italy attempted to harmonize the respect for classicism with the innovating tendencies—and almost succeeded in so doing. After Giotto, there shone at Padua Altichieri da Zevio, born at Verona, whose principal works are contained in the Church of San Antonio, and Jacopo d'Avanzo, who in a day when men were still in ignorance of the laws of perspective yet knew how to obtain with his brush striking effects of relief and projection, and exercised a notable influence over the celebrated painter Gentile Bellini.

Altichieri's style trended toward the naturalistic, while Giotto's was more conventional. At length, at the beginning of the fifteenth century, Squarcione made his appearance. He for a long time had studied the antiquities of Greece and Southern Italy, and, in consequence, turned art in the direction of classicism. His chief and most brilliant pupil was Mantegna, and it was under this good artist that the realism of Altichieri was vanquished and pagan conventionalism gained the upper hand. But the influence Mantegna exerted on his contemporaries had this advantage: it strengthened their technique and directed their attention to more scientific doctrines, so that the overthrow of the somewhat brutal realism of Altichieri had for a consequence the triumph of plastic truth in art, such

as the ancients — those artists who have never yet been surpassed — understood it.

Every city in Italy that has a past possesses some one monument which, through its aggregate merits, outshines all the others either by its originality or its antiquity. Milan and Orvieto have their cathedrals, Perugia has its Palazzo del Cambio, Pisa its Baptistery, Florence its Campanile and Brunelleschi's dome, Rome has the Colosseum and the Vatican, Venice cherishes St. Mark's and the Ducal Palace. Padua, in its turn, holds two monuments which outrank all else within its confines; these two are the equestrian statue of Gattamelata, Donatello's *chef d'œuvre*, and the cathedral of San Antonio, or "Il Santo," as it is fondly called in allusion to that saint who died so young, and to whom popular imagination attributes so mild and gracious a physiognomy, so full of love and tenderness that, according to the legend, he once preached a sermon to the birds and fishes which crowded about him to hear his voice.

The Church of San Antonio¹ is the oldest in Padua; it was begun in the thirteenth century and finished early in the fourteenth. Like St. Mark's, it offers a strange mixture of Italian Gothic and reminiscences of Byzantine work. Its domes, its pointed arches, its slender spires, its façade copied after ancient Roman basilicas, and the Venice-like terrace that surrounds it, all show that, next to Venice itself, Padua is that one of the Italian cities where the commingling of Oriental and Latin tastes has produced the most marvellous effects. Two campaniles, slender and tall like minarets, make this Catholic church look like a mosque. A full-centred, central doorway is flanked on either side by two great blind pointed arches laid up with voissors of rustic brick. The interior, in the form of a Latin cross, is divided into nave and aisles by rows of massive piers. In the nave is to be noted the tomb of Cardinal Bembo, by the great architect, San Micheli, as well as the monument erected to the memory of the Venetian general Contarini and attributed to the same architect. The right-hand nave or aisle is especially interesting through the presence of the bas-reliefs, by Donatello, representing the chief episodes in the life of St. Anthony. In the south transept are interesting paintings of the early fourteenth century. The choir and altar are richly decorated, and the sanctuary, which contains relics of the Saint, is a very marvel of the Decadence, dating 1609. The architect who designed it was Parodi, who also sculptured some of the ornamental work. The work is bizarre and confused, like all that belongs to the same epoch. In the middle of the chapel are a crowd of angels, grotesque and affected, who are bearing away the Saint, and create for him a kind of apotheosis. In a reliquary, which is richly wrought, are preserved the hair of the Virgin and the tongue and chin of St. Anthony. Amongst the jewelry stored here should be mentioned the baton of Gattamelata.

St. Anthony of Padua in reality was born in Portugal, where he is as much an object of veneration as he is all through Italy, especially in the north. He gave instruction in theology in several good universities in different parts of Europe, notably at Montpellier, Toulouse, Bologna and Padua. He had the true genius for preaching, and, as we have seen, it led him to preach to the birds and fishes!

As one passes out of this sanctuary he perceives over the door in front, and representing the Entombment, the terra-cotta bas-reliefs modelled by Donatello.

In the left transept is one of the most interesting curiosities of the church, the Chapel of St. Anthony, which the genius of the Renaissance artists wrought into a very marvel. Amongst others Sansovino did certain work upon it.

H. MEREU.

[To be continued.]

ARCHITECTS AS AGENTS.

THE architect or engineer is the general agent of the building owner for all purposes necessary for designing, obtaining tenders for, and superintending the buildings or works upon which he is employed. This authority is implied from the mere fact of his appointment, and from common knowledge as to the nature of an architect's business. No particular form of appointment is necessary, and the retainer may, with two exceptions, be either verbal or implied from the acts of the parties or the circumstances of the case. If the agreement is one which is not to be performed within the space of one year from the making thereof, that is, is incapable of being completely performed within a year, it must be in writing. And if the architect is retained by a corporation, the agreement must be under seal. Where the work is to be performed under the direction of an architect to be appointed by the employer, the appointment of such architect is a condition precedent to the liability of the builder to commence his work; and if the architect is not appointed within a reasonable time, the builder may be released from his engagement to do the work.

The architect or engineer is the general agent of the building owner in making drawings, but he has no authority to warrant to the builder that they are correct, or that the work can be executed according to them, nor when there are omissions from them, to order those omissions as extras under a power to order extras, if they are works indispensably necessary to complete the contract. Nor where the drawings are impracticable has he any authority to order as an extra, work necessary to make them practicable.

Where an architect is engaged to superintend the erection of

works he becomes the agent of the employer generally for all purposes within the contract connected with the erection of the buildings, and the ordinary rules as to the rights and duties of agents of a general character, and having a recognized apparent authority incident to their character, will be applicable. His authority may be either expressly given or inferred from the acts of his supposed employer. But where the limits of the architect's authority are clearly set out by express terms in the agreement between the employer and the builder, the authority must be strictly followed, as an employer will not be liable for the acts of the architect unless the authority be duly pursued by him. At the same time, the courts are so far liberal in construing authorities given to agents that they will hold them to include permission to use all necessary, or even usual, means of carrying the main intention of the principal into effect in the best manner. In an agreement by an architect on behalf of his principal for building a house, etc., the principal will be bound, although no specific contract be proved, so that the general authority be sufficient to comprehend the terms of the agreement.

Mere instructions to prepare plans do not give the engineer or architect any implicit authority either to negotiate for advances with a view to building, or to get tenders or estimates. In such a case, the architect or engineer is not an agent at all, but a skilled draughtsman instructed to do a specific work. Even when he is given authority to get tenders, this does not extend beyond a power to invite tenders and to charge the employer with any expenses necessarily or reasonably incurred for that purpose. Sometimes the architect will, more or less distinctly and expressly, mention to the employer the necessity of a quantity surveyor, and then the employer may be liable by an express or tacit assent or ratification. But sometimes the architect, without saying anything about it or receiving any authority from the employer, engages a quantity surveyor. The authority of the architect for so engaging a quantity surveyor must, therefore, be an implied one — implied either by custom, necessity, or the circumstances of the case. This authority has more than once been implied when the employer authorized the architect to obtain tenders. The authority of the architect to employ a quantity surveyor to supply quantities may also be implied from the knowledge of the employer that they will be supplied, and by the employer standing by and saying and doing nothing, or by ratification. Sometimes the architect himself takes out the quantities, being a quantity surveyor as well as an architect. It is doubtful whether an architect has an implied authority, either from custom or agency, to take out the quantities himself for the purpose of obtaining tenders, instead of employing a quantity surveyor. If he has implied authority, it could only be to take out the quantities and charge his employer. The authority of the architect to employ a quantity surveyor to measure up, whether by custom or the necessities of the case, so as to render the building owner liable to pay the quantity surveyor's charges, may be negated by the terms of the employment of the architect. These terms may be defined by a special contract between him and the building owner, and if the architect's duties are to measure up, it seems clear that he has no authority to employ a quantity surveyor to perform his duties except at his own expense. A usage that the building owner should pay the quantity surveyor, contrary to the terms or construction of the contract of employment of the architect, would not be valid, for extrinsic evidence of custom and usage is only admissible to annex incidents to written contracts in matters in respect to which they are silent. The authority of the architect to measure up is implied, in almost every building contract, from the fact of his having to certify for payment, which he could not do without measurement; but whether the architect has a right to charge for this measuring up must depend upon the terms of his employment with the building owner.

