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CONTENTS.

EDITORIAL SUMMARY.
ENGLISH ARCHITECTURE.—II.
SAFE BUILDING.—LI.
EMMANUEL FREMIET.—III.
LETTER FROM PARIS.
SOCIETIES.
COMMUNICATIONS.
NOTES AND CLIPPINGS.
TRADE SURVEYS.

ILLUSTRATIONS.

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SUMMARY:—

A Better Classified List of Building Materials.—The Annual Report of the Massachusetts District Police.—Prizes for Essays on Housing the Poor.—Water-gas used for Welding.—Polyglot Contributions.—Death of Herr von Ybl, Architect.—Theatre Fires during 1890.—The Bucharest Parliament House.—A New White Cement.—Hazing at the Ecole des Beaux-Arts.—Connecting Ireland with Scotland by Tunnel.	129
ENGLISH ARCHITECTURE.—II.	131
SAFE BUILDING.—LL.	133
EMMANUEL FREMIET.—III.	134
LETTER FROM PARIS.	137

ILLUSTRATIONS:—

Entrance to the "Yosemite," New York, N. Y.—The Grady Memorial Hospital, Atlanta, Ga.—House at New London, Conn.—Design for a School-house, Somerville, Mass.—Lowell City Armory, Lowell, Mass.—Compton Hill Congregational Church.	
Additional: Dwellings at Heidelberg, Germany.—Wrought-iron Gate at Fontenay aux Roses.—Hall of Post and Telegraph Building, St. Gall, Switzerland.—The Church of St. Etienne du Mont, Paris, France.—Lichfield Cathedral.—Cloister of the Monastery of S. Jerome, Belem, Portugal.—Villa at Neuilly-sur-Seine, France.—Senate House, Madras, India.—Staircase, Harrow, Eng.—Staircase, Weybridge, Eng.—Additions to Boxley Park, Eng.—Hebrew Conference Hall, Whitechapel, London, Eng.—"Le Bureau de Bienfaisance."—"The Cattle Market."	141
SOCIETIES.	143
COMMUNICATION:—	
A Chicago Trade School.	144
NOTES AND CLIPPINGS.	144
TRADE SURVEYS.	144

HEREAFTER there will be found in the last issue for each month a more complete classified list of building materials than we have been enabled to publish hitherto. Even in its enlarged form it is curiously incomplete, but we believe that our advertisers and other material-men will quickly see advantage to themselves in making it as full as possible in conformity with the terms of the circular submitted to them some weeks ago.

WE have not the highest opinion of official documents as literature. Whether it is that their authors are obliged to fill a certain amount of space, with an insufficient supply of matter, or that their occupation renders them prone to diffuseness and wandering, we cannot say, but their productions usually show these rhetorical defects in what they would call "an eminent degree." It is not surprising, therefore, that we open an official report with some reluctance, and close it, as in the case of the Annual Report of the Chief of the Massachusetts District Police, with the wish that its four hundred and fifty-five pages could have been condensed to about one hundred. By leaving out all the commendatory remarks on the subject of their own exertions, and all the gratuitous advertisements of patent systems of ventilation, and condensing their statements of fact within the limits of pertinent and interesting information, the various authors of the report might easily have accomplished this, to the advantage of the public treasury. As before, the main usefulness of the District Police in Massachusetts is to be found in their employment to enforce the statutes in regard to the protection of women and children in factories, the regular payment of wages, the provision of fire-escapes in tenement-houses and public buildings, and the ventilation of school-houses; and they seem to accomplish something, and to display a laudable zeal in their efforts to accomplish more. It will be remembered how shocking were the cases of foul and neglected school-rooms described in the Report of last year. This year, the number of similar cases described is much smaller, and the examinations made of buildings purporting to be properly ventilated show that the suggestions made by the inspectors have borne good fruit, and that the ventilation is in most cases real ventilation,—not a pretence, meant only to deceive ignorant parents and school-committee men. In fact,

a certain amount of interest seems to have been excited among the people who send their children to school, and those who themselves went to school in buildings "ventilated" by scuttles in the ceilings, communicating, when they were open, which was rarely the case, with the attic, now willingly tax themselves to put in and run a fan, supplying fifteen hundred to two thousand cubic feet of air per hour to all the children in the house. In fact, the use of fans, which was, not long ago, regarded as an impossible extravagance in school ventilation, is becoming very common, much to the advantage of the rising generation. We will not stop to mention the instances of "handsome" buildings, with "admirable finish," designed by architects who "have shown here their ability to plan a splendid structure," but will merely observe that the system of ventilation which appears to be most favored by the Massachusetts inspectors, and to be most frequently introduced in new schools, consists in delivering the warm fresh air about eight feet above the floor, near the middle of an inside wall, and exhausting it on the same side, as near the floor as possible. In the best houses, the exhaustion is promoted by means of a fan; but in many cases a coil of pipe, or a stove at the bottom of the exhaust flue, is the only dependence. It is evident that a good supply of fresh air to at least a portion of the room is secured in this way, but whether the supply is equally fresh in all portions at the breathing line, or whether better results could not be obtained in some other way, remains uncertain. Under the direction of the inspectors, many tests of the air in the rooms of school-houses so ventilated have been made, but nothing is said about the place from which the air to be tested was taken, and we are left in the dark in regard to one of the most important points. It is to be observed, moreover, that in nearly every case, the ventilation is applied on some patented system, showing that a fashion has been introduced which we should be sorry to have become general. There is, of course, nothing to be patented about the mere introduction of warm air into a room, and its abstraction through shafts, either with the help of a fan or not; and the patents on which the proprietors of the systems rely for their profits relate to other matters, some of which are far from being of great value. Moreover, some of the patented ventilating systems are connected with dry-closet lavatory devices, which we cannot believe to be the best for use in school-houses. So long as they are scrupulously kept clean, they may, perhaps, be free from offence, but they are sure not to be always clean, and it must be remembered that the air which is blown through them for drying must go somewhere with its load of poisonous effluvia, and, even if it is kept out of the school-house itself, it is likely to return to earth somewhere in the neighborhood.

THE American Economic Association offers two prizes, one of three hundred dollars, and the other of two hundred, for the best essays on the subject of the Housing of the Poor in American Cities. The essays must present actual observations of the dwellings of the poor, with comparisons of their present and past condition, and inferences as to the tendency to improvement or the reverse. The experience of foreign cities may be treated of, and suggestions drawn from it, but the conditions peculiar to American life are to be mainly kept in mind. The comparative value of voluntary effort and legislative enactment in improving the condition of such dwellings should be considered, plans for improvement discussed, and the limitations which it is advisable to put on private effort shown. Essays should not exceed twenty-five thousand words, and it is desirable that they should be copied with the type-writer. They must be in the hands of the Secretary of the Association, Mr. Richard T. Ely, Baltimore, Md., on or before November 15, 1891. The Association reserves the copyright of the successful essays, if it desires to publish them. Other essays will be returned to their authors, if stamps are forwarded for the purpose.

A NEW use for water-gas has been found in England. Not long ago the Leeds Forge Company found that for some of its welding operations it was desirable to have a greater heat than could be obtained in any of its furnaces. Even the heat of a Siemens regenerative furnace proved insufficient to do the work, and the technical director of the company was obliged to devise some other method of obtaining the desired

end. Naturally, he turned to the use of hydrogen, the combustion of which produces a higher temperature than that of any other known substance; but an immense quantity of hydrogen would be required, and a year was occupied in preparing a huge apparatus, which produces forty thousand feet of hydrogen per hour. The process by which the hydrogen is produced is very simple. The iron generators, or retorts, are filled with coal, which, by means of an air-blast, is brought, in the course of ten minutes, to a white heat. Then the air-blast is shut off, and steam forced in for four minutes. The heated coal absorbs the oxygen from the steam, liberating hydrogen, which issues from the retort, mixed with carbonic oxide. A part of the gas is taken directly to the great boilers which supply the establishment with steam, and is used there as fuel. A portion of the remainder is passed through solutions which arrest the carbonic acid, and a part of the carbonic oxide, and is then stored in a gasometer, which supplies the forging and welding furnaces. The rest, after purification, is used for lighting the works, probably by charging it with naphtha, or some hydro-carbon gas, to give the flame the brilliancy which that of pure hydrogen does not possess. The retorts are filled with fresh coal, and a new supply of gas generated, every fifteen minutes. According to the experience of the company, which now covers a period of nine months, the saving in cost of fuel, by using the gas in place of coal, is about fifty thousand dollars a year. The production of gas is about thirty thousand cubic feet to each ton of coal consumed in the process; and, with coal at two dollars a ton, the cost of the gas, including that of all the labor engaged in its production, is less than five cents per thousand cubic feet.

SPEAKING broadly, the best writers of text-books are the French, and next to them, and before English or Americans, come the Germans, and this is particularly true of architectural text-books. Although many of these text-books have been translated into English, more have not, and their valuable contents are practically lost to those Americans who cannot read them in the original, and unless they have learned these languages in early youth there is small likelihood that the occupations of their mature years will give time to master them. Still as even a partial acquaintance with foreign technical literature may at times be of great help, we have conceived the idea of helping our readers to acquire some degree of familiarity with foreign technical terms by publishing, from time to time, a polyglot article, the first of which will be found in this issue. With the aid of the lexicon, we believe that any student who chooses to take hold of the matter earnestly, may in this way acquire in time a fair working knowledge of French and German.

ANOTHER great foreign architect, who died the day before Schmidt, was Nikolaus von Ybl, of Buda-Pesth, in Hungary. Ybl was the son of a joiner, who lived in a country town in Hungary, but was able to send his boy to study under Pollak, then a distinguished architect in Pesth, and, later, under Professor Gärtner in Munich. Like Schmidt, he was a man of the greatest industry and energy, and after his first success, which he gained through the building of a church at Foth, in imitation of the Ludwigskirche in Munich, he was constantly engaged on important buildings, to which he gave a fascinating originality. He was raised to noble rank, and made a member of the Upper House in the Hungarian Parliament, and enjoyed the highest respect and popularity among his professional brethren.

THE *Weiner Bauindustrie-zeitung* gives its usual annual list of theatre fires during 1890. On the first day of the year, the theatre at Zurich was destroyed, without loss of life. Two days later, a theatre was burned in the town of Porth, in the Valais; and, on January 7, two theatres were destroyed, the Theatre de la Bourse, at Brussels, and the Alcazar, at Havre. On the thirteenth of January, the Theatre Sebatier, at Montauban, France, was burned; and in February, the Communalthéâtre at Amsterdam. In March, the Stadttheater at Bromberg was destroyed; and, in June, the Variety Theatre in Brooklyn. On the twenty-ninth of June another Brussels theatre was burned, the Theatre Molière. In this case, the house was full of people, and a terrible panic took place, and many persons were injured. August 16, the Queen's Theatre at Manchester took fire, but the asbestos curtain kept the fire out of the stage. Ten days later, a theatre at Chicago, and the

Panorama of the Bastille, at Paris, were destroyed. In September, three theatres were burned: the "Tivoli," at Bremen, the Calypso Theatre at Catania, in Sicily, and the theatre at Lourches, in France. In the latter, a children's entertainment was in progress; eight children were burned to death, and twenty-seven seriously injured. In October, the Hippodrome at Bordeaux was destroyed; and, in November, a third theatre in Brussels took fire, but the flames were confined to the stage. November 10, the Summer Theatre at Lublin, in Poland, was destroyed. The total number of theatre fires for the year is eighteen, or about one every three weeks; but the number of casualties is unusually small.

THE competition for the new Parliament Houses in Bucharest, Roumania, which was announced some time ago, has been decided in favor of a young Roumanian architect, Joan Maimarolu, whose project will probably be carried into execution. The Roumanian architects are rejoicing at the success of their representative over the foreign competitors, and it is to be hoped that, later, details will be given of what seems to have been a fair and interesting competition.

THERE is certainly a demand for a strong white cement, with which to make objects of artificial stone which shall be of a pleasanter color than those made with the dark gray Portland cement, or the still darker brown Rosendale cement. The native carbonate of magnesia, or magnesite, if originally of a light color, can be calcined, at a low heat, into a white cement, which is stronger than the best Portland; but magnesite is a rather rare mineral, and the cement made from it is expensive. Quite recently, successful attempts have been made in Germany to make an artificial white cement, of the same character as Portland cement, by grinding together three parts of chalk and one of kaolin, burning at a red heat, and grinding again. The cement made by this process hitherto has shown a tensile strength only about one-half as great as that of good Portland cement, but it has the hydraulic quality and other characteristics of Portland cement, and it is to be hoped that the manufacture may be so improved as to increase the tensile strength to the point required for making artificial stone. If a white cement can be found for a matrix, it will be easy to obtain aggregates of light color, by utilizing white sand, marble dust, white talc and so on, suitable for making a concrete which could be used in place of marble.

SOME trouble has been caused of late in the Paris School of Fine Arts by what would be called in American colleges "hazing." Quite recently, a new-comer in one of the *ateliers*, on being subjected to the rough play which most persons in his situation bear with equanimity, lost his temper, and made a violent assault on his tormentors. Some of the latter were considerably damaged, and, the story of the fight having got abroad, the authorities of the School ordered an investigation, and, finding that something must be done to suppress a practice which had become, not merely an annoyance, but a hindrance to the proper work of the pupils, decided to close the *atelier* in which the tumult occurred, for a considerable period, suspending the work of all its pupils in the meantime. This was probably a good solution of the problem, as French students know very well what they are sent to a professional school for, and understand the importance of using their time to the best advantage; and the prospect that a similar punishment may be inflicted upon other *ateliers* in which disorder occurs is likely to make the students their own police, to see that the turbulent ones do not injure the prospects of their companions by disorderly conduct.

LE GENIE CIVIL says that a project is seriously entertained for connecting Ireland and Scotland by means of a submarine tunnel. Three routes have been discussed, but all present certain difficulties, not the least of which is the circumstance that, even on the most favorable line, the tunnel must be at least a thousand feet below the sea-level; while the bottom is very rough and composed of rocks of many varieties, and unknown quality. The cost is estimated at thirty-five million dollars, which seems little enough, considering that the pressure on the exterior of the tunnel would be nearly thirty tons to the square foot; but the political importance of such a direct connection between Great Britain and the "sister isle" may possibly be great enough to induce the Government to contribute a part of the money.



Fig. 32

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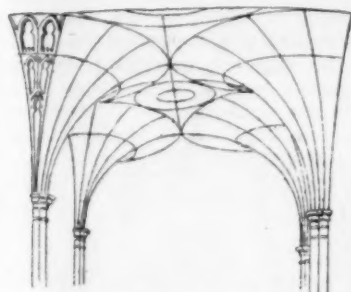
ENGLISH ARCHITECTURE.¹—II.

Fig. 32. King's College Chapel, Cambridge.

ONE of the characteristic distinctions between the architecture of French Gothic churches and that of monuments of the same period in England lies in the relative importance assigned to the entrance. In France, the church door forms the frontispiece of the edifice, even in a village church; it is the dominant feature of the façade, to which the rest of the composition is subordinated. In England, the door has such dimensions only as are dictated by strictly practical needs. If it is in the main façade, as in the Edington church (Figure 10), it is weighed down by a huge window introduced for decorative purposes, like that in the choir wall; but the door is more commonly at the side, in one of the lateral façades. Besides, as English churches are always rigorously set due east and west, it frequently happens that the entrance façade opens on some out-of-the-way spot instead of a public square. We see thus, even at this remote period, that spirit of formalism manifesting itself which distinguishes my fellow-countrymen of to-day. It may also be said that in the ultimate development of the Gothic style in England there are indications of the ingeniousness for which the English and their

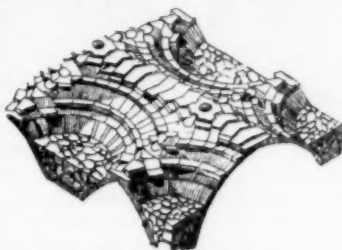


Fig. 33. Peterborough Cathedral.

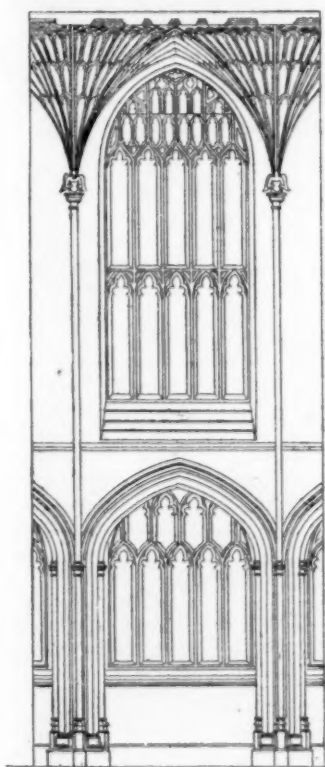


Fig. 34. Bath Abbey Church.

American cousins are noted. It was the Tudor style which produced the "parasol" vault (Figures 32, 33, 34, 35, 36), in which the Gothic ribbing plays a decorative rôle and ceases to form a feature of the construction. This vault, known as the "fan vault," but which is shaped exactly like a parasol turned wrong side out by the wind, is constructed of concentric circles of juxtaposed voussoirs; the ribs with which it is adorned are simply sculptured on the face of the voussoirs. It is well adapted to the construction of pendentives to fill-in the rectangular spaces which occur, one in each group of four cones; for this purpose it suffices to continue the vaulting surface, making a broken joint between the successive rings of the pendentive. As for the pendentives in the celebrated Henry VII's chapel at Westminster, they are not built on this principle, but are borne on pendent keys and concealed vaults, as in the church of Caudebec near Rouen.

