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VOL. XXXIII.

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JULY 25, 1891.



SUMMARY:—

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ONE of the most interesting and remarkable accounts of the application of scientific methods to the elucidation of practical problems ever yet published is to be found in the Report of the State Board of Health of Massachusetts upon the Purification of Sewage, and the Intermittent Filtration of Water, which forms the Second Part of a Special Report on Water-supply and Sewerage. This second part, like the first, forms a good-sized volume. The persons who are familiar with the work done by the Massachusetts State Board of Health, when left unhampered by political schemes, do not need to be told that the world owes to it some of the most brilliant and useful investigations ever made in hygienic matters; but this, its last publication, far surpasses any which have preceded it in interest and importance. Literally, the book is filled, from cover to cover, with information of the highest value, which no one ever knew before, but which will immediately determine, for the whole civilized world, many of the most important details of sewage disposal; and will render the destruction of the dangerous elements of sewage more certain and easy than ever before.

IT would be interesting to know, if the computation could be made, how many persons already owe their lives to the warnings and counsels hitherto published by the Massachusetts State Board of Health. We are inclined to think that the number must, by this time, have mounted far up into the thousands; and the new book will certainly add many more. As we all know, the health of about half the population of Massachusetts depends upon the efficiency of sewerage systems. Up to the present time, the systems by which they are effected have not been extremely efficient, and any general improvement in them will be at once reflected in the diminution of the death-rate among at least a million of people. Of the problems in sewerage which the State now offers, those connected with inland disposal are the most important, since the cities away from the seaboard are rapidly introducing and extending sewerage systems; but the knowledge hitherto available on the subject has been mainly empirical, deduced from the experience of English and Continental towns, and lacking a thoroughly scientific basis. This deficiency the Board has endeavored to supply, by means of experiments extending over a space of two years, and devoted to the investigation of principles, rather than of the practical results which must form the first care of the director of a disposal system in actual use. With

this object, ten water-tight wooden tanks were prepared, each something over seventeen feet in diameter, and six feet deep, underdrained, and filled with various filtering materials, such as would be usually available on an actual irrigation area. The first tank, for example, was filled to a depth of five feet with very coarse, clean mortar-sand; the second was filled to the same depth with very fine sand; the third with peat; the fourth with an extremely fine sand, or silt, and the fifth with garden soil. The sixth was filled only to a depth of three feet and eight inches, with coarse and fine sand and fine gravel; the seventh had the same, covered with ten inches of yellow loam, and six inches of brown garden-soil; the eighth had the same strata of gravel and yellow loam, with eight inches of sand and gravel over the loam, and the ninth had four feet and nine inches of "hard pan," of clay, sand and gravel, covered with nine inches of brown soil. The tenth tank was used for measuring the rainfall and evaporation. Sewage taken from the main sewer of the city of Lawrence, above the entrance of the factory-drains, was brought to the tanks by a large galvanized-iron pipe, about a mile long. Besides the large wooden tanks, the surface of each of which was approximately one two-hundredth of an acre, ten galvanized-iron tanks, of the same depth as the large ones, but only twenty inches in diameter, were placed in a building near by, and an irrigation field was actually laid out on the ground belonging to the Experimental Station.

WE will not attempt to follow the results obtained by filtering sewage through each of the tanks under different circumstances. Interesting as they are, the book itself can give the only adequate account of them; and we must confine ourselves to the mention of two or three striking and novel conclusions, which were proved beyond dispute. One of these was that, contrary to the usual opinion, ordinary garden-soil is useless for filtering or purifying sewage. As a filter, it soon clogs and becomes worthless, while its action in oxidizing and destroying ferments and ammoniacal matters is practically nothing. On the contrary, the greatest activity in purifying sewage by the oxidation, or nitrification, of organic substances, is shown by coarse sand and gravel, through which the liquid creeps, over the surfaces of the particles, exposed, during its whole course, to the air, by reason of the large proportion of void spaces between the coarse grains. Such a medium, however, does not form so good a mechanical filter as a finer sand, and a certain proportion of bacteria and other microscopic organisms passed through it, which were retained by a tank containing a certain proportion of fine sand. Another surprising observation was that the filter-beds, even of perfectly inorganic gravel and sand, required a certain number of days to get accustomed to their work, pursued it efficiently, after they got into working order, so long as the conditions remained unchanged—were, so to speak, thrown off their balance, and lost a good deal of their efficiency, by a change in the conditions, such as the delivery of an increased amount of sewage; but accustomed themselves in a few days to the altered circumstances, and then became as efficient as before. These variations would be incomprehensible, were it not for the fact which has been previously proved, that the nitrification of sewage is not a purely chemical, but a vital action, which is carried on by minute living organisms. These organisms can be rendered temporarily insensible by means of chloroform or ether, and the soil containing them then ceases to purify sewage passing through it, until the effect of the anæsthetic passes away, and the little organisms revive; and the experimenters at the Lawrence station show further that, instead of existing only in garden soil, they are found, or are introduced through the sewage, in pure gravel and sand, and, apparently on account of the nutriment afforded by the sewage, propagate rapidly in the sand and gravel filters, so that in a few days after the sewage is first applied to the inert minerals, the number of the nitrifying bacteria present is sufficient to consume and transform nearly all the organic and ammoniacal matter of the sewage. It was further found at Lawrence that the nitrifying action is much more vigorous in the spring months, the season of most active plant growth, so that the beneficent little objects appear to be sensitive to the actinic quality of the May sunshine, as well as to the influence of anæsthetics. For the other curious qualities of the tiny creatures, we must, again, refer to the book itself, but we cannot pass over the remarkable success

of Mrs. Richards and Mr. Jordan, who conducted this part of the investigation, in separating and examining the nitrifying organism. The process of isolation and separate cultivation is too long to describe. It is sufficient to say that the ordinary processes of cultivating bacteria proved perfectly useless, and that it was only by devising a different one that colonies of living objects were obtained which, when put into sterilized flasks, containing solutions of chloride of ammonium and carbonate of soda, with a little phosphate of soda and sulphate of potash, would completely convert the ammonia into nitric acid. These creatures were examined with the microscope, and proved to be short, slightly oval bacilli, grouped in irregular clumps, and held together by a jelly-like material. These jelly-like masses of bacteria were found to resemble closely similar masses, or zoöglæa, found in the effluent from the filter-tanks; and, on microscopic examination of the sand from a filter-tank in full activity, the particles were found to be dotted, or in some cases, completely covered, with the same zoöglæa.

THE English Government, like our own, has resolved to have new designs for its coinage, and it is to be hoped that it will have better success than we have had. Eight sculptors, Messrs. Armstead, Birch, Brock, Ford, Gilbert, Poynter, Thornycroft and Woolner, have been invited to make competitive designs, but Messrs. Gilbert and Woolner have declined. The jury consists of Sir John Lubbock, who appears to be a man of universal accomplishment, Sir Frederick Leighton, the President of the Royal Academy, Mr. John Evans, the President of the Numismatical Society, the Deputy Master of the Mint, the Deputy Governor of the Bank of England, and Mr. R. B. Wade, who represents the joint-stock bankers. The English coinage is already far superior to ours in design, but it is capable of still further improvement, and it will be interesting to see what the most noted sculptors in England will make of the subject. The competition closes at the end of September.

THE foreign journals announce the death of Giovan-Battista Filippo Basile, of Palermo, one of the most distinguished Italian architects. It will be remembered that Signor Basile made one of the most notable designs for the façade of the Cathedral of Milan. He was the architect of the Theatre of Victor Emmanuel, at Palermo, Director of the Royal School of Engineering, and a member of a great number of artistic and literary societies.

AN extraordinary elevated railroad is to be built in Naples. The city, like Cincinnati, possesses suburbs at a much higher elevation than the old town, and the problem to be solved is the conveyance of passengers quickly from the business quarter to the suburbs. The solution now adopted consists, practically, in bringing the suburbans, by a level road, passing along the top of an enormous viaduct, to the central portions of the town, and then lowering them, by means of elevators, to the solid ground. With returning passengers the process is reversed. As now laid out, some of the piers of the viaduct will be considerably more than three hundred feet high. The elevators, for lifting the passengers through the hollow piers, are to be driven by electricity, which will be generated by a waterfall in the River Sereno, and transmitted in the usual way to the place where it is wanted.

LE GENIE CIVIL, in speaking of the two-days' strike of the Parisian omnibus-drivers, which took place last May, gives some interesting statistics of the movement of omnibuses and street-cars in Paris. Nearly all the omnibus and street-car lines in the city belong to the Compagnie Générale des Omnibus. The longest line is the tramway from the Louvre to Versailles, which is about twelve miles long, but this is quite exceptional, few of the routes extending over more than five miles, while one, that from the Porte Ornano to the Cemetery of St. Ouen, is considerably less than a mile long. The tramways, although the starting-point of several is the Louvre, extend mostly to suburban points, only omnibuses being tolerated in the most crowded streets. On the most frequented lines, however, large omnibuses are employed, having seats for forty persons, instead of the twenty-six to thirty seats for which the ordinary omnibuses are fitted. The number of seats, in either case, includes those on top, where nearly as many persons are accommodated as in the interior. On the most popular line of all, that extending through the "Great Boulevards," from the Madeleine to the Place de la Bastille, forty-

seat omnibuses are exclusively used, and carry, on an average, fifty passengers on each trip. This, of course, includes the persons who ride for a short distance, and then get out, and are replaced by others, as no omnibus in Paris is allowed to take in more passengers than it has places for. The Madeleine-Bastille omnibuses make 814 trips per day, carrying thus more than forty thousand passengers, and earning thirty-two dollars a day for each vehicle, or more than half a million dollars for the whole line. None of the other omnibus-lines are so profitable as this, although some carry more passengers to each trip. The least profitable line appears to be that from St. Charles to Grenelle, which carries an average of two passengers per trip, and earns one dollar and seventy-five cents per day for each vehicle. The total number of passengers in 1889, over the seventy lines operated by the Compagnie Générale, was 214,296,940, or a little less than twice as many as are transported by the West End Railway Company, of Boston, which holds a monopoly closely resembling that of the Compagnie Générale des Omnibus. To propel its 911 vehicles of all kinds, the latter company employs 13,485 horses. It will be interesting to stockholders in our omnibus and street-railway companies to know that, notwithstanding its complete monopoly, the transportation business of the Compagnie Générale is done at about cost; the total sum received from passengers in 1889, which, being the year of the Exposition, was an unusually profitable one, having been 7,945,000 dollars, while the expenses were 7,756,000 dollars; and surplus sufficient for a dividend was obtained by the sale of manure from the stables, rental of advertising space and miscellaneous rents, apparently of special omnibuses, and possibly of stable and office-room, which brought in 838,000 dollars. Of the expenses, by far the largest item was for horses and fodder, which cost over four million dollars during the year; the taxes and government charges were 792,700 dollars; the rolling-stock and repairs cost about the same sum, and the wages of conductors, drivers and inspectors, who are paid a dollar a day each, amount to 1,531,000 dollars. The rest of the money goes for administration and general expenses, which take 726,000 dollars per year.

WE are afraid that the lovers of Alpine scenery, who have hardly yet got over their indignation at the idea of a railway up the Jungfrau, will be still more distressed at the intelligence that a concession has been granted for a double line from Zermatt, one branch of which leads to the top of the Matterhorn, while the other finds its terminus at the top of the Gornergrat. The author of this somewhat startling project is Xaver Imfeld, an engineer of considerable reputation, not only as a topographer, but as a bold mountain climber. Until recently, he has modestly declined to allow his name to be publicly mentioned in connection with the matter, preferring to have his coadjutor, M. Heer-Bétrix, of Bienne, manage the business part; but M. Heer-Bétrix died not long ago, and Herr Imfeld has been obliged to appear as the head of the enterprise. Like the Jungfrau railway, those of the Gornergrat and the Matterhorn will run partly in tunnels, but the extreme steepness of the Matterhorn peak makes even the tunnels unique of their kind. In a horizontal distance of 1,780 metres, or a little more than a mile, the Matterhorn road ascends through a vertical distance of 1,345 metres. This gradient is tolerably startling to the ordinary engineering mind, educated to the belief that a rise of thirty metres to the mile is serious steepness, but nothing less will climb the Matterhorn. At the top, of course, the road comes to the open air, and in the tunnel are observation galleries, with refreshment rooms, bedrooms for tourists, and other conveniences. At the foot of the peak, also, just above the Théodule glacier, the road comes out of the tunnel, and continues on the surface thence to Zermatt. The ascent of the Gornergrat is made entirely in open air. It is hardly necessary to say that the ascent of the last mile and a half of seventy-five per cent gradient is made by means of ropes, which are propelled by electric motors, and drag the cars up the steep incline. The more moderate ascents are made by means of a toothed middle rail and toothed wheels, driven by motors in the cars, and it is intended to connect the lines with the new railway from Visp to Zermatt; so that, apparently, the tourist will be able to go without change of cars from Geneva to the top of the Matterhorn, if he will only think to adapt himself to the proper angle in time to avoid being rolled heels over head over the back of his seat, when the car begins the final ascent.

ARCHITECTURE OF THE UNITED STATES.¹—II.

CIVIL ARCHITECTURE.

AMERICAN civil structures exhibit very characteristic features; they likewise demonstrate the existence of a marked Anglo-Romanesque influence. Except in buildings of a more special nature, such as colleges and hospitals, the general design of all civil edifices in large towns is almost identical as to the principal lines: it includes a basement, a disposition of arches above, rising to a greater or less height, and comprising several stories, and an attic of one or more stories crowning the whole. This is plainly the Romanesque disposition of mediæval French structures; but in the United States the proportions are lengthened, and buildings are often carried up to a considerable elevation. The Ames Building, in Boston, may be cited as an example of these tall constructions. It contains twelve stories, and is nearly two hundred feet high (Figure 1). The architects, Messrs. Shepley, Rutan & Coolidge, have certainly produced here a most interesting work, although the proportions seem to us exaggerated. The purpose of the building is clearly indicated. The row of semicircular arches beneath the upper line of the basement, which is of Milford granite, makes an ingenious and not clumsy crowning to this part of the edifice. As for the eight stories comprised between this basement and the attic, they are treated with great skill, in view of the extreme difficulty of the disposition.

It might have been better if the angles had been still more strongly accentuated by avoiding some of the bays with which they are pierced from top to bottom, or by making these less prominent. In

any event, the building, which is embellished on the outside with sculptures and mosaics, presents an excellent example of recent civil constructions in the United States.

Figure 2, the United States Trust Company's Building in New York, by Mr. Gibson, also exhibits the same Romanesque character. The entrance, the columns, which are, moreover, very lavishly distributed, and the arches, are all treated in a style apparently quite too monastic for an edifice designed for the transaction of business.

Both these structures are of stone, but brick is often used for

stores, commercial buildings and public monuments. Among such recent brick constructions, the Boston Athletic Association's Building deserves especial notice. In its general plan it is wholly American, for it meets the requirements of comfort and all hygienic demands, both of which receive too little attention in France: an establishment of the kind does not exist in our country. The exterior (Figure 3), entirely of brick, is severe in tone, and gives no idea of the distribution of space within; the large halls of the interior find no external expression. What is there behind those huge, bare walls, the flatness of which is broken only by two rounded, projecting bodies terminating at the second story? Everything, in fact, that is requisite for the cultivation of physical strength and suppleness; a Palace of Hygeia, as it were.