Authority on the part of the engineer or architect to dismiss the contractor cannot be implied, and must depend on the special terms of the building or engineering contract. An architect or engineer has no power to render the employer liable to sub-contractors by ordering sub-contractors to do work not included in the general contract, nor by entering into subsidiary contracts with them, either for the original work or for deviations. An architect has no general authority to dispense with, waive, vary or alter the conditions of a building contract. His duty is to see that it is faithfully fulfilled according to its terms; but it may be varied by the parties themselves, who are entitled to strict compliance therewith, or by the architect under special authority given him on that behalf. He has no power to bind his principal by representations varying the contract, and where a contract has been reduced into writing, a party thereto is not authorized to rely upon the statements of the agents of the other party to the contract varying or modifying its terms. It is, therefore, useless for a builder to attempt to contradict or vary the contract by proof of statements or representations made by the architect that certain of the written terms would be varied or waived. The builder's only remedy in such cases is against the architect, and this is especially so when the employer is a municipal corporation. An architect cannot order or certify for extras without special authority. No authority to increase the cost of a building can be implied from the submission to the employer of a design, unless the employer knows, either necessarily from the character of the design or by being so informed, that it is a departure from the original plan or contract, and will increase the cost to him.

Where an architect, according to the terms of the contract, has authority to certify for payment during the progress of the works,

¹ See the *American Architect* for June 8, 1889.

either in certain sums or to a certain proportionate value of the work done and no more, if he exceeds that authority (1) the certificate will be bad, (2) the employer will not be compelled to pay, and (3) the architect will render himself liable to an action by the employer for negligence, if the employer acted on faith of the valuation and did not use his own judgment. A final certificate of an architect or engineer is binding between the employer and the contractor, but the architect as a professional man will be liable to his employer for negligence in making the certificate, and may be sued for any amount which he has over-certified.

Architects entrusted with authority involving a trust or discretion cannot delegate it to another without a special authority to do so, as expressed by the maxim, "*Delegata potestas non potest delegari*," but this rule must be distinguished from cases where he does not so much delegate his agency as exercise a power impliedly contained in his appointment, in doing which he must act with precaution, and not exceed what is proper under the circumstances of the case and warranted by usage. An architect might be justified in retaining a surveyor to take out quantities, but he could not delegate the whole of his duties. — A "Barrister" in *The Architect*.



SOCIETY OF BEAUX-ARTS ARCHITECTS.

THE regular February meeting of the Society was held on Monday, the 15th, at the Café Fleuret, New York City.

The business meeting which followed the dinner was devoted to the discussion of matters of general interest. It was decided, after obtaining the sense of the meeting on points under consideration, to give the Executive Committee power to ratify, for the Society, the constitution of the Fine Arts Federation, and to consider the amendments which were proposed. It was also voted to elect only one new delegate and alternate each year to the Federation, and that the President should always be one of the delegates. The Committee on Competition offered a report containing suggestions for an agreement which should govern the members in entering competitions, and this report was ordered to be printed and distributed.

The following will represent the Society in the Fine Arts Federation during the coming year: Messrs. Walter Cook, Thomas Hastings and John G. Howard, *Delegates*; and A. E. Brockway, John E. Howe and E. P. Casey, *Alternates*.

The following were elected members of the Society: Messrs. J. MacIntosh Lyle, Chas. Peter Weeks and Grosvenor Atterbury.

The meeting closed with initiation ceremonies.

EDGAR A. JOSSELYN, *Secretary*.



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

EXTERIOR DETAIL OF ALEXANDER HALL, PRINCETON UNIVERSITY, PRINCETON, N. J. MR. W. A. POTTER, ARCHITECT, NEW YORK, N. Y.

[Gelatin Print, issued with the International and Imperial Editions only.]

THE PROPOSED FENWAY GARDEN, BOSTON, MASS. MR. C. H. BLACKALL, ARCHITECT, BOSTON, MASS.

IT is proposed to put up a building in a convenient position which shall supply under one roof a skating-rink, a roof-garden, a swimming-pool, a bicycle-rink and a ball-room of suitable proportions. The site, just west of Massachusetts Avenue on Boylston Street, has a frontage on both Boylston Street and the Fenway, and an area of about 100,000 square feet.

The amphitheatre will be on the ground floor with numerous entrances on all sides of the building. The arena will be 360 feet long by 180 feet wide, and the ring in the centre will be 270 feet long by 90 feet wide. Around this ring will be 114 boxes and a total seating capacity for 6,000 people. This will give the largest and best appointed place in New England for conventions and big gatherings of every nature, and can be readily adapted for Grand Opera.

During the winter months it is proposed to use this ring as a skating-rink. The ice will be manufactured by the best and most improved machinery, and have an area of over 20,000 square feet. Rinks of this description have proved most popular in many of the large cities of Europe and this country. When not used as a skating-rink this ring will be covered by a moveable floor, and can be used for all kinds of fairs. Connected with it there will be several other large halls and apartments, which can be used for auxiliary purposes, and when not in use for shows can be used for bowling, lawn tennis, etc.

On the street level there will also be the largest swimming-pool in the country, 118 feet long by 60 feet wide, built of tiles and supplied with a constant flow of water of an even temperature. Connected with this there will be suitable dressing-rooms. It is believed that the skating-rink and swimming-pool will afford to children unequalled facilities for learning these two important accomplishments without danger and under the most favorable circumstances.

The building will also be specially adapted for bicycle riding indoors. In addition to several rings for beginners, there will be a wide path around the entire building which, by easy grades, will connect the different floors and afford a continuous ride of nearly a mile in length. This bicycle path will be made as attractive and picturesque as possible. There will be room for the storage of a large number of machines and also a repair-shop. The position of the building, directly on the Park, will make it most convenient for bicyclists who wish to ride through the Park system or suburbs of Boston.

The ball-room at the east end will be large and attractive, circular in form, and 92 feet in diameter, and connected with it will be reception, waiting and dressing rooms, and a large supper-room which can also be used as a banquet-room for public dinners. The ball-room and connecting apartments will be reached by a separate entrance.

The roof-garden, long desired by the Boston public, will be entirely open in summer and enclosed in glass in winter, thus affording a source of income during the entire year.

The restaurant it is proposed to arrange so that service can be had on the open balconies during the warm weather, and to maintain it at all times as a restaurant of the very highest class. The kitchens will be ample and will be so arranged that they can supply the supper-room and roof-garden in addition to the restaurant.