Though the term English architecture is applied to the English Gothic, in my opinion our only genuinely national style is the Tudor. In fact, at this period all relations between Normandy and England had ceased, and Great Britain had

become wholly insular. It was so isolated at the close of Henry VIII's reign (1509-1546) that certain influential and far-seeing Englishmen were much alarmed for the future of the country. They felt that, by shutting themselves off from the great artistic and scientific wave of the Continental Renaissance,

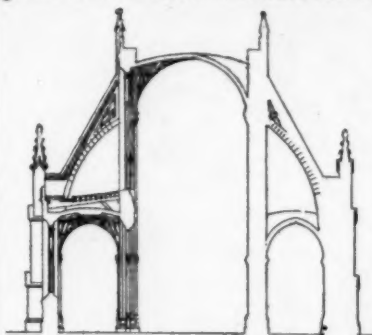


Fig. 35. Bath Abbey Church.

the people were in danger of sinking back into barbarism. The chief exponents of these ideas were Colet, dean of St. Paul's, and Sir Thomas More, Lord Chancellor of the kingdom. To avert the peril which seemed to them impending, Colet, More and their adherents invited foreign artists and savants to make their home in Great Britain; they applied especially to their co-religionists of Germany, and this accounts for the advent of the erudite Erasmus and the great painter Holbein in England. To obtain the king's sanction of their projects, Colet and More appealed to his vanity. Holbein was represented as the man most capable of rendering the monarch's august features immortal; but in reality the painting of portraits was merely a pretext. I believe that Holbein came to England for the express purpose of creating there a great school of art, which was intended to embrace architecture and the industrial arts as well as painting; this may be inferred from the renowned artist's architectural plans and his compositions for works in wrought-iron. It is thus that I explain the fact that the English Renaissance, or Elizabethan style, is so closely related to the German and Flemish Renaissance. The English Renaissance, like the German, is overloaded with ornamentation and recognizes neither principles nor proportions (Figure 37); when later its architects sought inspiration from France, they were wholly unable to acquire that tact, that art of managing effects, which is peculiar to French artists of all periods, even at the moment when the Renaissance seems given over to the greatest license. The most widely known of all the architects of the Elizabethan period was John Thorpe, who practised his art in France as well as England. Among other plans left by him are those for M. Jammet's dwelling in Paris, A. D. 1600. Wollaton Hall (Figure 38) gives a good idea of Thorpe's style.

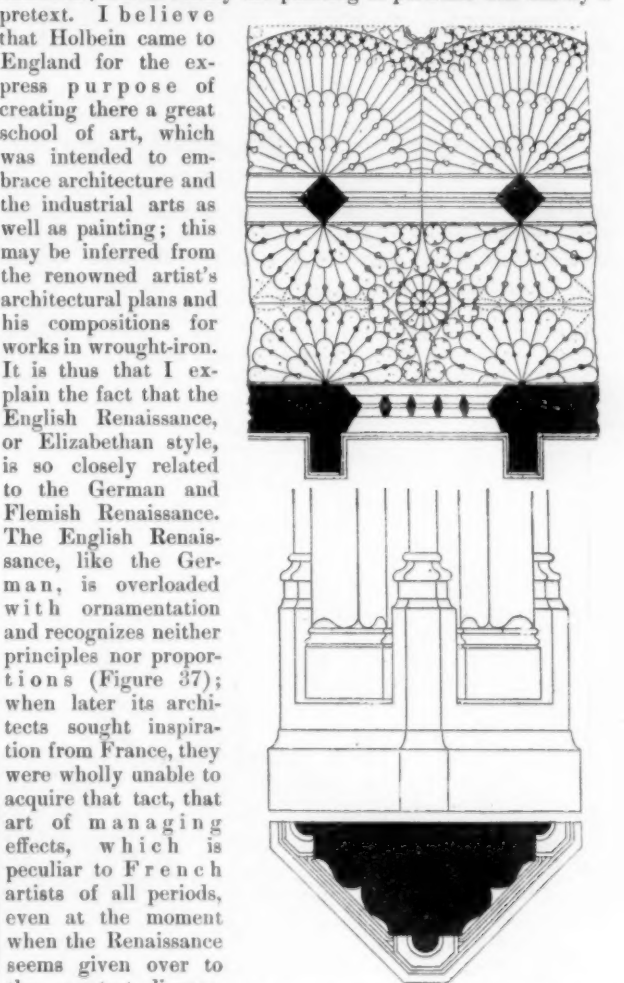


Fig. 36. Pillar and Vault from Bath Abbey Church.

It was during the reign of Queen Elizabeth that it became the fashion for Englishmen to travel in Italy, and it was also at that time that the custom grew up among the nobility of sending their sons to Florence or Venice to complete their

¹ From the French of Lawrence Harvey, in Planat's "Encyclopédie de l'Architecture et de la Construction." Continued from page 118, No. 191.

studies. According to Henry Wotton, ambassador of James I to the Venetian Republic, the Florentine court was thronged with young English lords. These gentlemen, returning to

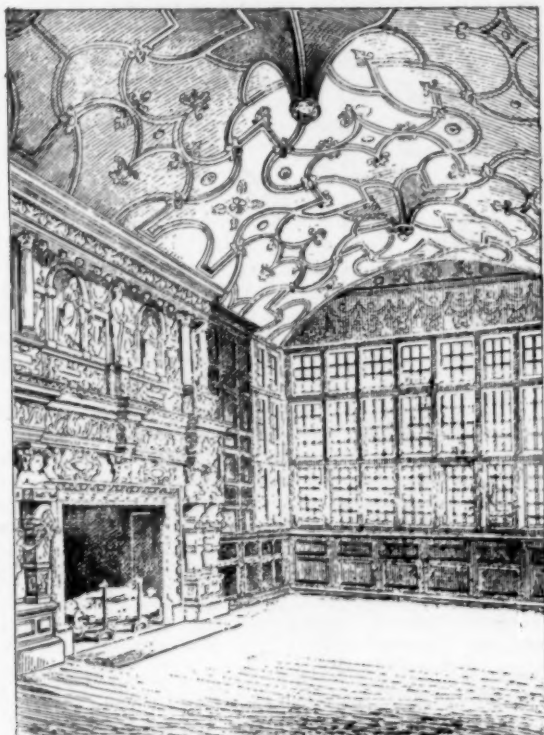


Fig. 37. Great Hall of Wroxhall Manor.

their foggy and partially barbarous land, pined for the sun of Italy and the imposing palaces in which they had enjoyed all the amenities of the most refined society of the time. Under

savants and artists, they sent English youth to Italy to be trained in art. In this way the Italian Renaissance entered England fully pledged. The great master of this style was Inigo Jones (1572-1652), who faithfully interpreted the art of Palladio without making the slightest concession to the demands of the English climate or English customs. His masterpiece was a design for the royal palace of the unfortunate Charles I at Whitehall; a single small portion of the



Fig. 38. Wollaton Hall.

plan, the Banqueting House, is all that was executed (Figure 39). In this crude importation of a foreign style, we are indeed impressed with the paltriness of the influence exerted by the people. England was then, it is true, politically fused into an indivisible whole, but, socially, the nobility felt themselves foreigners in a country which they despised.

Along with this Italian style, introduced by the aristocracy, flourished a popular architecture, full of genuine artistic feeling: I refer to the timber constructions of which Moreton Hall, Cheshire (Figure 40), is a fine example. This archi-



Fig. 39. Whitehall.

the spell of such memories, the English noblemen endeavored to create an Italy in England; they called hither Italian

architecture is doubtless derived from Normandy, but in general it differs from its prototype in the less steep slant of the roofs.

With the revolution which cost Charles I his life, and the reign of Cromwell (1649-1660), all artistic fire died out; but, on the restoration of the monarchy under Charles II, art once more crossed the English Channel. This time our architectural models came to us directly from Paris, where the architect of St. Paul's went in quest of them. It was just at this time

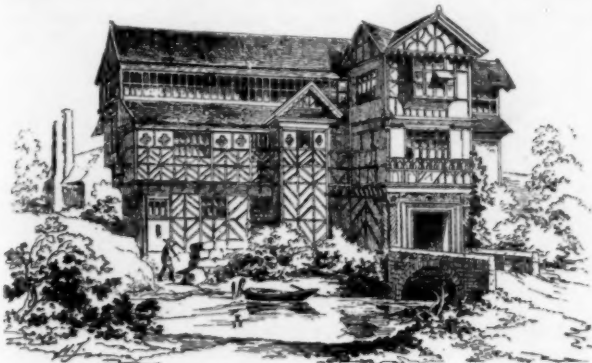


Fig. 40. Moreton Hall, Cheshire.

(1666) that the great fire of London occurred, which made a clean sweep of everything, and procured for Sir Christopher Wren (1632-1723) the most favorable opportunity that an architect ever enjoyed of exercising his art. Unfortunately, Wren was but a superficially trained amateur; however ingenious his compositions may be, the inequality of their parts

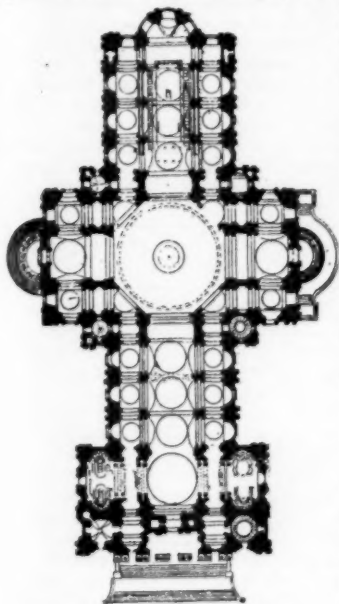


Fig. 41. Plan of St. Paul's, London.

is exceedingly irritating. The idea is everywhere forced upon us that the study of the architecture was left to the office clerks. Here, an important bit is evidently from the hand of his most skilled assistant, very likely a Frenchman; there, another portion bears the marks of a less experienced touch, and may even be by an office-boy, so bad is it! I know perfectly well that these allegations are unsupported by written testimony, but Wren has bequeathed to us a mass of documentary proofs in stone, which any architect who understands his profession can easily read. From these I draw the conclusion that the most masterly architect in Wren's office was not only a Frenchman, but one of Mansard's pupils. To him

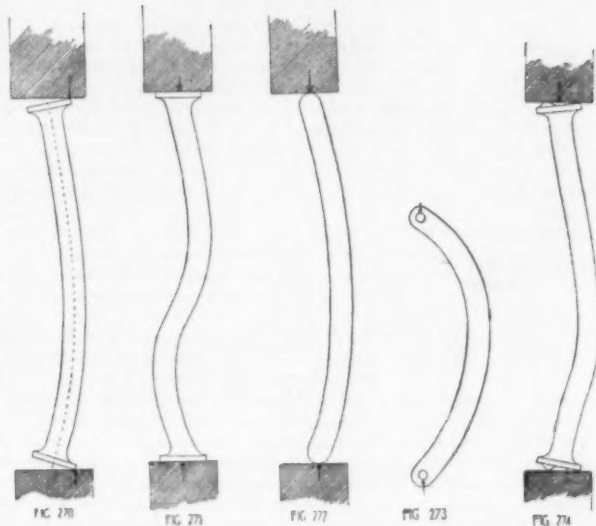
is due all the merit of the external architecture of St. Paul's (Figure 41). As for the interior, he succeeded in surmounting the difficulties presented in the nave, where the conditions were almost the same as in Mansard's churches; but the Wren plan for the cupola baffled him. It would be impossible to find anywhere a worse botch than in the interior arches supporting the cupola of St. Paul's. Here, Wren's employé showed that he was a mere pupil, and not a creative genius.

[To be continued.]

THE CENTRE OF LONDON.—The stone built into the wall of St. Swithin's Church, nearly opposite Cannon Street Station, is, Mr. Grant Allen contends in *Longmans' Magazine*, the very nucleus of London. It is, in fact, the city fetiche. So far from being a mere milestone, as is generally supposed, it was the original sacred stone set up when a village was first founded. The Romans probably avoided doing any injury to it, as was their usual practice when dealing with aboriginal religious objects, and left it as the palladium of their citadel. When the Romans went, the Teutonic settlers adopted it just as readily. All through the Middle Ages it entered into municipal customs as the embodied form and representative of the city. The defendant in suits in the Lord Mayor's Court had to be summoned from that spot; proclamations were issued and other important business was transacted there. Jack Cade struck the stone with his sword as a sign that he had conquered London.

SAFE BUILDING.¹—LI.

CHAPTER XIII.—COLUMNS.



THE Formula (3) on page 24 of Vol. I, is, of course, applicable to every kind and shape of column. The square of the radius of gyration used in this formula, can be found by any of the formulæ given in Table I; or if the shape of the column is so unusual that it is not given in Table I, the moment of inertia (i) of the cross-section of the column can be found, and this divided by the area (a) is equal to the square of the radius of gyration, see page 9 of Vol. I.

To find radius of gyration.

In Table II are given the different values of n for cast and wrought iron, steel, wood, stone and brick; also the variations in this value for "pin," that is, rounded or rough bearings at ends, and for "smooth," that is, turned, planed or smoothed off bearings at ends. These different values have been arrived at largely by experiments, but the reason why the end bearing affects the strength of column can readily be seen in Figures 270 to 274.

In Figure 270 we have a column with smooth ends between two forces crushing towards each other; as a result the column tends to bend, in this case to the right. The bending of the column will, of course, tip its ends, as these are at right angles to the (dotted) longitudinal axis of the column; as a result the further crushing is taken entirely at the edges of the ends, or at points A and B , marked with arrows in the figure.

Why smooth end stronger.

It will be readily seen that the least pressure at A or B tends to bring the ends back to the horizontal plane and consequently to straighten the column again. For this reason it is that columns with smooth end bearings give way the same as columns with fixed end bearings, as shown in Figure 271. If on the other hand the



FIG. 275.

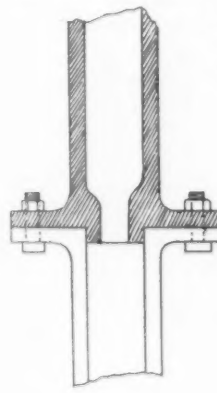


FIG. 276.

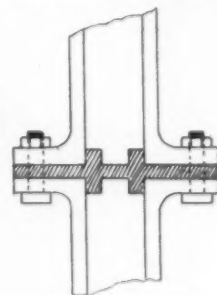


FIG. 276 A.

ends of the column are rounded, as shown in Figure 272, the effect of the crushing at A and B is to constantly increase the bending of the column, as the point of contact against the column simply slips around the circular ends, as the column bends more and more. Such columns break as one curve instead of the triple curve shown in Figure 271. Where there is a pin bearing, as in Figure 273 the effect is, of course, the same as for rounded ends. Rough ends are considered the same as rounded ends, on account of the danger of some roughness or projection on the end of a bearing, which would greatly increase the tendency to bend, as shown at A and B

¹Continued from No. 789, page 92.

in Figure 274. For this same reason *wedging* of joints of columns, should *never* be allowed.

Only those columns should be considered as having smooth ends, where the entire bearing end is perfectly smooth, and forms a true and perfect plane at right angles to the longitudinal axis of the column. In iron and steel columns the ends have to be "planed" or "turned" off, both of which are done by machinery. Planing is, as its name implies, a passing back and forth of a sharp metal planer which removes the surface iron, little by little. Turning is the same as planing but the motion of the planer is circular. Turning is done on circular columns, particularly where there are lugs or projections beyond the bearing surfaces, which would be in the way of a straight planer.

Cast-iron columns are usually made of circular cross-section and hollow. This is the cheapest cross-section there is for any column, and the metal will do more work per square inch, the thinner (within reason, of course,) the shell is made.

Cast-iron columns are also frequently made square in cross-section, and hollow, which does not make a badly proportioned column. All other shapes, however, are bad, and should only be resorted to in unusual circumstances. Such shapes, for instance, are rectangular and hollow, one side (or diameter) being shorter than the other, in this case the neutral axis, when computing the square of the radius of gyration, should be taken parallel to the long side; then there are H or I shapes, T or Z shapes, etc., all bad and weak. Sometimes a column is made square or rectangular but with only three sides. The column will be greatly strengthened, if at intervals there can be cast on the fourth side a connecting bar.

All hollow castings should be drilled, as already explained, to ascertain their thickness. Brackets, and other projections should, by preference, be cast on the column, rather than secured to it by bolts or tap screws. Of course, they can't be riveted to cast-iron. They should, as far as possible, be of same thickness as shell.

Where there are heavy capitals, bases or other mouldings or ornamental work that greatly increase the thickness of shell, they had better be made separately and slipped on afterwards, and then secured by tap-screws with countersunk heads.

The bearing should always, if possible, be vertically under and over the shell, not flanged out as shown in Figure 275.

Ends of columns are usually flanged out for bolting together, in which case the angles should be well rounded. It is also well to

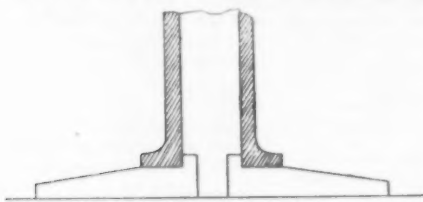


FIG. 277.

cast on one of the columns a lug as shown on the upper, etched column in Figure 276.

To prevent fire spreading up through columns, some building laws require solid plates at all joints; in such cases they should be made as shown in etched part of Figure 276a with upper and lower lugs, and the columns bolted together through the plate.

Bottom plates, which usually have to spread the weight are made, as shown in Figure 277; as they are often very large, and necessarily therefore quite thick, metal can be saved by gradually reducing the thickness towards the edges, as shown. In such plates a hole should be cast in the centre, to relieve the strain on the plate, when cooling and thereby avoid warping.

No bolts are needed where a bottom plate is used, as shown in Figure 277, as there is no possibility of tipping. Where the spread of base plate has to be very great, flanges as cast on same as shown in section in Figure 278 and in plan in Figure 279. Of course, the flanges can be more numerous. All parts of such a base should be of even thickness. If the casting is unusually large and unwieldy it can be made in two parts, as shown in Figure 279, but in such cases great care should be exercised with the foundation or sub-structure, to avoid one-half settling away from the other half. This can be done by thick granite stones, or additional iron plates under the main bottom plate.

LOUIS DECOPPET BERG.

[To be continued.]

EMMANUEL FRÉMIET.¹—III.



