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THE verdict at the inquest on the Park Place disaster, in New York, appears to have caused a good deal of disappointment to the newspaper reporters, who perhaps looked for something more sensational, in the shape of a charge of manslaughter against some person. The jury found, however, that the collapse was caused by the breaking of one or more iron columns, near the middle of the first story, and that the breaking was due to some sudden external shock. What this shock may have come from, the jury did not say, but it is to be supposed that they attributed it to an explosion of some sort; and this opinion, notwithstanding the wild talk in the newspapers about the overloading of the floors, the vibration of the building under the motion of the presses, and so on, appears to be shared by all the experts who have examined the building. Captain Damrell, the Inspector of Buildings of Boston, and a man of great experience in such matters, concluded, immediately upon reading the early accounts of the catastrophe, that it was probably brought about by an explosion; and subsequent developments have confirmed the correctness of his surmise. It is not impossible that, according to our advanced modern ideas, the floors in the upper rooms, which were occupied by a lithographer, were overloaded; and it is unquestionable that the removal of the two cross-walls which once existed in the upper part of the building weakened it; but although they might have made the ruin more complete, there is no indication that either of these circumstances caused the catastrophe. On the contrary, as the breaking of wood in beams is always preceded by great deflection, and as any serious deflection would throw presses so much out of level that they could not be properly operated, the fact that the lithographic presses were in active use to the very moment of the crash is sufficient proof that the overloading, if it existed, was far from reaching the danger-point. So with the vibration, of which absurd stories were told in the newspapers. As every architect knows, a brick building is elastic enough to support, without injury, a considerable amount of vibration, while printing on a press vibrating seriously would be a difficult matter; so that the regular use of the presses shows that the movement of the building which supported them was of limited extent. Moreover, the fall of a building through long continued overloading or vibration is generally preceded by the appearance of cracks in the walls, as

well as bending of the floors; yet there seems to be no evidence of any noticeable cracking; and again, the failure of a floor, at least, would generally cause the walls to fall inward, while the street wall, in this case, fell outward. From all these considerations, it appears tolerably certain that the failure was due to an impulse from the middle portion of the structure outwards. This impulse might have been given directly, or indirectly, as the jury thought, by the breaking of a column near the outside wall, and the consequent throwing of the weight of the floors in that direction, but, in either case, the impulse must have been such as hardly anything but the theory of an explosion will account for, and it is proved that ample material for producing explosions, in the shape of benzine, which was used in the building by the barrelful, naphtha, which was employed in the manufacture of rubber cement, and floating bronze powder, were constantly at hand. Even without the suggestion which is made, with great show of probability, that gas from the street mains may have leaked into the cellar, we should be inclined to wonder that the explosion had been delayed so long, rather than that it should have occurred at last. There is little doubt that the persons who used and stored the benzine and naphtha did so in violation of the law which limits the quantity of such substances to be kept in a building, and some of the newspapers urge that all buildings should be regularly inspected, not only to see how much explosive material is kept in them, but whether the floors are overloaded. The obvious answer to this is that the inspection would be very costly, and of little real service, as, between the inspector's visits, the danger might become worse than ever; but, as we have before suggested, it is worth considering whether the public safety might not judiciously be promoted by the enactment of statutes, making the tenant in whose premises fire originated, in a building with several tenants, responsible for the losses caused to his fellow-tenants, or to neighboring property, by the spread of the fire. This is the French and Italian, and, we believe, also the German law at this day, and it would seem to be a natural corollary from the legal principle that every man is responsible for injury caused to others by his own carelessness or negligence; but an Act of the British Parliament, long anterior to our Revolution, expressly provided that a man should not be responsible for damage caused by the spread of fire from his premises to those of others; and we suppose that this view would be held to have been adopted from the English common law into ours in all the Atlantic States. In Texas, Louisiana, California and the other States formed out of former Spanish, Mexican or French territory, since the Revolution, we believe that lawyers consider the English common law to have no authority, and a suit by an insurance company against a tenant or owner in whose premises a fire began, would perhaps give a chance for the display of some very pretty legal archæology.

COMPLAINTS have recently been circulating through the newspapers, not for the first time, about the corruption of the New York deputy inspectors of buildings, who are said to multiply the difficulties and delays incident to the passing of plans, and the approval of executed constructions, for the purpose of extorting fees for accelerating the examination of plans, or closing their eyes to irregularities in construction. Probably the evil is exaggerated, but the deputy inspectors are poorly paid for very laborious, difficult and responsible work, and an occasional yielding to the temptation to accept a small present for an endeavor to oblige would not be very surprising. However, any favor, bought or unbought, shown to one man is an injustice to many others, and the whole process of inspection of plans and buildings ought to be made as simple as possible. The fact is that New York is too large to have only a single office for such matters, and it would save time and labor, besides promoting security, to adopt the London plan, by which the city is divided into districts, and some experienced architect in each is made District Surveyor. His duty is to examine, and approve or reject, the plans for all buildings to be erected in his district, and to inspect, from time to time, the structures while in process of erection. In most cases, the District Surveyor exercises these functions without abandoning, in the least, his private practice as an architect, but there are a few districts where the surveyor finds it more satisfactory to devote his whole time to his official duties. Instead of salaries, the district surveyors

are paid by fees, which owners must deposit with their plans; so that a very efficient inspection is secured without any expense to the public treasury, and there is, of course, no suspicion of bribery with inspectors of this character.

THE case of McNeil vs. the Boston Chamber of Commerce, in which suit was brought for damages on account of failure to award a contract as promised, after repeated appeals, has been passed upon by the full bench of the Supreme Court of Massachusetts, which confirms the previous judgment, awarding fourteen thousand five hundred dollars to the claimant. It will be remembered that the Chamber of Commerce, after adopting plans for its new building, invited proposals for carrying them into execution, without, however, promising to accept any tender. The firm of McNeil Brothers, who are builders of the highest standing, together with some other contractors, who thought that there might be an intention to throw the work into the hands of particular parties, refused to estimate, unless the promise was made them that the contract should be awarded to the lowest bidder; and an assurance to that effect appears to have been given by certain members of the building-committee. The contractors in question thereupon completed and submitted their tenders, and that of McNeil Brothers was the lowest. Notwithstanding this, the contract was awarded to other parties. Mr. McNeil then brought suit for damages for violation of the agreement, under which the contract should have been awarded to him, claiming the contract price, at his estimate, less what it would have cost him to do the work; or, in other words, the profit which he would have made if he had carried out the work at his figures. In cases of violation of contract, this is the usual way of reckoning the damages; and the jury found that there was a valid agreement with Mr. McNeil, as with the others to whom the promise was made; that it had been broken, and that the profit which Mr. McNeil would have made was fourteen thousand five hundred dollars, which he was entitled to recover. According to the daily papers, the decision has rather upset the tempers of some of the members of the Chamber of Commerce, who are said to threaten that the Chamber will try to make the members of the building-committee pay the money out of their own pockets. This, it strikes us, would be a most foolish and unreasonable proceeding. No one pretends to doubt that the building-committee intended to act for the best interest of the Chamber; and after agents have been clothed with full discretion, it will not be found very easy to punish them for exercising that discretion, even if the Chamber should seriously attempt to do so. Even an unsuccessful attempt, however, would be a most unfortunate thing, not only for the Chamber of Commerce, but for other bodies. Hitherto, such corporations and associations have been generally well and zealously served, without cost, by their building-committees; but if a place on a building-committee is to expose people to heavy pecuniary loss, as well as to a great sacrifice of time and energy, it will be impossible to get members to serve on such committees, and constructions for the corporate benefit will have to be carried out in some way very different from that now customary, and probably much less satisfactory.