The building will be equipped with numerous and large elevators, affording easy access to all its different parts, and the many entrances will accommodate a vast number of people. The lobbies will be spacious, the corridors and stairs broad, and the building will be so designed as to serve the various purposes for which it is built in the fullest possible way.

SECTIONS, PLANS, ETC., OF THE SAME: TWO PLATES.

APSIDAL TREATMENT, NO. 13: CHURCH OF SAN MARTINO, NAPLES, ITALY.

THE Church of San Martino was rebuilt on its old lines in 1657 by Cosimo Fonsaga, and consists of a nave of three bays without aisles or transept and a deep square-ended chancel, which serves as a choir. The high altar is by Solimena, the mosaic marble pavement by Presti, and the painting of the Crucifixion, over the altar, by Lanfranco.

APSIDAL TREATMENT, NO. 14: CHURCH OF SAN DOMENICO MAGGIORE, NAPLES, ITALY.

SAN DOMENICO MAGGIORE, which in 1285 replaced an older Gothic church, is said to have been built from the designs of Masuccio, the elder of the two Neapolitan architects of that name. It has been successively modernized in the XV, XVII and XVIII centuries, and last in 1850-53. The high altar is by Fonsaga, 1652. The church is notable for its numerous fine monuments dating from the Renaissance.

[The following named illustrations may be found by reference to our advertising pages.]

THE OLD GRAND AVE. SCHOOL-HOUSE, NEW HAVEN, CONN.

A GROUP OF MEXICAN CHURCHES.

[Additional Illustrations in the International Edition.]

ALEXANDER HALL, PRINCETON UNIVERSITY, PRINCETON, N. J. MR. W. A. POTTER, ARCHITECT, NEW YORK, N. Y.

[Gelatin Print.]

THE ROSTRUM: ALEXANDER HALL, PRINCETON, N. J.

[Gelatin Print.]

LINCOLN CATHEDRAL, ENG.: CHOIR AND NAVE, LOOKING WEST.

GROSVENOR HOSPITAL FOR WOMEN AND CHILDREN, WESTMINSTER, LONDON, ENG. MESSRS. ROUMIEU & AITCHISON, ARCHITECTS.

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.]

THE ÉCOLE DES BEAUX-ARTS METHODS.

NEW YORK, February 15, 1897.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—In the animated discussion which has been going on for some weeks in your paper, it strikes me that an essential point has quite been missed. What would one think of an attack on Harvard University, for example, based on the inaccuracies to be found in students' examination-papers? Such examination-papers, and nothing more, are the designs submitted by the architectural students at the École des Beaux-Arts.

If the School is to be attacked, pray let us have a little serious search into just what the teachings of the School are, in distinction from the blind strivings of immature boys toward putting those teachings into practice. I, for one, should much like to see in your columns a serious and faithful outline of the course of study actually laid down at the School. From such a paper, discussion of real issues might well take rise, unbefogged by such engaging caricatures as that of Mr. Cram.

Mr. Cram was so careful to premise his original remarks about the School before the Boston Society of Architects with a disclaimer of knowing anything about it, that it would seem a thankless service to him again to prick his bubble; but some further notes in his communication of February 2d seem to indicate that there was conviction beneath his fun after all.

Now, how about his chimneys "supported by miraculous agency"? It may be wrong to support masonry of any sort whatsoever upon iron; but modern practice all over the world permits it constructively, even though there be still some nice critics who cling to the skirts of argument against it artistically—poor Ruskin was long ago left in the lurch, still, when last heard from, bawling out to the disappearing figure of Progress and Modernity, "No railway stations for me or the rest of us extra-pure devotees, I tell you; God never meant iron for anything but decorative purposes, unless perhaps for nails when you can't use wooden pins. You are flying in the face of the Almighty to turn a metal to purposes of support."

Far be it from me to enter at this time into a discussion of the rights of iron to assume functions other than medievalists allow it. I will merely say that there is no civilized nation to-day which denies itself the use of iron for support, and that the École des Beaux-Arts might reasonably countenance its use in obedience to the dictates of common sense. If, therefore, it is allowable to build walls on iron girders, why is it not also allowable to construct chimneys in the same way? True, this would seem miraculous to any but those familiar with modern methods of construction, in accordance with which chimneys are, as a matter of fact, being built every day, here and abroad.

But when Mr. Cram, to prove his case against the School in Paris, instances the shortcomings of a "Fellowship design" produced in one of our American institutions, the task of exploding his theory becomes imponderable. Is this argument, or even good faith? In Kamchatka they may build bridges of *passe-partout* for aught I know, but is that a case to be cited against the etiquette of American railway systems?

At least, give us a semblance of substance. Why not have out the "graduates of the École" who contradict your own point about "points de poché"?

JOHN GALEN HOWARD.

[PRECISELY the sort of attack our correspondent suggests, based on students' inaccuracies in examination-papers, is being made on Harvard University, and it is likely to be fruitful of good results, and we see no reason why similar good may not follow Mr. Cram's attack on Beaux-Arts methods as practised in this country. Neither Harvard, the Beaux-Arts nor the American schools are beyond criticism or above improvement. As Frenchmen often remain in the School up to the age-limit, thirty years, and as American students are generally adults, it is not proper, we think, to speak of them as "immature boys."—EDS. AMERICAN ARCHITECT.]

NOTES & CLIPPINGS

SUBWAYS.—The Boston subway, the *Engineering News* shows in an article, is the largest tunnel yet run under streets anywhere: larger than the Blackwell tunnel in London, two to four times as large as the South London Electric Railway, and larger even than the Detroit-St. Clair River tunnel. To August 15, 1896, \$1,703,772 had been spent, and work was completed or under contract on 2.94 miles of single track, or 55 per cent of the total. If the tunnel proves all that is expected, the subway will become familiar in our cities. To-day it would cost less to put small subways under the main streets of this city than to be tearing up the pavement all the time.—*Philadelphia Press*.

HEIGHTS OF HOUSES IN PARIS AND BRUSSELS.—During an inquiry by the Board of Trade and Transportation in New York concerning the height of houses in cities, Mr. E. G. Wilson, president of the Health Department, supplied the following summary of the regulations of the authorities in Brussels and Paris regarding the limitation of the height of buildings:

Brussels.—The height of house frontages in public streets is determined by the width of the street. The maximum height of frontage is:

1. Twenty-one metres (68.88 feet) on public places, boulevards and streets of 15 metres (49.2 feet) wide and upwards.
2. Twenty metres (65.6 ft.) in streets 14 metres (45.92 ft.) wide.
3. Nineteen metres (62.32 ft.) in streets 13 metres (42.64 ft.) wide.
4. Eighteen metres (59.04 ft.) in streets 12 metres (39.36 ft.) wide.
5. Seventeen metres (55.76 ft.) in streets 11 metres (36.08 ft.) wide.
6. Sixteen metres (52.48 ft.) in streets 10 metres (32.80 ft.) wide.
7. Fifteen metres (49.20 ft.) in streets 9 metres (29.52 ft.) wide.
8. Fourteen metres (45.92 ft.) in streets 8 metres (26.24 ft.) wide.
9. Thirteen metres (42.64 ft.) in streets 7 metres (22.96 ft.) wide.
10. Twelve metres (39.36 ft.) in streets 6 metres (19.68 ft.) wide.
11. Eleven metres (36.08 ft.) in streets 5 metres (16.40 ft.) wide.
12. Ten metres (32.80 ft.) in streets 4 metres (13.12 ft.) wide.
13. Eight metres (26.24 ft.) in streets 3 metres (9.84 ft.) wide.