FRÉMIET was now twenty-seven years of age, and for that age had won remarkable success; he had received third and second class medals, sold three of his works to the State, and gained a reputation of enviable character. He stood then, as subsequent events have amply substantiated, at the head of all Rude's pupils. What was there to hinder a continuation of this unusual progress, this proud position? Certainly nothing that ordinary judgment could divine. Professional ruin, as had been prognosticated, had not been the result of his aristocratic venture in the select Faubourg St. Honoré, and the whirligig of fashion of the Champs Elysées had not turned his head, but financial ruin was putting in a decidedly disagreeable appearance. There was a bottom to the pocket that had been gorged with five thousand francs, regal luxury

had to give place to forced simplicity, and the inviting Eastern divan in red plush was too large for the ten-by-fourteen studio in the retired precincts of No. 3 Rue de l'Abbaye, for there he was obliged to take up his quarters.

He had neither work, nor money to begin new enterprises, and the precarious and struggling life of a sculptor was to succeed to the dance of joy of a full pocket and the first hopes and ambition of undaunted youth. Another phase of art life must now be lived through, in an appeal to the fertility and nerve of the artist's genius. This subsequent history can be written for hundreds of artists—some of the finest genius—in a few words, years of misery, broken and worn-out spirits, cruel sinking into forgetfulness, starvation and death.

In this instance fate had a different character to deal with, and the untoward prospects of the moment brought neither sorrow nor discouragement to those most interested. The sculptor's home was unchanged, and both mother and son were ready for any conflict. They knew how light could be made to go into dark places.

Thinking that the government ought to give him something to do, the sculptor went to see M. Guizard, then Minister of Fine Arts, and very humbly expressed himself to that effect.

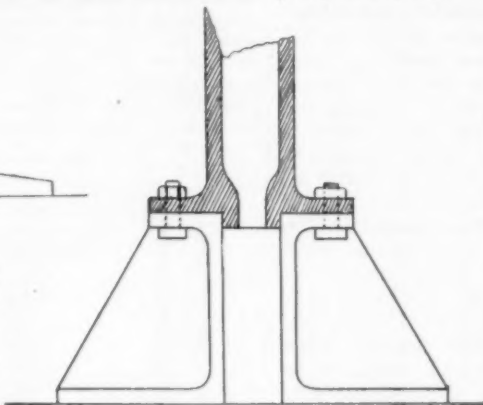


FIG. 278.

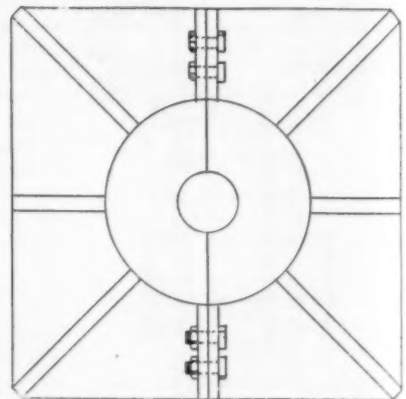


FIG. 279.

"What!" exclaimed this official, "You, who have had medals, and success at the *Salon*, and you want more. Do you wish, you who have talent, to take the food from the mouths of those who have no talent? Go to! It is too much." "Do I understand you correctly," inquiringly asked the sculptor, "that men of talent should starve while the State supports those who have none?" "Precisely," answered the Director, "That is what I am here for. Let men of talent take care of themselves. It's the business of the State to care for the weak." That being his understanding of the government's intention in regard to the encouragement of deserving artists, mused the sculptor, we will see what can be done by individual effort, and he began to run the whole doleful gauntlet of the army of art-employers in the city of Paris. He worked for the manufacturing jewellers, and made them little dogs by the dozens; he drew for *L'Illustration*, and for the *Magasin Pittoresque*; made drawings of broken legs and arms for the doctors, and all sorts of designs for medical publications. There was nothing that required his pencil in the whole range of illustration that he did not set forth with all his wit and deftness. His early experiences with Vernet, Orfila, and Doctor Suget, were lived over again, but this time in connection with the supporting intelligence of a quick-eyed and vigorous artist.

¹ Continued from No. 790, page 103.

His contribution to the *Salon* of 1852, was a modest one, "A Robber, — a cat eating a stolen chicken. Group in plaster." The next year he had only two pieces, one of which, "A Young Blooded-Horse," in plaster, was bought by the State, besides having produced a good deal of a sensation. This itinerant life, which the sculptor had lived for three years, was happily coming to an end, and in a way as unexpected

as had been the previous sudden changes in his destiny. Passing the Pont Royal, one day, he saw a little vedette on horse-back, and as it struck him as a good subject, he made a statuette of it.

Just about this time the Count de Nieuwerkerke, senator and sculptor, was appointed superintendent of fine arts, and chamberlain to the Emperor. Frémiet carried his little model to him, and it pleased him so much that he said, "I'll show it to his majesty." He, too, was delighted, and he bade the Count order from the sculptor an entire series of statuettes representing all the different army and navy corps, of the same size, in plaster.

At first, this event had the appearance of being a great stroke of fortune, but there were conditions attached to it that were anything but agreeable to Frémiet. One was, that the figures were to be painted as they were in nature, and the other, the very moderate price, two hundred dollars each, as established by the Count.

Soldiers, sailors, horses and costumes were generously placed at his disposal and he began his task with his best will and energy. But work as hard as he could he was only able to make six in a year, and his expenses in making them swallowed up half the price. There were seventy in all; eleven years of hard labor in which he could make no real art, and only gain fifty dollars a month. It was almost a dog's life, and this for a sculptor who had won two medals in the *Salon*, and sold several fine works to the State! And this also from the Emperor, who boasted of his encouragement of the fine arts! To be sure, though the pay was small it was certain. The sculptor was in a troublesome quandary. It would hardly do to refuse to go on, and to continue might lead to something better. Without work from the State it would be problematical, if not impossible, to make progress and produce worthy things. He had a good friend in the Count, as the world goes, and while he thought his position a cruel one, the independent observer is forced to conclude, in the light of the lives of most great sculptors, as well as in that of the events which subsequently occurred in Frémiet's, that he was simply paying the penalty which all original minds in art have to pay in one way or another. His old master, Rude, had already paid it, and Barye was then doing the same — work and wait.

There was no other way but to go ahead, and he did so, though he thought then, and does now, that "Imperial patronage," so far as he was concerned, "was not only an obstacle to the progress of art, but an unmitigated nuisance."

Shameful and unfortunate as the fact may be, it is nevertheless true, that every one of the really great French sculptors has had the utmost difficulty in getting a living, and many of them have been obliged to work at the most menial details of their profession in order to gain their daily bread. The readers of the articles about Rodin will remember that he had a long, hard time, and yet his story was not half told. The same is true of Aubé to-day, though it is well-known that he has made the best costumed statue in France, "The Bailly," in the Luxembourg; as well as a "Shakespeare," thought by many to be of as high an imaginative expression as anything ever made by a Frenchman. There are many names in French sculpture of more popular repute than that of this sculptor, but careful observers are already saying that posterity will place him, if it is not done before, among the half-dozen finest spirits that France has ever produced.

What, it is supposed, these men have a right to expect from the art authorities of their country, liberal encouragement and generous remuneration, they have never received.

Under the circumstances, it was a good deal for Frémiet to have steady work, sure pay, and a possibility of something better in the future. Besides, the opportunity of studying horses was of incal-

lable advantage, such a one as no artist has had since the ancients, and it is safe to doubt, considering the uniform type of horse seen in ancient sculpture, if any artist had ever had such a chance to study so great a variety of type and race. It need not be asserted that the sculptor took ample advantage of the opportunity. He learned the horse in all the length and breadth of its physical, artistic, and decorative character. Its style, historical epochs, and individual nature became a part of himself.

It will be seen, the sculptor's patience was sorely tried in ways quite unexpected, and it is not too much to suspect that had he not been pushed on unconsciously by a fate, which was stronger than his sensitive and wounded temper, he could not have long borne the annoyances of Imperial patronage.

Going to the Tuileries, one night, to a reception given by the Count, the latter hastened to meet him with joy beaming on his countenance, and welcomed him with these animating words, "I must embrace you, for I have some good news. The Emperor wishes you to make an equestrian portrait-statue of himself, to go with the others." "I am enchanted," exclaimed the sculptor. "So am I," reiterated the Count. He at once began his preparations, and soon received a message, that on a certain Sunday, after mass, His Majesty would be at his service, at the Tuileries.

Arriving at the appointed hour, the Emperor mounted the wooden horse, used by the sculptor to pose his cavalry officers upon, and the photographer, who was to take the pictures, began his work. During this operation, the Imperial model pointed to a nude statue in marble of the First Napoleon, that stood near by, and said, rather authoritatively, "That is a fine work." As it was anything but that, the sculptor could not resist making this equivocal reply. "Yes, in its time, it was good, — but we have better things now." "It is fine!" again affirmed the last Napoleon, with an added tone of authority. "O, yes," complacently said the sculptor, and then, in as mild a way as possible, "but on the Arch of Triumph, there is a really fine statue of the great Emperor, a work of art." (Referring to that by Cortot, on the left face of the front, as you approach the Arch.) His Majesty was annoyed, his taste had been called in question, and by a workman. He would not stand it, and he asked very sharply, "Are we finished?" "Very soon. I must take my measurements," answered Frémiet.

If he already had his hands full with the other statuettes, they were now running over with the increased annoyances of this new commission. He had to go to St. Cloud many times to study the Emperor's horse, pay the stable-men enormous fees, and endure no end of other troubles that sprang up at every step. At last it was completed, and he carried it to Nieuwerkerke, who was delighted. Returning the next day to hear the result of its impression upon the Imperial household, he met the Count, who sorrowfully told him that the Empress said that "the legs were too short." The sculptor was in despair; he had worked with the most scrupulous exactitude, and as though his very life depended upon the result. There was no other way but to begin again. The second trial was a success, Her Majesty was pleased, and he received four hundred dollars for both copies.

The condition imposed in the order for these statuettes, a great many of which were equestrian, that they should be painted was very ingeniously satisfied, by the sculptor, in this way. He took pieces of the different colored cloths worn by the soldiers and ground them to the finest powder, then covering his models of plaster with a thin glue-size, he sprinkled the powder on them, thus making a



A Turco.



Sailor.



Zouave.

most perfect imitation of the required colors. It was the cloths themselves, and the whole seventy produced a most marvellous and life-like effect.

As works of sculpture they were little masterpieces, and worthy of preservation with the greatest care. That, however, was not to be their destiny, save in a few instances, for the intelligent tutor of the

young Prince gave them to him and his friends to play with, and it did not take long to get them into a state of ruinous dilapidation. Curiously enough, after such a piece of barbarity, the sculptor was called upon to repair them, and he spent three months of the most patient and tiresome labor to accomplish this task, for which he received nothing save the thanks of the Count.

Kindly disposed as the latter might be to his young friend, he could not do by him as he wished, for, like all courtiers, he was the servant to his master and mistress, and subject to their whims. So Frémiet had to bear with the best patience he could muster, the annoyances he was constantly subjected to.

Neither these statuettes, nor any subsequent work, brought him any personal or professional recognition or politeness from their majesties. They regarded him as a common workman.

Years after this, when Frémiet had executed works of great importance, orders for which he had received through Nieuwerkerke, and the time had come when men like Rousseau, Dupré, Carpeaux, and others, were invited to spend a week at Compiègne, with the court, the sculptor was always overlooked. That kind of honor, no more than others of like momentary nature, was not for him.

It is interesting to notice in this connection, as illustrating how much depends upon the fancy of men, that while the Count secured through the sculptor many valuable works of art for the French nation he disliked those of Millet and very likely prevented his master from encouraging that artist, as the following incident will show. The noise about the Barbizon painter had reached the ears of the Emperor, and he said to the Count,

"What is it, about this peasant artist? Does he amount to anything? I should like to see some of his work." Thereupon, the latter went to the *Salon*, then open, took several of Millet's pictures out of their frames, brought them to the Tuileries, and showing them to His Majesty, observed, "There is a specimen of the painting of the man they are making such a fuss about. They are crude daubs, amounting to nothing as art, and that is all there is to them." "That's enough," said the Emperor, "It's all noise."

The subsequent history of the military statuettes is a short one. The sculptor kept copies of ten, cast them in bronze and added them to his collection. The others were packed and stowed in the attic of the Tuileries when the war of 1870 broke out, with the exception of that of the Emperor, which was left in the sleeping-room of the Empress. The first were burned up with that structure, and the last taken by the Communards to one of the Imperial stables, in the Rue de Rivoli, where it was found in a perfect state of preservation. It was afterward sent, with other relics of the palace, cannons, swords, etc., to the young Prince in England. While the latter was at school at Woolwich, and desiring to give one of the cavalry-men to that institution, he wrote to Frémiet to ask if he had duplicates, to which an affirmative reply was returned in the shape of a bronze copy. The *Salon* of 1855, contained six of the army statuettes, and the well-known group of "Canal Horses." All these works, those already sold to the State, and several other subjects, were in the great exhibition of that year. The sculptor's recompense was that commonplace affair—a third-class medal.

By this time, Mme. Frémiet had finished her duties at the Clinical Hospital, and had been retired on a pension of sixty dollars a year. At the suggestion of her son she began the business of editing his works, in plaster and bronze, taking a room in the Rue Frochot, for that purpose. This she continued to do until her death in 1869.

It was also during the year 1855 that Frémiet married, and went to live in Passy, a little village just inside the walls of the city, and began to work in a studio belonging to his mother-in-law, situated in that place.

In the years 1857-58, Lefuel, the architect of the Louvre, engaged him to do a lot of decorative work for the new part of that great structure, all at large size, but at very moderate prices. It included much of the decoration of the Emperor's stables, in the shape of animals of all sorts, and for the pediments and cornices of the outside of the building. The two lions, in stone, that surmount the cornice, and look down upon the world that passes through the archways from the Place du Carrousel to the quay, and the Pont des Saints Pères, were part of this work. Much of the interior decoration has been reproduced by process-printing and sold in book form. As the sculptor was walking one day in the beautiful hamlet of Louveciennes, not far from St. Germain, he saw a funny little horse hitched to a tinker's cart, which struck him as an amusing subject, and when he returned home he regretted that he had not bought it. But the next morning he started in its pursuit, and after many inquiries, the answers to which led him a regular wild-geese chase, he learned that the tinker had taken the road to Neuilly, a suburb of Paris. There he found that the pony had been sold to a saltimbanque who had gone to Senlis, a small city far to the north of Paris. Thither he followed and finally discovered the animal performing in his owner's

circus, all trimmed out in the prettiest kind of style. He bought him just as he was and led him to Passy, arriving at two o'clock in the morning. The pony was immediately modelled, life-size. At the same time Frémiet made his first group, larger than life, of a Gorilla, dragging after him the dead body of a woman, that he had captured and killed. Both these works, seven of the army statuettes, and a blooded hunting horse, belonging to the Comte d'O—, were sent to the *Salon* of 1859. All were accepted except the group of the Gorilla, and that was refused, not because it was not a work of art, but with the excusing explanation that it was not the kind of sculpture that ought to be encouraged.

"Those were the days," observes the sculptor, "of Neo-Grec, Tellmagur, or goody-goody sculpture, and the men of that school would not permit anything to be exhibited that was not of their style." But Nieuwerkerke was so indignant at this specimen of assumed superiority and presumption that he fixed up a little room, near the other sculpture of the *Salon*,



The Saltimbanque's Pony.

where the group could be seen by pushing aside a curtain, and where everybody saw it.

The reader already knows that for the same subject the sculptor received, in 1887, the Medal of Honor, by the suffrage of the artists. A decided change in art sentiment. One of the very first, if not the first, of the sculptor's works to be illustrated was the "Saltimbanque's Horse," in the *Magasin Pittoresque*, 1859, and here are the amusing observations concerning it. "—We must forgive the sculptor for having made from time to time these familiar subjects: rather it is a good thing to encourage those who do a kind of honor to what can be called 'genre sculpture.' In fact, why do not workers in the plastic art, try to do what the illustrious modern singers, like Burns in Scotland, Uhland in Germany, and Beranger in France, have so admirably done in poetry? All sculptors are not eternally obliged to begin new Venuses, Hebes, Nymphs, Bacchantes, Fauns, Pandoras, Penelopes and Sapphos. Let those who cannot sustain so ambitious a flight look around them and see if they cannot find something to interest and please in the ordinary scenes of life. The way is dangerous without doubt; as they are likely to drop into the vulgar, trivial and ugly. But is it not true that in trying to mount into the



Centaur and Bear.

high regions of mythology they often fall into weakness, ridicule and grossness? After all, humble as this poor horse of the Saltimbanque may be, we still prefer it to more than one marble bust of the *Salon*."

At the close of the *Salon* the sculptor brought his exhibits back to his studio, which was situated in an isolated part of Passy, and in the very centre of a projected boulevard, which was already in course of construction by an army of two thousand wild Belgian laborers.

Going to it one morning, not long after, he found the door open, the windows broken, and his plasters in a complete state of pulverization. By the merest fortune he had carried a sketch of the horse away from his studio, and it now forms one of his collection of bronzes. With this scene of destruction before his eyes, his first business was to go to the chief of police, but that functionary blandly informed him that he could do nothing with the foreign savages. His last resource was the city authorities, and to them he forcibly suggested the propriety of buying him out, to which they acceded, at the price of three thousand dollars. With this sum of money in his pocket Frémiet decided to have a home in the country, and he bought a small piece of land, upon which was a barn, in a lovely locality called Prunay, fifteen miles from Paris and overlooking the extensive valley of the Seine between Paris and St. Germain. The barn was changed into a house, a large studio built adjoining, and there the sculptor and his family lived in happiness for many years.