The basement story is occupied by Turkish baths, with hot rooms of several different temperatures, a massage-room, a swimming-tank and a large bowling-alley. These rooms, extending up to the first floor, leave spaces in the basement mezzanine, which are utilized for the storage of bicycles and tricycles and for a laundry, drying-room, coat-rooms, etc. The first story contains a restaurant, billiard-room, drawing-room, library and parlor; in the second, which takes in more than half the building, there is a large gymnasium, a sparring-room, shower-room, rubbing-room, individual shower-rooms, dressing-rooms, etc. In the second-floor mezzanine a running track encircles the spacious gymnasium; there are also private dressing-rooms, a fencing-room and toilet-rooms. The third floor contains two tennis-courts, with the necessary dressing-rooms and toilet-rooms. In the first mezzanine over the third floor there is a drying-room, besides a space for ball-play-

ing. Lastly, in the second mezzanine over the third floor, in addition to a passage overlooking the small tennis-court, we find the kitchens and its dependencies. This disposition of the kitchen in the upper story is surprising to us. It is, however, a very practical arrangement, as it does away entirely with the discomfort of odors rising from the cellar, where we are accustomed to have our cooking done.

These details are sufficient to indicate the scope and utility of this structure; an examination of its plans will show that space has been most skilfully economized, and that everything is well arranged from a practical point-of-view. But it certainly does not come up to the classical ideal, and Messrs.



Fig. 1. The Ames Building, Boston.

¹ From the French of M. Brincourt, in Planat's "Encyclopédie de l'Architecture et de la Construction." Continued from No. 812, page 37.

Sturgis & Cabot would not have received a prize for their work from the École des Beaux-Arts; their façade would unquestionably be criticised there, and justly so. They surely could

Messrs. Niernsée and Cabot & Chandler, is, on the contrary, in accordance with right principles (Figure 4). This is not the largest hospital in the country, nor the grandest either as to

Fig. 2. United States Trust Company's Building, New York.

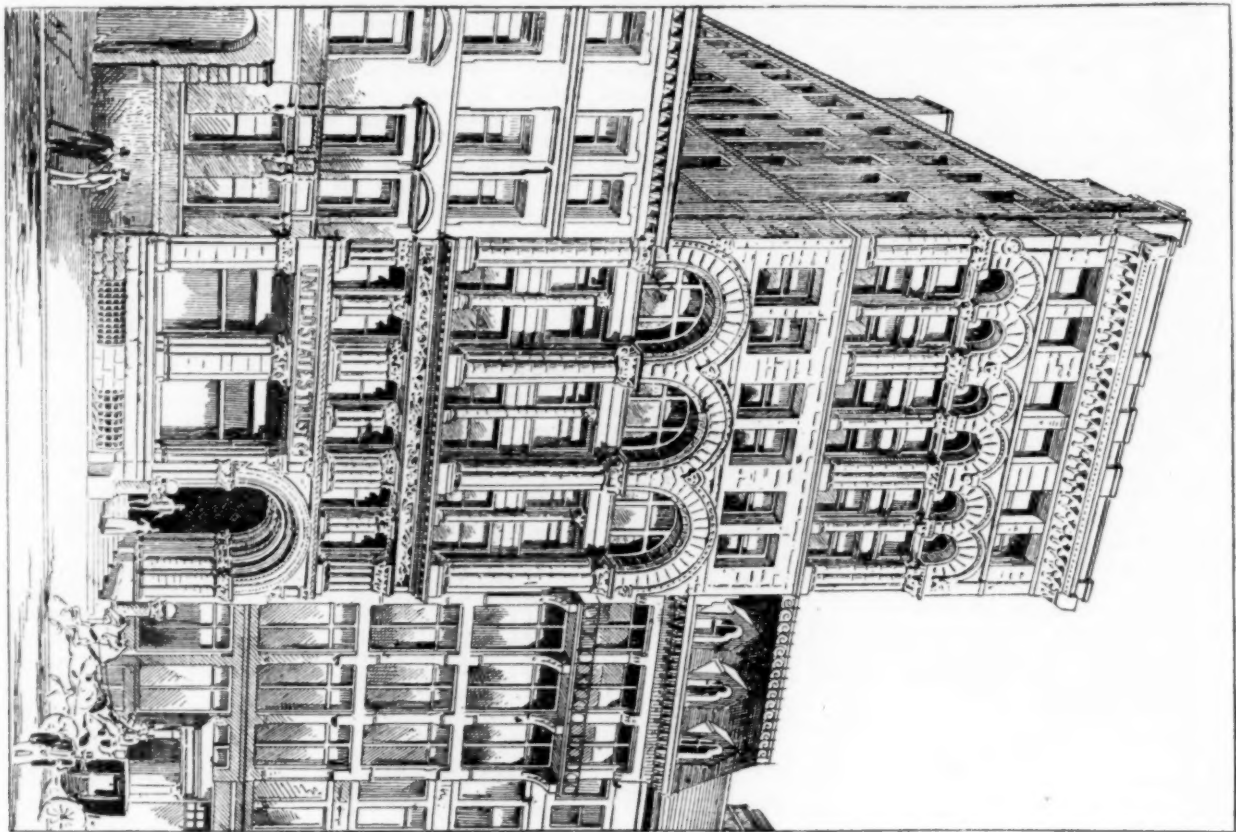
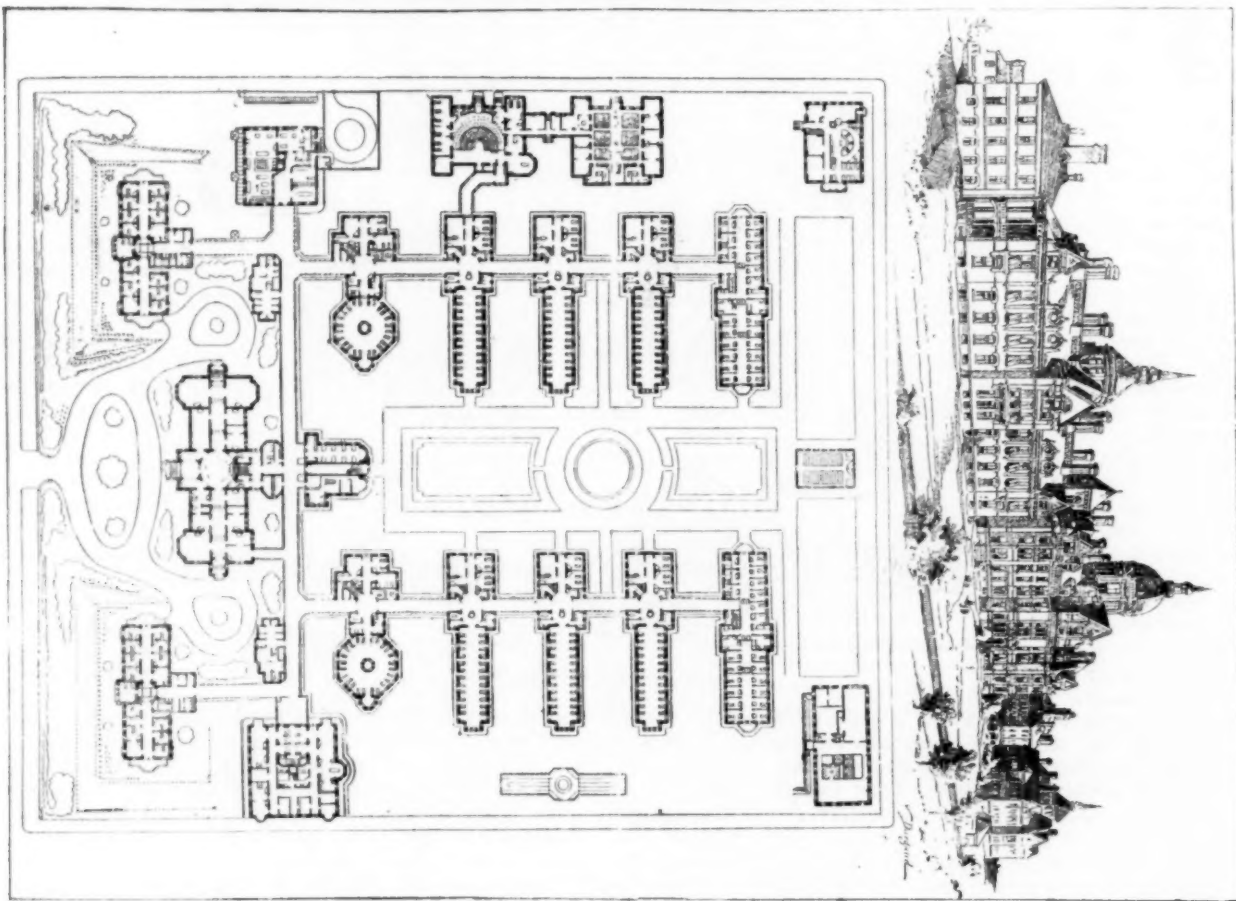


Fig. 4. Johns Hopkins Hospital, Baltimore.



have defined the interior distribution more sharply on the outer walls, and made them more logical.

The plan of the Johns Hopkins Hospital at Baltimore, by

construction, internal distribution or disposition, but it is one of the most important; all the laws of hygiene have been heeded. The founder, Johns Hopkins, who died in 1873, left

three and a half million dollars for the erection of a hospital, besides three millions and a vast estate for the establishment of a

for the new Public Library in Boston, the façade of which seems to have been inspired by that of Sainte-Geneviève in



Fig. 3. Building of the Boston Athletic Association.

university. The two structures are in different parts of the city and are treated differently architecturally.

The United States is not without her Classicists, as Messrs.

Paris. The plan is interesting, and the various purposes of the different apartments are clearly indicated. The great vaulted hall (Figure 5) is of noble mien and the galleries run-

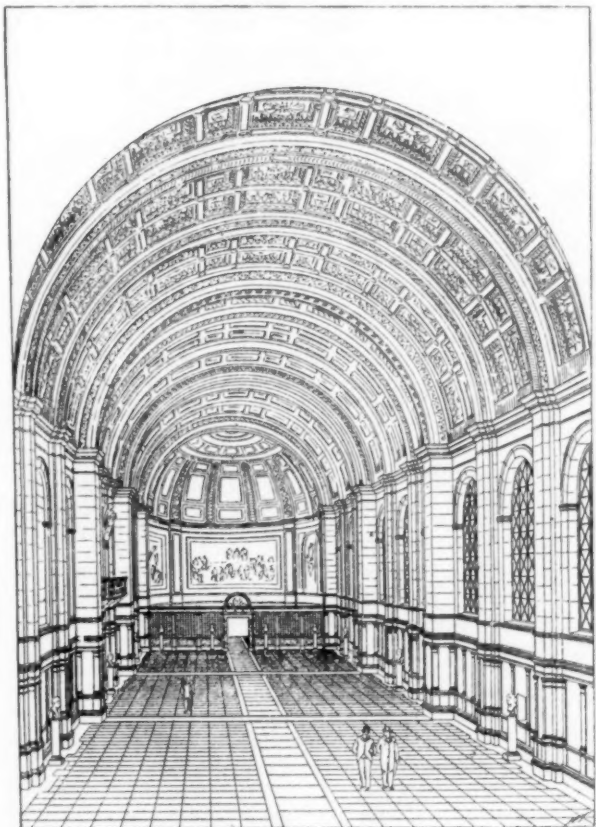


Fig. 5. New Public Library, Boston.