The height of frontages is taken at the middle of the buildings from the pavement to the cornices of the coping, so as to include attics. The width of public roads is measured from the face of the frontage walls.

Paris.—The height must not exceed the following measurements, taken from the footway or from the pavement at the foot of the façade of the building, including the entablature, attics and all erections plumb with the front walls:

Ten metres (32.80 feet) for public roads less than 7.8 (25.58 feet) metres wide.

Fifteen metres (49.2 feet) for public roads between 7.8 (25.58 feet) and 9.74 metres (31.95 feet) wide.

Eighteen metres (59.04 feet) for public roads between 9.74 (31.95 feet) and 20 metres (65.6 feet) wide.

Twenty metres (65.6 feet) for roads, squares, cross-roads, streets, quays, boulevards, twenty and more metres in width.

The mode of measure indicated is not applicable to buildings on a slope, except those whose length does not exceed 30 metres (98.4 feet). Beyond that length the buildings must be lowered according to the declivity of the ground. If the architect builds several detached houses, the height must be measured separately for each according to the rules above mentioned. The height of buildings bordering private paths, passages, blind alleys, etc., must be determined according to the width of these roads or spaces, in accordance with the rules fixed for ways or spaces adjoining the public roads. Whatever the character of the buildings, more than seven stories above the ground floor, including the *entresol*, can never be allowed.—*The Architect*.

BUDDHA'S BIRTHPLACE.—The *Pioneer of India* gives some interesting details concerning the recent discovery of the birthplace of Buddha. It appears that, on representations made by the Indian government, the Nepalese Prime Minister granted permission to the archaeological surveyor of the Northwest Provinces to visit the Nepal Terai in order to explore the country for a distance ten miles to the north-west of Mauza Nigilva, where now stands Konagamma, Buddha's Nirvana-stupa, and Asoka's monolith recording that fact. General Khadga Shamsheer, Governor of Palpa, was instructed to meet Dr. Fahrner at Nigilva. By a lucky chance the meeting came about instead about fifteen miles to the northeast, at Mauza Padriya, near the tahsil of Bhagwanpur in the zillah of Butaul close to the General's camp. Here, near the ruins of several stupas, stood one of Asoka's monoliths, rising about ten feet above the level of the surrounding ruins and covered with pilgrim's records, of which one belongs to about the ninth century. The archaeologist's attention was at once caught by this, and the pillar was unearthed to the depth of another fourteen feet, when a well-preserved inscription of the great Emperor Peyaddassi, or Asoka, was found about three feet below the former level of the ruins. In this inscription Asoka states that after having been anointed twenty years (about B. C. 239), he came himself to the garden of Lumbini, worshipped, and erected several stupas and this column, on the very spot where Lord Buddha was born, in order to commemorate this happy event for future generations. About eighteen miles northwest of this column lie vast ruins of stupas, monasteries and palaces covered with forest and stretching in a straight line of about five miles from the village of Amouli to Tilaura Kot on the Bangunga River, the circumference being about seven miles. This is the ancient site of Kapilavastu, the capital of Suddhodana, Buddha's father.—*N. Y. Evening Post*.

THE ELASTIC REACTION OF STEEL.—If we produce elastic deformation of a body and remove the load causing such deformation, the effect of the strain exerted continues to act for a longer or shorter time. That is, the removal of the load, or the distorting force, does not produce immediate rest, but the metal remains strained for days and weeks. This continuation of the strains affecting the metal after removal of the stress or stresses is called elastic reaction. This elastic reaction, which begins after the elastic limit has been passed, diminishes in the course of time, partly or entirely depending on the molecular condition of the metal. Dittmar, in a lecture in 1885, calls attention to observations he made in the manufacture of steel springs. He says if steel wire was made into springs immediately or soon after drawing the wire, very discouraging results were obtained, because the wire broke when coiled for springs. This caused grave doubts whether the right quality of steel was used. However, it was observed later that the same wire, if used from six to eight days after having been drawn, during which time the wire had time to rest, could be worked, coiled and even knotted without any breakages. Bauschinger noticed an increase of the elastic limit on highly-strained steel after removal of the load during several days.—*Iron Age*.