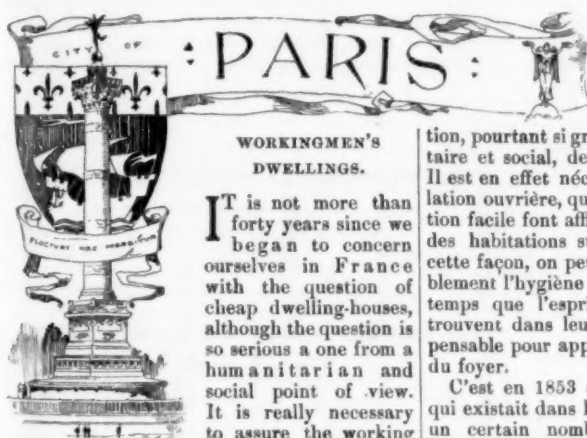
When the Prince Imperial was four years old, the Count said to Frémiet, "Let us surprise the Empress, by making a statuette of the little fellow, dressed as a grenadier, and of the same style as the others." "All right, I'll do it," replied he. It was made with the greatest care, from photographs, the sculptor posing his little daughter as a model. When shown to Her Majesty, she expressed neither surprise nor gratification, but indifferently said, "I think the face too pale." And this was the end of that attempt to please a sovereign.

To the Salon of 1861, he contributed his "Centaur and Bear," life-size, in plaster, and a "kitten," in silver bronze.

During the same year the Frémiet family were made happy, the mother especially, by its worthy representative receiving the decoration of the Legion of Honor.

Thore, a prominent writer on art, who will be remembered as a great friend of Rousseau's, and an equal admirer of Millet, and whom the latter summed up in his fearfully caustic way as good for nothing as an understander of art, had the following observations of Frémiet's group, in his *Salon* articles for the above year. "A few indifferent or complaisant critics have praised the group by M. Frémiet: 'The Centaur Terré carrying a living and struggling bear, from the mountains of Hémus,' into his cave. What an ugly creature is a centaur! I never saw one, and it seems to me that they have never existed, even before the Deluge; because it is an impossible beast, contrary to all natural or fantastic combinations, with his two organisms welded together end to end. One can conceive the sphinx, a harmonious complexity of forms borrowed from divers species; one can conceive that wings can be added to a human figure in order to make it a bird of the heavens. But one cannot conceive a monster with two hearts, and two pair of lungs, a double stomach, of different kinds. Do the centaurs eat grass? Which breathes and digests, the man or the horse? How utterly deprived must he be of every idea, of every sentiment, of every participation in moral, spiritual or poetic life, who will dare to make, in the nineteenth century, a centaur! To express such an absurd and hideous monstrosity in the grand art of sculpture, the most plastic and the most concrete of all the arts, which has precisely beauty for its object!" It is worth while to add, as an illustration of the delightful consistency and honesty of judgment of this writer, that he could not praise Barye's centaur enough, nor cease to extol the works of sculptors of the most momentary notoriety. The group was sold to the Prince Napoleon, and is now at his residence on the Lake of Geneva. T. H. BARTLETT.

(To be continued.)



WORKINGMEN'S DWELLINGS.

IT is not more than forty years since we began to concern ourselves in France with the question of cheap dwelling-houses, although the question is so serious a one from a humanitarian and social point of view. It is really necessary to assure the working

population, whom the convenient means of communication cause to flow towards the great centres, sufficient and healthy dwelling places. So it may be possible to sensibly improve the hygienic conditions of great cities at the same time with the moral condition of the workmen, who find in their family surroundings the well-being which is indispensable for the appreciation of the joys and quiet of the domestic hearth.

It was in 1853 that, for the purpose of applying a remedy to the evil which existed in the greater number of the large cities, a certain number of Alsatian employers of labor founded at Mulhausen the Mulhausen Society of Workmen's Quarters. This Society undertook to build small detached houses, each having a court and garden, which were to be sold at cost price to workmen, who would become the owners at the end of a certain number of years through paying each month a certain sum which should include interest and sinking-fund. The example given by this society, which has built more than twelve hundred houses, though using a relatively small capital, was soon followed. Special associations were established in several large cities, amongst others at Havre, Orleans, Marseilles and Paris; and at the Universal Exhibition of 1889, it was possible for us to discover what had been done in this respect in these last years, not only in France, but in other countries. This Section of Social Economy, which occupied a very important place on the Esplanade of the Invalides, gave occasion for the Congress International des Habitations à bon Marché, which, discussing the question in its length and breadth, showed how much attention was being given to the question in all countries, particularly in

LES HABITATIONS A BON MARCHÉ EN FRANCE.

IL n'y a pas plus de 40 ans qu'on se préoccupe en France de la question, pourtant si grave, au point de vue humanitaire et social, des logements à bon marché. Il est en effet nécessaire d'assurer à la population ouvrière, que les moyens de communication facile font affluer vers les grands centres, des habitations suffisantes et salubres. De cette façon, on peut arriver à améliorer sensiblement l'hygiène des grandes villes en même temps que l'esprit moral des ouvriers, qui trouvent dans leur famille le bien-être indispensable pour apprécier les joies et le calme du foyer.

C'est en 1853 que, pour remédier au mal qui existait dans la plupart des grandes villes, un certain nombre d'industriels Alsaciens fondèrent, à Mulhouse, la société Mulhousienne des cités ouvrières. Cette société se proposait de construire de petites maisons séparées, avec cour et jardin. Ces maisons devaient être vendues au prix coûtant aux ouvriers qui en deviendraient propriétaires, au bout d'un certain nombre d'années, en payant chaque mois une certaine somme comprenant l'intérêt et l'amortissement.

L'exemple donné par la société des cités ouvrières de Mulhouse, qui construisit plus de 1200 maisons avec un capital relativement faible, fut bientôt suivi. Des sociétés spéciales se fondèrent dans plusieurs grandes villes, notamment au Havre, à Orléans, à Marseille et à Paris; et nous avons pu constater à l'Exposition Universelle de 1889 tout ce qui a été fait à cet égard pendant ces dernières années, tant en France qu'à l'étranger. Cette section de "l'Economie Sociale" qui occupait, à l'Esplanade des Invalides une place très importante a donné naissance au "Congrès International des Habitations à bon Marché" qui, discutant l'ensemble de la question, a montré combien on s'en préoccupait dans tous les pays, surtout en Angleterre, et a émis entre autres le vœu suivant:

"Le Congrès recommande, comme l'un des meilleurs moyens d'arriver à l'amélioration du logement, la fondation de Sociétés Nationales ayant pour but d'encourager, par des conférences, publications, concours de plans, enseignements, etc., les industriels et les ouvriers; et, par la coopération, à construire des maisons saines et à bon Marché."

Cette exposition et ce congrès constituent l'origine de "la Société Française des Habitations à bon Marché," fondée le 17 Décembre, 1889, dont le but est d'encourager dans toute la France la construction, par les particuliers,

BILLIGE WOHNUNGEN IN FRANKREICH.

ES ist nicht mehr als vierzig Jahre her, dass man sich in Frankreich mit der, vom humanitären sowohl als vom gesellschaftlichen Standpunkte doch so ernstesten Frage der Beschaffung billiger Wohnungen befasst. Der Arbeiterbevölkerung, welche, in Folge erleichterter Communicationsmittel, den grossen Centern zufliesst, genügende und gesunde Wohnungen zu sichern, ist eine unumgängliche Nothwendigkeit geworden. Durch die Lösung dieses Problems wird es möglich werden den Gesundheitszustand der grossen Städte, zugleich Zeit mit dem moralischen Charakter der Arbeiter merklich zu heben, da letztere in ihrer Familie das unerlässliche Wohlsein finden müssen, um die Freuden und die Ruhe des Heerdes geniessen zu können.

Im Jahre 1853 trat in Mülhausen eine Anzahl Fabrikanten zusammen und bildete, zur Abhilfe der in den meisten grossen Städten bestehenden Uebelstände, die "Société Mulhousienne des Cités Ouvrières" (Mülhausener Arbeiterstädte-Gesellschaft). Diese Gesellschaft setzte es sich zum Ziele kleine einzelne, mit Hof und Garten versehene Häuser zu bauen, welche, gegen monatliche Zahlung einer bestimmten, Interessen und Capitalzulage einschliessenden Summe, zum Kostenpreise an Arbeiter verkauft werden sollten, so dass dieselben, nach einer gewissen Reihe von Jahren, Eigenthümer wurden. Das Beispiel, welches die Mülhausener Arbeiterstädte-Gesellschaft, — die mit verhältnissmässig kleinem Capital über 1200 Häuser baute, — gegeben hatte, fand bald Nachahmung. Aehnliche Gesellschaften bildeten sich in mehreren grossen Städten, vornehmlich in Havre, Orleans, Marseille und Paris, und die Weltausstellung von 1889 bot Gelegenheit die Errungenschaften der letzten Jahre, in Frankreich sowohl als im Ausland, zu constatiren. Die Section der "Economie Sociale," die auf der Esplanade des Invalides einen sehr bedeutenden Platz einnahm, gab die Veranlassung zum Zusammentritt des "Internationalen Billige-Wohnungen Congresses," welcher, indem er die Frage in ihrem ganzen Umfange berieth, es klar machte, wie ernstlich man sich überall, und zumal in England, damit befasst. Seine Aspirationen formulirte er in folgendem Bechlusse:

"Der Congress empfiehlt, als eines der wirksamsten Mittel zur Erzielung der Verbesserung der Wohnungen, die Gründung nationaler Gesellschaften, deren Zweck es sein soll, durch Besprechungen, Veröffentlichungen, Concurrenzen für Pläne, Nachweisungen, u. s. w., die Fabrikanten und die

England, and passed the following resolution. "The Congress recommends, as one of the best means of arriving at the amelioration of dwelling places, the founding of national societies having for their object the encouraging by means of conferences, publications, competitions in plans, instruction, etc., employers and their workmen to build, in coöperation, healthy, low-priced dwelling-places." This exhibition and this congress really gave birth to the Société Française des Habitations à bon Marché, founded December 17, 1889, whose object is the encouraging in every part of France of the construction by individuals, employers, or local societies, of low-priced healthy houses, or the improving of such dwellings as exist. This new society, recognized as one of public usefulness by the decree of March 29, 1890, has suggested to me this chat upon a question which interests everybody in every country. The new society is, in a manner, a great society for study and propagandism, a real agency of instruction destined to popularize the ideas of which I propose to speak. It does not purchase land, and it does not build buildings. What, then, are its methods of action? It communicates to those interested in such things the regulations of existing societies, the plans and bills of quantity, the framing plans, the financial arrangements employed, etc. Its *Bulletin* publishes all facts relating to low-priced dwellings in France and abroad. Finally, the Society organizes competitions with prizes and

les industriels ou les sociétés locales, de maisons salubres et à bon marché, ou l'amélioration des logements existants. C'est cette nouvelle société, reconnue d'utilité publique par décret du 9 Mars, 1890, qui m'a inspiré cette causerie sur une question qui intéresse tout le monde, dans tous les pays.

La nouvelle société est donc en quelque sorte une grande société d'étude et de propagande, une véritable agence de renseignements destinée à vulgariser les idées dont je viens de parler; elle n'achète point de terrains et ne construit pas de maisons. Quels sont donc alors ses moyens d'action?

Elle communique aux intéressés les statuts des sociétés existantes, les plans et devis de leurs constructions, le modèle de leurs baux, les combinaisons financières employées, etc. Son *Bulletin* publie tous les faits relatifs à la question des habitations à bon marché en France et à l'étranger.

Enfin la société organise des concours avec prix et récompenses diverses, concours ayant pour objet, soit les plans les meilleurs et les plus économiques, soit les combinaisons de nature à faciliter la construction.

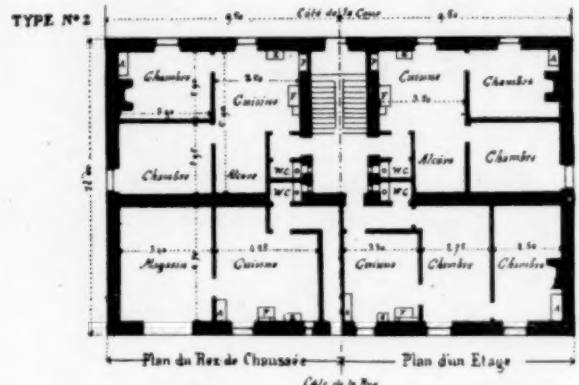
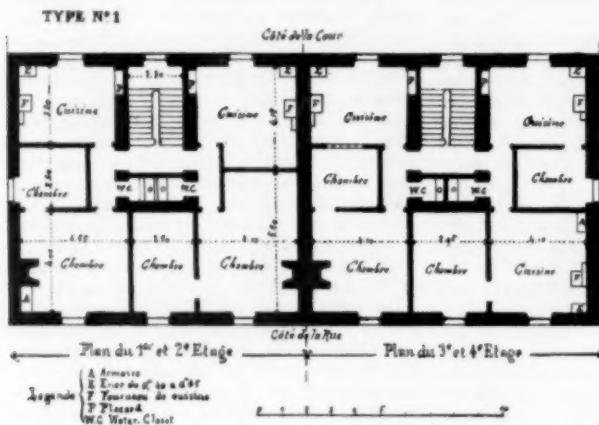
Avant de parler de ces concours dont l'un a eu lieu au mois de Novembre, 1890, et dont un autre est ouvert en ce moment, je voudrais vous montrer deux habitations économiques construites en 1888 par la Société Philanthropique, grâce à la généreuse donation de MM. Heine.

Ces deux maisons dont nous donnons ici les

Arbeiter zu ermuntern, und, vermittelst Cooperation, gesunde und billige Häuser zu bauen."

Das Resultat der Ausstellung und des Congresses war die "Französische Gesellschaft für billige Wohnungen," gegründet am 17. December 1889, welche es sich zur Aufgabe macht in ganz Frankreich den Bau gesunder und billiger Häuser, oder die Verbesserung schon existirender Wohnungen, durch Privatunternehmer, Fabrikanten, oder Localgesellschaften, zu encouragiren. Dieser neuen Gesellschaft, deren gemeinnütziger Charakter durch Decret vom 29. März 1890 anerkannt worden ist, verdanke ich die Anregung zu der gegenwärtigen Plauderei über eine Frage welche alle Welt in allen Ländern interessiert.

Aus dem Gesagten ergibt sich, dass die neue Gesellschaft gewissermassen eine grosse Vereinigung zum Studium und zur Propaganda ist, im wahren Sinne des Wortes ein Informations-Bureau, dessen Aufgabe es ist die Ideen von denen ich eben gesprochen habe zum Gemeingut zu machen. Da sie aber weder Ländereien kauft, noch Häuser baut, so entsteht die Frage, welcher Mittel sie sich wohl in ihrer Thätigkeit bedient? Die Antwort ist: Sie wird Interessenten die Statuten bestehender Gesellschaften, die Pläne und Kostenanschläge ausgeführter Bauten, deren Zimmerwerkspläne, die Details der finanziellen Organisation, u. s. w., mittheilen, und in ihrem *Bulletin* wird sie alles zur Kenntniss bringen was sich, in Frankreich sowohl



Logements Economiques de Lyon.

different recompenses which have for their object the establishment of either the best or the most economical plans, or new combinations of a nature to facilitate building. Before speaking of these competitions, one of which was held in the month of November, 1890, and another which is at this moment open, I would like to show you two cheap dwellings built in 1888, by the Société Philanthropique thanks to the generous gift of MM. Heine. These two houses, of which the plans are here shown, are stationed on the Rue Jeanne d'Arc and on the Boulevard de Grenelle. They have been built by M. Chabrol, architect, after a programme whose principal features are worth examining.

In the first place, the site was chosen upon a broad road, so that the building could have the greatest possible number of stories. The area of the site is about five hundred square metres, half of which is set apart for a gravelled court-yard, planted with a few trees, which furnishes a place for the children to play and enjoy the air. Posts and wires are arranged in this court-yard so as to provide for drying clothes. The manner of building offers all desirable guaranty of solidity and durability, while making it possible to reduce to the lowest degree the annual cost of maintenance.

The distribution of plan had to satisfy the following conditions: Well-lighted and well-ventilated staircases for every story, the landings giving access to each lodging.

plans sont situées rue Jeanne d'Arc et Boulevard de Grenelle. Elles ont été construites par Mr. Chabrol, architecte, d'après un programme dont les points principaux sont intéressants à examiner.

Le terrain, tout d'abord, a été choisi sur une large voie, de façon à avoir un plus grand nombre d'étages. La superficie de ce terrain est d'environ 500 mètres dont la moitié est réservée à une cour sablée et plantée de quelques arbres, ce qui permet aux enfants de jouer et de prendre l'air. Des poteaux et des tringles sont disposés dans cette cour et permettent de faire sécher le linge. Le mode de construction doit présenter dans son ensemble toutes les garanties voulues de solidité et de durée, tout en permettant de réduire le plus possible les dépenses annuelles d'entretien.

Les distributions doivent également satisfaire aux conditions suivantes:

Escaliers clairs et aérés à tous les étages, avec paliers donnant directement accès à chaque logement; logements de plusieurs types différents, composés de deux et trois pièces, ou de deux pièces et d'une petite cuisine, avec cabinet d'aisances, à l'intérieur de chaque logement, établi dans les meilleures conditions d'hygiène et de salubrité; distributions intérieures ne présentant aucune partie obscure ou l'air et la lumière ne puissent pénétrer directement.

Gaz et eau potable dans la première pièce d'entrée de chaque logement, auquel est

als im Auslande, in Bezug auf die Billige-Wohnungs-Frage zuträgt. Schliesslich wird die Gesellschaft auch Concurrenzen, mit Preisen und anderen Belohnungen, ausschreiben, deren Zweck es sein wird, entweder die besten und billigsten Pläne, oder aber Erfindungen zur Erleichterung der Construction zu Tage zu fördern.

Ehe ich von diesen Preisausschreibungen spreche, deren eine im November 1890 verlief, während eine andere eben bekannt gegeben worden ist, möchte ich Ihnen zwei billige Wohnhäuser schildern, die im Jahre 1888, Dank einer wohlwollenden Schenkung der Herren Heine, von der "Société Philanthropique" aufgeführt worden sind. Diese beiden Häuser, von denen wir hier die Pläne beibringen, stehen auf der Rue Jeanne d'Arc und dem Boulevard de Grenelle. Sie sind, nach einem Program, dessen Hauptpunkte näher zu betrachten von Interesse sein wird, von dem Architekten Chabrol aufgeführt.