A CORRESPONDENT of the *Scientific American* gives an intelligent account of the collapse of a kitchen boiler under his observation, but omits to mention how it might have been prevented. The boiler, which was supplied from a tank, under about eight feet head, had been successfully used for twenty years, but about a year ago, a new range was put into the house, having a water-back with much larger heating-power. The consequence was, as plumbers and architects will understand, that steam formed in the water-back, and, escaping into the boiler and there condensing, produced the snapping sounds so familiar in hot-water house-pipes under an imperfect system of arrangement. On the morning of the accident, there was a particularly hot fire, and the bubbles of steam probably passed without condensing to the top of the boiler, and accumulated there, until a foot or two of the upper portion of the boiler was occupied by steam, under the tank pressure. While affairs were in this state, a hot-water faucet was opened in the laundry, with the usual result. As the hot water began to flow out of the boiler, through the pipe supplying the faucet, a corresponding amount of cold water entered the boiler from the tank. A very small amount of cold water, running down the pipe from the tank to the boiler, which was probably

placed, as usual, in the middle of the boiler, would cool the pipe enough to condense the steam on it, relieving the pressure, and admitting more cold water from the tank, to increase and complete the condensation. In practice this operation is instantaneous, the steam, under pressure, being replaced by a vacuum so quickly that the water cannot flow through the pipes fast enough to occupy the space, and, as in this case, the exterior atmospheric pressure, of fifteen pounds to the square inch, or seven or eight tons on the empty part of the boiler, is sufficient to crumple it up like paper. Twenty years ago, this was a common accident, and it still is so where boilers are supplied directly from the street mains; but where boilers are supplied from tanks, as in this instance, it has long been usual to carry up an "expansion-pipe," either from the top of the boiler, or from the topmost point of the hot-water pipes, which are themselves taken from the top of the boiler, about a foot above the top of the tank. The expansion-pipe being higher than the tank, the water does not run out of it, but bubbles of steam, if they reach the top of the boiler, escape immediately up the expansion-pipe, and are either condensed or issue into the air over the tank. Often, where the water-back is too powerful for the boiler and its circulating system, steam and water bubbles can be seen issuing freely from the upper end of the expansion-pipe; but, if this is properly arranged, no steam can accumulate in the boiler so long as it is kept open.

THE Italian Government has ordered further excavations to be made on the Pass of the Great Saint Bernard, where, last September, were found the remains of a Roman temple, which was readily identified as the temple built about 15 B. C., and dedicated to Jupiter Pœninus, or the Alpine Jupiter. It is supposed that the outbreak of the war with the Germans, at that period, led to the strengthening and enlargement of the town which had been established at Augusta Prætoria, now Aosta, on the south side of the pass, and the construction of military roads in different places across the pass to the Rhone valley, and in various directions beyond, for facilitating communication between Italy and the garrisons in Switzerland and on the Rhine, and that the building of the temple was a result of the prosperity which these active operations brought to the province. For many years, it must have been much frequented by Roman soldiers and travellers, and many coins have already been found among the ruins, dating from the time of Augustus to that of Theodosius I; while one silver coin of Charlemagne's time has been found. In the tenth century, however, the building, which had, of course, long been deserted, and seems to have suffered from fire, was pulled down, to furnish materials for the celebrated Hospice. It is curious to reflect that the same marble slabs, which, as part of the temple of Jupiter, no doubt excited the admiration of the travellers over the pass, for a thousand years, and were then utilized for one of the noblest charities which the Christian religion ever suggested, are likely, just at the expiration of their second millennium of usefulness, to be abandoned once more, and this time, perhaps, forever, to the wild solitude which reigned about the pass before the Romans and Carthaginians climbed over it to attack each other; but the construction of the Saint-Gothard tunnel was soon followed by the definitive abandonment of the hospice, hardly less famous than that of the Saint-Bernard, on the mountain above it, and the Simplon hospice seems destined to meet the same fate within the next two or three years; while the Saint-Bernard tunnel, which has already been surveyed, is likely to be the next after that of the Simplon.

A DEVICE for investigating abnormal noises in machinery is described in the *Wiener Bauindustrie-Zeitung*, which is worth remembering. It often happens that a creaking or pounding is heard about a steam-engine, or other piece of machinery, showing that something is wrong with it, but the din and confusion all about are so great that it is impossible, without repeated trials, to find where the noise is produced; and, meanwhile, the bearings may be seriously cut by some hard substance accidentally introduced, or a joint broken asunder by a neglected pounding. The first thing is to shut out the workshop noises, and this is accomplished by stopping one ear with cotton, and placing in the other one end of a rubber tube. The other end of the tube is then moved about over the machine to be investigated, when any abnormal noise is at once detected, and referred to its proper place.

GERMAN ARCHITECTURE.¹—VII.

NORTH GERMANY.

THE general features of the Renaissance in North Germany do not differ materially from those which the style displays in the south. The second part of our subject will therefore be treated more briefly than the first has been.

North Germany, which we will consider as terminating on the south with the Main, may be divided for our purposes into

Hanover, the duchy of Brunswick and the provinces of Brandenburg and Posen; on the north, the coast districts, embracing the free cities of Dantzic, Lübeck, Hamburg and Bremen and the duchies of Pomerania and Mecklenburg. The first section does not present any general architectural features absolutely distinct from those of Swabia and Franconia.

Silesia and Saxony early adopted the Renaissance; Breslau, the capital of Silesia, outranks all other German cities in the number of important Renaissance constructions antedating

Fig. 41. Tomb at Breslau.