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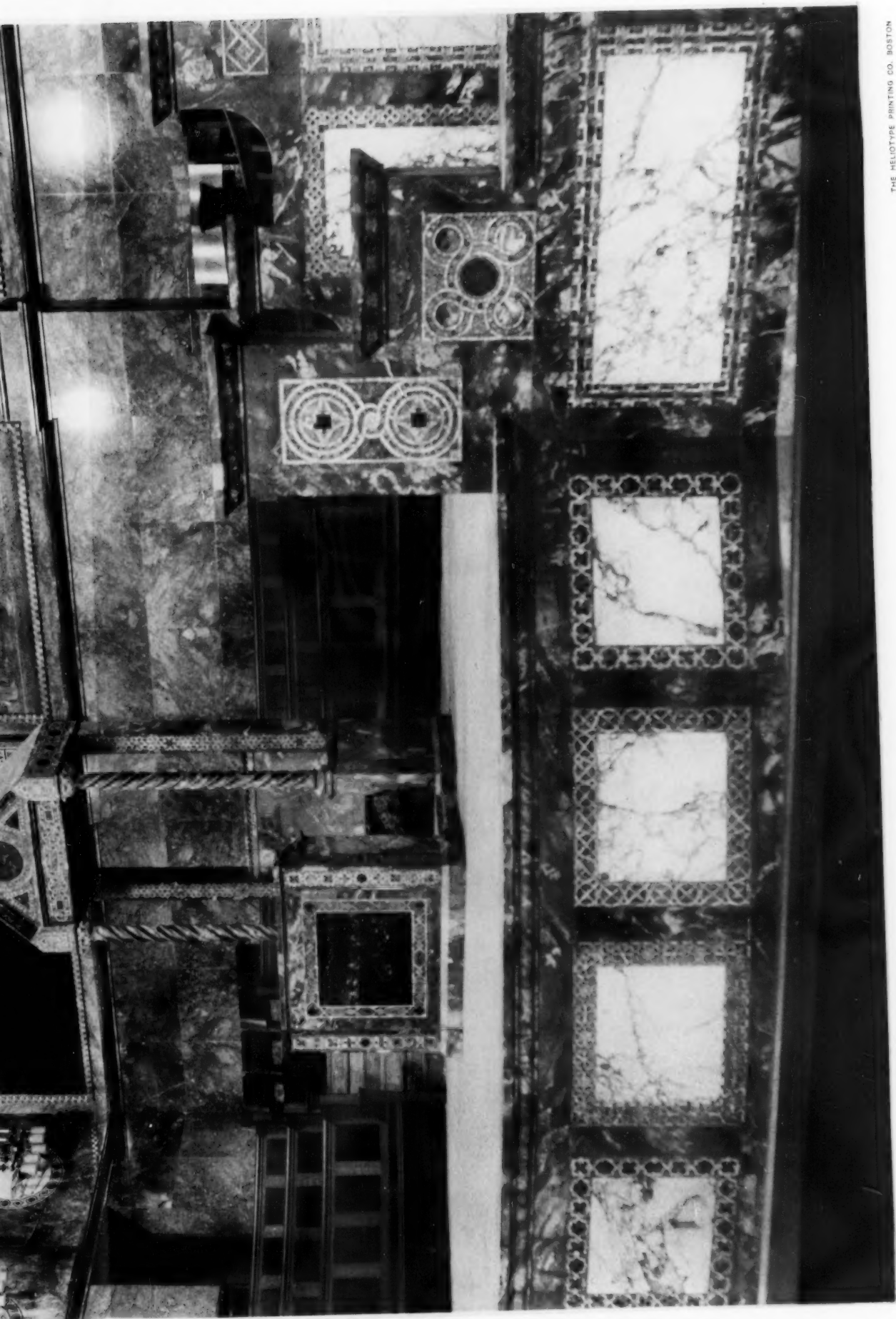
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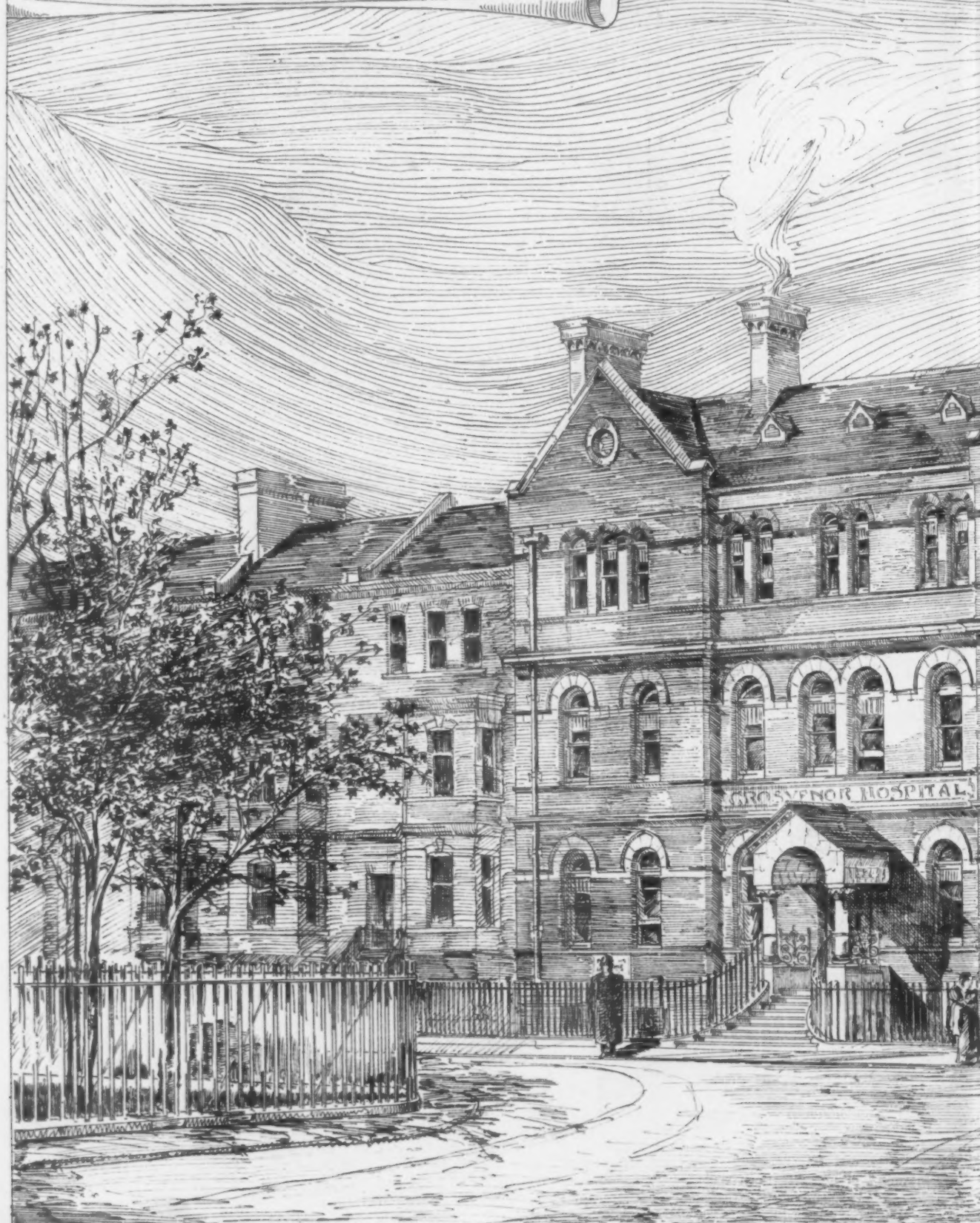
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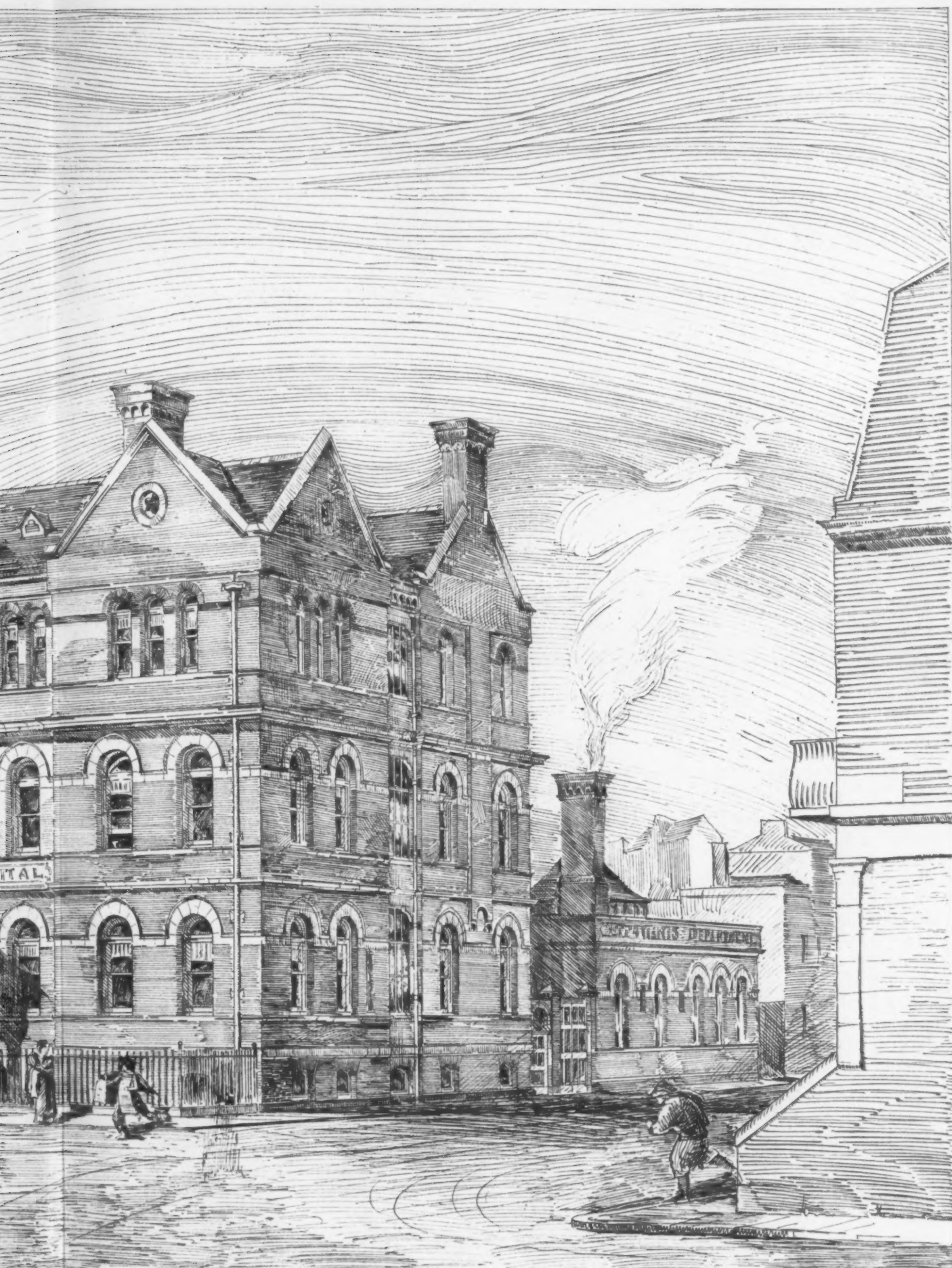