McKim, Mead and White have demonstrated in their designs

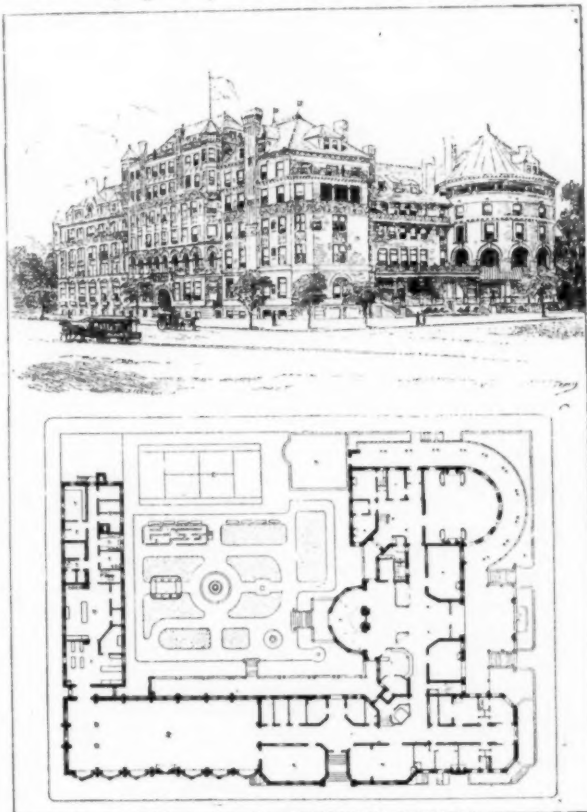
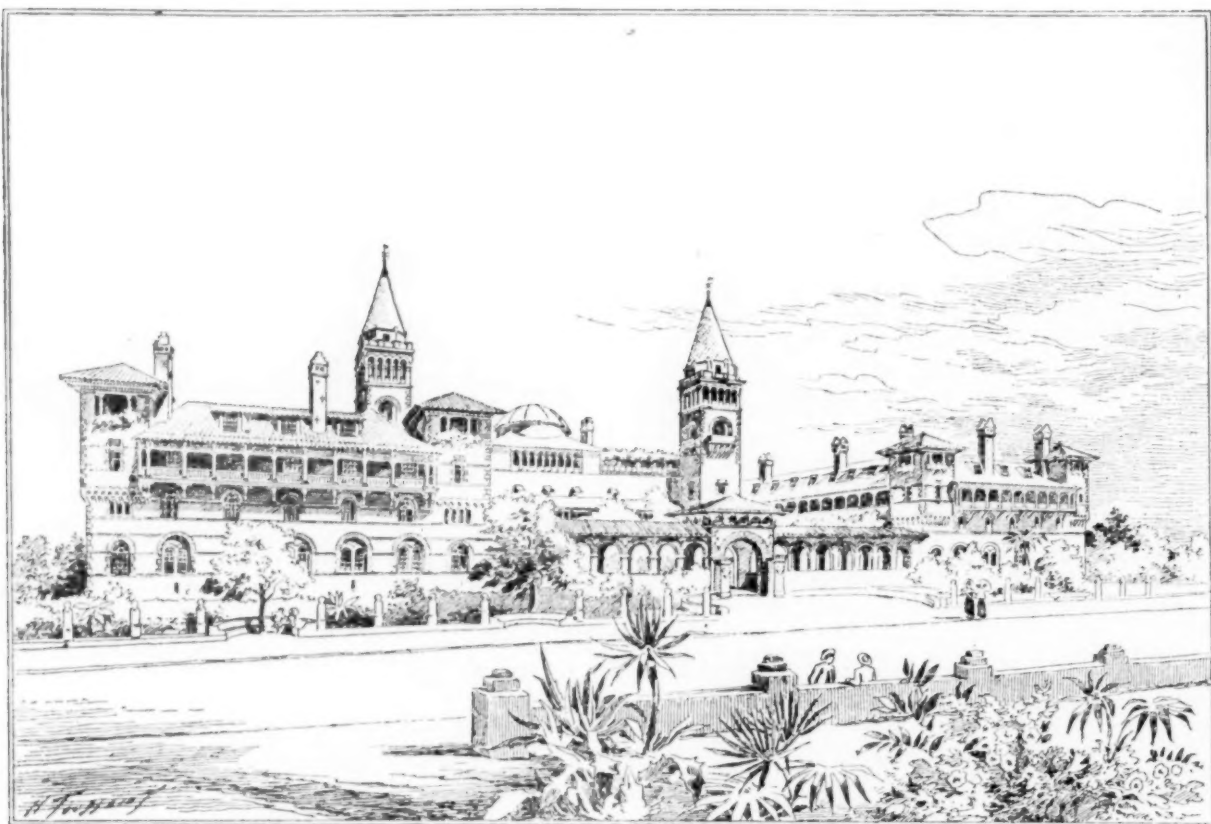
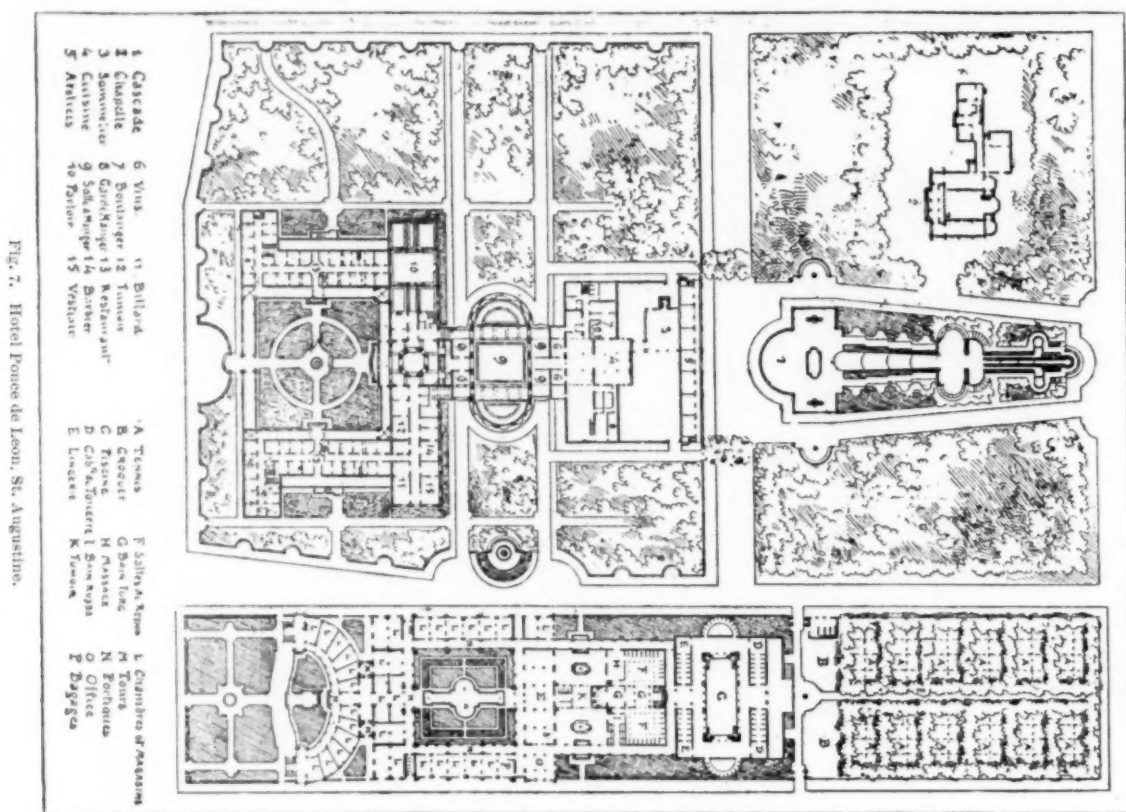


Fig. 6. Hotel De Soto, Savannah.

ning around the inner court form a beautiful *ensemble* of arcades; we are somewhat bewildered, however, at encountering

on a Boston public square an architecture apparently from Palladio and Letarouilly, even in the smallest decorative details. The pediments, columns, medallions, wreaths and an-

sidering the habits of the country. We refer to the hotel. This is not, as with us, a building intended merely for the accommodation of travellers. A great many Americans live



tique statues produce an odd effect among a people so remote from that of Italy.

It remains for us to examine still another kind of construction, which is a very important one in the United States, con-

in hotels, where they can have more conveniences and fewer cares; but at the same time they require the comforts of home, and for this reason American hotels are planned to meet all such demands.

As examples, we cite the Hotel De Soto at Savannah, and the Ponce de Leon at St. Augustine, which is famous the world over. The De Soto, by Mr. Preston, a Boston architect, occupies three sides of an immense rectangle, two of which are covered by the buildings of the hotel proper and the third by kitchen and dependencies. The plan (Figure 6) shows this successful disposition. On entering, we cross a covered verandah and pass into a vestibule hall, on the right and left of which are corridors giving access to a gentlemen's parlor, a reading-room and a grand circular drawing-room with a veranda around it. A glass rotunda looks out on the inner gardens. The wing running off at right angles and fronting on another street contains, among other apartments, the ladies' parlor and the spacious restaurant, one hundred and twenty feet by fifty, and opening on a veranda overlooking the gardens. The hotel is built of brick and terra-cotta; it comprises nearly three hundred rooms and cost about five hundred thousand dollars. It is one of the largest in the country after the Ponce de Leon.

The latter is very imposing. Figure 7 gives a plan of it. The entrance is marked by a portico opening on a court, three



Fig. 9. The Ponce de Leon, St. Augustine.

sides of which are occupied by the hotel buildings and surrounded by porticos, with two square towers at the angles (Figures 8, 9), one hundred and fifty feet high. An immense rotunda forming the hall and extending through four stories, with galleries on every story and decorated with caryatides and columns, precedes a broad marble staircase, the first flight of which gives access to a vestibule in mosaics; crossing the latter we enter the dining-hall, which is as large as many opera auditories, and seats eight hundred and fifty persons; it comprises a central square with a rotunda on two opposite sides and separates the hotel proper from the kitchens and various services. The rotundas look out on magnificent gardens, at the rear of which is a monumental cascade over four hundred and fifty feet long, after the style of that at Saint-Cloud, adorned with statues and staircases and capable of being lighted up by electricity.

The interior is indescribably sumptuous. The great rotunda, which is enriched with sculptures in high relief and embellished in the upper part with allegorical paintings depicting the history of Spain and Florida, is crowned by a dome. The whole produces an impression of grandeur and picturesqueness; it is in the Spanish-Moorish Renaissance style. A very original decoration is obtained by means of inlaid shells which

glisten and sparkle in the sunlight; the general ornamentation is in terra-cotta. The structure was designed by Messrs. Carrière & Hastings, and can accommodate seven hundred and fifty lodgers.

Nor is this all; the Americans want everything within reach, and so an alcazar has been constructed at one side of the hotel, in which, in addition to three hundred sleeping-rooms, there are Turkish and Russian baths, swimming-tanks, tennis-courts, banqueting-halls, etc.; these are all disposed in elegant pavilions adorned with porticos and surmounted by turrets and minarets. Throughout, the same consideration for comfort, which we find in the smallest private dwellings, is displayed on a grand scale.

(To be continued.)



THE STATUE OF LINNEUS IN LINCOLN PARK.—THE HAYMARKET MONUMENT.—THE NEW MEAT MARKET.—PROJECTED HIGH BUILDINGS.—THE ARGONAUT CLUB-HOUSE.—THE IRON-WORKERS' STRIKE.—THE MATTER OF OFFICIAL INSPECTION.

AS the summer months come around again the Chicagoian turns for an out-of-door breath to his beautiful parks and finds each year new attractions in them. Lincoln Park is always the favorite and is the one to receive the greatest number of gifts in the way of statuary. To the list of the three or four good works of this description already mentioned in these letters, another has been added. This time it comes from the Swedish Linnean Monument Association, and is a statue of the famous naturalist, Linneus. The work is placed in the Park where the great botanist stands facing the south, at the end of a long avenue, tree-shaded and bordered with stretches of flowers. This monument is a reproduction of one in Sweden, being considered, it is said, the finest statue of Linneus in that country. Notwithstanding this, if one may be permitted to criticise, it certainly does not appear entirely free from defects. The statue is of heroic size and of bright bronze. The pose of the head is fine and the face bent forward over the hands which hold some flowers is very satisfactory. The attitude of the whole figure, especially as viewed from the approach at the south, is anything but dignified, the feet stretched far apart under the long flowing cloak that hangs loosely around them, are only too suggestive of a tottering old woman, struggling with her petticoats and her elevated position. The costume is supposed to represent the style of dress worn during the life-time of the great man, and however well suited it may have been to the wants of men, it is far from satisfactory when cast in bronze. A feature that does much to increase the success of the work is the simple, carefully studied base, with its classic mouldings and correct proportions. At each of the four corners of the central pedestal are smaller ones destined eventually to receive four allegorical figures, Flora, Fauna, Mineralogy and Medicine. It is a question how much these figures will add to the setting of the chief work. If of only ordinary worth, the urns filled with flowers which are at present at the corners would be much more preferable, and it will be a matter of regret that those in charge of the matter have not been willing to let "well enough alone."

It is surprising how few people realize the importance of the surroundings that are given to a piece of statuary, or how much depends upon them as regards the success of the work. This is very plainly seen in St. Gaudens's fine statue of Lincoln, in this same Park. The figure is undoubtedly a beautiful piece of work, but it is equally certain that what makes it in the eyes of many so superior at least to two neighboring works, the Robert, Cavalier de la Salle and the North American Indian group, is the satisfactory setting that Mr. St. Gaudens was wise enough to have an Eastern firm of architects design for him. To the average eye this base upon which almost as much careful thought has been spent as on the figure itself, is only some granite that it was necessary to place there that the bronze figure might have a firm foundation. The bases of the other two above-mentioned works, although not bad, do not add to the chief work, as does the Lincoln setting, while the works themselves are exceptionally fine. To these groups the Linneus cannot be compared, though many points about it bring it up to a high grade of excellence.

There is at least one base in the Park that has been decidedly impressed upon the public, that is the one destined for the Grant statue. It has stood ready, silhouetted against the eastern sky and lake for over a year, but owing to an accident in casting, the bronze statue has only just arrived in Chicago. It is said to be the largest one ever executed in America, the work of casting being done in Chicopee, Massachusetts. Mr. Hosman, who has superintended that part of the work, and Mr. Rebisso, the sculptor, are both here attending to the placing of the colossus. It is proposed to unveil the

statue on the eighth of October, on the anniversary of the great fire. The West Side Parks have no such works of any worth, but before the date of the World's Fair arrives, it is proposed to have a figure of Humbolt in the park, bearing his name, one of Garfield in Garfield Park, and possibly one or two others. There is still another work of art promised to Lincoln Park, that of Fritz Reuter, the Platt-Deutsch poet. One trembles to think of these possibilities, when one remembers the often hideous productions which have occurred in many a cultivated community, and when such works have been so generally good as here, it makes one feel that each new one may be only the beginning of a list of monstrosities. Fortunately the generous donors must realize by this time that Chicago has passed the stage when she could receive gratefully any second-rate copy, or, still worse, poor original that might be able to bear the name of statue and disfigure the corner where it might stand. The West Side has one work of art it can well be proud of, in the monument erected on the Haymarket Square, in memory of those who lost their lives in the anarchistic uprising. The policeman, before described in these letters, stands with one hand stretched forth commanding peace, where there was no peace. The composition is simple enough, but Mr. Gallert, the sculptor, has succeeded in telling a story in a masterly fashion in one single figure. Strange to say, the officer who stood as the model for this fine figure, has been quite upset by the admiration bestowed upon the work, and unfortunately the "iron has not entered into his soul," but into something of a much weaker nature, till the original has sunk lower and lower, as the copy has been raised on its pedestal, till finally his conduct became such that it was necessary to discharge him from the force.

We send our beef and our pork to the East, to England, in fact all over the world, and Chicago beef is considered something to be looked at as a thing to be later enjoyed, but the old story of the prophet in his own country has been exemplified in the fact that heretofore we have had no general market, no fitting shrine wherein to set up our own especial joint, where our "horn might be exalted," so to speak. Mr. Armour's own particular little pigs are scattered all over the world, wherever the foot of man treads, or rather rests for a cold lunch of corned beef and tongue. They stare at you from the shop-windows of Stratford-on-the-Avon, where you only expect to see Shakesperian mottoes and you find them in the farthest corner of the Hebrides; but in Chicago, until recently, no fitting building has been consecrated to the use of the commodity that has brought so much wealth to our city. In the early part of this month there was opened the new market which has been in process of construction for many months.

It is an L-shaped building, with an entrance on State Street, a frontage on the river and South Water Street. The frontage on the river is over two hundred feet, and its eastern wall is nearly that length also. The building is of fireproof construction, it is several stories in height, though varying in different parts. The floor on the level with the street above is used for market purposes, while the others are devoted to storage and cold storage. The market part is not very large, but the arrangement seems extremely complete and perfect. The different stalls are divided by a light iron railing, and are each provided with a separate refrigerating room, reached by a trap-door in the floor. These cold rooms are kept below the freezing-point by chemicals brought into them in pipes, so hoar-frost in August is one of the many delicacies offered to the public. The only architectural and artistic feature of the building is the low entrance on State Street. It is of red-brick, a curious mixture of Romanesque and fifteenth century in style. There is so small a chance for the display of either, and both are so carefully studied that the combination, strange as it may seem, is extremely satisfactory. The vestibule is lined with white marble, but what makes the portico-like structure especially noticeable are the designs in gold and colored mosaics on the low façade. The use of color in such a place is as agreeable as unusual, and both design and execution are extremely good work. Above the mosaics is a bullock's head in terra-cotta.

One of the features of the high building this year has been the fact that really substantial buildings, though not modern, are being torn down to make room for the modern sky-scraper. Noticeable among these is the Ashland Block. This building, devoted chiefly to office-room, was erected after the fire at a cost of two hundred thousand dollars. Unlike many of the first post-fire constructions, both construction and material were of the best in use at the time. The building remained as firm and solid as it was fifteen years ago and yet it has been razed to the ground and a new building is to be erected in its place. This, like many another mentioned in these letters, will be sixteen stories high, and of the general character of so many of these large buildings, having bay-windows running through ten or twelve of the stories, giving more light than would the ordinary flat windows.

Not many blocks away will be another fifteen-story giant, which will be known as the Unity Building, erected in the same manner as the above-mentioned Ashland Block, on the site of what was a fairly substantial building, torn down to make room for a towering successor. Still a few blocks farther east the same story repeats itself. The Vienna Bakery Building, an old-style stone front, five or six story affair is coming down to make room for another more aspiring structure. And so the work is progressing all through the heart of the town.