Zum ersten wurde der Bauplatz auf einer breiten Strasse gewählt, um eine grössere Anzahl von Etagen zu ermöglichen. Der Flächenraum beträgt ungefähr 500 Meter, wovon die eine Hälfte zu einem mit Sand bestreuten und mit einigen Bäumen bepflanzten Hofe bestimmt ist, um den Kindern das Spielen und die Bewegung im Freien zu ermöglichen. Zugleich sind in diesem Hofe Pfosten und Drahtseile zum Trocknen der Wäsche angebracht. Von der Constructionswiese wurde verlangt, dass sie durchaus die

Lodgings of several different kinds consisting of two or three rooms, or of two rooms and a small kitchen, with water-closets within each suite arranged in the best hygienic method. The interior arrangements must not allow any obscure place where air and light cannot directly enter. Gas and drinkable water must be provided in the first room of each suite, to which is also attached a little space, as a cellar, in the basement. One or two ducts reaching to the top story of the house must be provided near the staircase-well, so that the lessees may easily and instantly relieve their premises of the presence of their kitchen and other wastes, by casting them into these ducts through openings provided for this purpose at each staircase landing. These wastes are received at the level of the courtyard in a small wheeled cart, by the aid of which, every morning a concierge carries them to the public carts engaged in the service of the streets. The house on the Rue Jeanne d'Arc, like that on the Boulevard de Grenelle, is built over cellars, and consists of a lower story and seven stories having a uniform height of 2.60 m. All the walls of the basement are built of rubble, and the interior divisions of oak. The walls facing the street and the court are of brick, with cornices and window finish of cut stone. The interior walls are of brick and the light divisions of plaster. The floors are of iron bedded in plaster rubbish. The floorings and all the visible joinery are of oak. The roofs are of wood covered with zinc. The principle of "everything to the sewer" is applied in these two houses to the arrangement of the water-closets and to the removal of all waste waters, both rain-water and household wastes. In the attic a reservoir holds in reserve the quantity of water necessary for the operation of the closets, to guard against any occasional interruption which might occur in the operation of the city water-works. Independently of fireplaces, which are to be found in each suite, all these lodgings are provided with a little heating-stove and a stone sink, above which is a water-faucet. Staircase walls are painted in oil, and all rooms are papered. Gas and the necessary fixtures are provided in each lodging, and are at the disposal of the lessee who chooses to pay a subscription to the Compagnie Parisienne du Gaz, which in this case will furnish, without additional charge, a little gas-stove. The first of these buildings, that on the Rue Jeanne d'Arc, cost 177,097 francs, which brings the cost per square metre of surface built upon to 719 francs. The total cost of the second, which is larger, was 278,045 francs, and the cost per square metre of building was 701 francs. These facts are found in the *Bulletin* of the Société Française des Habitations à bon Marché, together with the annexed plans, which show the two types of building adopted in 1886 by the Société des Logements Economiques de Lyon. All the houses belonging to this Society have a façade on a street, and have at the rear a large court, planted with trees. Their external aspect is much the same as is met with in many buildings at Lyons. Type No. 1 has a depth of 10.80 metres, with a length of façade 24.20 metres. A great transverse party-wall divides the building into two dwellings, completely independent of one another, having a width of 12.10 metres. All the lodgings have windows on the street and upon the court, which provide for efficient ventilation. The houses have four stories, the lower floor being divided into two suites of three rooms each, including a shop. First and second stories have the same arrangement, and each contain two dwellings of three rooms each. The third and fourth stories are similar, and consist of two suites of two rooms each, and a single suite of three rooms. The smallest of these rooms receives light through a large sash in the kitchen partition. Each three-roomed suite consists of a tile-floored kitchen, in which are found a stove, stone sink, shelves, coal

affecté en outre une petite cave en sous-sol; établissement à proximité des cages d'escaliers, d'un ou deux conduits, montant jusqu'au dernier étage de la maison, et permettant aux locataires de se débarrasser facilement et presque immédiatement de leurs débris de cuisine et autres, en les jetant dans ces conduits par des ouvertures pratiquées à cet effet sur chaque palier d'escalier. Ces débris sont reçus au niveau de la cour dans un petit chariot roulant, à l'aide duquel, tous les matins, le concierge les conduit dans les voitures publiques qui font le service des rues.

La maison de la Rue Jeanne d'Arc, comme celle du Boulevard de Grenelle, est élevée sur caves d'un Rez-de-chaussée et de sept étages carrés ayant une hauteur uniforme de 2m. 60. Tous les murs en sous-sol sont en meulière, et les distributions intérieures en chêne; les murs de face sur rue et sur cour sont en briques apparentes, avec corniches et appuis en pierre de taille; les murs intérieurs en briques, et les cloisons légères en plâtres. Les planchers sont en fer hourdés en platras, les parquets et toutes les menuiseries extérieures en chêne; les combles sont en bois couverts en zinc. Le principe du, "Tout à l'égout," est appliqué dans ces deux maisons au service des cabinets d'aisance, et à l'écoulement de toutes les eaux vannes, pluviales et ménagères. Dans les combles, un réservoir contient en réserve la quantité d'eau nécessaire au service des cabinets, pour le cas ou une interruption momentanée viendrait à se produire dans les conduites de la ville.

Indépendamment des cheminées qui se trouvent dans chaque pièce, tous ces logements sont pourvus d'un petit fourneau économique, avec pierre d'évier, au dessus de laquelle existe un robinet d'eau de source. Les cages d'escaliers, ainsi que tous les bois en général sont peints à l'huile, et toutes les pièces tendues de papier. Enfin le gaz, avec les appareils nécessaires, est installé dans chaque logement et à la disposition de tout locataire consentant à passer un abonnement avec la Compagnie Parisienne du Gaz, qui dans ce cas, lui prête gratuitement un petit fourneau à gaz pour son usage personnel.

La première de ces deux constructions, celle de la Rue Jeanne d'Arc revint à 177,097 francs; cela met le mètre de surface bâtie à 719 francs. Le prix total de la seconde, qui est plus vaste à été de 278,045 francs, le mètre de surface bâtie étant de 701 francs.

C'est dans le *Bulletin* de la Société Française des Habitations à bon Marché que nous trouvons tous ces renseignements, ainsi que les plans ci-joints des deux types de constructions adoptés par la Société des Logements Economiques de Lyon fondée en 1886.

Toutes les maisons de cette société sont en façade sur une rue, et possèdent, derrière, une grande cour plantée d'arbres. Leur aspect extérieur est celui que l'on rencontre dans beaucoup de constructions de Lyon.

Le type No. 1 a une profondeur de 10m. 80 sur une longueur de façade de 24m. 20. Un gros mur de refend transversal divise le bâtiment en deux maisons complètement indépendantes l'une de l'autre, d'une longueur de façade de 12m. 10. Tous les logements ont des fenêtres sur rue et sur cour, ce qui permet d'établir une ventilation énergique.

Les maisons sont à quatre étages. Le rez-de-chaussée a deux logements de trois pièces, y compris un magasin. Le premier et la seconde étage ont la même distribution, et comprennent chacun deux logements de trois pièces. — Le 3^e et le 4^e étage sont également semblables et se composent chacun de deux logements de deux pièces et d'un seul logement de trois pièces; la plus petite d'entre elles reçoit le jour par un grand châssis vitré établi dans le refend de la cuisine.

Chaque logement de trois pièces se compose: d'une cuisine carrelée, dans laquelle se trouvent un fourneau, une pierre d'évier, des planches, une boîte à charbon et un placard. Les deux autres pièces sont parquetées, et, dans la plus grande, existent une cheminée et

erwünschte Garantie für Solidität und Haltbarkeit bietet, und dabei zugleich die jährlichen Erhaltungskosten nach Möglichkeit zu reduzieren. Die Einrichtung musste folgenden Ansprüchen gerecht werden: Gut erleuchtete und gelüftete Treppengänge in allen Etagen, mit Absätzen, welche direkten Zugang zu jeder Wohnung gewähren; Wohnungen verschiedener Art, von zwei oder drei Zimmern, oder von zwei Zimmern mit einer kleinen Küche, dabei innerhalb jeder Wohnung ein Abtritt, nach den strengsten Anforderungen der Gesundheitspflege eingerichtet; im Inneren nirgends dunkle Winkel, in die Luft und Licht nicht direkt eindringen können; Gas und Trinkwasser in dem ersten Zimmer jeder Wohnung, auch muss jeder derselben ein kleiner Keller im Kellergeschoss zugewiesen werden; Einrichtung, in der Nähe der Treppenhäuser, eines oder zweier Schächte, bis hinauf in das oberste Stockwerk, welche es den Einwohnern ermöglichen sich leicht und schnell ihrer Küchen- und sonstigen Abfälle zu erledigen, indem sie dieselben durch zu diesem Zwecke auf jedem Treppenabsatz angebrachte Oeffnungen in die Schächte werfen. Diese Abfälle empfängt auf dem Niveau des Hofes ein kleiner Rollwagen, mittelst welchem der Hausverwalter sie jeden Morgen den öffentlichen Karren, welche den Strassendienst versehen, zuführt.

Das Haus in der Rue Jeanne d'Arc, ebenso wie das auf dem Boulevard de Grenelle, ist über Kellern aufgeführt, und hat ein Erdgeschoss und sieben Etagen, in der gleichmässigen Höhe von 2 M. 60. Alle Mauern unter der Erde sind aus Bruchstein aufgeführt, zu den inneren Scheidewänden ist Eichenholz verwandt; die Facadenmauern, auf der Strassenseite sowohl als gegen den Hof zu, sind Ziegelrohbau, mit Karnissen und Fensterschwellen aus Haustein; die Innenmauern sind Ziegel, die leichten Scheidewände verputzt. Die Decken sind von Eisen, rauh mit Gipschutt beworfen, die Fussböden, sowie alle äusseren Schreinerarbeit, Eichenholz; das Dachgerüst ist aus Holz, mit Zink bekleidet. Das Prinzip "tout à l'égout" (Alles in die Cloake) ist in diesen beiden Häusern sowohl auf die Versorgung der Abtritte, als auf die Abführung alles schmutzigen Wassers, ob Regenwasser, ob Spülwasser, angewandt. Für den Fall einer momentanen Störung in der städtischen Wasserleitung, ist in dem Dachgeschoss ein Reservoir angebracht, welches die zur Reinigung der Abtritte nötige Menge Wasser enthält. Neben den Kaminen, die sich in jedem Zimmer finden, sind alle diese Wohnungen noch mit einem kleinen Sparofen versehen, sowie mit einem Spülstein, nebst darüber angebrachtem Wasserhahn. Die Treppenhäuser, wie überhaupt alles Holzwerk, sind mit Oelfarbe angestrichen, und alle Zimmer sind tapeziert. Endlich ist das Gas, mit den nöthigen Einrichtungen, in jedes Logis eingeführt, und steht jedem Miether zur Verfügung der sich bei der Pariser Gasgesellschaft abonniren will. Letztere leiht in diesem Falle dem Miether unentgeltlich einen kleinen Gasofen für seinen eigenen Gebrauch.

Das erste dieser beiden Häuser, in der Rue Jeanne d'Arc, stand auf 177.097 Franken ein, was auf den Meter bebauten Flächenraumes 719 Franken beträgt. Die Gesamtkosten des zweiten Hauses, welches grösser ist, beliefen sich auf 278.045 Franken, oder 701 Franken für den Meter bebauten Flächenraumes.

Wir haben die angeführten Details dem "Bulletin de la Société Française des Habitations à Bon Marché" entlehnt. Dasselbe gilt von den ebenfalls beigefügten Plänen der beiden Bautypen, welche die Lyonner "Société des Logements Economiques" (gegründet 1886) angenommen hat. Alle Häuser dieser Gesellschaft stehen mit der Fassade nach der Strasse und haben hinten einen grossen, mit Bäumen bepflanzten Hof. Ihr äusseres Ansehen gleicht dem, welches man an vielen Lyonner Bauten gewahrt wird. Typus 1 hat eine Tiefe von 10 M. 80, bei

box and cupboard. The other two rooms have parquet floors and in the largest is a fireplace and a cupboard. The water-closets, which are imperfectly ventilated and, in my opinion, ill placed, have siphon bowls. The lodgings of two rooms have a kitchen and a chamber arranged like those in the suites just described, but the water-closet is common to the two adjoining suites.

Type No. 2 consists entirely of lodgings of three rooms. It was adopted in order to satisfy the often-expressed ideas of lessees of the Society, who, for economic reasons, prefer a lodging whose area does not exceed forty square metres. This house, which is also of four stories, is twelve metres deep, with a façade of nineteen metres. The staircase, arranged like the one in type No. 1, divides the house into two similar parts, and a thick longitudinal party-wall completes the division of each story into four suites. All the suites facing the street are similar, and differ from those upon the court, which are also similar, only in the arrangement of the three rooms. Each suite consists of two rooms with parquet floors, one having a fireplace and a cupboard, with also a water-closet and a kitchen arranged like those in the first type.

In the next installment we will study, apropos of the competition opened by the Société Française des Habitations à bon Marché, several types of smaller houses arranged for one or two workmen.

(To be continued.)

un placard. Les cabinets d'aisances — imparfaitement aérés et mal placés, à mon avis — ont une cuvette à siphon.

Les logements de deux pièces ont une cuisine et une chambre installées comme celles des logements précédents; mais le cabinet d'aisances est commun aux deux logements contigus.

Le type No. 2 se compose uniquement de logements de trois pièces; il a été adopté pour satisfaire la désir souvent exprimé par les locataires de la société, qui, par raison d'économie, donnent la préférence aux logements dont la superficie n'excède pas 40 mètres carrés.

Cette maison, également à quatre étages a 12m de profondeur, sur 109 mètres de façade, l'escalier, disposé comme dans le type No. 1, divise la maison en deux parties semblables, et un gros mur de refend longitudinal achève de diviser chaque étage en quatre logements.

Tous les logements donnant sur la rue sont identiques et ne diffèrent de ceux donnant sur la cour, également tous semblables, que par la position respective des trois pièces.

Chaque logement se compose de deux chambres parquetées, dont une avec cheminée et placard, d'un cabinet d'aisances et d'une cuisine installée comme celle du 1er type.

Dans un prochain article, nous étudierons, à propos du concours ouvert par la Société Française des Habitations à bon Marché, plusieurs types de petites maisons pour un ou deux employés.

(à suivre.)

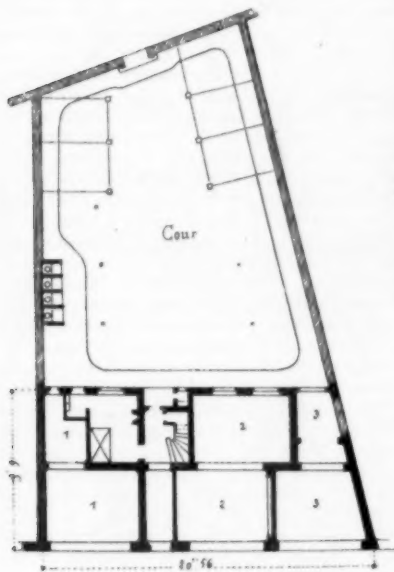
einer Fächenausdehnung von 24 M. 20. Eine dicke Querscheidemauer theilt das Gebäude in zwei vollständig unabhängige Häuser, jedes von 12 M. 10 Fächenausdehnung. Alle Wohnungen haben Fenster nach der Strasse und nach dem Hofe zu, so dass leicht energisch ventilirt werden kann.

Die Häuser haben vier Etagen. Im Erdgeschoss sind zwei Wohnungen von je drei Zimmern, nebst Vorrathskammer. Die erste und die zweite Etage sind ebenso in je zwei Wohnungen von drei Zimmern eingetheilt. Die dritte und vierte Etage sind wiederum unter sich gleich, sie bestehen aber aus je zwei Wohnungen von zwei Zimmern und einer Wohnung von drei Zimmern. Das kleinste der letzteren erhält das Licht durch ein grosses Glasfenster, welches in der Küchenscheidewand angebracht ist. Jedes Logis von drei Zimmern hat eine mit Fliesen gepflasterte Küche, in welcher sich ein Ofen, ein Spülstein, Wandbretter, ein Kohlenkasten und ein Schrank befinden. Die beiden anderen Räumlichkeiten sind parquetirt und in dem grössten ist ein Kamin und ein Schrank angebracht. Die Abtritte, meiner Ansicht nach ungenügend ventilirt und schlecht placirt, sind mit Spülkesseln mit Hebern (cuvettes à siphon) versehen. Die Wohnungen von zwei Zimmern haben eine Küche und eine Stube von der eben beschriebenen Einrichtung, der Abtritt ist jedoch zwei anstossenden Wohnungen gemein.

Typus 2 besteht durchgehends aus dreizimmerigen Wohnungen. Er wurde angenommen um den oft ausgesprochenen Wünschen der Miether der Gesellschaft gerecht zu werden, welche, aus Sparsamkeitsrücksichten, solchen Wohnungen den Vorzug geben, deren Flächenraum 40 Quadratmeter nicht übersteigt. Dieses Haus, ebenfalls von vier Etagen, hat 12 Meter Tiefe, bei 19 Meter Fächenausdehnung. Die Treppe, von derselben Anordnung wie bei Typus 1, theilt das Haus in zwei gleiche Hälften, und eine dicke Längscheidemauer zerlegt jede Etage in vier Wohnungen. Alle Wohnungen nach der Strasse zu sind gleichartig, und unterscheiden sich von denen die nach dem Hofe zu liegen nur durch die Vertheilung der betreffenden drei Räume. Jede Wohnung besteht aus zwei parquetirten Stuben, in deren einer sich ein Kamin und ein Schrank befinden, einem Abtritt und einer Küche mit der gleichen Einrichtung wie bei Typus 1.

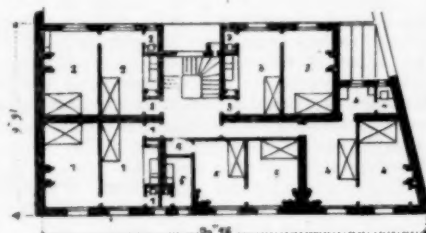
In einem späteren Artikel werden wir mehrere Typen kleinerer Häuser für ein oder zwei Angestellte betrachten, mit Bezug auf das von der "Société Française des Habitations à bon Marché" erlassene Preis-ausschreiben.