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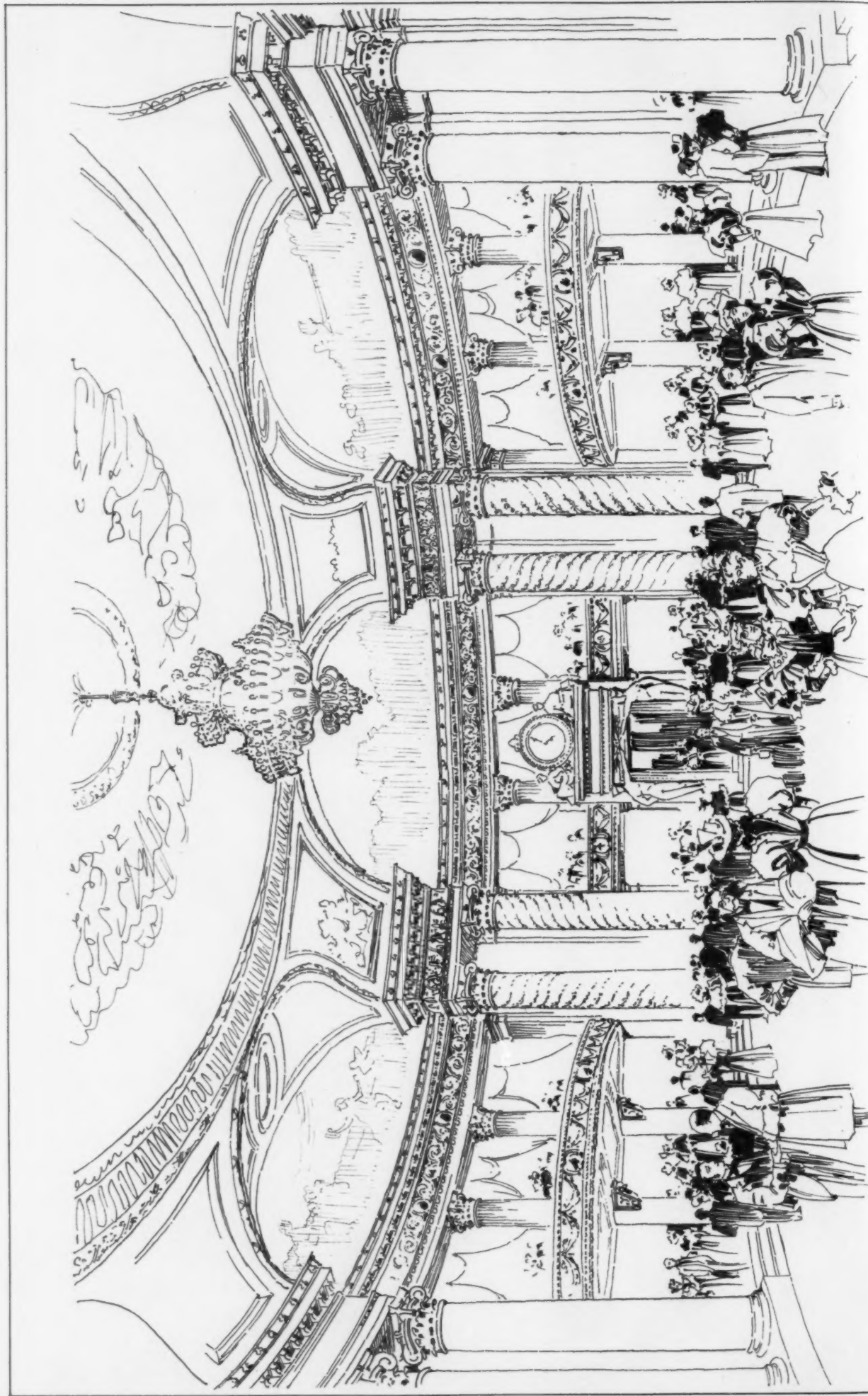