A marked difference from the high conventional business blocks

could be found in a little structure on the most eastern end of one of the piers abutting on the harbor, in one of the districts most given over to traffic and transportation of all kinds. This building is the home of the Argonaut Club, a structure familiar by reputation to most of Chicago, but only familiar in that way, as in the out-of-the-way location in which it is situated, it is like the isolated gentleman in the country and "escapes a great blessing" in being preserved from the eyes of its too curious friends. The building thus situated on the very edge of the harbor is built to simulate a boat on the stocks, and looks in its semi-marine, semi-terrestrial character, as if the popular definition of an amphibious animal, "a creature that can't live in the water and dies on the land," might describe it most satisfactorily. The outline of the curious little house is somewhat round, and would hardly convey the idea of being a fast craft. Owing, however, to the lamb-like innocence of the character of the Club, anything that would suggest fastness, even the outlines of the club-house, would be most inappropriate. A hurricane deck, with steamer-chairs scattered over it, a bowsprit, a mast and small funnel, all help to carry out the idea of a ship, while the entrance up a neat gangway somewhere near the keel of the boat, tends somewhat to dispel the illusion. In the interior are the steward's quarters, staterooms, salons and any number of gangways that lead up and down the four stories. The different decks make the most delightful piazzas, from whence one can look over the harbor and lake with their vast amount of shipping, or back towards the city across a stretch of inner harbor filled with all kinds of small crafts.

If one were to write a new gospel addressed to the modern building trades, it certainly would contain the sentiment, "The strikers have ye always with you." No sooner is one strike disposed of than another appears, and so it happens that we are now suffering with an out-break from the ornamental architectural iron-workers who demand recognition of their union and larger pay. This body of men probably does not number over three or four hundred, but they have drawn into their movement other bodies of iron-workers, so that they now claim that double, if not treble, that number of men are in the strike. While this movement interferes principally with the ornamental iron-work, yet to a certain extent it has delayed even the setting of wrought-iron-work and several buildings are having most vexatious delays. Although the strike has now been in progress for about four weeks, neither side seems disposed to yield, the contractors claiming that they cannot do so and still compete with eastern firms. In the meanwhile there is the usual struggle to get a few inferior men to do absolutely necessary time work; but even this in a few instances has been found impossible, and temporary expedients have been resorted to.

The question of special official inspection of drawings for high buildings (a communication upon which subject was republished in a recent number of the *American Architect*) is still being discussed with considerable vigor by architects, although the large majority would appear not to favor such an idea. The strongest argument that seems to be advanced in favor of such inspection, is that important work will at times, for friendship's sake or other reasons fall into the hands of inexperienced men, and that these parties will not have sufficient common sense or business shrewdness to engage the services of a competent engineer to make calculations for them.

Of course such a state of affairs might be conceivable, but at the same time trying to call to mind the very few accidents that have occurred in large buildings, it would seem that they had been almost invariably in buildings not put up by young architects, but by experienced ones, who had become careless either in their drawings or their superintendence. Consequently if an inspector at all is needed, he would seem to be fully as necessary for the experienced as the inexperienced. However, the probabilities are that beyond the present requirements of superficial inspection by the city building department, nothing will be done, and that if any disasters do hereafter occur, they will be chargeable, as at present, entirely to the architect, and he feeling himself responsible, will be extremely unlikely to take any chances or refuse to call in expert engineering advice.

THE COMBUSTIBILITY OF REDWOOD.—In a recent issue of *Fire and Water* we quoted a statement from the *Humboldt Times* to the effect that the California redwood as a building material "comes nearer being fireproof than almost any other material of which buildings are constructed." As the flatly contradicting assertions as to the inflammability of this wood in the insurance and daily press of the Pacific Coast have been, to say the least, a trifling puzzling, for it would seem as if the question should have been long since settled, we asked for more information upon the subject. The *Commercial News* of San Francisco gives it to us with the preface that the *Humboldt Times'* statement is "arrant nonsense." It continues: "The kindling wood sold by the retail coal and wood dealers of this city is redwood; it is hard to get anything else from them, a fact that alone disproves the *Times'* statement. That redwood absorbs water like a sponge and that it is free from the resinous quality common to other soft woods enables it to resist fire better than pitch-pine, and once ablaze the flames are more easily extinguished from the fact that water soaks into the wood. These qualities make redwood valuable as a building material where wood must be used, but to state the wood is nearer fireproof than almost any other building material, hardly deserves the attention given in this denial of the absurd statement." This explanation would certainly seem to dispose of the exaggerated claims made for the wood as a building material and also to explain their origin.—*Fire and Water.*

EQUESTRIAN MONUMENTS.¹—XII.

THE SOUTH AMERICANS.—I.



Brass Ewer [circa 1300] found in the North Tyne River, near Hexham, now in the British Museum.

her benefit an endless and bounteous stream of riches. During many years this expectation was realized, for, exercising the brutal rights of conquerors, the early invaders had but to help themselves to the riches which the native rulers had painfully accumulated. The first store exhausted, steps were taken to replenish it from the same sources whence it had originally been procured; that is, from the mines; and as these could only be worked by native labor, and later by imported African slaves, neither class being arduous workers by nature, the European task-masters quickly attained a most unenviable expertness in the practice of all kinds of barbarous treatment.

Little by little Mexico and parts of South America became peopled

THE generally humane and sensible policy adopted by the English in securing their magnificent empire in the East is a fair foil for the inhuman and senseless policy which lost in the West as fair an empire to Spain. First in the field, and protected by papal grants, which, in those days, had the respect of most men, the Spaniards had rapidly secured control over a vast and prolific territory in Central and South America, which was regarded by the mother-country simply as an El Dorado which was to pour out for



General Belgrano, Buenos Ayres. Carrier-Belleuse, Sculptor.

with a large, floating population of Spaniards, more or less of whom stayed in the country to grow up with it, and, in addition to the full-blooded Europeans, there arose a constantly increasing number

¹ Continued from No. 810, page 10.

of hybrids of various degrees and mixtures of blood, whose mere existence tended to the spread of civilization.

The final result was that after the lapse of two hundred years from Pizarro's conquest of Peru in 1531, Spain had several well-populated colonies in South America, all under the general control



General San Martin, Santiago. Daumas, Sculptor.

of the Viceroy of Peru, who endured his quasi-banishment for about six years as an average, and during his incumbency turned his attention more to wringing from the unfortunate natives the utmost revenue possible for shipment to Spain than to developing and improving the condition of the territories trusted to his charge. Still, all viceroys were not alike: some were humane and far-sighted, and the constant increase in the number of expatriated Spaniards and their descendants, who had an interest in the proper regulation of circumstances and things that affected their own welfare, and the efforts of the priesthood effected in time a considerable progress in civilization and civilized living, so that in the last part of the eighteenth century the conditions of living were in some respects greatly different in the Spanish colonies of South America and the British colonies in the more northern continent. Indeed, so far as comfort and elegance of surroundings go, the balance inclines sharply in favor of the South Americans. The policy of Spain remained, however, essentially unchanged. Taxation for revenue and the most stringent protective tariff, which absolutely forbade commercial relations with any country but Spain, were the watchwords, and, under the inhuman and overbearing conduct of the ever-changing rulers, it is little to be wondered that people of all classes and all races grew restive.

It is quite within the bounds of possibility that the reader—who thinks it merely an indication of insular arrogance for a Briton not to know that Boston and Chicago are farther than a mile or two apart—may find that he never has heard of the men whose equestrian statues must next be considered; and yet they have been making history, republican history, too, which by all the laws of sympathy and propinquity should be more familiar to Americans than, say, Garibaldi's efforts in Italy. The name of Bolivar has a familiar sound, due, of course, to geographical association with the country named in his honor, and Lynch has been made familiar by the exploits of a gunboat, so-named, in the present Chilean war. But does the name of San Martin suggest the performance of one of the most notable of modern military and political achievements? If it do not, there is small chance that Belgrano, Sucre and O'Higgins were ever heard of. But to the South American these names stand as the names of Washington and his generals stand to us.

Take for fully stated the fact that the discontented and oppressed

people of the Spanish dependencies had in 1767 accomplished the expulsion of the Jesuits, and we have one of the first indications of assertive independence in South America, although a successful, but short-lived, effort at independence had been made in New Granada in 1640. In 1780 came the revolt of the Indians under the last of the Incas, Tupac Amaru—not a barbarian by any means, but a student educated at the College of San Borja at Cuzco—who, after a short success (it might have been a lasting one but for his own humanity), was captured, tortured, racked by the plunges of four horses, which tried to drag him asunder, and finally beheaded after his tongue had been cut out. Although this was merely an uprising of the abused and long-enduring natives, the justness of their quarrel, the dignified attitude of their chief, and his masterly exposition of the cruel wrongs they were rebelling against, set the colonists to thinking not only of the hardships inflicted upon the natives, but also upon the many injustices which the colonists had to endure from their temporary rulers, all for the benefit of an ungrateful mother-country, which did nothing for them in return. This widespread feeling of dissatisfaction was doubtless inflamed by the knowledge of what not very long before had been accomplished by popular uprisings in North America and in France, while the immediate cause was a knowledge that Spain was so involved at home in the Napoleonic wars that she could hardly be expected to lend much aid to her delegated representatives in South America.

The first province whose steps to throw off the yoke of Spain were permanently successful was Buenos Ayres, which was ruled by a governor more independent of the Viceroy of Peru than were the

Spaniards were driven from the continent, San Martin began to collect an army for the invasion of Chile, but it was only after the efforts of two years that he had collected a force of a little over 5,000 men, of whom 1,400 were muleteers and officers and 900 were cavalry. With this small force San Martin crossed the Andes, three weeks being consumed in the passage. The danger and hardships of this arduous undertaking may be measured by the facts that out of 9,000 hardy mules, used to mountain-work, only 4,300 reached the lower level on the other side, and that the summit of the pass was 12,700 feet above sea-level. The magnitude of this accomplishment may, again, be measured by the fact that Napoleon's much-applauded army only had to ascend 7,963 feet when he crossed the Alps.

On February 12, 1817, San Martin from one direction, and General O'Higgins, the leader of the Chilenos, from the other, attacked the Spanish army and won the battle of Chacabuco, and the combined patriots entered Santiago. As San Martin declined the office of Supreme Director of Chile, O'Higgins was appointed to the place, while San Martin returned across the Andes for reinforcements. In the following year he again took part in the final and successful campaign in Chile, after which he again returned to Buenos Ayres only to come back to Chile once more in the year 1820 for the purpose of effecting the capture of Lima. At this time he found O'Higgins had secured the service of that marine paladin, Thomas, Lord Cochrane, later Earl of Dundonald, whose achievements on sea and land have probably never been excelled.

Lord Cochrane had succeeded in collecting and imperfectly equipping a small fleet of four vessels mounting 174 guns, Admiral



Don Bernardo O'Higgins, Plaza de Marte, Santiago, Chile.

Captains-general of Chile, Venezuela or New Granada. This result was part of a general movement that began in the year 1810, in Venezuela in April, and in Chile and Buenos Ayres in September. The Spaniards easily suppressed the revolts in the first two provinces, but the movement was more successful in Buenos Ayres, and a constitutional government was permanently established, the first congress being convened in 1813. But before the government was fully organized the people were occupied not only with settling their own affairs, but with lending aid to revolutionary movements in the other provinces. Amongst others, General Belgrano, who had been active in effecting the deliverance of his own adopted country, led an unsuccessful expedition into Northern Peru.

The temporary success of the Spaniards in Chile, Peru and Venezuela caused more atrocities and greater oppression which inevitably in turn produced fresh revolts, to the settlement of which emancipated Buenos Ayres was able to lend most effective aid.

Belgrano had been succeeded in the chief command by San Martin, a native-born South American, who, at the time of the revolution, was serving in the Spanish army in the Peninsular War, but on hearing of what had happened at home threw up his commission and returned to Buenos Ayres, where his training and the excellent reputation he had made readily gained for him a high commission and eventually the place of commander-in-chief.

Feeling that there was no safety for Buenos Ayres unless the

Blanco gracefully yielding the command to him, which, in the preceding year had not only done much damage to Spanish naval and merchant vessels, but had twice attacked Callao itself, and actually had stormed and taken by assault, Valdivia, the Gibraltar of South America.

In August, 1820, Lord Cochrane, having procured the necessary transports, embarked San Martin's army of 4,200 men, and proceeded northward to take Lima. It is certain that Lima could not have been taken, and it is doubtful if South American independence could have been secured without Lord Cochrane and his fleet. Indeed if Cochrane's biographer may be believed, the taking of Lima was effected not only without the aid of San Martin, but in the face of his pronounced opposition, and the medal struck in commemoration of the event attributing the deed to San Martin and his army, was procured by intrigue and misrepresentation. The dark side for San Martin is marked by his assuming the dictatorship of Peru and attempting to establish for himself an independent government, according to Cochrane's story. The bright side is made resplendent, almost, by his laying down his power September 20, 1822, and in his farewell address saying: "The presence of a fortunate soldier, however disinterested he may be, is dangerous to a newly-founded State. I have proclaimed the independence of Peru. I have ceased to be a public man." With this speech he closed a brilliant career, for on returning home he at once left the country and spent the

remainder of his life in Belgium, dying in 1850. If the South Americans who esteem San Martin as the special hero of their independence are right in their belief, San Martin was a singularly clear-headed and upright man, not unworthy to be classed with Washington. If, on the other hand, Cochrane is to be believed, a possible explanation of this seemingly self-denying and heroic course



Sketch-Model for a Monument to Admiral Lynch. Rodin, Sculptor.

of action may be found by assuming that San Martin was worldly wise to a degree, and thoroughly understood the fickle, jealous and intriguing natures of his compatriots. So, while posing as a lofty-minded patriot, he may simply have followed to Belgium a goodly portion of the millions that came into his hands on the fall of Lima. We do not say that he did, but Cochrane's account of San Martin's curious behavior before, and in, Lima is so circumstantial that it is difficult to believe that he was really the great and good man he is generally supposed to be.

Here, then, are four men whose deeds make them worthy of monuments. Cochrane, who had the fortune to be shabbily treated by the Chilenos, went long unhonored, but there are now several monuments which were in part erected to commemorate him and his deeds, but these, of course, are not equestrian.

To Belgrano, however, a really fine equestrian monument was erected in the Plaza del 25 de Mayo, at Buenos Ayres, in 1873, paid for by public subscription. The statue is so fine, that it is hard to believe it the work of Carrier-Belleuse, so different is it from that sculptor's usual work. The probable explanation is that some starving young artist of real talent—some man like Rodin—actually did the modelling which Carrier-Belleuse absorbed to himself through the simple process of graving his signature on the base. Belgrano is shown with the flag of San Martin in his hand, a flag still treasured in the Museum and regarded with the same veneration once felt for the oriflamme of Joan of Arc.

The same "property" is made use of in the statue of San Martin himself, by Daumas, which was erected in the Plaza de Marte, at Santiago, by the descendants of a grateful people, in 1863. Their gratitude did not, however, lead them to squander their wealth needlessly on this outward mark of esteem, for the statue is but a replica—and hence of less cost than if it had been an original work—of an earlier statue at Buenos Ayres, of the same individual by the

same sculptor. Although a replica, it is not an absolute duplicate, for the inclination of the horse's tail was changed and in San Martin's hand was placed his famous flag. The change of the tail may possibly have been suggested through finding that the original statue was not properly balanced, but was subjected to threatening internal strains, for the first group belongs to the small class of rearing statues where the horse is poised on his hind-legs alone.