(Fortsetzung folgt.)



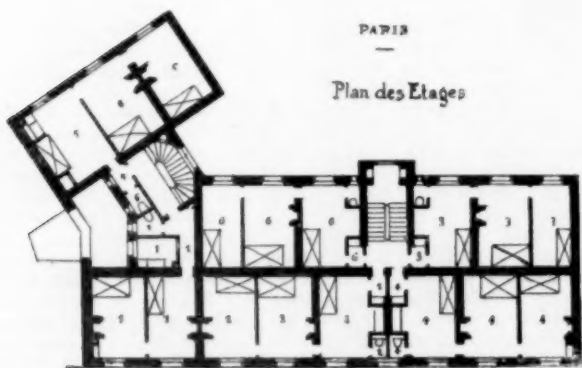
Plan du Rez-de-Chaussee

Habitations Economiques, 45 Rue Jeanne d'Arc, Paris.



Plan des Etages

Habitations Economiques, 45 Rue Jeanne d'Arc, Paris.



Plan des Etages

Habitations Economiques, 65 Boulevard de Grenelle, Paris.



Plan des Etages



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

ENTRANCE TO THE YOSEMITE, NEW YORK, N. Y. MESSRS. MCKIM, MEAD & WHITE, ARCHITECTS, NEW YORK, N. Y.

[Heliochrome issued with the International and Imperial Editions only.]

The general view of this building was published in the last issue.

THE GRADY MEMORIAL HOSPITAL, ATLANTA, GA. MESSRS. GARDNER, PYNE & GARDNER, ARCHITECTS, ATLANTA, GA.

BESIDES the buildings shown, the corridor leads to a service building (about 40' 6" distant) containing the kitchen, laundry, boiler and engine-room, electric plant, etc., to two colored wards (frame) of the same essential plan as the white and to the colored Administration Building. These are entered from another street. Heating and cooking in main service building. Ward No. III shown below will not be built at present. There is a small Mortuary Building at extreme rear of lot. The buildings occupy an entire block about 400 feet square; all of brick or Indiana limestone except colored wards, which are in effect temporary buildings.

HOUSE FOR CHARLES A. SACKETT, ESQ., NEW LONDON, CONN. MR. G. W. COLE, ARCHITECT, NEW LONDON, CONN.

DESIGN FOR A SCHOOL-HOUSE, SOMERVILLE, MASS. MESSRS. LORING & PHIPPS, ARCHITECTS, BOSTON, MASS.

LOWELL CITY ARMORY, LOWELL, MASS. MESSRS. MERRIL & CUTLER, ARCHITECTS, LOWELL, MASS.

COMPTON HILL CONGREGATIONAL CHURCH. MR. THEODORE C. LINK, ARCHITECT, ST. LOUIS, MO.

[Additional Illustrations in the International Edition.]

DWELLINGS FOR HERREN LEHR AND SOHLEIN, HEIDELBERG, GERMANY. HERR L. SCHAFER, ARCHITECT.

The flanking houses of this group are single dwellings, the centre house, however, is arranged with two bachelor's apartments in the lower story, the remainder being given up to a single family. The materials used are yellow brick and tile. Cost 160,000 marks.

WROUGHT-IRON GATE AT FONTENAY-AUX-ROSES, FRANCE.

HALL OF POST AND TELEGRAPH BUILDING, ST. GALL, SWITZERLAND.

THE CHURCH OF ST. ETIENNE DU MONT, PARIS, FRANCE.

THE primitive Church of St. Etienne du Mont, built in the twelfth century on the site where the present church now stands, was formerly connected from the inside with the ancient Abbey St. Genevieve—destroyed in 1807—without having any exterior exit. It was built as an annex, intended to supplement the insufficient size of the other building. It had to be destroyed to make place for that of which we reproduce to-day some illustrations, drawn from the "Encyclopédie d'Architecture," and the dimensions of the new building were proportioned to the growth in the number of the faithful. The choir, begun in 1517, was entirely finished in 1535; that is to say, in the full Renaissance of the time of Francis I. The nave and the aisles must be held to have been finished during the last years of the sixteenth century. The rood-loft is of the year 1600. In 1610 Marguerite Valois, first wife of Henry IV, laid the first stone of the west façade, and gave a private benefaction of 300 livres to aid in building. In 1624, the works were entirely finished. The outline of the Church of St. Etienne du Mont is remarkable by reason of its picturesque originality. The tower which crowns the north aisle harmonizes happily with the principal façade, though dating from a much earlier epoch than the latter. The most striking feature in the interior is unquestionably the rood-loft. It is one of those rare specimens of this feature which exist. Its composition lacks neither ability nor boldness; its decoration is rich, and its sculpture carefully executed although a little dry. It is the work of the elder Biart. The manner in which the steps of the staircases are got out deserves the attention of the skilled constructor. It is not at all impossible that the two larger elliptical arches which carry the rear face might have been, if they were not actually, at least in the thought of the artist, destined to enframe two altars, as was the custom in the Middle Ages, while the central archway served as the entrance to the choir reserved to members of the chapter. The presence of a rebate in the reveals of this bay and the toothings left in the lower part of the arch piers make this a very reasonable explanation. The only truly original arrangement which the interior

of St Etienne du Mont presents lies in the galleries which run about the nave, passing round the piers by means of conical corbelling. The pulpit is beautiful. It was designed by M. Fremery, "an excellent joiner in the employ of Monseigneur the Cardinal de Furstenberg." The sculpture is by Claude L'Estocart, after the designs of Laurent de la Hyre." Several celebrated personages have been buried at St. Etienne du Mont, such as Le Sueur, Pascal, Racine, Rollin, etc. The catacombs, which extend along the whole north side of the church and around the apse, date to the latest years of its construction. The tower which formerly rose at the northeast was destroyed to give place to the presbytery. The Rue Clovis skirts the building on the south, passing over the substructure of the old church of the Abbey St. Genevieve.

LICHFIELD CATHEDRAL, AFTER A DRAWING BY W. H. BIDLAKE.

THE early history of Lichfield, like that of most of our cathedrals says the *Builder*, is considerably mixed up with legendary lore, vague accounts of massacres, and the wonderful occurrences surrounding the life of the Patron Saint. The later history of the See has been so full of detail and memorable occurrences that this earlier history is, perhaps more than is usually the case, placed in the background. Its very position, in the centre of England, and in the midst of one of the principal fields on which the Civil Wars were fought, rendered it more liable to mutilation than probably any other cathedral in the country; the fact that its close was a fortified one, made its cathedral an object of attack; and, lastly, the merciless treatment it received from the Parliamentary soldiers in the first place, and from Wyatt in later times by "restoration," filled to the full its cup of misfortunes. The purely historical matter is outside the limits of the present article, except where it bears directly on the building itself. The Cathedral, as we see it to-day, and of which we give a large view from the northwest and a plan, is the result of many years of patient labor and skill devoted to its restoration, and the result must, as a whole, be pronounced to be highly satisfactory. Dealing, in the first place, with the plan, we find a simple and straightforward scheme of design. A nave of eight bays with aisles and two western towers, transepts with eastern aisles, a choir of eight bays with aisles, and Lady Chapel at the east end, the Chapter House on the north, approached by a vestibule, and on the south an ancient sacristy—all these, as will be seen on reference to the plan, make up a very symmetrical whole.

The gradual growth of the building is a point of interest, both in itself and as an example to compare with the growth of other buildings coeval with it. In 1860 the Cathedral was undergoing a thorough restoration by the late Sir G. G. Scott, and in the course of the alterations and the sweeping away of Wyatt's excrescences, the foundations of the early buildings were discovered, and at that time carefully plotted. A paper, by Professor Willis, read before the Archaeological Institute in 1861, gives the result of the exploration. We are also able, by the kindness of Mr. St. John Hope, F. S. A., to give a series of plans showing the gradual growth of the eastern arm of the church. This should also be taken in conjunction with the larger plan of the whole building, on which has been shown the relative position which the early bears to the present structure. The only portion of the Norman building the date of which is uncertain, is the choir or presbytery, with its semicircular apse. (See Plan I and the general plan.) The lines of the choir of this early church, which probably extended to about 90 feet westward of the present central tower, seem to have been followed in later times, although some of the buildings of intermediate date show deflections south. The first growth, a small one, was a rectangular chapel extending beyond the Norman apse for a distance of 38 feet, and with a slight inclination to the south. (See Plan I.) The next change was of a very complete character, involving the destruction of the superstructure of Norman times, and substituting an Early English choir. This thirteenth-century building, which is the first which appears above ground in the cathedral as it stands at present, was apparently planned to enclose the early church, the inner face of its walls almost abutting on the outer face of the earlier ones. It extended also further eastward, and had a square termination. The plan No. 2 shows what the form and dimensions of this church in all probability were, and also the future extension which, like the Norman Church, it underwent, an extension of two bays farther to the eastward, giving four altars across its eastern wall. Of this eastern wall considerable traces exist under the present pavement, and are shown (slightly hatched) on the larger ground-plan, passing under the seventh north and south piers of the present presbytery. It will also be noticed that this late extension deviated from the straight line of the first design—it had, as the Norman addition had, a slight inclination southward. The deflection is also to some extent visible at present in a mass of masonry outside the second buttress (counting from the eastward) of the south aisle, which is evidently a portion of the footing or plinth of this earlier building. At this period, too, a sacristy was built on the south side of the choir, and an additional room on its west side, which may have been a depository for valuables. Both of these also remain.

During the same century the reconstruction of the transepts and the building of the beautiful Chapter House¹ and its vestibule took place, and before the end of the century the nave and a portion, at

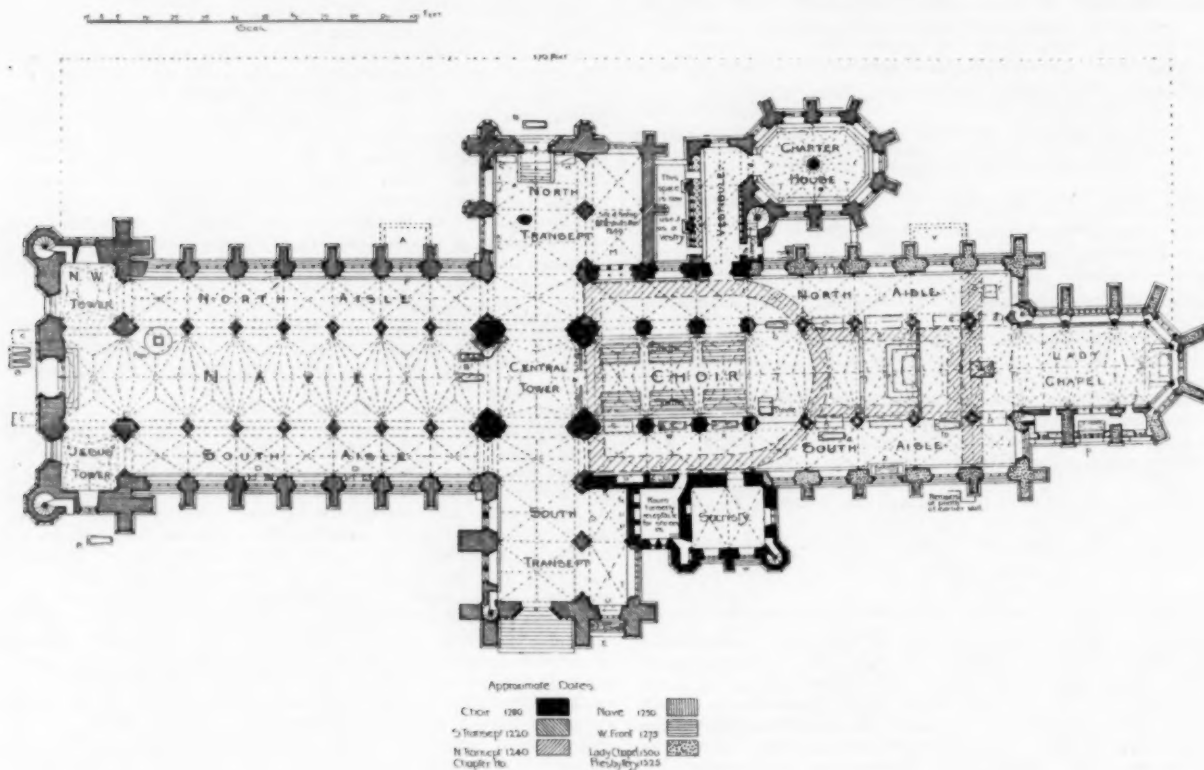
¹ The Chapter House is of two stories, the upper one, approached by a circular stair at the southwest angle, being used as a library.

all events, of the west front had probably been built. It will be seen that the nave, although at right-angles with the transepts, is not in line with the choir. It seems probable that, as the Early English choir followed pretty closely the line of the Norman choir, so the transepts and the nave did likewise, and the divergence from the straight line, whatever its meaning, was in accordance with that of the earlier church. The extent of the deviation of the centre line of the choir from that of the nave is 5 feet at the east end of the Lady Chapel, a distance of nearly 200 feet from the centre of the eastern arch of the central tower. The Chapter House and its vestibule follow the line of the choir, and are not parallel with the transept, and the same applies to the before-mentioned sacristy on the south.

We now come to the last and, to some extent, the most important change in the building. Walter de Langton became bishop in 1296, and like Becket, at Wells, was a great benefactor, as well as a builder, to his city and church.

The Lady Chapel, as we see above, was commenced by him, and formed the beginning of the remodelling of the Presbytery. The "feretrum," or shrine of St. Chad, was made at a cost of £2,000, and placed immediately east of the great reredos (see *g* on general plan), in a corresponding position to those at St. Albans and Westminster. Langton's successor, Roger de Norburgh (1322-1359), carried on the scheme of rebuilding westward, by finishing the Lady Chapel (for which money had been left by Langton), pulling down the Early English work as far as the third bay eastward of central tower and rebuilding the Presbytery, making the eastern arm of the church of

stands, and the other supposed to be Bishop Patteshull (1243). They are now behind the choir stalls under two arches of the south arcade (w and x on plan) and are both of Purbeck marble. There is also a sixteenth-century monument opposite in the south wall to Sir John Stanley, of Pipe (1515) with an effigy under a canopy, and at one or two points in the nave and choir (see plan) a remarkable type of monument consisting of two recesses in the wall, resembling aumbries in size, containing the head and feet of an effigy. Three fourteenth-century monuments between the buttresses on the south side of the Lady Chapel have been restored as a memorial to Bishop Selwyn, whose effigy is placed in the central chapel. An interesting effigy of an archdeacon also remains under what was a rich Decorated canopy, outside the south end of the east aisle of the south transept. Traces of the chapel of Dean Yotton are still to be seen outside the wall of the north nave aisle, where a four-centred arch with most delicate carving in the spandrels still remains—now blocked up. Other special features of the building are the Chapter House, with its arcading and vestibule; the sacristy, on the south side of the choir, with a stone gallery projecting into the choir aisle (said to have been for the exhibition of relics to the pilgrims on their way to the shrine of St. Chad); and the monument of Bishop Hacket, formerly in the south transept, and removed here about 1787, with some good heraldic work on the spay of the window, which is here deeper than the others. There is a broad double band of foliage on the spay of this window, which was probably inserted when Dean Heywood's monument occupied the site.



eight bays (exclusive of the Lady Chapel) instead of seven as before (see Plan 3 and general plan). The central gable of the west front and the two western steeples were Norburgh's work. Only the southwest or Jesus steeple remains, however, in its original state, the northwest tower above the sills of the belfrey windows having been rebuilt in Perpendicular times in imitation of the earlier work. The height of this tower is not so great as the "Jesus" steeple by nearly two feet, and the spire is also shorter. The central spire was rebuilt by Bishop Hacket (1661-69), to whose energy is due the restoration of the Cathedral after its spoliation during the Civil Wars.

Of the ancient fittings of the Cathedral as it stood in the fifteenth century not a vestige remains. In 1643 the close, protected by a wall and ditch, was garrisoned for the King, and during the next three years it underwent three sieges, being finally surrendered to the Parliamentary forces on July 10, 1646. In 1643 the pillage took place. A clean sweep was made of the ornaments of the church, and the records were destroyed; the brasses were taken from their slabs, and the main structure itself had suffered severely by the destruction of the central spire, and damages from the fire that had been kept up on it during the siege. Of what little might have remained down to the period of Wyatt's restoration, or "improvements" as they were at that time called, we have to-day but two or three monuments left; two early effigies, one said to be that of Bishop Langton, who was buried first in the Lady Chapel and afterwards removed to where Bishop Hacket's monument now

stands. There is some curious work in the details of the early walls of the choir, and the treatment of the entrance to the vestibule from it on the north (see sketch). The junction of the two dates occurs here both in the side walls and columns. The way in which the Early English column (an octagon of 5 feet diameter surrounded by clusters of three engaged columns) was partially cut away and partially utilized in the new work is interesting. The plinth was kept, and the forms of the later clustered shaft were evidently designed with some regard to the earlier work. On the east faces of the arches at the west end of the choir aisles, is some Early work with chevron ornament (of similar character to the well-known work at Wells and Glastonbury), and probably one of the earliest pieces of work in the building.

The recent restoration under the late Sir G. G. Scott was really begun in 1856, but it was not until 1858 that the choir was handed over to be dealt with in a more extensive form. Wyatt's work has happily been effaced, a modern reredos has been erected on the site of the old one, and new stalls, a metal screen, and a metal pulpit have been provided. The organ, formerly over the choir screen, a composition partly in cement, by Wyatt, has now been removed to, and occupies the greater part of, the aisle of the north transept. Tiles, taken in a large number of cases from the old examples found, have been laid down in the choir, and there has been gradually springing up around the new altar a group of modern monuments to the memory of various dignitaries connected with the Church at

Lichfield.¹ It is to be hoped that, when funds are procurable, a screen will be placed across the entrance to the Lady Chapel. It would vastly improve the interior which suffers, if in anything, from a lack of "mystery," besides being a restoration in some form of what originally was intended, and which actually did exist until the Civil Wars. Reverting to the plan once more, it is believed that this is the first time which it has been published to a large scale. All the chief dimensions have been checked and plotted on the spot, the sacristy has been reduced from drawings made during the restoration, and much information has been obtained as to the position of coffins and monuments from an excellent plan made by Mr. J. T. Irvine, to whom we are indebted for other information concerning the fabric. The plans showing the gradual enlargement of the Presbytery were made by Mr. St. John Hope, F. S. A., and Mr. Irvine, and have been kindly placed at our disposal for reproduction by the former gentleman.