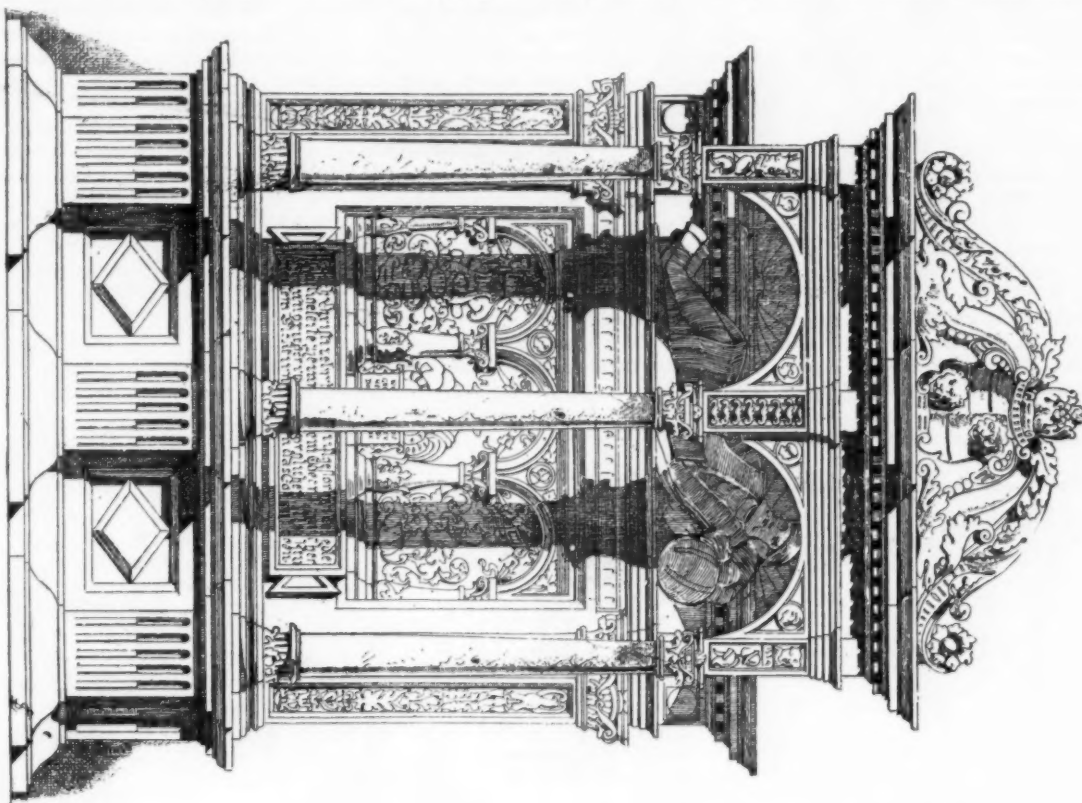
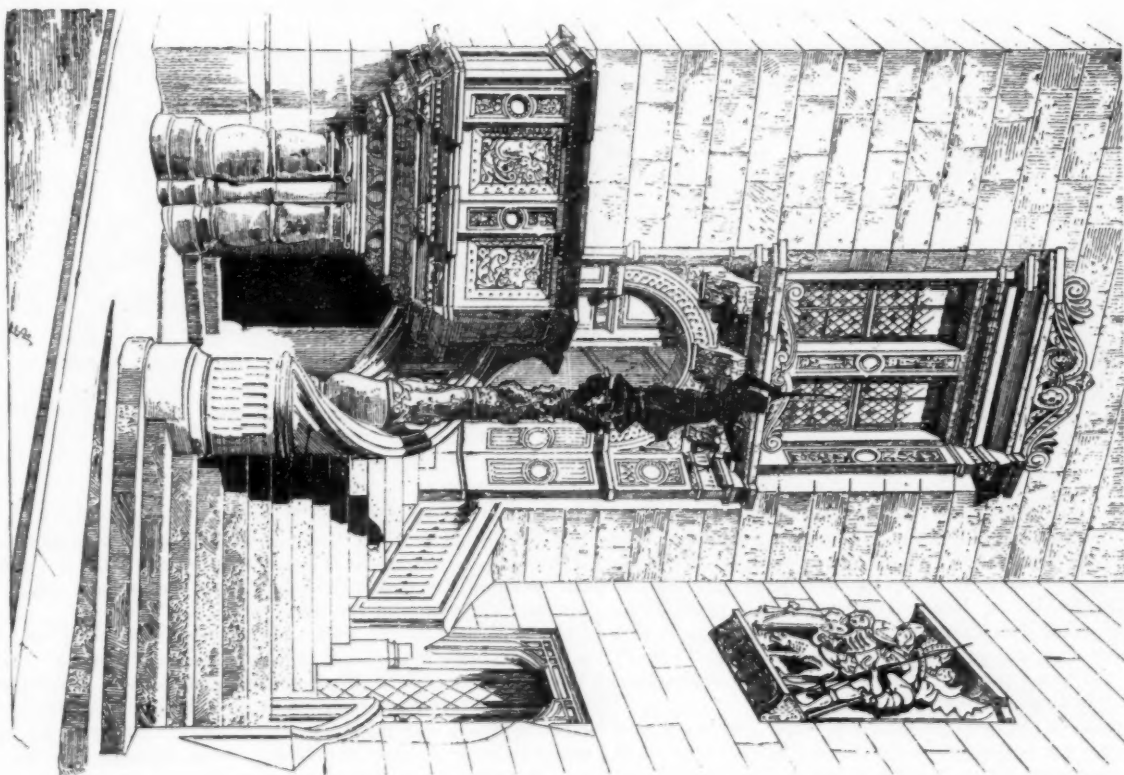


Fig. 42. Court of the Town-hall at Götting.



three principal groups: on the south, Silesia, Saxony, Thuringia, Hesse, Rhenish Prussia and Westphalia; in the centre,

1530. In the early part of the sixteenth century, the new style appeared in small decorative designs. The first large work was the sacristy door of the cathedral, which dates from 1517 and betrays the influence of Italy; the town-hall, various

¹ From the French of Lambert and Stahl, in Planat's *Encyclopédie de l'Architecture et de la Construction*. Continued from No. 820, page 160.

private residences and a few portals have Renaissance forms and bear dates running from 1521 to 1534; this last date is found on a remarkable tomb in the church of St. Elizabeth; the monument (Figure 41) bespeaks an already well advanced art. The pilaster-like projections above the columns and the peculiar arrangement of the arches between them are features that occur also in great edifices and are characteristic of the architecture of North Germany.