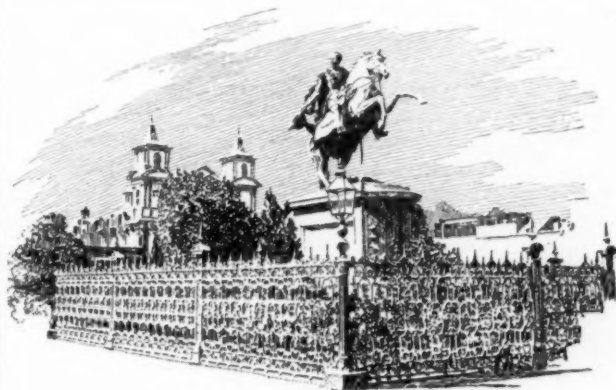
The original of this statue was erected in the Plaza de Marte, at Buenos Ayres, in 1862. The group is not large, the distance between the General's hat and the horse's hind-feet being but fourteen feet, while the weight is given as less than four tons.

The rearing horse seems to have best suited the South American ideas of what is becoming for an equestrian statue, for the greater part of their statues are posed with more or less of saltatory animation. The most extreme case is to be found in Santiago, where honest Bernardo O'Higgins is shown in an attitude most unbecoming for one who was the Supreme Director of Chile; for, looked at from the rear, he seems to be clinging to the neck of his too-rampant steed and bawling with wide open mouth for some one to come and take him off. It is rather too bad to represent by such a parody as this a man who possessed a good many of the virtues of his Irish father who founded the family fortune, and, to give more dignity to his name, added to it the aristocratic O' about the time he was made viceroy of Peru. The Chilenos have mingled in their veins not a little Irish and English blood, for to say nothing of the Catholics who had been driven out of Ireland and England, and had settled in Spain and from there drifted to South America, many needy adventurers who took part in the struggle for independence married and settled in the country and so introduced a certain rugged stamina which is lacking to the people of other parts of the continent, whose Latin blood is mixed rather with that of darker and inferior races than with that of the Saxon or Celt.

The current Civil War in Chile offers an evidence of the existence of these adopted foreigners in the name "*El Almirante Lynch*," one of the torpedo-boats that sank the "*Blanco Encalada*" a short time ago; for this torpedo-boat was named after Don Patricio Lynch, whose career was run at a later time than the revolutionary period under consideration, as his most important service was rendered in the war between Chile and Peru in 1879-80. An equestrian statue to a horse-marine, as it were, is certainly a novelty, and the sketch-model that Rodin made for such a statue to Lynch for Valparaiso, is interesting as showing how the sculptor proposed to indicate that though the statue was to be erected to Lynch the commander-in-chief of the land forces, he was none the less Lynch the vice-admiral. Considering the potentiality of suggestiveness which lies in the legendary connection between the horse and the sea, Rodin's treatment of the aquatic portion of his theme seems crude to the last degree. The project to erect a statue never got beyond this stage, we believe. But this is a digression, and it is necessary to turn back to the early struggles for independence.

The earliest of the revolutionary movements began at the northern end of the continent a little before the revolt at Buenos Ayres broke out. In April, 1810, Simon Bolivar, who is one of the leading figures, was, as a young man, sent to England to secure help from England for the just-formed popular government. His efforts were of no avail; the Spaniards speedily quelled the revolt and Bolivar found himself banished by force of circumstances to Jamaica. Here he remained till 1817, when he made a descent on the mainland, and in two years had been so successful that New Granada and Venezuela were united into the Republic of Colombia. By the middle of 1822 he had freed the Province of Quito and then turned to help San Martin in the conquest of Peru, and shortly after San Martin laid down his power Bolivar became Dictator in 1824.

His personal qualities as well as his achievements make him an interesting personality, and his compatriots have delighted to do him



Bolivar, Lima, Peru. Tadolini, Sculptor.

honor in every way. Statues of Bolivar have existed in abundance, some of which have been equestrian, and in spite of revolutions there still exist at Lima and at Caracas duplicate statues of the great liberator, the work of the Bolognese sculptor, Tadolini. The first

and therefore the original statue was the one at Lima, which was erected December 8, 1858. The statue, a spirited one, belongs to the class of rearing statues where the tail is used as an actual point of support, but this has been so well managed as to give the statue a great air of lightness. The statue, which measures 13 feet 9 inches in height, was cast by Miller at Munich, who employed eleven tons of metal in the group, the hind portion of the horse being cast solid.

The inscription "A Simon Bolivar Libertador, La Nacion Peruana ano MDCCCLVIII," is unmistakably clear and simple, while the one which undertakes to narrate the story of the statue at Caracas declares (in large letters) that General Antonio Guzman-Blanco, President of the Republic, erected the monument in 1874 to (in very small letters) Simon Bolivar, Liberator of Venezuela, New Granada, Equador and Peru, and Founder of Bolivia.

This same Guzman-Blanco who parades thus unblushingly his own importance seems to have been consumed with self-conceit, for though he caused the erection of many statues to celebrated Venezuelans—he even had a statue of George Washington set up—he did not forget to order a goodly number of statues of himself. Two of these were equestrian, one at Caracas by the Philadelphia sculptor, Bailly, and the other at La Guayra, but it has not been possible to secure any illustrations of these statues, for in the course of one of the periodic revolutions in that country the populace destroyed all the statues of Guzman-Blanco, equestrian as well as pedestrian, and broke up the pedestals for road-metal, as an incidental accompaniment of the downfall and expulsion of the original, a little more than a year ago.

A bit of romance is connected with the downfall of these statues. A favorite nephew of Guzman-Blanco's, who had been made commander-in-chief of the Venezuelan forces, was affianced to the daughter of an American gentleman who in some way incurred the enmity of the President, and was ordered to leave the country at once with his family—probably leaving his belongings behind him. The lover expostulated with his uncle, and words ran so high between them that the imperious President at length told the young general to choose between his sweetheart and his commission. Ambition yielded to the gentler passion and the youth broke his sword across his knee and left his uncle's presence. That night the saw was applied to the feet of Guzman-Blanco's statues and willing hands soon toppled them over. The uncle put two and two together and accused his nephew who, whether innocent or guilty, found it wise to follow his lady-love to New York, where, shortly after, they were married and from whence, after the banishment of the autocrat, they returned to Venezuela.

Having destroyed one set of equestrian statues the Venezuelans seem to have set about replacing them with another, for on October 28, 1890, there was unveiled at Cumana the equestrian statue of Marshal Sucre who was, after Bolivar, the most important personage in the war of independence. Sucre was what Bolivar was not, a finished and successful military leader, without the aid of whose brilliant generalship Bolivar could hardly have effected the liberation of the country.

This statue was modelled at Garretson's, on Staten Island by Giovanni Turini, and was cast by the Ames Manufacturing Company at Chicopee, Mass. The statue is about fifteen feet high.

BELGRANO.—Manuel Belgrano, born at Buenos Ayres of Italian parents, was educated in Spain, and, after returning to his native city, was appointed to office there. Joining the revolutionists, he was elected a member of their provisional committee in 1810, and the next year was given the command of an army. He was, however, defeated by the Spaniards at Cerro Porteno, in Paraguay. In 1812, having been raised to the rank of general, he again undertook an unsuccessful expedition to annex Paraguay to Buenos Ayres, but on September 4 of that year he defeated the Royalists at Tucuman, and on February 13, 1813, at Salta. In the next October he was defeated by General Paez at Villapuebla, and again at Ayoma. Belgrano was superseded by San Martin, and died in 1829.

CARRIER-BELLEUSE.—Albert Ernest Carrier-Belleuse was born at Anizy-le-Chateau in 1821, and was a pupil of David d'Angers. His chief works are a "Sleeping Hebe," in the Luxembourg, the equestrian statue of Michael the Brave at Bucharest; the equestrian statue of General Belgrano at Buenos Ayres; a funeral monument to General San Martin for South America, and the monument to Massena at Nice. He also produced the following sculptures, in addition to many portrait-busts: "The Death of General Desaix," "Love and Friendship," "Salve Regina," "Psyche Deserted," "Bacchante," "Undine," "Angelica," "Between Two Loves," "The Messiah" and "Camille Desmoulins." He died in 1887.

SAN MARTIN.—José de San Martin, an Argentine soldier, was born in 1778 and educated in Spain, where he entered the army, serving with credit during the French invasion. Returning to Buenos Ayres in 1812, he offered his services in the cause of South American independence, and was made a colonel. He defeated the Viceroy Vigodet at San Lorenzo in January, 1813, and was in 1814 made commander-in-chief of the army in Upper Peru, replacing Belgrano. He retired, however, from this post, and went to the province of Cuyo as Governor in September, 1814, to mature his scheme for the invasion of Chili. There he organized the famous army of the Andes, with which he set out on January 21, 1817, from Mendoza. He misled the Spaniards by false reports, crossed the Andes by the pass of Uspallata with great difficulty, and, surprising the enemy at Chacabuco, totally defeated them on February 12, entering the capital on the 15th. He was elected supreme chief of the republic, but declined in favor of O'Higgins, retaining the command of the auxiliary Argentine forces. He refused also \$10,000 offered him by the municipality, dedicating it to the foundation of a library in Santiago. After the defeat of Cancha Rayada in 1818, he reorganized the army and won a great victory at Maipo on April 5. He organized, with O'Higgins, an army and fleet for the invasion of Peru, and in August, 1820, sailed with an army on Lord Cochrane's fleet from Valparaiso. Landing at Pisco September 7, after a brilliant campaign, he entered Lima, and on July 27 proclaimed the independence of Peru, being shortly after made protector. In his short administration he abolished slavery and made many reforms, but resigned on August 22, 1822, and retired to Europe. He lived in Belgium and France until his death, which occurred in Boulogne on August 17, 1850.

DAUMAS.—Louis Joseph Daumas was born at Toulon in 1801, and was a pupil of David d'Angers. His works include statues of Diogenes, Charles d'Anjou,

Jean de Gauthier, the prophet Jeremiah, the Gaulish Princess Aurelia Victorina, and St. Vincent de Paul; also one of Bishop Inguimbert at Carpentras. He also executed an equestrian figure of Hannibal; the Roman cavalier, with his horse, which forms one of the groups on the Bridge of Jena, at Paris; and the equestrian statue of San Martin at Buenos Ayres. Other works of his are "The Genius of Navigation," "Meditation," "A la France guerriere et agricole," "The To-morrow of Victory" and "After the War." He made also many busts. Daumas died in 1887.

O'HIGGINS.—Bernardo O'Higgins, son of Ambrosio O'Higgins, Viceroy of Peru, was born in Chillan in 1780, and educated there and in Europe. When the declaration of independence was made, in September, 1810, he was prefect in the island of Laja, where he raised two regiments. In 1813 he joined the dictator Carrera, but they were defeated by General Elorriaga, O'Higgins saving the army from entire destruction. After this the Junta of Santiago deposed Carrera and gave the command of the armies to O'Higgins. The treaty of Liray was signed in May, 1814, and in July Carrera, by a military revolution, regained the control of the government. O'Higgins opposed him, but unsuccessfully, and they made peace. O'Higgins occupied Rancagua, which was severely assaulted, and he was forced, after an heroic defence, Carrera having retreated, to cut his way through the enemy's lines. He then went to Buenos Ayres, and was appointed commander of the second expedition that left Mendoza in January, 1817. He won the battle of Chacabuco in February, the Spaniards abandoned Santiago, and he was appointed Director of Chile. He was defeated at Talcahuano in December, 1817, and in March, 1818, at Cancha Rayada, but in April the independents won a decisive victory over the Spaniards at Maipo. A naval force organized by O'Higgins under Blanco Encalada ended the naval power of Spain in the Pacific. As supreme director, O'Higgins did much for his country, but resigned because of discontent in January, 1823, and lived in retirement for the rest of his life. He died in Lima in 1846.

LYNCH.—Patrick Lynch was born at Valparaiso in 1825, and studied at the Naval Academy. He served as a cadet in the naval campaign of 1838 against the Peru-Bolivian confederation, and, by order of his government, entered the British navy in 1840, and served through the war against China in 1841-2, becoming a lieutenant. In 1847 he returned to his native country, re-entered the navy as lieutenant, and in 1854 retired with the rank of frigate captain. In 1865 he returned to the service, and was afterwards Governor of Valparaiso. In 1879 and 1880 he commanded an army on land, and greatly distinguished himself at the battles of Chorrillos and Miraflores in the war against Peru. He was afterwards made rear-admiral and commander of the Chilean army. After the termination of the war, during which he had won much honor, he was made vice-admiral, and in 1885 was sent as minister to Spain. Recalled the next year to take charge of the Chilean legation at Lima, he died on the passage homewards in May, 1886.

BOLIVAR.—Simon Bolivar, born at Caracas, Ven., July 24, 1783, was educated at home, and then studied law at Madrid and travelled in Europe. Soon after his return to Venezuela in 1809 he joined the revolutionary movement in South America, and took part in the uprising at Caracas in 1810, and was sent to Great Britain to purchase arms. Returning to Venezuela in 1811, he was placed in command of the important fortress of Puerto Cabello, which, however, he lost through a revolt of the Spanish prisoners of war. In 1813 he obtained the command of an army, defeated the Royalists and declared himself dictator, but was driven out of Venezuela in 1814. He was forced in 1815 to take refuge from the victorious Spaniards in Jamaica, but, returning in 1816, raised another force, which defeated the Spanish general Morillo in February, 1817. In 1819 his army won the battle of Boyaca, and thus liberated New Granada. Later in the year he proclaimed the Republic of Colombia, formed by the union of Venezuela and New Granada, Bolivar becoming first president. In June, 1821, he won the important victory of Carabobo, and the next year marched with an army to Peru, which he soon liberated from Spanish rule. Early in 1824 he was made dictator of Peru, and the war was ended in December of that year by the decisive victory of Ayacucho. In 1825 the provinces of Upper Peru were formed into the State of Bolivia, so-called in honor of Bolivar, who was named perpetual protector of the new republic. In 1826 he was chosen President of Peru for life. In 1828 he narrowly escaped assassination, and in 1830, being weary of the constant fighting of the factions and the calumnies of his political enemies, he finally resigned the presidency of Colombia and left Bogota, intending to embark for England. He died, however, in San Pedro, December 17, 1830, having failed in his ambition to unite the South American republics in one strong confederation. His want of judgment and coolness in the battlefield showed a lack of military capacity, but the patience and pertinacity with which he adhered to the cause of independence through all his trials and defeats proved his possession of a high order of courage. His voluntary sufferings and sacrifices sufficiently disprove any charges of unworthy ambition.

TADOLINI.—Adam Scipione Tadolini was born at Bologna in 1789, and was a pupil of Canova, some of whose most important works he carried out under the master's direction. He became a professor in the Academy of Bologna. His works include the tomb of Cardinal Lante for Bologna; a statue of St. Francis de Sales in St. Peter's; a colossal St. Michael for the late Gardner Brewer, of Boston; "Venus and Love"; "The Rape of Ganymede"; "The Fisher Girl" and "Hebe." Tadolini also executed the equestrian statue of Bolivar at Lima. He died at Rome in 1868.