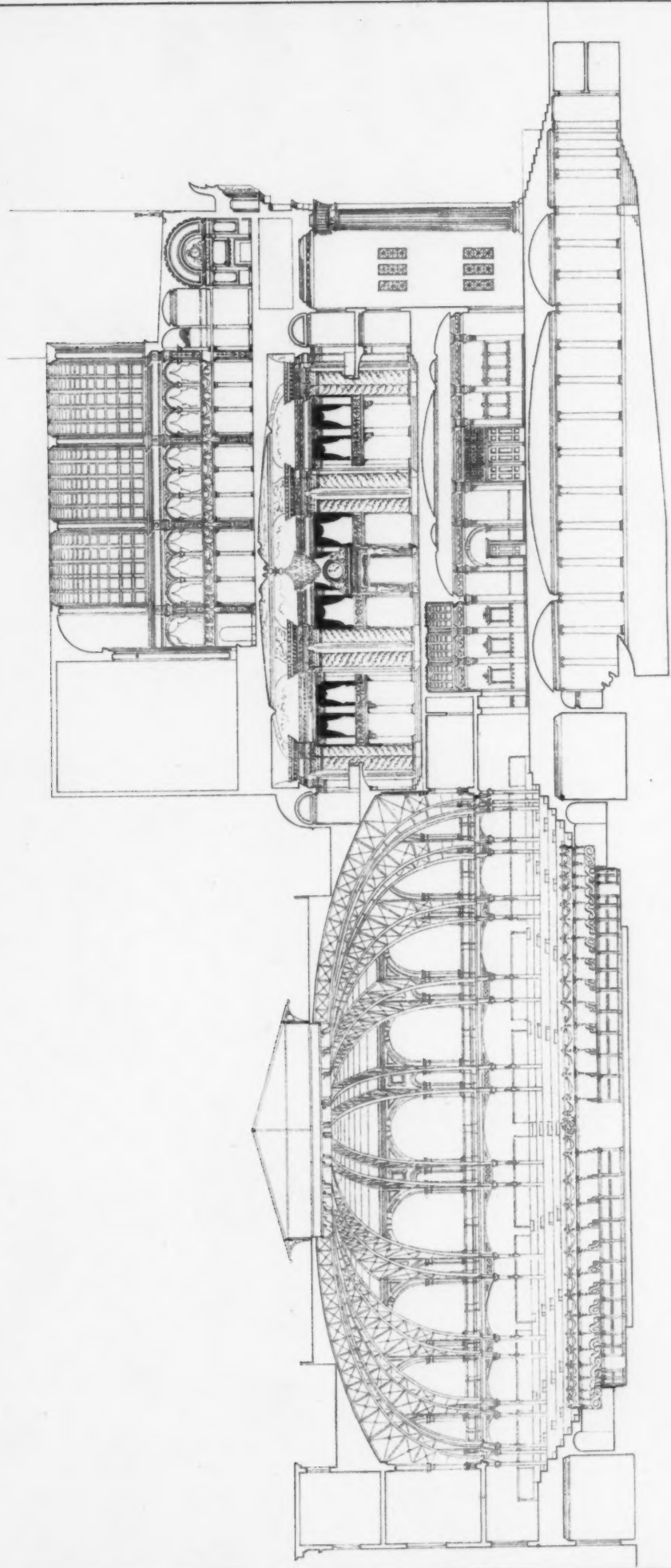
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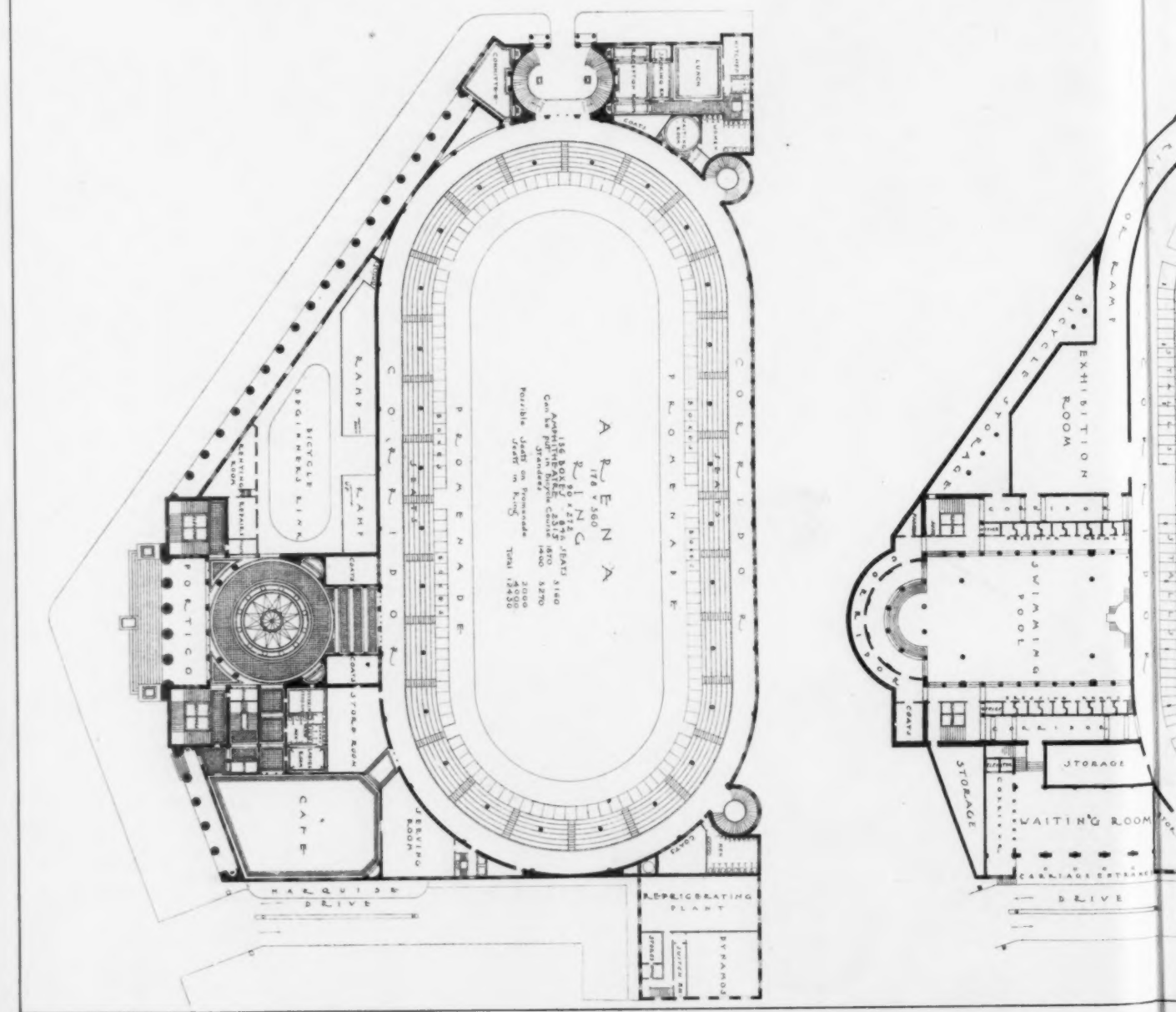
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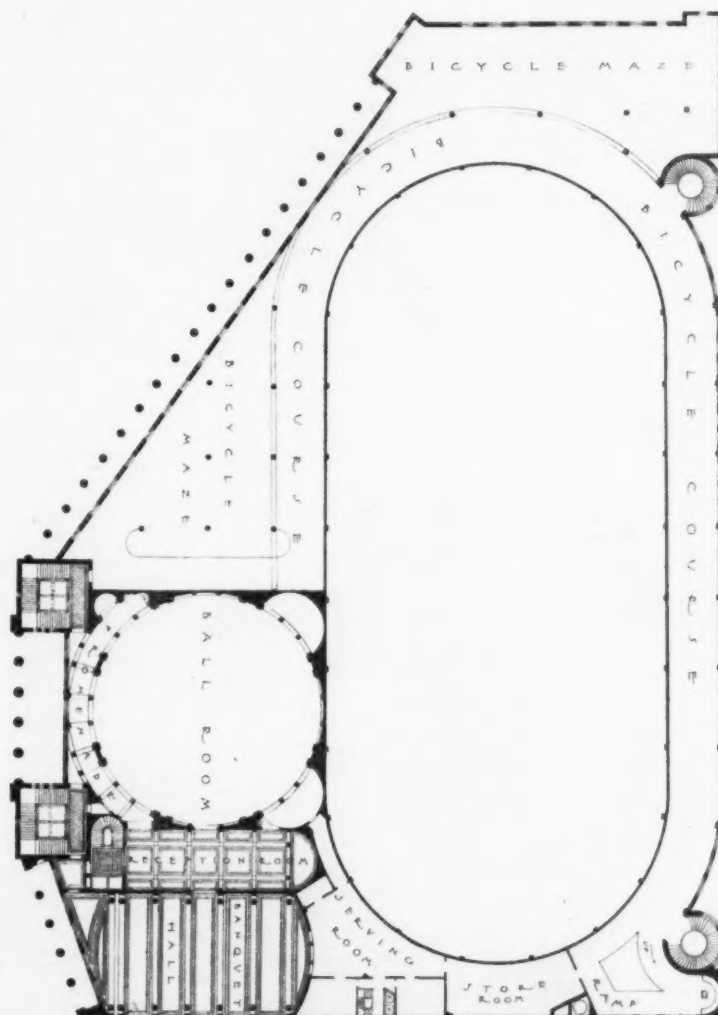
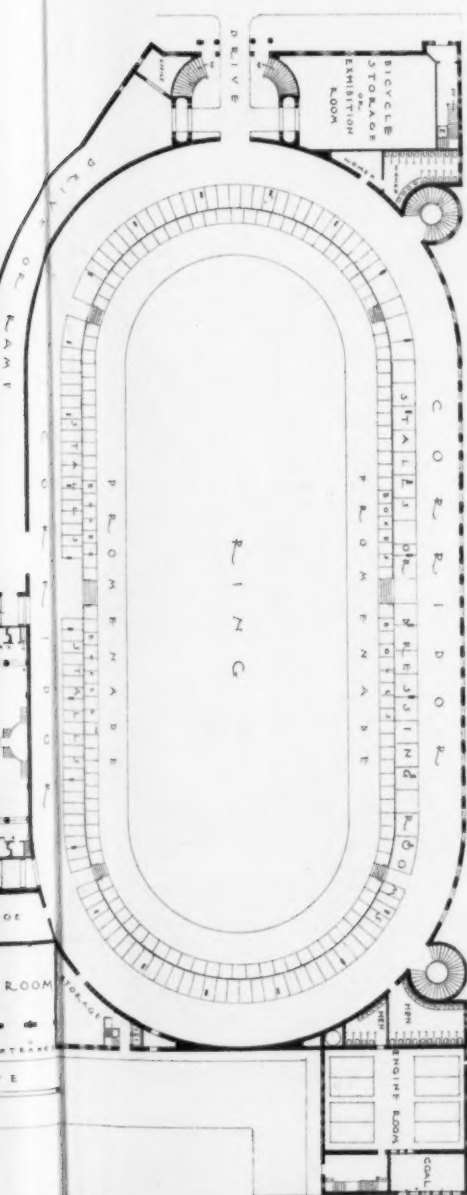
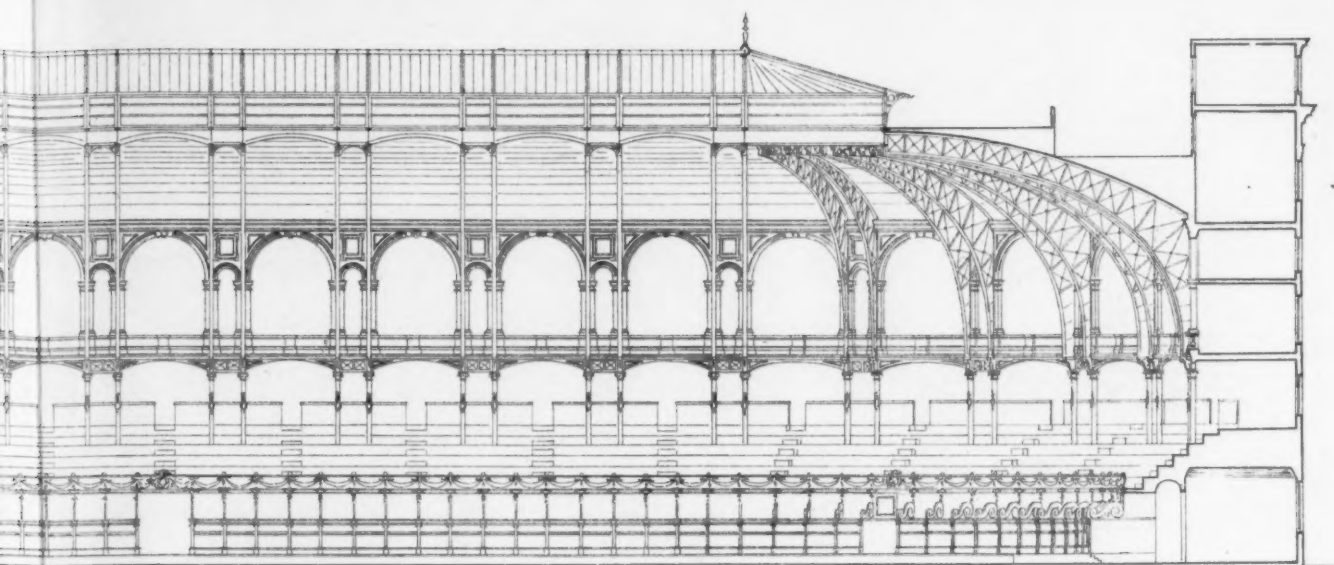