These reliefs, the object of which is to secure room to carry forward the bases of the columns sufficiently, are generally obtained in South Germany by means of consoles under the soles of the balustrade, a disposition which admits of the complete development of the archivolt; it may be seen in the courts of the Mint at Munich and of the old Castle of Stuttgart.

Silesia boasts of several monumental structures built by its princes, among others, the château of Liegnitz (1533) and the Piastenschloss at Brieg (1547), one of the most beautiful of German castles, with a rich façade adorned with a profusion of statues, medallions and inscriptions, all of fine style and workmanship. The castle of Oels, of the second-half of the sixteenth century is also worthy of note. The city of Görlitz abounds in Renaissance architecture; the town-hall has a very handsome court, and the staircase, with a balcony from which to proclaim edicts, is a composition of marked originality; this portion was constructed in 1537 (Figure 42). Several interesting houses with Renaissance forms, erected between 1526 and 1540, are to be seen in the city.

Saxony, a duchy of advanced civilization and governed by an enlightened family favorable to the arts, early embraced the cause of the

explosion. The same prince erected the funerary chapel of the house of Saxony at Freiberg. An Italian artist named Nosseni directed the major part of the work.

Saxony at this period exercised a powerful influence over neighboring countries. Dresden still possesses a few interesting fragments of private architecture in several entrances, all presenting the same disposition of angles cut off and occupied by two niches forming seats. A circular oriel-window with a very rich frieze ornamented with figures of dancing children is likewise found here; oriels of this kind are also to be seen in the castles of Dresden and Torgau and in a private residence at Leipsic. This last city, as well as Altenburg, has preserved some remnants of its sixteenth-century dwellings: the picturesque town-hall is in a good style and is not devoid of interest.

Halle bears the stamp of the reign of the powerful bishop of Mayence and Magdeburg, Albert of Brandenburg (1513-1545), the one who erected the fountain at Mayence of which we have already spoken (Figure 26). He completely transformed the physiognomy of the ancient and wealthy city of Halle. He tore

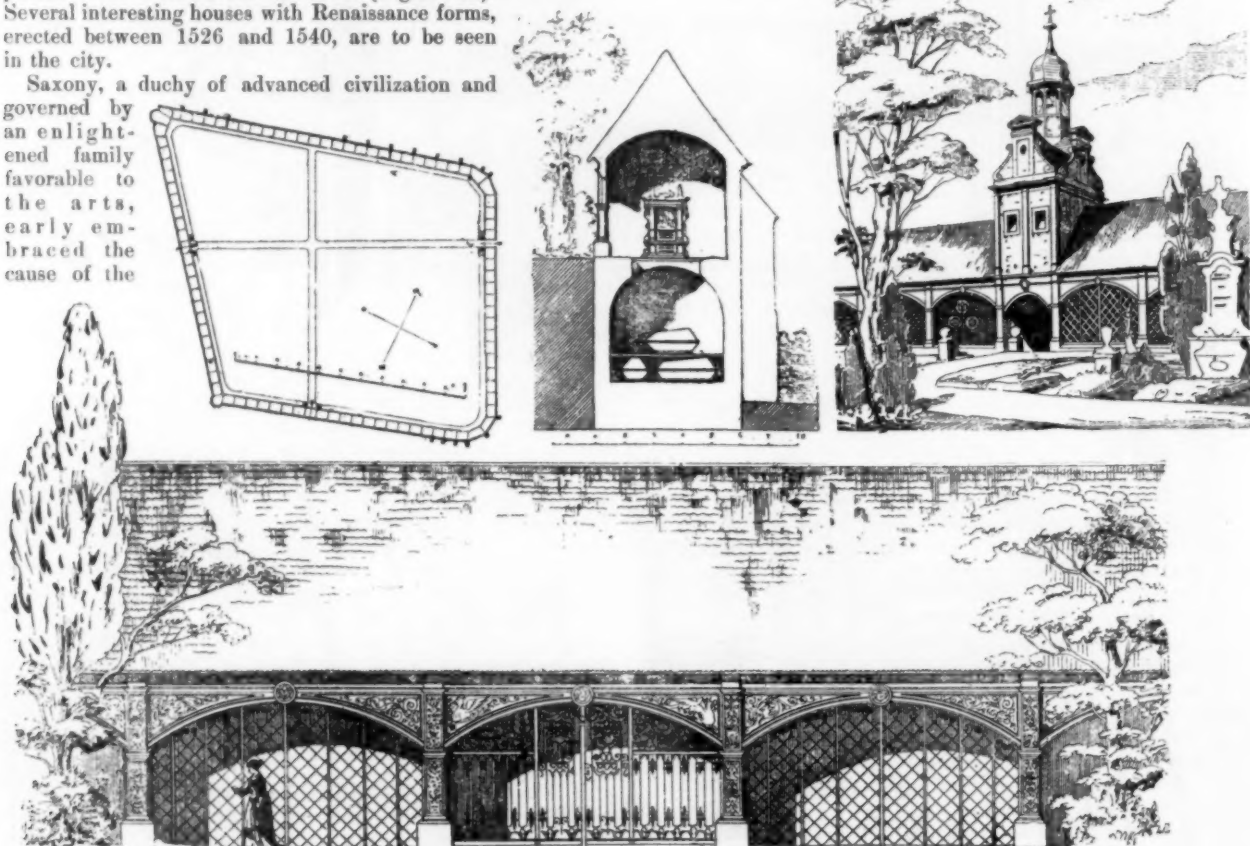


Fig. 43. Cemetery at Halle.

Reformation and took a leading part in the intellectual movement in Germany in the sixteenth century. The Renaissance appeared in 1530 in certain portions of the castle of Dresden. The castle of Torgau, built between 1532 and 1544, is likewise in the Renaissance style; it is one of the largest ducal palaces in Germany and the architecture is rich and elegant; a grand openwork staircase suggests French motives of the same period. There are also some beautiful portals and fine dormer-windows here.

Certain parts of the castle of Dresden, which exhibit a very pure style, were constructed in 1550. Architecture attained its highest development in Saxony between 1553 and 1586, under the reign of Duke Augustus; it was he who completed the Dresden palace. He also built a pleasure castle in Dresden, which must have been one of the gems of Renaissance art; but unfortunately it was destroyed in 1747 by an

explosion. The same prince erected the funerary chapel of the house of Saxony at Freiberg. An Italian artist named Nosseni directed the major part of the work.