GUZMAN-BLANCO.—Antonio Guzman-Blanco was born in Caracas in 1830, the son of a Venezuelan journalist and politician. Antonio was banished by the government of General Castro, and accompanied General Falcon as general secretary in his invasion of Venezuela. Falcon being finally defeated in 1860, Guzman accompanied him, and in 1861 landed with his chief on the coast of Coro, and, after much fighting, the treaty of Coche was signed on May 22, 1863, which gave Falcon the presidency and Guzman-Blanco the office of Vice-president and Secretary of the Treasury. After returning from London, where he went to negotiate a loan, he was elected President of Congress. After the fall of Falcon in 1868 Guzman left the country, but led a revolution in 1869, and the following year saw him the provisional president, with extraordinary powers. For years he ruled the country as dictator. His successor, Alcantara, died in December, 1878, and, after several risings had occurred, Guzman again assumed the control. In 1883 Crespo was elected President, and Guzman-Blanco went as ambassador to France. In 1886 he again assumed the presidency, which, however, he lost again in 1889, and has since resided in France.

SUCRE.—Antonio Jose de Sucre was born at Cumana, Venezuela, in 1793, and educated as a military engineer. In 1814 he joined Bolivar, who made him a lieutenant-colonel, and to whose cause he rendered great services. He defeated the Spaniards at Yaguachi in 1821, and at Pichincha in 1822, which latter success put an end to the Spanish rule in Ecuador. He was then made a major-general. He aided Bolivar at the victory of Junin, and was by him appointed to the chief command in his absence, when Sucre totally defeated the Spaniards at Ayacucho in the same year (1824). He was then made grand marshal of Ayacucho, and, Upper Peru being declared an independent republic, under the name of Bolivia, in 1825, Sucre was elected President for life in the following May. He accepted, for two years only, and during a revolution against Bolivar in 1828 was dangerously wounded in the mutiny of a Colombian regiment. He was appointed commander-in-chief, and totally defeated the Peruvian troops who were invading Ecuador, at Tarqui, in 1829. Retiring now to private life, he was, however, sent as deputy for Guayaquil to the Colombian Congress at Bogota in January, 1830, which elected him President. Returning later to his home in Guayaquil, he was shot from an ambush in the mountains, and died on the 4th of June, 1830.

TURINI.—Giovanni Turini was born at Verona in 1841, and studied in Milan and Rome. He became professor in Milan, but after serving in Garibaldi's army he came to the United States. He has executed the statue of Garibaldi in New York; the colossal bust of Mazzini in Central Park, and an equestrian statue of Marshal Sucre at Cumana, Venezuela. He has also produced a group entitled "Angelica and Medora," and a bust of Leo XIII.

[To be continued.]

THE DOLPHIN IN ORNAMENTATION.¹—IV.

THE ORNAMENTAL DOLPHIN.



Fig. 23.



Fig. 24.

FINALLY, even the tail admits of this kind of multiple ornamentation and in many cases it takes on a variety of attractive movements, all very skilfully elaborated, even sometimes with the largest and the most unforeseen originality. Here again fancy has contended with imagination. As usual, at first there were only very small and plain modifications: the tail being straight at first, became wavy, bent back upon itself, rolled up several times, and the caudal fin, the natural shape of which was a crescent with a notch at the middle, was replaced by a full-blown leaf. Soon, to the bouquet of foliage are added volutes and tendrils; next, flower-buds, to which were soon added scrolls and spirals (Figure 23. Frieze by Nicoletto, of Modena). From that time the caudal fin wholly disappears: it is simply indicated at the ancient palace of the dukes of Bavaria (Figure 24) by a volute furnished with feathers; in a composition of Herr Offinger, this fin is indicated by a treble leaf (Figure 25); finally on a work by Herr Storck, of Vienna, this fin is replaced by a bunch of fruit (Figure 26). These ornaments, although yet very simple, arranged as bunches, aigrettes or fans, which simulated so well the missing fin, came at length to be neglected and were replaced by wonderfully fragile and richer combinations. In this new and more delicate mode there are numerous remarkable examples, to be found especially among the grotesques and entanglements which decorate beams, panels, pilasters and friezes. To point out a few of them, we will call attention to this dolphin at the Palazzo Doria at Genoa, which appears transformed into a cornucopia (Figure 27) with terminating blossom complicated with foliage, twigs, etc.; these are sometimes developed so largely that the fish himself becomes merely a plant



Fig. 25.



Fig. 27.

where its presence is hardly manifested, save by the head, which is used as a starting point, or as a supporter (see Figures 19 and 28. Ornament of wood marquetry from the church of San Petronio, at Bologna). More than this, the tail with its fancy rollings, as though it were not yet important enough, is terminated sometimes by a bust or cameo, as in a manuscript of Flavius Josephus at the Bibliothèque Mazarine (Figure 29) or by a grotesque puppet figure, as in a panel from the Château de Gaillon (Figure 30). Here and there we see it also ending as it begins, that is, in giving birth to another dolphin, placed contrariwise to the first at the extremity of a delicate trunk, furnished with leaves and shaped like an S. In such case the whole presents a relative symmetry, a varied and even pleasing similitude, which beautifully finishes off the form chosen by the artist, as can be seen in this German work (Figure 31).

On the work of Nicoletto, of Modena, who furnishes us with so many models full of refined taste and an endless conception, we again find a dolphin terminated by another dolphin, but in a manner entirely different and altogether original, which can be seen nowhere



Fig. 26.

else and which is worth noticing; for, besides its singularity, it has more than one of the qualities of stability and solidity. This construction (certainly it is one) is used as a base and holds in equilibrium a very heavy arabesque. This base (Figure 32) is composed of a pair of griffin's legs, each of whose claws grasps a dolphin by the back, the dolphins serving to extend the base line properly; from the fringing spirals which finish the thighs of the griffin's legs, rise two other dolphins, which serve to enclose a sculptured panel. In less ingenious and important combinations, we sometimes see the



Fig. 28.



Fig. 29.



Fig. 30.

dolphin transformed into a real plant; the head of the animal forms the flower, and its tail the trunk issuing from a vase or from the ground; this design (Figure 33) is found on an Italian stuff of the sixteenth century.

After gathering all these fragments, detailed above, and summing up the whole matter, one can easily perceive that, in such a matter, the skilful ornamentist, the inspired artist created infinite resources of elegance and novelty, by the fortunate and fertile union of this fish with floral forms, from which the most beautiful effects are obtained, without going into extravagances or exaggerations in drawing. Very often he retains his imagination only to embellish anew his well-beloved subject, and seems, as it were, to wander with pleasure in the kingdom of caprice and idealism, where obstacles are unknown. Yet, his wanderings are only simulated; his dreams are limited, in spite of the great profusion. If we look very closely at his work, we acknowledge the fact that they almost always stop at the precise moment of arriving at the final aim—the harmony of the whole effect. Good taste and symmetry are regulated by well-defined laws, and thus are prevented from exceeding wise limits.



Fig. 31.

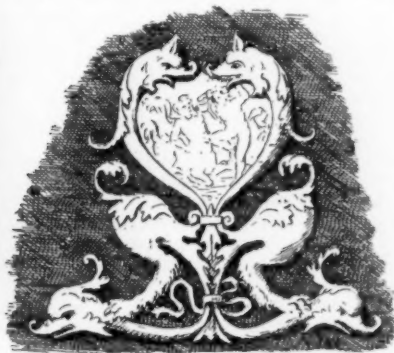


Fig. 32.

These laws are set forth or skilfully disguised, and proceed from the form to be decorated, the suitability of the subject, the divisions of the surfaces, the ruling sense, the importance of masses, symmetry, etc.

Still, in spite of these varied and numerous productions, the artists who preceded us left a large field open to the inexhaustible gifts of invention. Although an ancient and classical element, the dolphin, like many of his contemporaries, may be rejuvenated and will decorate for a long time to come our pilasters and fountains, our hangings and panels. If the garb in which he was clad, although sometimes very elegant and well fitted, seems to us rather antiquated, nothing prevents us from fitting and decorating them over again in the fashion of our day. We have many other decorative plant

¹ From the *Revue des Arts décoratifs*. Continued from No. 811, page 28.

forms which can be used easily to replace waists made with acanthus leaves, and trains in volute. After having been Italian, German, Spanish, Louis XIV, let the dolphin be nineteenth century and of the latest fashion! Earnest seekers after something new have already endeavored to bring about this renovation.



Fig. 33.

Moreover it will aid us to ascertain if it is possible for ourselves to look for some new combinations, or if we must be contented with the existing models.

(To be continued.)

BOOKS AND PAPERS

It has been the practice of makers of directories to group naval architects in the same list with — house architects, church architects: What are architects called when they do not chance to be naval architects? There is no objection to be taken to this method except on the part of the small number of naval architects who are rather lost in the longer list of their shore-going fellows, for certainly the term is an appropriate one since none will deny that a beautiful ship is as much a thing of art as a fine church, and that there is as much science required to build one as the other.

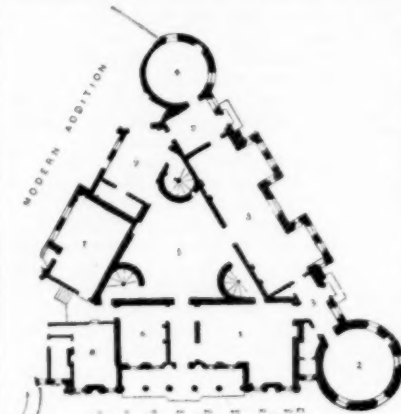
The work of the naval architect has been sometimes aped by his fellows who are more familiar with piers and trusses than with stern-post and keelson; there is the club-house of the Argonaut Club at Chicago, mentioned in another column, for instance, and there are those famous gable-ended houses in the market-place in Brussels, which simulate the sterns of the merchant vessels in use in the days when "forecastle" meant an absolute architectural structure, and was balanced at the other end of the vessel by a poop several stories high, with windows and galleries which, seen from the rear, were so imposing that it is no wonder that the old ship-masters copied them for the houses they dwelt in when ashore. Actual sea-going ships have been used for terrestrial habitations many times, and it is not necessary to refer to Mr. Pegotty's humble dwelling-place as exemplar, for there was a few years ago, and there still may be, in San Francisco, an old vessel used as a dwelling-place, though the place where it was stranded and abandoned by crew and master in their haste to get to the gold-mines, is now over half a mile from the present water-front.

The sea is directly connected in a more commonplace way with our every-day structures in these days, for without its submissive aid how could we build with Scotch granite, Belgian beams, Italian marble, Indian woods and the rest? Yet with none of these is the sea more curiously connected than with Langford Castle in Wiltshire, which is illustrated this week, being copied from Part II of Gotch and Brown's "Architecture of the Renaissance in England."

This singular and interesting structure was built by Sir Thomas Gorges, a favorite courtier of Queen Elizabeth who took advantage of his opportunities and married one of the maids of honor, the youthful widow of the Earl of Northampton. This lady was by birth a Swede, who had come to England in the train of King Eric when he came a-courting to the virgin queen, but unlike him encountered success in her matrimonial venture where he met only failure. After her second marriage with Sir Thomas she made use of the blandishments of the new-made bride to persuade him to pull down his house and build a new one, after the style and fashion of the Castle of Uraniberg with which she was familiar. If she carried the scheme in her head and was the architect of the structure, she must have been indeed a notable lady; but the chances are that she only vaguely remembered the castle she would copy, and caused that somewhat vulgar but necessary personage, the local architect, to voyage to Sweden and make the necessary measurements. Be this as it may, Sir Thomas met with the usual fate of those who undertake to build: the structure of his imagination, or rather of his lady's, required more money than he could command, and work was about to end with the completion of the foundations — which had proved unusually costly because of difficulties in the site — when news came that the Spanish Armada had been destroyed by the elements and man. Lady Gorges, who evidently was an energetic and shrewd helpmeet, went at once to Queen Bess and asked her to bestow upon her, in token of her affection, the galleon that had been driven ashore at Hurst Castle, over which Sir Thomas was Governor. Without giving a thought to the matter and without making a reservation to protect her right as lord of the manor, the Queen assented. It is quite possible that Sir Thomas had inspected the wreck before his

wife preferred her request to her former mistress, and knew it was a goodly prize; at any rate, a later examination disclosed the fact that this particular galleon contained vast treasure, and with its aid Sir Thomas was enabled to finish his house at an outlay of \$90,000, to which \$30,000 must be added for the outbuildings, a sum which in those days could accomplish more than it can in these.

This tale would give an interest to even a commonplace building, but it merely heightens that which legitimately attaches to a structure whose three sides enclose a triangular court-yard, the connecting angles being replaced by large circular pavilions. The history of the building is typified by sculptured panel in a blind dormer on one of the fronts, which shows a one-masted boat controlled by a crew of one-man power, the object of which may have been to persuade the Queen that her gift had not been of very much value after all.



LONGFORD CASTLE. GROUND PLAN, AS AT PRESENT.
1. ENTRANCE HALL. 2. LIBRARY. 3. STEWARD'S ROOM.
4. BUILDING. 5. TRIANGULAR HALL. 6. BALCONY.
7. MORNING ROOM. 8. SWIMMING ROOM. 9. & 10. LORRIES.
From a Plan in the Estate Office, by the courtesy of the Earl of Radnor.

This second Part is even more interesting than the first, and in looking it over one feels the need of brushing up his history of the Elizabethan period, for the various views distinctly suggest the time when the buildings were built, and somewhat imperatively call for a peopling with the men and women whose ideas of art and comfort are here exhibited in concrete form. Although they often suggest grandeur and not infrequently elegance, they almost always suggest solid, homelike comfort.

One does not expect to find in the statues that fill the niches of an English house-front of the period, the same perfection of modeling that would be found in the Italian palace-front of the same date and, to be sure, the figures that fill the niches at Montecute House do have a very Gog-and-Magogish air, but decoratively considered they serve their purpose as well. And when one considers that the belles and beaux of the times wore stiff starched ruffs about their necks, he recognizes that the starched stiffness of the figures in the frieze in the drawing-room at Bradfield is quite in harmony with the time — more so than the modern grate with Italian fire-dogs which furnish the fireplace in the same room, which offers a very attractive interior to the student's consideration. In this same room is another of those convenient lobbies built out from one corner to afford passage between adjacent rooms without actual entrance into the room. Their use looks like makeshift planning or sheer afterthought, and yet the elaboration with which they are developed and decorated, make it seem as if they were a "fad" of the time purposely introduced wherever opportunity offered.

This Part contains more interior work than the first Part, and therefore offers greater chance of furnishing the purchaser material he has never seen before, and both text and measured detail are somewhat fuller. The portions that have already appeared augur well for the parts that are to follow and give assurance that the entire work will have a very real practical value in the working-library of a well-equipped office.

ILLUSTRATIONS

[Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.]

ENTRANCE DOORS TO PARK PRESBYTERIAN CHURCH, CORNER OF AMSTERDAM AVE. AND 86TH ST., NEW YORK, N. Y. MR. H. F. KILBURN, ARCHITECT, NEW YORK, N. Y.

[Helo-chrome, issued with the International and Imperial Editions only.]