The general view from the northwest, by Mr. W. H. Bidlake, shows the west front filled with its sculpture, the latest portion of the restoration, and which once more brings it back to something like its original beauty.

CLOISTER OF THE MONASTERY OF S. JEROME, BELEM, PORTUGAL.

VILLA AT NEUILLY-SUR-SEINE, FRANCE. M. STEPHEN SAUVESTRE, ARCHITECT.

EMINENTLY attractive and picturesque, says *La Semaine des Constructeurs*, is the appearance of this country-house, where roofs, stone gables, bay-windows and the irregularities of outline, added to the color-tones of the materials and the play of light and shade, group themselves to the pleasing of the eye. The interior arrangement is admirably understood and answers the very simple yet comfortable requirements of the programme. The entrance is under a porch with pitched roof which promises ample shade for those who stop under it. The enclosed porch *F* is lighted by a large round-headed window and gives access to the hall *E* and to the reception-room *D*. The hall rises to the height of two stories and contains the staircase with its gallery at the first-floor level. The rooms *B* and *C* form the principal feature of the house and are partly devoted to the game of billiards — evidently the favorite amusement of the proprietor. Opening from the billiard-room through double doors, which allow these three rooms to be used on occasion as a single apartment, is the dining-room *A* attached to which is the pantry *G* connecting with the kitchen in the basement. The upper stories are devoted to bedrooms.

SENATE HOUSE, MADRAS, INDIA.

It is doubtless within the recollection of many, says *Indian Engineering*, how, nearly a quarter of a century back, an obscure Assistant Engineer from Orissa in Bengal, was translated during the tenure of an R. E. Governor of Madras to the position of Consulting Architect of that Presidency, which position Mr. R. F. Chisholm, F. R. I. B. A., held with credit to himself and advantage to the State during his long and honorable period of office. We reproduce one of the exciting causes which induced Mr. Chisholm's selection for the position he held, viz., the Senate House of the Madras University of which he is a "Fellow," and which building deserves something more than the cognomen of "very handsome." It is fitting here to observe once again that in practical art and architecture Mr. Chisholm has left his impress on Madras; for no later than our visit to that city, a few months back, the very mistries or artisans referred to his name as a bygone, unquestionable authority and the rising generation in, round, and about the Southern capital of skilled workmen are brought up to that very same belief which we here endorse.

STAIRCASE, HARROW, ENG. MR. E. S. PRIOR, M. A., ARCHITECT.

STAIRCASE, WEYBRIDGE, ENG. MR. R. T. BLOMFIELD, M. A., ARCHITECT.

ADDITIONS TO BOXLEY PARK, ENG. MR. JOHN BELCHER, ARCHITECT.

HEBREW CONFERENCE HALL, WHITECHAPEL, ENG. MR. B. PITE, ARCHITECT.

"LE BUREAU DE BIENFAISANCE." "THE CATTLE MARKET." MURAL PAINTINGS BY M. HENRI GERVEX AND M. BLANCHON.

WHEN the painting of the Bureau was first exhibited in Paris everybody who saw it was astonished at the *tour de force* of M. Gervex, by which a glass window and a glass screen were represented

almost side by side. A more difficult feat was rarely attempted, but the success of the windows carried off much of the attention which should have been given to the group of figures. M. Blanchon has cooperated in the decoration of the Mairie with M. Gervex, and in the Cattle Market has well utilized the vertical lines of the buildings, blouses, etc., to form a contrast with the very different contours of the cattle.



NEW YORK CHAPTER, A. I. A.

A REGULAR meeting of the New York Chapter, A. I. A., was held at its office, 13 Broadway, New York, on Wednesday, February 11, 1891, at 3 P. M. Vice-president Upjohn in the chair. The minutes of the last meeting were read and adopted.

Mr. N. Le Brun, of the Committee on Examinations, made a verbal report to the effect that the Committee charged with the revision of the New York Building Law, of which he was a member, had concluded their labors.

Appropos of some questions put to him in regard to some of its provisions, an interesting discussion and interchange of experiences followed on composite and iron construction, in the case of high buildings.

The Secretary reported that the Executive Committee, after consulting their credentials, nominated to the Chapter the following candidates for Practising Membership, viz.: John M. Carrère, of New York; Geo. W. Da Cunha, Jr., of New York; H. S. Kissam, of Tacoma, Washington; and Milton A. Hyatt, of New York, for Junior Membership. The above named gentlemen were duly elected to the respective grades designated.

In accordance with the action of the last Convention of the Institute, officially transmitted by the late Secretary of the Institute, Mr. Root, and followed by instructions received at the last Chapter meeting, the Secretary said he had selected several names for the honor of nomination by the Chapter to the Institute for non-professional membership in the Institute, whereupon the following nominations were unanimously made:

For Honorary Membership: Henry G. Marquand, President of the Metropolitan Museum of Art, in recognition of his thorough connoisseurship in many branches of the fine arts, of his generous patronage of their practitioners, as exhibited, *e. g.*, in his town-house, designed by R. M. Hunt; in the costly decoration of its Japanese room, designed by Manly N. Cutter; in the ceiling of its music-room, painted by Sir Frederic Leighton; and in some of its furniture, the composition of which includes designs by Alma Tadema; and also in recognition of his numerous munificent gifts to the Metropolitan Museum of Art, to Princeton College, and elsewhere; including a donation of \$500, many years ago, to the library of this Chapter; and for Corresponding Membership: (1) Colonel R. T. Auchmuthy, an ex-member of the architectural profession, in recognition of his important services to the community in the establishment and maintenance, at his own expense, of training-schools for the technical education (denied them by the rules of some of the building trades) of such of the youth of this country as desire to become proficient in one or another of said trades.

(2) E. T. Potter, also a former practitioner in the profession, for important contributions to the literature of house-building, particularly in his "Comparative Table Illustrating his Systems for Concentrated Residence," and including many points for the amelioration of methods now in vogue for apartment and tenement houses.

The following communications to the Secretary, with his answers thereto, were then read and action taken thereupon, as shown:

From Hon. Jos. Blumenthal, Member of Assembly for the City of New York, Albany, February 10, 1891, with enclosure of Assembly Bill No. 118, entitled "An Act to regulate the practise of Architecture." [See letter following.]

The Secretary moved that Messrs. Upjohn, Le Brun and Kendall be appointed a Committee to consider the provisions of the bill and to communicate thereon with Mr. Blumenthal. Carried.

From Mr. E. A. Kent, a member of the Institute, Buffalo, January 31, 1891, asking an opinion as to the bearing of one of the sections of the Institute schedule of charges on some points encountered in his recent practice.

From Mr. Walter Dickson, a member of the Institute, New York, January 26, 1891, to Mr. Upjohn, asking for advice with reference to the possible formation of a Chapter of the Institute in a neighboring city, and referred by Mr. Upjohn under date of January 27, 1891, to the Secretary.

The following was moved by the Secretary, seconded by Mr. N. Le Brun, and unanimously carried:

"Resolved, that the New York Chapter of the American Institute of Architects sends its greetings to the National Association of Builders now in session in this city, and desires to express its sympathy with any action on their part calculated to harmonize the relations between the different branches of industry in connection with building operations."

¹ By an error the monument of Archdeacon Moore, d. 1876, has been omitted on the plan. It stands in the next bay west of Bishop Hackett's monument in the south aisle.

The Secretary stated that as soon as he had heard of the decease of Mr. J. W. Root, the late Secretary of the Institute, he had forwarded the following telegram to his partner, Mr. Burnham:

NEW YORK, January 16, 1891.

D. N. BURNHAM, Chicago, Ill.

Intelligence of Mr. Root's decease this moment received. In advance of official action I hereby transmit to his family and partner the condolences of the New York Chapter, A. I. A., for the untimely cutting off of a great artist in our specialty.

The action of the Secretary was unanimously adopted as that of the Chapter.

A. J. BLOOR, Secretary.

ASSEMBLY, ALBANY, NEW YORK, February 16, 1891.

HON. JOSEPH BLUMENTHAL,

Dear Sir:—As requested by your favor of the 10th inst., its subject matter was submitted to the New York Chapter, A. I. A., at a regular meeting held on the 11th inst., when the undersigned were appointed a Committee to consider the various provisions of Assembly Bill No. 118, entitled "An Act to regulate the practise of Architecture." The Committee begs to report as follows:

The fact that present practising architects can, upon application, be entitled, without fee or examination, to a license to carry on their professional work, makes the full value of this bill a remote one; nevertheless, every good beginning is of substantial benefit.

When the licenses which, under its provisions, will doubtless be called for, by present practitioners shall have lapsed; and when, in due course, every practising architect shall have passed a suitable examination as to his skill in the several departments of his work, and shall be fortified with a diploma to that effect in the form of a license—which, for obvious reasons, should be different from the licenses proposed to be issued to present practitioners without examination—then the merits of this bill will cause a general uplifting of the architectural profession, the results of which will be apparent in the improved character of our buildings, from both the artistic and practical standpoint.

R. M. UPJOHN.
N. LE BRUN.
E. H. KENDALL.



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

A CHICAGO TRADE SCHOOL.

CHICAGO, ILL., February 23, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—The subject of trade schools has been much agitated of late years and their lack much deplored by all thinking men. It may surprise your readers to learn that Chicago has had a trade school in operation several months and that it has proved highly successful, over thirty students having been enrolled in brick-laying alone. Day and evening sessions are maintained in all departments. A large addition to the school building has been built of brick by the students who will, under the direction of their teachers, do all the work connected with its completion, thus demonstrating the practical character of their instruction. The school will prove a boon to many struggling young men and we are glad to learn that the leading Chicago firms in the building lines are taking an interest in the success of the work. Respectfully yours, F. W. HARKINS.



DARIA DOWLAT AT SERINGAPATAM.—This is a famous historic edifice, being the Summer palace of Tipu, Sultan of Mysore. After the fall of Seringapatam and the restoration of the Principality to the rule of the original line of Maharajahs, it was occupied by the Duke of Wellington, while he was the British Resident at the Court of Mysore, and renovated at a large outlay. The building, was, however, afterwards left to take care of itself, until the noble Lord Dalhousie visited the place and wrote the famous minute, insisting on the careful preservation of this relic of the "Tiger of Mysore." Notwithstanding the above, the structure had fallen so much into disrepair, that for a few years a notice had been put up, to the effect that it was in a dangerous condition, and not fit for sightseeing! After a deal of correspondence, the Durbar began a thorough restoration of the palace—including repainting all the wall-pictures, and reconstructing the upper roof—in 1885 and completed it in 1888, at a cost of Rs. 50,000 under the direction of the Executive Engineer (Mr. Scaldwell) of Bangalore. We are sorry, however, to have to record that the roof has not proved water-tight, and consequently the valuable paintings have been spoiled in places, so soon after their renovation. In addition, the joints of the planks of the painted ceiling are becoming plainly visible. I wonder who is responsible for this defective work. The palace is, after all,

simple in plan and consists of two floors, with a wide and high veranda all round, supported on richly carved teak posts. There are balconies on the upper floor richly painted and gilt on every one of the four faces of the rectangle. The roof is terrace throughout, though sheet-iron has been laid on the veranda portion, and is probably answerable for much of the leakage. It is, however, a pity that such an interesting relic should have been handled so as to suffer in effect from the evidently unseasoned timber and the imperfect roof covering. It is hoped that remedies will soon be applied.—*Indian Engineering.*

FIRES IN LONDON.—The report of Captain Shaw states that the number of calls for fires, or supposed fires, received during last year has been 3,546. Of these 768 were false alarms, 223 proved to be only chimney alarms, and 2,555 were calls for fires of which 153 resulted in serious damage, and 2,402 in slight damage. These figures only refer to regular calls for fires, or supposed fires, involving the turning out of firemen, fire-engines, fire-escapes, horses, coachmen and pilots. They do not include damages by fires which were not sufficiently important to require the attendance of firemen; neither do they include the ordinary calls for chimneys on fire, which are separately accounted for. The fires of 1890, compared with those of 1889, show an increase of 217; or, compared with the average of the past ten years, an increase of 422. The number of fires in the metropolis, in which life has been seriously endangered during the year 1890, has been 154, and the number of those in which life has been lost has been 44. The number of persons seriously endangered by fire has been 212, of whom 151 were saved and 61 lost their lives. The number of calls for chimney fires has been 1,537. Of these, 450 proved to be false alarms, and 1,087 were for chimneys on fire. In these cases there was no attendance of engines, but only of firemen with hand-pumps. The number of journeys made by the fire-engines of the brigade has been 33,261, and the total distance run has been 65,455 miles. The quantity of water used for extinguishing fires in the metropolis during the year has been between 20 and 21 million gallons, or about 92,000 tons. Of this quantity about 8 million gallons, or about 40 per cent of the whole, was taken from the river, canals and docks, and the remainder from the street-pipes. During the year there have been six cases of short supply of water, four of late attendance of turncocks, and eight of no attendance, making altogether eighteen cases in which the water arrangements were unsatisfactory. Whenever the supply of water is intermittent difficulty must occasionally arise, and the only remedy for this is to make the service constant; but during the year now passed, no loss of any serious importance has arisen through the defects in the water arrangements.—*The Architect.*



THE commercial situation has changed very little during the past six days. Money-lenders talk more hopefully of better rates; the adjournment of Congress is looked upon in a favorable light. Business men and financiers will know how to calculate and what to do; in commercial and manufacturing channels there is a strong suspicion that we have not yet seen the end of financial stringency. There is a larger distribution of merchandise and goods of all kinds throughout the country than railroad men expected at the opening of the year. The gross and net earnings for railroads last year make a favorable showing, the increase in the net earnings being four and one-half per cent, or from \$313,000,000 to \$328,000,000. The gross earnings increased \$72,000,000. In other branches of activity all indications are of a favorable character. Preparations are being made in the far West to do a great deal of railroad-building, opening of mines, developing of timber territory and improvement of arid regions, where irrigation will greatly increase the value of land. There is a great deal of speculation in these directions. Within the past six months, companies have been organized with sufficient capital to open up large mining, lumber and agricultural areas in the far West and Southwest, and population is to be attracted thither by extra and special inducements. There is no doubt but that large fortunes will ultimately be realized out of efforts of this kind. In the extreme Northwest, extending into the British dominions, there is a wonderful outflow of capital from Eastern centres, and a development is in progress there which is certainly surprising. Advances from the lumber regions of the Northwest point to a very heavy spring supply of logs, and lumber advances from the interior of the South show that extraordinary efforts are being made to increase the supply of hard woods by rail and water to Northern markets, especially into the West. A very wide market is being built up for hard woods throughout the North, a tendency which is being stimulated by railway managers as far as possible. They have been stimulated to enterprise of this kind by their success in the shipments of iron, coal and coke, and they are now directing their attention to the utmost possible development of a heavy lumber trade between Southern forests and Northern markets. The smaller manufacturing industries in all sections of the country are doing very well indeed. There is a slight falling off within the past few weeks of projected enterprise, but it is probable that there is no falling off in the number of enterprises that are being actually undertaken. One of the unfavorable indications in the South is the excessive booming of manufacturing towns. It is beginning to be apparent that more money is being invested in a speculative way than is advisable; this craze, however, will cure itself; the South will be the ultimate and permanent gainer. The iron trade is improving in all sections; textile manufacturers, both in the New England and Southern States, report better indications of an active season than at any time for months past. Hardware manufacturers are, as a rule, working full time. Carriage and wagon makers throughout the West are quite busy; all the smaller industries are in a thriving condition. Statisticians who are watching the undercurrents of trade, of commerce and of general progress think that the conditions are better than they were twelve months ago. There has been a great deal of liquidation effected. Production has been restricted, trade has been organized, a balancing of interests has been going on, and the country understands itself from a manufacturing standpoint better than it ever did before.