In 1558 a two-story colonnade, forming a porch below and a loggia above, was added to the Gothic town-hall of Halle. The old town-halls of Bremen, Cologne, Lemgo, Halberstadt and many others were enriched by a similar addition during the Renaissance. In some cases this consisted of rows of arcaded galleries carried along the façade, as at Bremen, in others it was a monumental porch with two stories of arcades, as at Cologne, and in still others it was a less pretentious construction, as at Lemgo and Halberstadt. The loggia of the town-hall of Halle was designed by Nicolas Hofmann, the architect of various other works there. We are indebted to him for the

cemetery (1557-1574); this is situated on an eminence near the city, and is of monumental and elegant architecture. It forms an immense square and is surrounded by ninety-four arches, sixteen feet across and serving as places for sepulture. This is the only cemetery of the kind in Germany, and was

evidently inspired by the Italian Campo Santo (Figure 43).

The castle of Merseburg, a noble structure belonging to the latter part of the sixteenth century but rebuilt in 1665, exhibits some beautiful details in its fountain, oriel-windows, gables, etc.; the whole is rich and in a characteristic style (Figure 44).

In Thuringia, the cities of Weimar, Erfurt, Gotha and Jena all possess a few interesting Renaissance fragments, but in no case is the ensemble imposing. The same may be said of the castles of Heldburg and Dessau.

In Hesse there are a few ducal palaces of some note, besides a few wooden houses, which we will pass over since more complete and more original examples of these con-



Fig. 44. Portal from the Schloss of Merseburg.

structions will be encountered in the central districts, particularly in the Hartz region.

The Rhenish province bears, in a striking manner, the impress of ecclesiastical domination. In the cities of Cologne, Treves, Aix-la-Chapelle and Colmar, the burghers had but little influence, and the Renaissance was slow in receiving recognition. The productions of the first-half of the sixteenth century are largely church-monuments, consisting especially of tombs and mortuary tablets.

Considering the high order of the Romanesque and Gothic architecture of Cologne, one is surprised at the comparative poverty of the metropolis of the Rhenish districts in Renaissance structures. It, however, contains one incomparable

example of this style, the porch of the town-hall, constructed by Wilhelm Wernikel in 1569. Notwithstanding the lateness of its date, it presents the characteristics of the early Renaissance in its elegant proportions and delicate details; it is an ornate work of the highest type. The arches of the second story are pointed, with classic settings.

The Church of the Jesuits, built between 1621 and 1629, is likewise worthy of note; it exhibits a mixture of Gothic constructional elements and Renaissance decorative forms that is quite remarkable for the time. Certain brick and stone edifices, suggestive of a Dutch influence, are encountered at Cologne; we shall have occasion farther on to show how this influence was felt in the architecture of the coast cities. There are no private houses in Cologne that point to the existence of a powerful burgher class in the sixteenth century; the majority of these are of a later date.

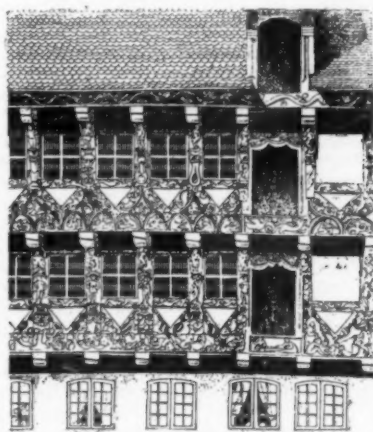


Fig. 45. The Sack Mansion at Brunswick.

There are but few Renaissance remains in the other cities of the province. At Coblenz, there is a Jesuit church, built between 1609 and 1617, much like the one at Cologne. At Treves, everything from Renaissance time sinks into insignificance by the side of the magnificent Roman and mediæval monuments.

The wood constructions of the Moselle region are more interesting than its castles. The timber architecture encountered

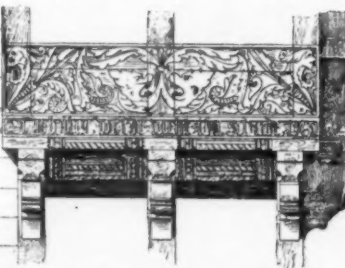
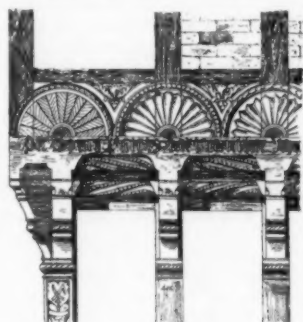


Fig. 46. Details of Timber Architecture at Höxter.

here differs, however, from that of the central districts which we are to examine later. Its effectiveness is secured less by the great horizontal lines obtained by the projection of the different stories than by the fine and delicate decoration of its surfaces, which is subordinated to the structural requirements. This style possesses a charm of its own, but it lacks the energy and force displayed in that of the Hartz region.

In Westphalia, the basin of the Weser abounds in castles whose architecture aims especially at decorative effects, but seeks neither delicacy nor elegance. An exception may, however, be made in the

case of the castle of Bracke, the court of which contains some carefully studied parts. Lemgo, Paderborn and Münster all possess a few interesting edifices. These are largely town-halls.

Westphalia displays a kind of decoration which indeed appears in the architecture of all northern Germany, and constitutes one of its characteristic features. Its peculiarity consists in sculpturing the face of the stones with small, geometric patterns of free design. The whole edifice sometimes looks as though covered with cloth, sometimes the ornamentation is



Fig. 47. Town-hall at Schwalenberg.

confined to alternate courses, and sometimes it is employed merely to accentuate the pilasters, fasciæ, keys and so on.

The central district, as we have said, includes the duchy of Brunswick and the provinces of Hanover, Brandenburg and Posen. The Hartz region, with the cities of Brunswick, Halberstadt and Hildesheim as main centres, and Zell, Schwalenberg and Höxter as secondary points, is especially rich in a certain kind of timber architecture. Its general character

results from the prominent projection of the stories over one another and the profuse decoration of the horizontal sections formed by the string-pieces and their supports. Three distinct constructive periods are discernible. In the houses of the beginning and middle of the sixteenth century, the Gothic traditions of a decoration consistent with, and determined by, the construction are heeded; rounded forms are avoided; the horizontal timbers are cut at right angles, and are supported on beam-heads forming corbels. This period is found particularly well-represented at Brunswick; we cite, as an example, the Sack palace, constructed in 1536 (Figure 45). Toward the close of the century the decorative system became independent of structural requirements and bent the wood to its own caprices; curved lines appeared; the string-pieces were chamfered off and sumptuously decorated. We give, as specimens of this period, two details from a house in Hörter (Figure 46). Figure 47 reproduces the town-hall of Schwabenberg, which belongs to the same type, and numerous other examples