CATHEDRAL OF ST. CORENTIN, QUIMPER, FRANCE.

A VIEW showing a portion of this cathedral, the largest in Brittany, was published in the *American Architect* for March 15, 1890. This building was built between 1239-1424. The towers and spires were rebuilt in 1858 by Viollet-le-Duc.

LONGFORD CASTLE, WILTSHIRE, ENG.

This plate is reproduced from Part II of Gotch and Brown's "Architecture of the Renaissance in England," referred to above.

"THE ZINZENDORF," WINSTON, N. C. MESSRS. WHEELWRIGHT & HAVEN, ARCHITECTS, BOSTON, MASS.

DINING-ROOM IN THE HOUSE OF S. B. ELKINS, RANDOLPH CO., W. VA.

"Architecture of the Renaissance in England" by J. Alfred Gotch and W. Talbot Brown. Part II: Bradfield; Montecute House; Lower Waterstone; Longford Castle; Wootton Abbey; Bolsover Castle; Barlborough Hall, etc., Boston: Ticknor & Co., Publisher, 1891. Price, \$8.00 per Part.

[Additional Illustrations in the International Edition.]

A LOUIS XIII CHIMNEYPiece IN THE CHATEAU DE CHEVERNY (LOIRE-ET-CHER), FRANCE.

THE Château de Cheverny was built in 1634 by the direct descendants of Philippe Hurault de Cheverny, once Chancellor and Keeper of the Seals for France. The interior of the château, admirably restored by the Marquis de Vibraye, contains a remarkably well-preserved series of apartments, to wit, on the ground-floor, the gallery with its decorative paintings based on the experiences of Don Quixote, and the dining-room with its Henri IV chimney-piece; and on the first floor the king's chamber in which is the chimney-piece which we copy from *La Revue générale de l'Architecture*. The decorations of the ceiling, the chimney-piece and door lintels are due to a Blaisois artist of the time, one Jean Mosnier. In the king's bed-chamber the artist depicts the histories of Perseus and of Theogenes and Charicles. The panel on the chimney-piece here shown chronicles the triumph of the son of Jupiter and Danaë over the terrible Medusa. At the back of the fireplace an iron fireback is blazoned in color with the arms of the Huraults de Vibraye.

SPIRES AND TOWERS OF SOME OF SIR CHRISTOPHER WREN'S CHURCHES IN LONDON.

This plate is reproduced from *Specialties*.

INTERIOR OF THE GREAT HALL AT "RHINEFELD," HAMPSHIRE, ENG. MESSRS. ROMAINE-WALKER & TANNER, ARCHITECTS.

This view of the Great Hall looking east, which we copy from the *Builder*, was exhibited at the Royal Academy this season. The room measures 67' x 25' and is 35' 6" high, spanned by a hammer-beam roof with panels filled with Gothic tracery. The arms-bearing panel in one of the upper corners of the plate is to find a place on the entrance front.

FURGUSLIE PARK, PAISLEY, SCOTLAND. MR. HIPPOLYTE J. BLANC, ARCHITECT, EDINBURGH, SCOTLAND.

This building, which we copy from the *British Architect*, was erected for Colonel Glen Coats.

SCHLOSS VALORÉ. M. TUBEUF, ARCHITECT.

THE architect decided to design this building—which is reproduced from *Architektonische Rundschau*—in the Flamboyant Gothic adhering closely to existing examples, and it is interesting to observe how closely he has kept to his programme.

CHRISTCHURCH, WATERLOO, NEAR LIVERPOOL, ENG.

This design, which we copy from *Building News*, was submitted in a limited competition by Mr. R. E. Birckett and Mr. John Langham, of Manchester, jointly, and was originally awarded the first place by the sub-committee appointed to make the selection. Ultimately none of the competing architects were appointed to carry out the work. The church was planned with a spacious narthex at the west end, with a gallery over, and was to seat 1,000 people, and to cost £8,000, exclusive of tower and spire. A special feature of the competition was the fact that a large quantity of the old material in the existing church was to be re-used in the new work. This included some stained-glass lancet lights which the authors of this design proposed to re-use in the great east and west windows, which were so designed that three lancets could be used in each with scarcely any alteration.

COMBINED POST AND TELEGRAPH OFFICE, MADRAS, INDIA.

This building was designed and constructed by Mr. Chisholm and is in reality the outcome of many years of labor. It was the architect's ambition to finish a building having certain claims to architectural fitness which should be elaborated and finished entirely in Madras. In order to do this, it was necessary to start a Government brickyard, for, with the exception of the Railway works, the local brick in use consisted of a small ill-shaped and ill-burnt lump of clay 8" x 4" x 1 1/2" to 1 1/4". It was necessary to invent a suitable roofing-tile and machine to make it, to produce trustworthy terracotta and stoneware, and to train a class of draughtsmen and decorators for the stained-glass and other painting. All these works were achieved, and although they are severally far inferior in finish to imported articles, the work regarded as a commencement is eminently satisfactory, affording clear proof that with care and trouble excellent work can be produced in India.

With regard to the style of the building we quote the *Architect*: The problem of building in India should not be difficult for any architect who will take the trouble to study, not only architectural forms, but the methods adopted by workmen in former ages of modifying these forms to suit various materials. We know perfectly well, before we start work at all in India, that if we want good ornament we can only have that indigenous to the country. We know that this ornament is associated with very costly monumental structures quite unsuited to ordinary official purposes. It is impossible, and indeed undesirable if it were possible, to reproduce these structures in less costly materials than the originals, but we may preserve many of the forms, or while modifying them to suit our materials, preserve just that amount of feeling of the original which will enable the

really good ornament at our disposal to sit comfortably in its place without appearing incongruous. It was in this spirit that the Italians approached Gothic, and although their best efforts in this style will not compare favorably with our finer cathedrals, their artistic instinct has given us new phases of the art at Venice, Padua, Pisa, Sienna and elsewhere, and these efforts arising from adaptability have been universally admired. It is in this spirit that I have always attempted to approach buildings in the East, and although my lights may burn dimly I feel certain that they are on the right road. Nothing can be more execrable than the details of Gothic and Renaissance, which I see everywhere in India, and no purpose whatever is to be gained by such senseless repetitions of bad art. The native details, on the other hand, though a long way behind the best Western ornament, are good in their way and infinitely superior to the aforesaid Gothic and Renaissance details. To sum up, arrange the accommodation required in the most convenient way without any reference whatever to any style. Then dispose of your materials by the most approved structural methods, adopting such forms and feeling that native ornament, the only ornament procurable in India, can be applied in harmony. The tile which I invented for India was discussed some time ago in your paper and spoken of slightly. I called it the School of Art's tile, as I invented it while in charge of that building. For high-pitched roofs 45° and over, it is infinitely superior to anything yet introduced into India and much cheaper than Mangalore tiles with boarding.

ECOLE NATIONALE DES ARTS INDUSTRIELS, ROUBAIX, FRANCE.

UNTIL within a few years, schools of design furnished the artists who eventually were to make the designs for textile-fabrics, wall-papers, etc., and the greater part of the designs so furnished showed a lamentable want of real knowledge of styles. To-day an attempt is being made to better this, and to provide the great industries with a succession of artists more sure of themselves and an assortment of patterns better suited to the special fabrics to be manufactured. The creation of the school at Roubaix is one step in this direction. A city so important as this ought not to neglect anything to give its new school internal and external arrangements *en rapport* with mere utility, nay more, with dignity of the end to be attained. The school-building was begun in August, 1886, and was accepted by the officials in December, 1890. The selected site is a vast quadrilateral containing about thirteen thousand square metres, of which about half is occupied by the present building and its proposed extensions. In the general plan we notice three distinct divisions. First, a principal building of rectangular form, with projections at the angles and an interior court-yard, and of which the façade, which is preceded by a French garden, faces the public place. It is here that are grouped the different museums or collections, the great lecture-room, the library, the physical and mechanical laboratories, and the rooms especially devoted to the instruction of drawing with its application to painting, sculpture and the mechanic arts. The body of the building on the front is really the museum. It is flanked at either end by a monumental staircase, and comprises on the ground-floor an exhibition-hall for machines, particularly for those used in the manufacture of fabrics. In the first story there is a collection of manufactured fabrics, and on the third story the museum of decorative art. Secondly, a group of buildings, arranged *en potence*, and particularly devoted to the study and teaching of mechanical processes, the sciences and the arts connected with the local manufacture of fabrics—weaving-rooms, smoothing-rooms, pattern-making-rooms, chemical laboratory, dye-rooms, printing-rooms, etc., all capable of a further enlargement in the direction indicated by the plan. Third, an administration building. Behind the principal building a small isolated structure contains the steam-engine with its boilers, and near by, of course, is the great chimney. For further details, the legend which accompanies the plan may be consulted; but from these meagre statements a conception of the magnitude of the project can be obtained.

To-day the different courses of instruction are in full blast, and are followed by about a thousand pupils, of whom about five hundred pursue the courses of instruction in design simply. Of this number a score or more devote themselves especially to decoration, and these will form the nucleus for a body of artists possessing a general and special education acquired under the best methods which will allow them to give to their work the stamp of great originality.

As for the external features of this school, they are worthy in every point of the destination of the building and the talent of its designer. The exhibition galleries on the ground-floor and first floor are flanked by pavilions, surmounted by sculptured pediments. The ground-floor of stone, with full-centred bays, forms a basement clearly accentuated. In the first story bricks play a rôle as the fillings between the pilasters of the Doric order, though leaving to the stone-work a predominating effect. A very forceful entablature crowns the whole. The frieze is formed of sculptured panels, bearing the attributes which symbolize the different branches of art taught within. The pediment at the left, by the sculptor Lanson, represents the Arts; that at the right, by Jean Hugues, represents Sciences, and the little group by André Allar, represents Industrial Art. The roof is covered with slate. As to the cost, it has been almost two million francs. The illustration and description are borrowed from *La Semaine des Constructeurs*.

GROUP OF BACCHANALS. DALOU, SCULPTOR.

"M. DALOU's scheme for a fountain first attracts attention. It is a Bacchanal scene, satyrs sporting with two Bacchantes, a group of great grace in composition and arrangement, and having a simple gaiety of inspiration which somewhat recalls the art of the last century. In a limited space, M. Dalou has succeeded in grouping his figures in extremely natural poses, without anything conventional about them, as though the difficulty of the arrangement did not exist.

"The group of M. Sanding in its naïveté, awakened an idea of somewhat artificial virtuosity, which here entirely disappears. We are in the presence of an artist of abundant dash, who places his bodies and forms and lines without any effort, without any fumbling, instinctively finding the most harmonious combinations. The leaning Bacchante in particular, the one who presses with her left hand upon her fellow prone upon her back, has the most delicious abandon. The only fault one can find with this charming composition is that it is a little remote from us. M. Dalou, who is himself so modern, seems to have been seized with a sudden prepossession in favor of the things of another age. He has attempted to rediscover the qualities of grace and of gaiety and of happy and facile charm which have almost wholly disappeared from contemporaneous art. He has doubtless succeeded, but his work somehow has a foreign air which isolates it in the midst of productions which are so different from it. I will also mention that fine marble group by M. Aubé, 'the Painter François Boucher,' in which the artist has known how to depict a great deal of charming fancy and facile elegance."—*Edouard Rod in the Gazette des Beaux-Arts.*

THE SALLE POIREL, NANCY, FRANCE.

This illustration is reproduced from the pages of *La Construction Moderne*.

STATUE OF FRANCOIS BOUCHER. AUBE, SCULPTOR.

TOMBS IN THE CRYPT AT JOUARRE.

This plan is reproduced from *L'Encyclopédie d'Architecture*.

CHURCH OF THE SACRED HEART, MONTMARTRE, PARIS, FRANCE.
M. ABADIE, ARCHITECT.

WHEN the project for a new church at Montmartre was first mooted, it was intended to obtain the design through the medium of an international competition. The building was to be Catholic in the full meaning of the word, and it was only right to seek universal aid towards its creation. Accordingly some English designs were sent in, notably one by Messrs. Phéné Spiers and Phipps. But in a short time the project assumed a new character. It was held that the new church was to be essentially national, and to be expressive of the hope that the boundaries of France should correspond with those which existed prior to the last war. Accordingly, the style that was alone considered to be essentially French was recommended for the new building. In spite of the splendid work with which mediæval architects enriched France, Gothic has been taken to be no more than a synonym of German, and the style no longer commands respect. A Gothic church at Montmartre was, therefore, out of the question. Renaissance was considered to be too Pagan and frivolous to be expressive of the aspirations of men and women who united patriotism with piety in their thoughts. Accordingly, the severe Romanesque which was used prior to the invasion of the Goths was adopted.

The fitness of the style was at once recognized. Since the ages of faith there has been no such enthusiasm in contributing immense sums of money as France has witnessed during the past fifteen years. Societies, as well as individuals, have shown eagerness to be associated with the immense work, and there are no signs that the supplies are exhausted. The crowds that every day come from all parts of France to worship in the new building, are evidence of the strength of the principle that is realized by the masonry, and of the readiness to make sacrifices to uphold it.

In spite of the large sums expended, the church at present consists only of the parts which are required for services. All the towers which are necessary to give predominance to the church in a general view of Paris have yet to be undertaken. There is no adornment of any kind, and the altars used are temporary structures. Some years will have to elapse before the architect's design, as shown in the illustrations, will be completed; but the people who use and who have erected the church can wait, and probably would not object if the finished structure became a memorial of the victories of France.

INTERIOR OF THE SAME.

THE ZODIAC PANEL IN THE PAVEMENT OF THE BAPTISTERY,
FLORENCE. DRAWN BY R. W. SCHULTZ.