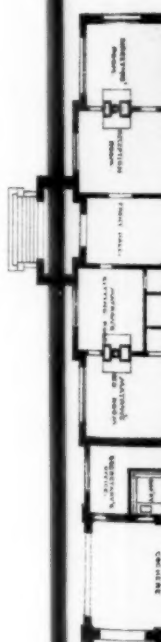
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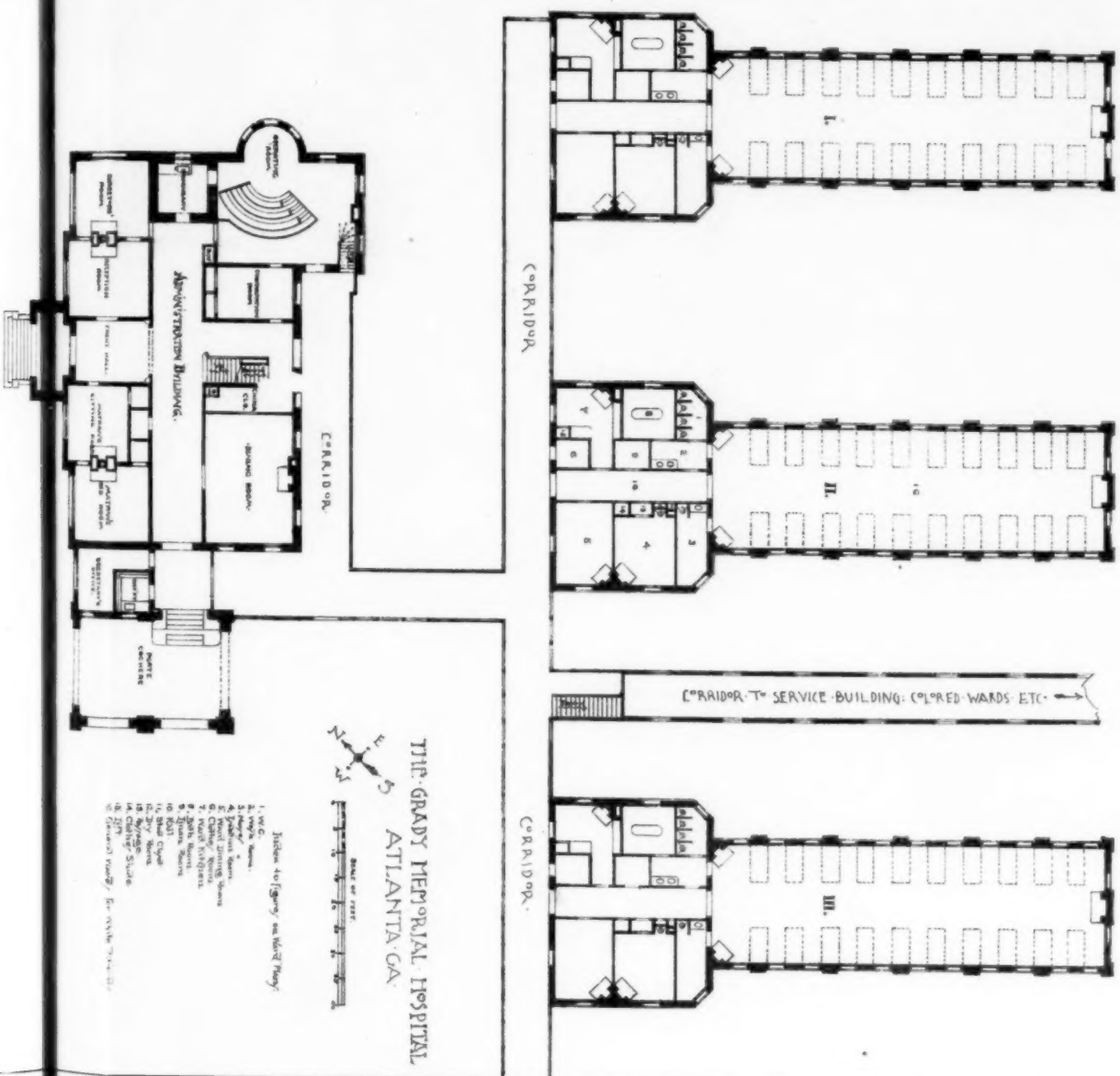


IN THE
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JANUARY 18, 1907
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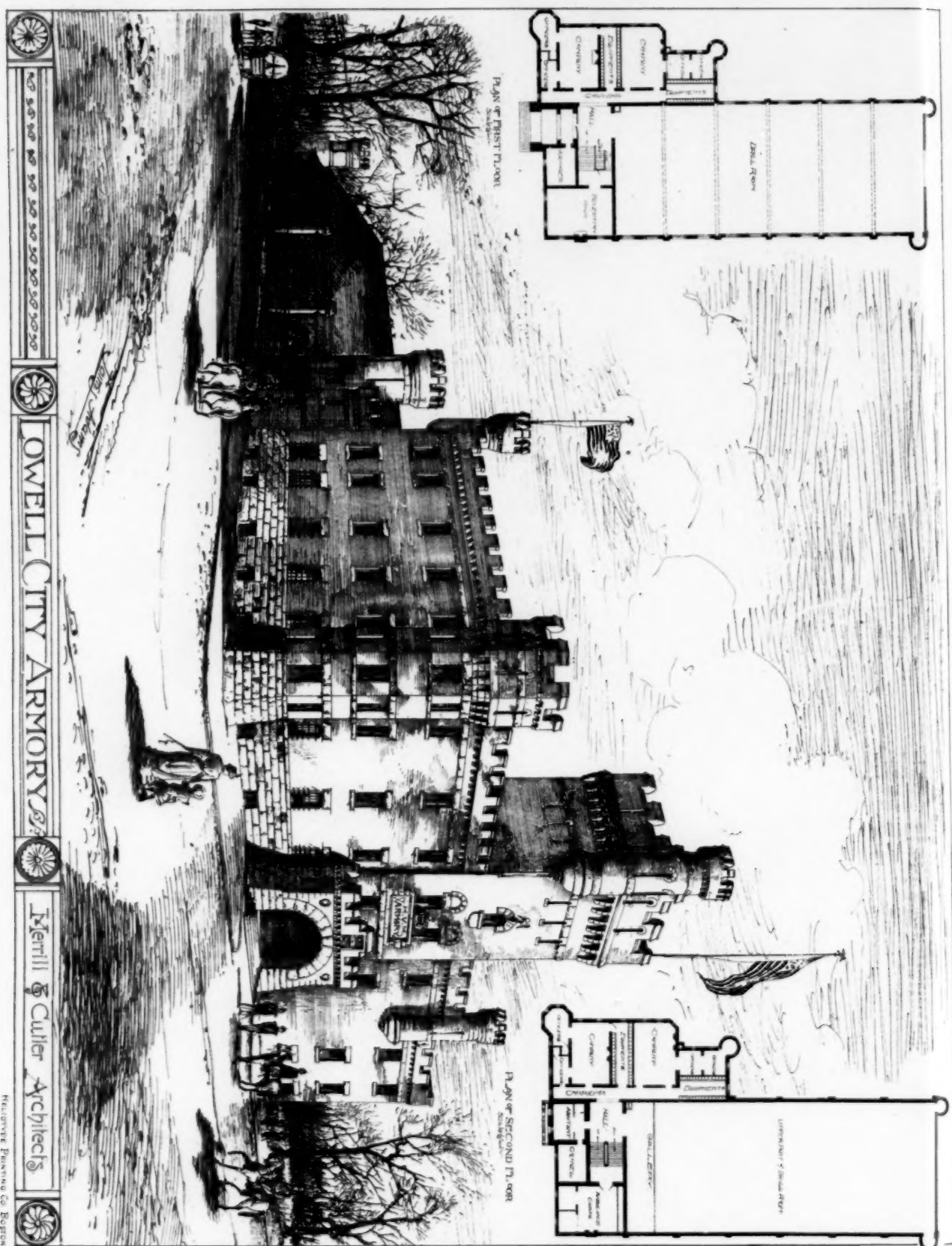


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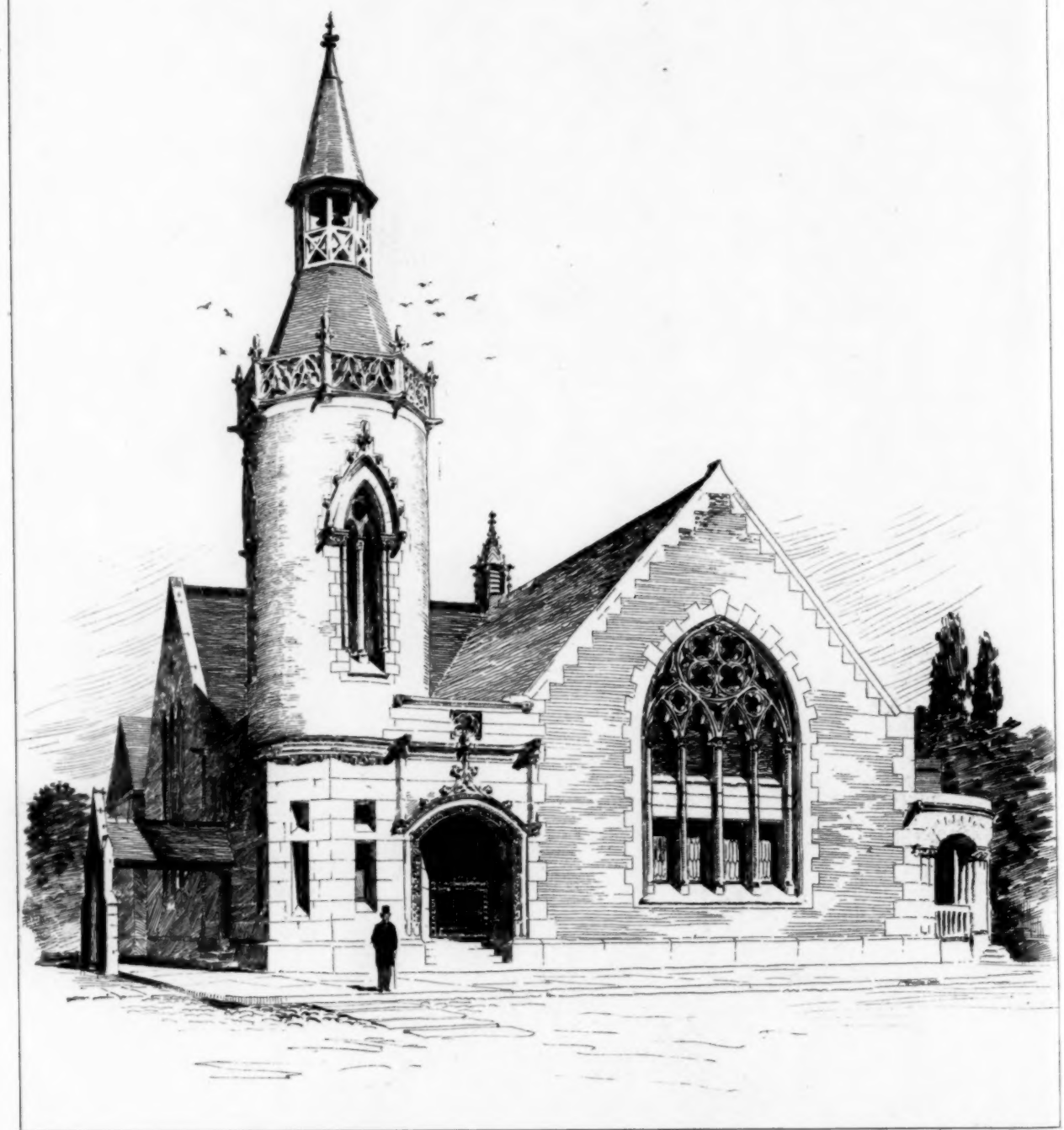


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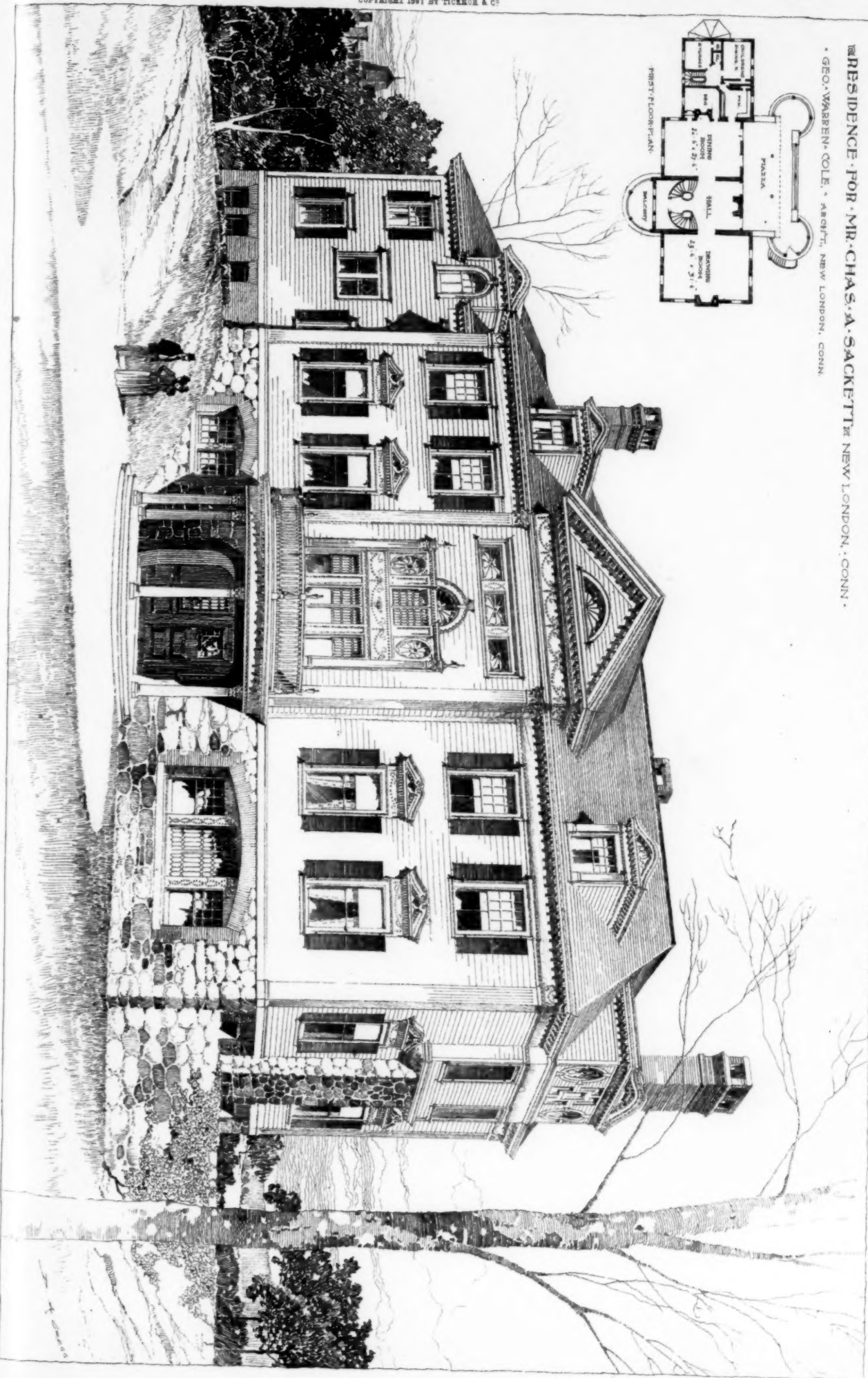
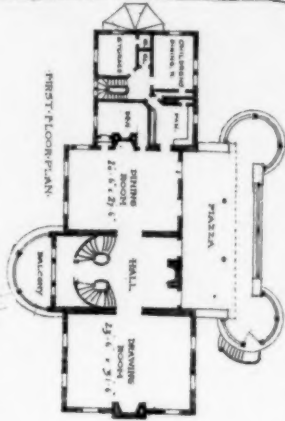


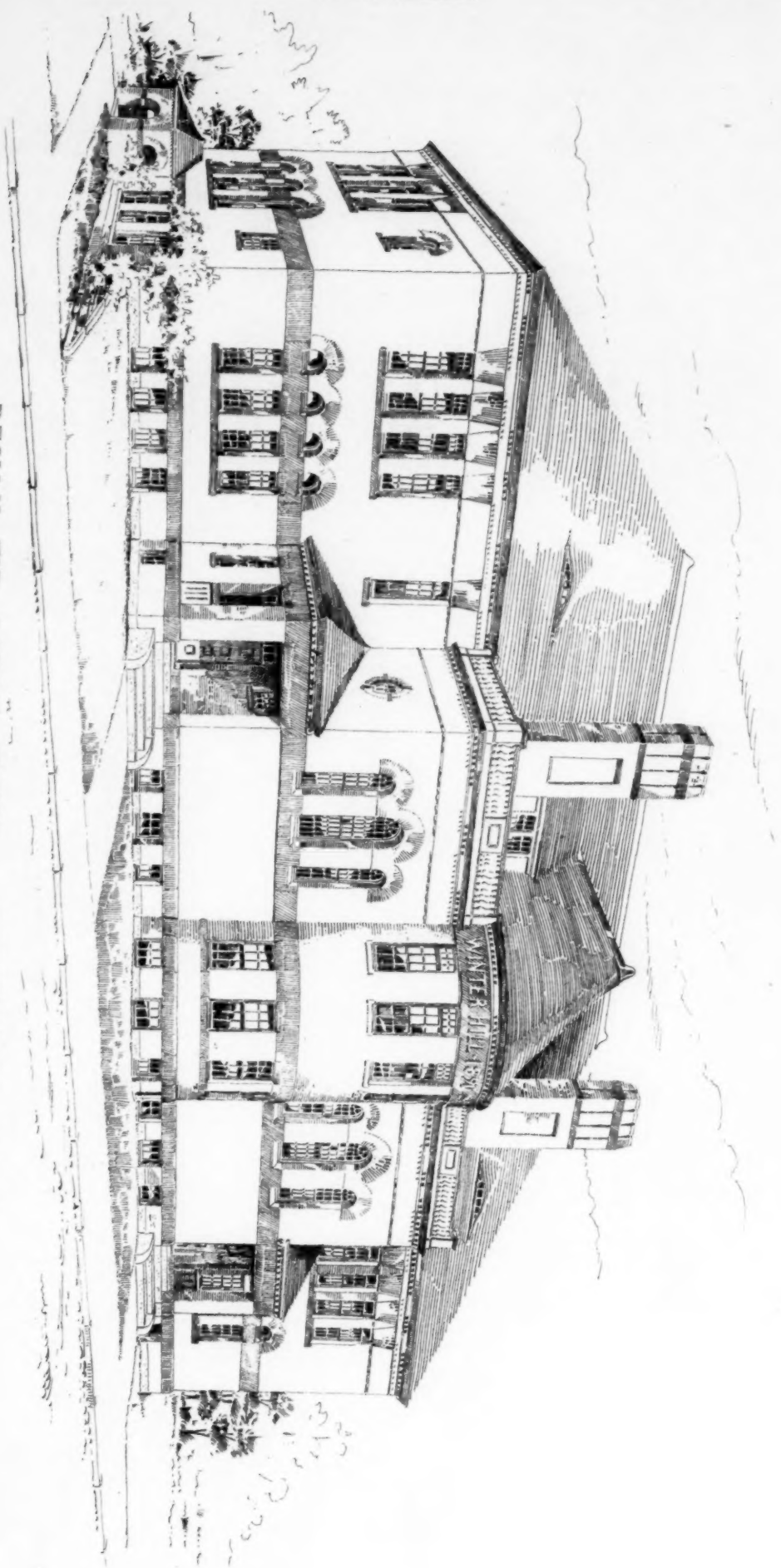
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