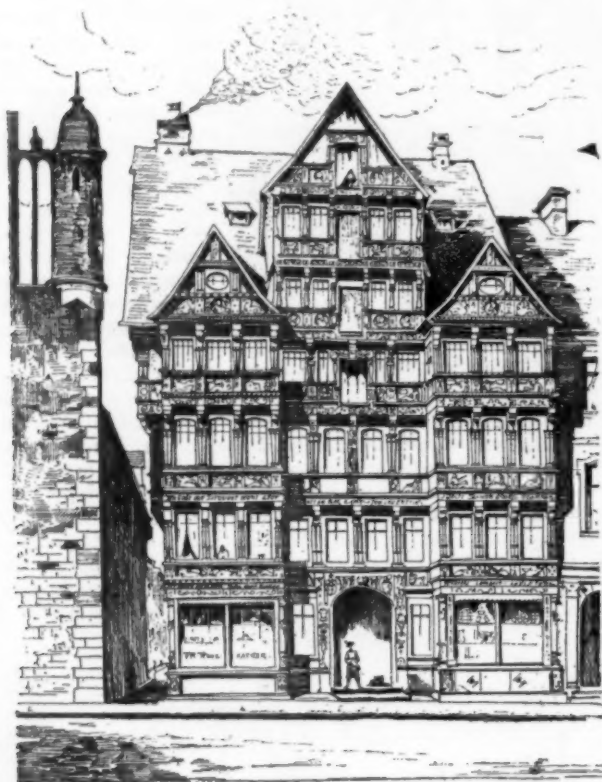


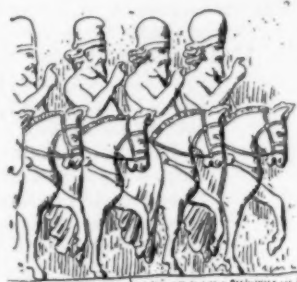
Fig. 48. Wooden House at Hildesheim.

of it may be seen at Halberstadt. The third period is characterized by a very rich style, in which imitations of stone constructions abound, most of the decorative elements, at least, being borrowed from these sources; the profiles are of the antique order, and are decorated with denticles, eggs and darts. The string-pieces are not chamfered off, but serve as friezes, which are embellished with inscriptions or ornamental designs. It is at Hildesheim that this school can be best studied (Figure 48).

[To be continued.]

AMERICAN WOODS OF GREAT SPECIFIC GRAVITY.—There are 413 species of trees found within the limits of the United States and Territories, 16 of which, when perfectly seasoned, will sink in water. The heaviest of these is the black ironwood (*Condalia ferrea*), found only in Southern Florida, which is more than 30 per cent heavier than water. Of the other 15, the best known are the lignum vitae (*Guaiacum sanctum*) and the mangrove (*Rhizophora mangle*). Texas and New Mexico lands, full of queer, creeping, crawling, walking and inanimate things, are the homes of a species of oak (*Quercus grisea*) which is about one and one-fourth times heavier than water, and which, when green, will sink almost as quickly as a bar of iron. It grows only in mountain regions, and has been found westward as far as the Colorado desert, where it grows at an elevation of 10,000 feet.—*Invention*.

THE MANAGEMENT OF AN ARCHITECT'S OFFICE.—III.



Sassanide Horsemen. From "La Vie privée des Anciens."

(2). **SUPPLIES.**—These form a considerable item of the architect's expense-account, and should be purchased at the closest figure attainable, and in such quantities as to prevent delays at all times. They should also be furnished in liberal quantities as the attempt to economize in their consumption almost always costs more in the draughtsman's time than the value of the material saved.

At the same time a sense of responsibility should be encouraged in the draughtsmen, so as to prevent waste. To accomplish this, office-boy No. 2 is given charge of all supplies, and it is his duty to see that they are furnished in proper quantities. He delivers to each assistant-superintendent all that are needed for his room, and replenishes the stock from time to time from the store-room, charging all that are issued to each room and turning in a quarterly statement to the civil engineer, who compares the supplies issued to each assistant-superintendent with the volume of work done, and warns against waste if necessary. After such a record has been kept for six months or a year, the civil engineer can judge of the probable amount needed for a year, and can then invite proposals for furnishing, as needed, a year's supply.

Usually this will result in an economy of from ten to fifteen per cent in price, and a saving of from five to nine per cent, which is worth trying for.

Orders are sent out for sufficient supplies for six months, and when received are stored in the store-room, and a record is kept by office-boy No. 2 of all supplies going into store-room and issuing therefrom.

An office employing twenty-five men will use in this way, in one year, about as follows:—

No. 1 pencils.....	1	gross.
" 2 ".....	1 1-2	"
" 3 ".....	1 1-2	"
Blue ".....	1	"
Red ".....	1	"
Yellow ".....	1	"
Tracing linen, { 30" wide.....	9	rolls 20 yds.
{ 36" ".....	8	" "
{ 48" ".....	8	" "
Heavy tracing-paper, (Economy) 60" ".....	24	" "
Thin tracing-paper, 56" ".....	26	" "
Detail tracing-paper, 48" ".....	26	" "
Manilla detail-paper.....	350	lbs.
Wrapping paper.....	150	"
Whatman's sheets (Double E).....	35	yds.
W. & N.'s moist colors.....	45	pans.
Pens—Gillott's 303.....	1	gross.
" —Stubbs.....	1	"
" —Falcon.....	1	"
Thumb-tacks.....	8	"
Ink rubbers, small (Faber's).....	12	doz.
Sponge rubbers 2 x 3.....	2	"
Higgins's ink.....	12	doz. bottles.
W. & N.'s blue ink.....	1	" "
" red ".....	1	" "
Letter-paper.....	30	reams.
Note-paper.....	23	"
Envelopes, large.....	2.5	M.
" small.....	7.5	"
Specification paper.....	8	reams.
Pads.....	6	doz.
Blotters (size 10 x 24).....	2	reams.

(3) **Book-keeping:**—Perhaps as many different ways exist of keeping books as of preparing drawings; requiring from an inappreciable amount of time each month to three or four days a week by a regular book-keeper. In all cases, however, the end aimed at is the same; to keep the accounts between client and contractor so as to know at all times the cost of work ordered to date, and the amounts paid thereon; to keep the accounts between architect and client so as to know at all times the amount due from client to architect for disbursements, and on account of commissions for various works, and finally to know that all amounts due are properly charged up, collected and expended.

The management of the office also should be such that the actual cost to the office of any work, can be ascertained if desired.