PAINTING ZINC AND GALVANIZED-IRON.—Zinc needs some preparation to roughen it so that paint will adhere to it. Here is a recipe for

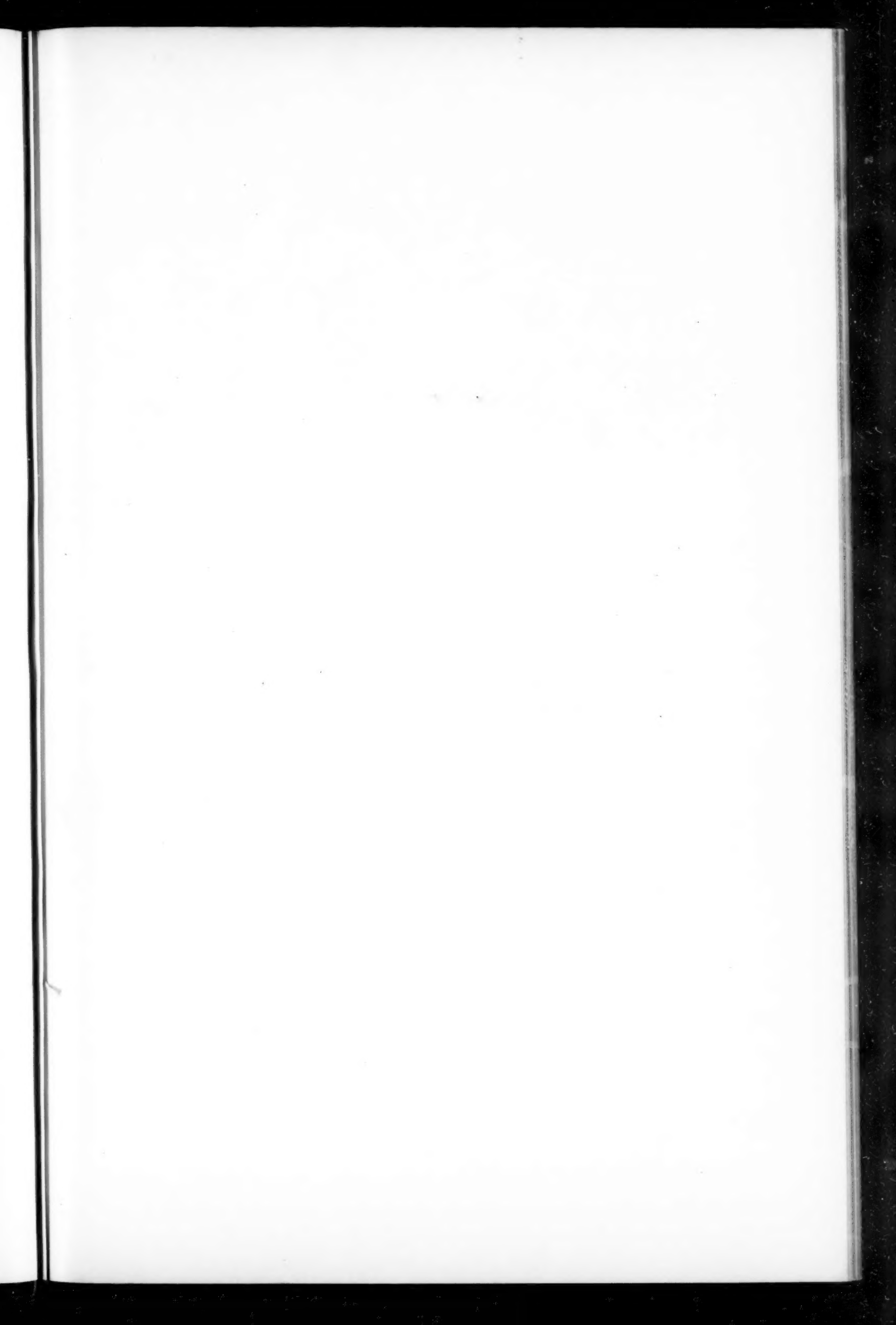
a wash that will be found to answer the purpose well, although there are many in use that may be just as good: To sixty-four parts of water add one part of chloride of copper, one part nitrate of copper, one of sal ammoniac, and one part of commercial hydrochloric acid. The zinc should be brushed over with this and left for twenty-four hours before painting. White lead should be avoided for first coating. Galvanized-iron is iron plated over with zinc; as it is already rough enough it is not necessary to use the above wash. White lead should not be used over it as a primer, as it will not stand. Red lead will again be found just the thing for that purpose, and next to it oxide of zinc.—*F. Maire in Painting and Decorating.*

THE JERSEY CITY TRAIN-SHED OF THE PENNSYLVANIA RAILROAD.—The New York *Engineering Record* says that the train-shed of the Pennsylvania Railroad, now in course of erection at Jersey City, N. J., is said to have the largest single span roof in the world, measuring 256 feet from outside to outside. It is stated that five steamships of the size of the *City of Paris* might be placed inside the structure and then there would still be room for three or four ferry boats of the regular Hudson River type. The Madison Square Garden, it is said, is a little too wide, but otherwise the whole building could be placed inside this monster train-shed very comfortably.

THE RHODE ISLAND STATE-HOUSE.—The prizes in the preliminary competition for the proposed State-House for this State have been awarded to Stone, Carpenter & Willson, Hoppin, Read & Hoppin, and Wm. K. Walker & Son. This competition was open to Rhode Island architects only. It is intended to hold a second competition, to which the winners of the first contest, and a certain number of invited architects from the country at large will be invited. The State-House is to cost \$1,000,000.



NOTWITHSTANDING the fact that the volume of business is generally supposed to be somewhat less than last year, the general condition of trade and business is in a healthier shape. Prosperity is not always measured by the volume of business done or by the profits made. During the past two or three weeks, representative men and authorities in a large number of industries have given forth statements and statistics, and the facts relative to the condition of the various industries in which they are engaged, and the substance of their testimony, when carefully sifted, is that the industries of the United States, so far as reported, are in a healthy condition. One thing which jeopardized prosperity last year was the danger of an advance in raw material through labor strikes, combinations, restrictions and other causes. Fortunately, that evil has not arisen. In its place healthful influences have presented themselves. The managers of the great industries feel safer than they did then. They are satisfied to put up with the restricted business, knowing, or, at least, believing, that by another year the advantages will begin to accrue. There are a few exceptions to be mentioned, and one is the production of fuel. The supply is greater than last year, according to all accounts. A vast number of mines have been opened not only in the older mining sections, but in new localities. This was rendered necessary by the spread of manufacturing industries and railroads and general population. Mining statistics are certainly very satisfactory. The cost of fuel in most sections is a trifle less than last year. A further advantage has been secured to users of fuel in a slight reduction in cost of traffic on most lines. These reductions have not taken place in the case of anthracite coal or Connelville coke. Throughout the West the cost of carrying fuel has been slightly reduced, and future reductions are probable. A great many mines are to be opened throughout the newer States, and this fact will still further stimulate manufacturing. In fact, the fuel problem is at the basis of a great deal of activity, and shrewd capitalists, seeing already possibilities in this direction, have been for a year or two past devoting special attention to the providing of cheap fuel at remote places for manufacturing, railroad and domestic purposes. The textile industries have been subjected to a number of fluctuations, due to tariff modifications and other causes, the effect of which to-day has not been altogether satisfactory. Wool, it seems, has advanced in price—at least, the wool most needed for finer work. The cost of cotton to manufacturers has not been determined fully, but will probably be a trifle less than last year. The textile manufacturers are slow to stock up, lest the market for their goods be uncertain. Importers have not relinquished the idea that they will be able to control their markets in the future, as they have been in the past, and this adds another factor to uncertainty. The print-goods mills have been very busy, but have been making little money. The gingham mills throughout the country complain of very narrow margins, but admit it a good year's business, and hosiery and knit-goods manufacturers also admit a very heavy distribution of goods until within a very recent period, but are able to show a very good margin of profit, and think they will very soon be in a position to secure still more satisfactory returns. The Southern cotton-goods mills are exceptionally prosperous; their dividends show it; their steady increase in capacity also testifies to the favorable condition of things. The erection of new mills is also a favorable feature; in fact, some of the leading textile authorities say that the textile industry, rapid as has been its growth during the past ten years, is virtually in its infancy, and that, under favorable conditions, it will broaden out during the next three years amazingly. The drawbacks in some instances are the lack of skilled labor, as in the instance of plush-manufacture, but enterprising manufacturers are determined to overcome such obstacles and to enter upon the production of higher and finer classes of textile goods. The paper industry of the country is another of those industries which has of late passed through some serious difficulties, but, by papers recently read before the Paper-makers' Association, it appears that the industry is really upon a more satisfactory basis than it has been for twenty years. It is rather strange that admissions of this kind, in the face of the fact of narrower margins to our manufacturers, have ceased to measure everything by mere profit. The paper industry is growing very rapidly, not only in its home in Massachusetts, where the capacity of every considerable mill is being increased, but throughout most of the Western States. In Wisconsin, especially, has the industry made great headway, and a number of new mills are now being erected. Throughout the South, scores of little mills are springing up to manufacture ordinary cheap papers, and these lay the basis for the advent of finer machinery and finer products.





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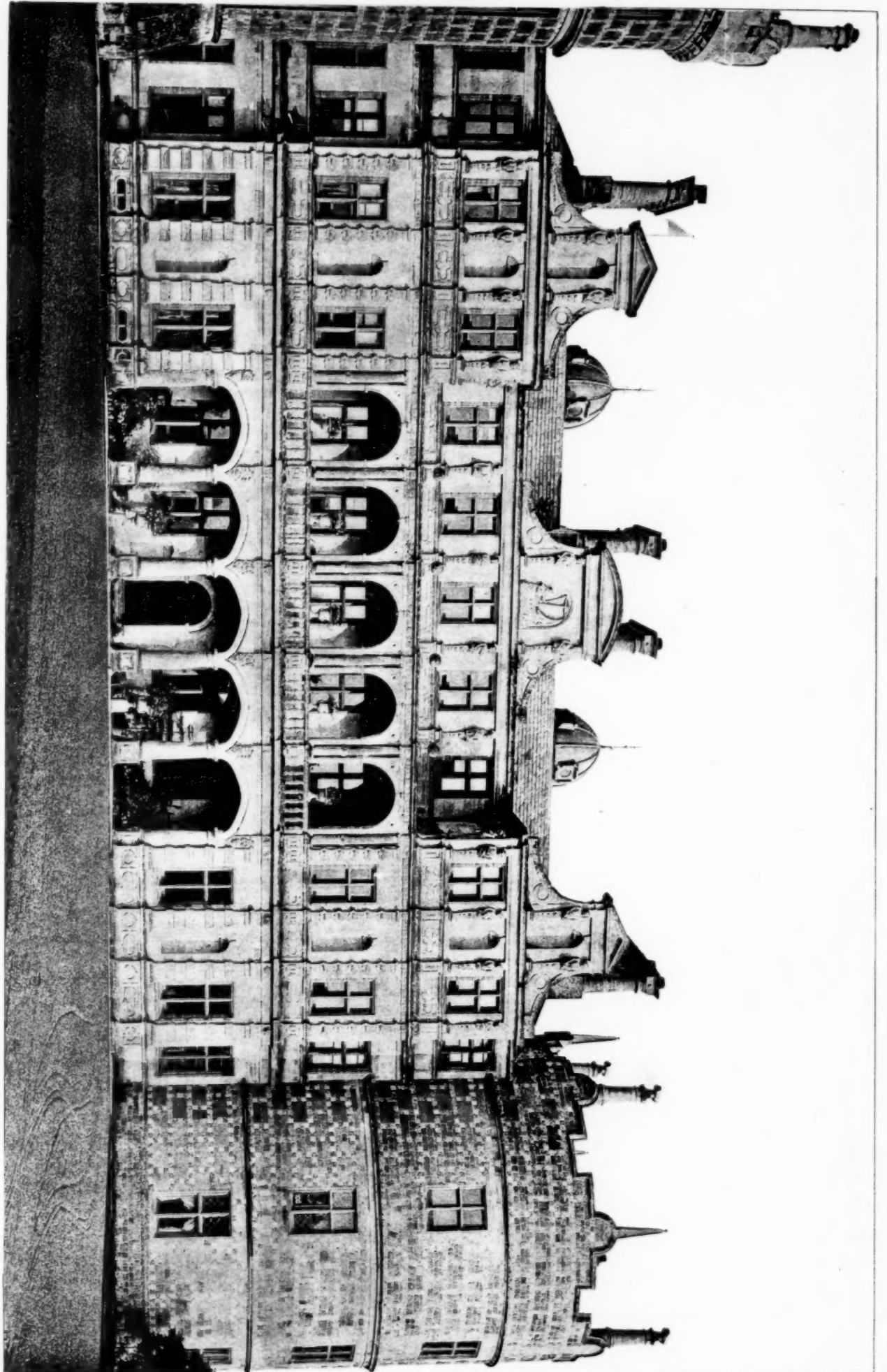




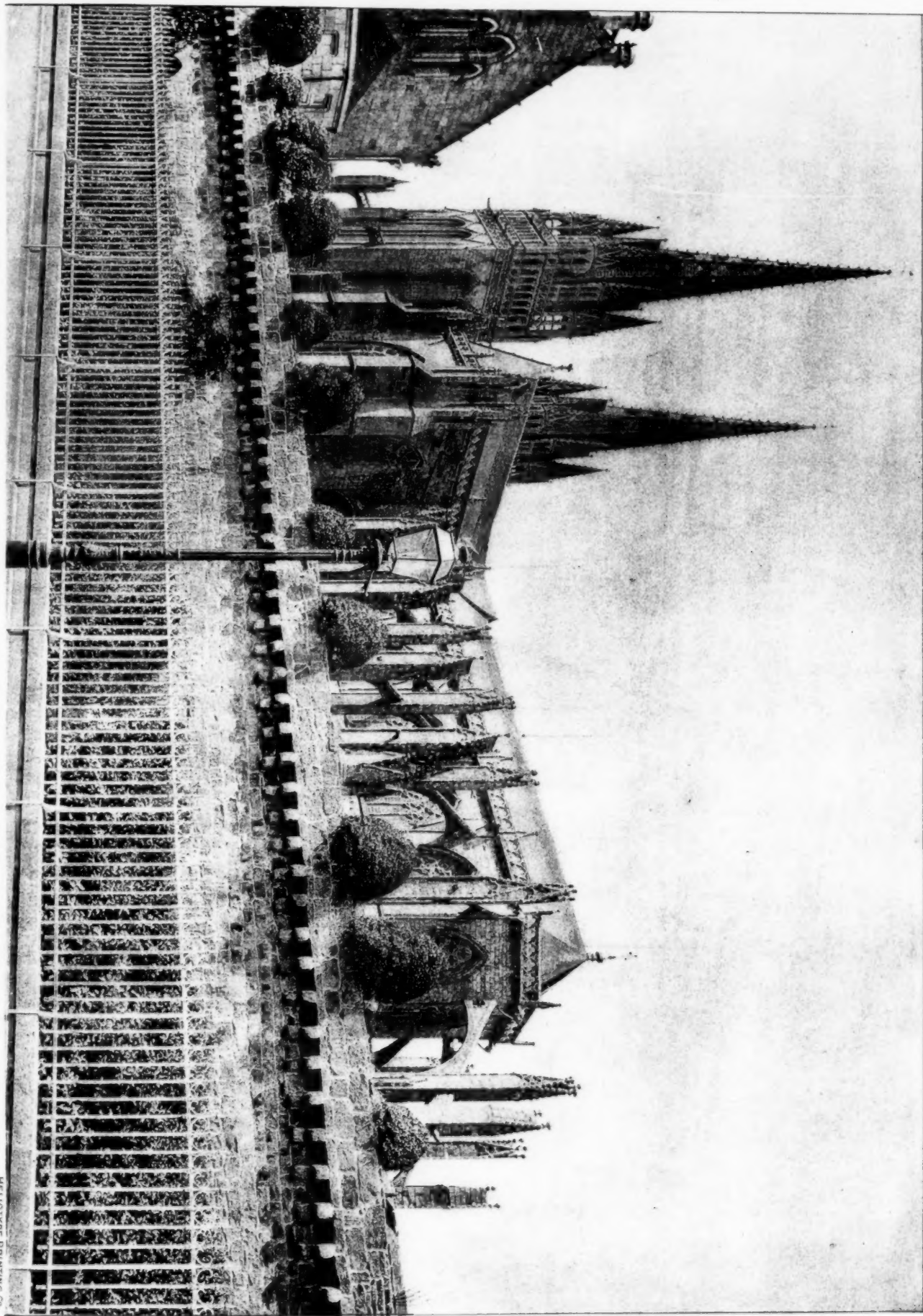
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