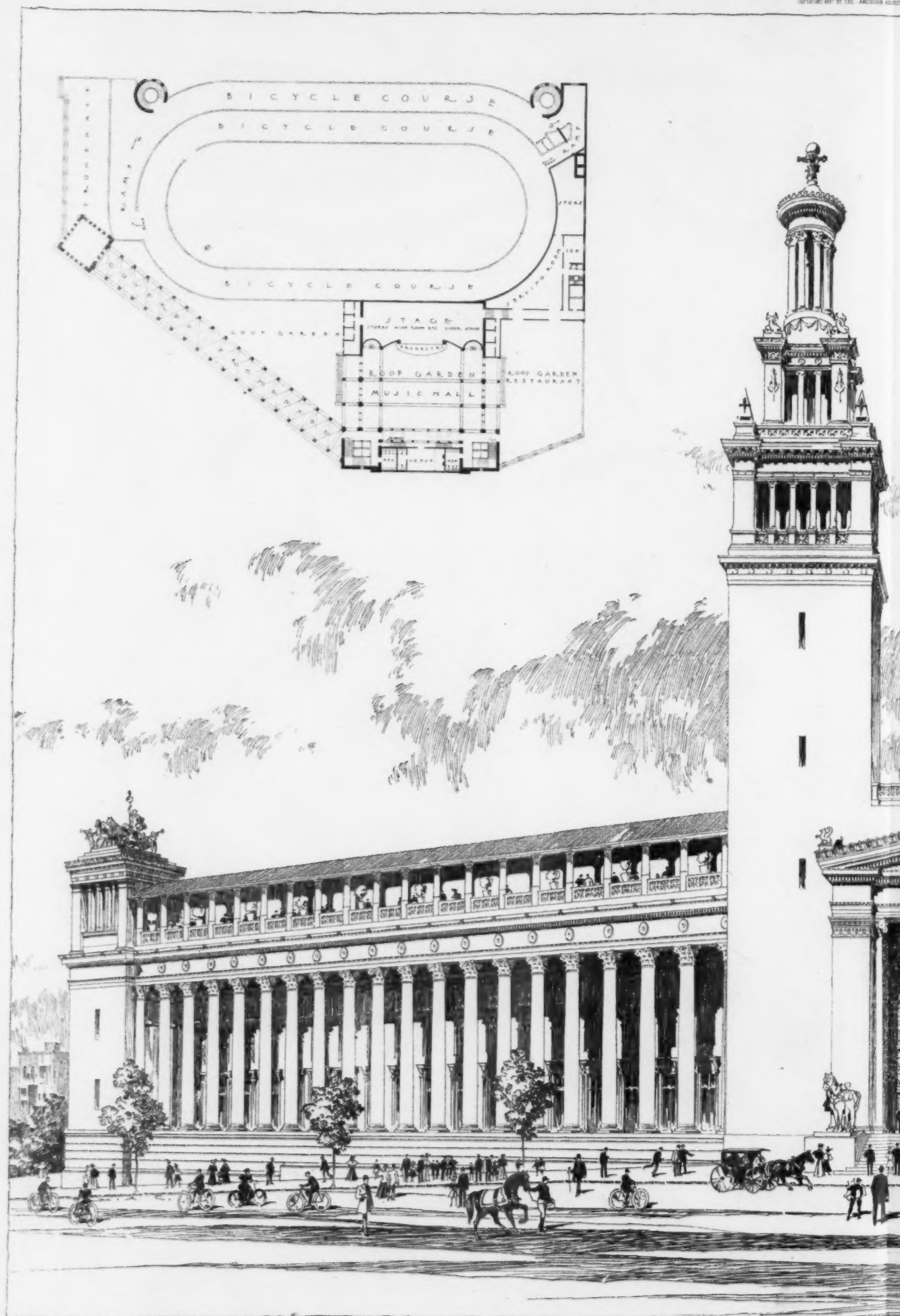
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