Purely business transactions may be taken to be as follows:—

- (1) Commission from client to prepare plans.
- (2) Contracts signed.
- (3) Additional work.
- (4) Payments to contractors.
- (5) Payment of office-bills.
- (6) Payment of wages.
- (7) Petty cash disbursements.
- (8) Cash receipts.
- (9) Disbursements to firm.
- (10) Disbursements for investment.

Continued from No. 819, page 149.

To avoid error means should exist of checking every entry in the books, every contract, and each operation. The operation of the system of checks should also be as easy as possible.

To accomplish this, one of the signed copies of the contract is retained; the original proposals of all additional works are retained, and when a special order is made out, a stub is also written, and both are compared with the original; all certificates have stubs which are filled out; all checks have stubs; the check-book is so kept as to check the cash account, etc., as will be explained more in detail under the headings above given.

With such a system, the entries which have to be made by the civil engineer during the month are but few; fully seventy-five per cent being made by the stenographer.

Carrying out such a system, or some similar one, is the only way whereby errors can be avoided, and the least departure from the system is likely to result in an error.

Taking up the points as above given, let us group them under day-book, comprising (1)-(2)-(7)-(8), check-book, comprising (5)-(6)-(7)-(8)-(9)-(10), stub-books comprising (3)-(4).

Day-book:—In the day-book all commissions are entered as soon as received, with a statement of the work, appropriation, etc., in this form.

May 31. Dr. Dr. C. H. T. 10 W. 58th St., City.
Cr. Preliminary account.
Commission for residence N. W. cor. 69th St., and 6th Ave.,
property cost, \$150,000.
1 per cent. \$1,500.00

At the end of the month this is transferred to the ledger under the preliminary accounts, which is simply a memorandum of clients' names with the commission due for preliminary studies.

When expenses have been incurred, or when the studies have been accepted, an account is opened in a different place, in anticipation of the time when contracts will be let. This is given two pages of the ledger, the left-hand page being headed —

	Dr. C. H. T.	Jack and Jill.	Cr.
May 31, Preliminary account fol. 110			
Jan. 31, Disbursements, " 32	\$11.00		

and the other page, and as many more as may be needed, used for contractors, the account being kept as though we were keeping the contractor's account for him; two pages are usually enough for an ordinary piece of work.

The preliminary account is then credited with the charge made in the new account.

Whenever a contract is signed it is entered in the day-book, thus:—

May 30, Dr. A. B. C.
Cr. John Smith (Contractor)
Contract for the C — Building, \$125,000.00

and an entry made in the ledger at the end of the month, and usually on the right-hand page with the contractor's name heading the page.

All cash receipts are entered in the day-book also; they are usually in the form of checks accompanied with the bill; this is receipted, and then the entry made from the bill in this form:—

May 31, Cr. A. B. C.
Dr. Cash, \$3,100.00

the check is then deposited and entered in the check-book, (see heading "Check-books").

At the end of the month entries are made in the day-book from all stub-books and transferred from the day-book to the ledger.

Petty-cash disbursements are made by office-boy No. 1 for messengers, telegrams, car-fares, travelling expenses, expressage and the like, charging them in each case against the proper client and stating the purpose. These entries are made in a book kept for the purpose.

All superintendent's expenses are paid by him, the assistant-superintendent handing in a voucher on the form subsequently given. Office-boy No. 1 has a sheet with all the clients' names on it, and against each he makes a detailed entry of the charges from time to time during the month, so that on the last day he has everything ready to hand in. These amounts are charged up in the day-book against each client as given under forms.

As will be explained more fully later, the checks are all charged to appropriate accounts, and at the end of the month are grouped under these accounts; they are extended in the day-book, thus:—

Cr. Cash,
Dr. Expense account, \$2250

and so on for each account.

Then every charge in the day-book is transferred to the ledger setting opposite the charge in the day-book the page in the ledger where the entry is made, and opposite the ledger-entry the page in the day-book from which it came. This enables the civil engineer to take the ledger and trace back every item of account to its

original, for purposes of comparison, or to ascertain the detail of any particular charge; it also limits the entries usually to one line per month.

Then the cash is balanced in the ledger, the method being shown on the annexed form from which it will be seen that each month the balance from the preceding month makes the first item on the Dr. side and then follow all receipts; and on the Cr. side all disbursements, with the new balance as the closing item.

Keeping the items in this detail makes it easy at the end of the year to show where all money came from, and to whom it was paid out, without reference to the day-book; and this is the only case where it is desirable to make any entry in the ledger other than the folio entry.

A transcript of the cash-account for the month is made for each member of the firm, and if it is desirable the bank-book is balanced-up at the bank, and handed-in with it, forming a proof of the accuracy of the statement.

If these checks are signed only by the firm, and a memorandum of all bills sent out each month turned in, also, and the petty-cash book examined, the firm can feel sure that they cannot lose one dollar by dishonesty.

Check-book:—As a general proposition, it may be said that every dollar received by the firm should go into the bank, and every dollar needed for any purpose should come from the bank. By so doing and by making each check for only one purpose, a voucher is had for all moneys expended and the bank-balance each month will equal the balance of cash in the ledger. Each check is drawn in the usual way and the stub filled-out in the usual way, and to it is added the account against which the check is chargeable.

On the opposite page, starting with the balance on hand at the end of the month a record of all checks deposited is kept, so as to give the total amount of cash for the month (the Dr. side of the cash account in the ledger) and the actual balance in bank at all times; and this is checked by keeping the total value of all checks drawn for the month on the stubs which subtracted from the total in bank should give the balance in bank. This keeps a constant check on the arithmetical work and serves as a check on the cash account.

The form is given under "Forms."

Checks drawn in payment of bills for blue-printing are charged against "client account" and separated for each client. Checks for wages are charged to "wages account," and their detail is kept on a slip in the front of the check-book which is arranged in the form of a table with the men's names on one side and the date across the top, leaving squares for the insertion of the amount of the week's pay. If the men are paid by the hour the time-slips are turned-in on Saturday with the amount of pay due each man endorsed thereon as figured by himself; this is checked from a table prepared, showing the amounts due for each rate for a period of from one-half to ten hours advancing by halves or extended further if desired.

From the time-slips entries are made on the slip in the check-book and the total thus ascertained; then the sub-division desired is obtained by counting the number of five and ten dollar bills that can be used and calling for the balance in ones and twos with sufficient silver to make all necessary change. This sub-division is endorsed on the back of the check and makes it easy to prepare the pay and put it in the pay-envelopes. A weekly pay-roll of \$400 can be disposed of in this way, counting from the time the time-slips are handed in, in one-half hour.

If the men are paid by the week, then the proper amounts are entered and the checks prepared, the checks for weeks at a time being of the same amount.

Other checks are charged against petty cash and checked, the amount to be accounted for by office-boy No. 1 against expense account, investment account, etc., and at the end of the month these are grouped by the stenographer, whose total should equal the total of checks given in the check-books.

Stub-books: All special orders for additional work and all certificates are prepared in stub-books, and are issued in the first case whenever any additional work is ordered, or a proposal for some outside work, not of sufficient importance to warrant the drawing up of a contract, is accepted, or whenever a payment is to be made to any one in connection with any work, in order to always insure the proper entry. If this is not done, there will be trouble of a more or less serious nature sooner or later.

At the end of the month the stenographer takes the two books, and, grouping together all special orders issued on account of each client, giving the special order, character, number, date and amount, and extending the totals only, enters them in the day-book.

Following the special orders, all certificates issued against the client are grouped together and entered in the day-book, keeping the special order and certificate entries against each client in pairs (this facilitates drawing off into the ledger).

As fast as an entry is made in the day-book from a stub, the stub is ticked with a red or blue pencil, making it an easy matter for the civil engineer to verify all entries made, and this should always be done to avoid error.

In works where there are a great many special orders issued, it is well to keep a list of them in detail, adding to it each month, and, as they are included in monthly statements, ticking them off on this list as paid.

In some contracts, to accord with the client's wishes, special orders are kept separate, and are paid for as work is completed, in

which case a special account is kept for the special orders immediately following the general contract; but this is usually bad policy, and in a measure unnecessary if the terms of payment are as heretofore given, since it is always best to consider all additional work as coming under the terms of the original contract.

(k). *Bills*: All bills for professional services should be rendered monthly, unless the amount found to be due is less than \$100, when they can be rendered as soon as the amounts reach \$100. This is a subject concerning which a great deal of foolish feeling and sensitiveness is exercised, and, it seems to the writer, improperly. Every business that is of any magnitude has its bills rendered monthly, and the writer can discover no reason for making any change in architecture, since the disbursements are always heavy, and, until the contracts are signed or estimates obtained, there is no definite basis on which to make a charge, and, consequently, it has been his practice to defer the sending of the first bill until the contract has been signed, unless the work is abandoned when a bill is sent based on the original appropriation.

All bills are based on the rules of the American Institute of Architects' schedule, with such variations as the office may feel it advisable to adopt, as, for example, charging an increased percentage on all country work and on all city work costing less than \$20,000; charging for all telegrams, travelling, messenger-service, sun-prints and surveys, and for expert advice, and an additional percentage for all construction iron-work, for all steam-heating, electric-lighting and other special works, when the service rendered is in addition to the usual designing.

Whatever the practice may be in an office, it should be embodied in a set of rules on a schedule, posted in a conspicuous place, and copies of which should be mailed to each new client.

Then, when a contract is signed, and, as a consequence, one-half of the work done, a bill is made out "on account of ———'s contract, one-half commission on the amount." When payments are made, one-half of the commission is also charged in all contracts, and the additions thereto, and one-half commission on the payments. In addition to this, the disbursements of each month are also charged.

If a bill is unpaid for any month, then the next month's bill is rendered "for balance as per statement on May 1st," "on account of additions, etc.," and only the month's additions given. Forms of bills of both kinds are given under "Forms."

It will be seen that, by the method given, not only are the accounts collected closely, but the client is at all times informed as to how his accounts stand with the several contractors, and can at any time correct any seeming discrepancy.

(m). *Settlement of accounts*: As soon as the work is completed to the last detail, each contractor is requested to render his final statement. It should be on the form given and this should be rigidly insisted upon, sending the statement back until it is correct, after which there will be no further trouble with the contractor on that score.

The statement is then given to the assistant-superintendent who examines every item to see that the work has been done, and that all proper credits have been made.

He also checks all work ordered done at cost plus ten per cent and measures all work charged for at certain agreed prices per unit, and if any extras have been charged, for which no order has been issued, he examines into it and secures the client's written approval therefor; and then turns it over to the civil engineer, who compares all contracts, special orders and credits, with his books, enters all additional charges and compares the balances, checking every item. If they agree fully, the client is advised that the final certificate is ready to issue, and is requested to signify his willingness to have it issued.

This closes the work. The architects have done their best to settle any dispute as fast as it arose, and the final settlement is then usually accomplished with the best of feelings all around.

One thing, however, should be guarded against, and that is the issue of a certificate, due on the completion of the work, before absolutely everything is completed, or the issue of any portion of a retained balance, until the work is satisfactorily done. Both are waivers of the terms of the contract and either will inevitably lead to trouble.

The writer has never known of a case where a contractor has been paid in this way in which there has not been more or less of annoying delay in getting the work actually done. He knows that it often seems hard, but he is certain that it is only justice to the client so to do.

VII.—GENERAL REMARKS.

As above described it will at first sight appear as though there were a great deal of unnecessary detail required to manage a business of this kind. If it is all carefully examined, however, it will be found that each step is a necessary consequence of the preceding one; that nothing is done twice except in so far as is necessary to secure accuracy; that nearly all of the detail is done by those whose rate of pay is the lowest and so limited as to make the duty easy for their limited intelligence.

Many of the duties are now performed in a similar or even a more elaborate manner in every office, but without system, and if the volume of business does not warrant so great a subdivision, more duties can be assigned to one man.

The writer is the chief engineer for a firm doing a considerable business which is managed largely on the lines laid down, and finds

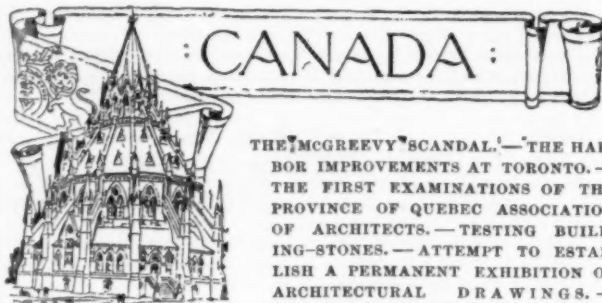
ample time to discharge all of the duties as above given, working forty-eight hours per week.

Every detail of the work is in such shape that no one man is essential for the conduct of any particular building, and the cost of production is brought to the lowest point consistent with high-grade work done in a liberal manner.

From the experience thus gained he believes that the productive capacity of an office poorly managed can be increased from 30 per cent to 50 per cent without appreciably increasing the expenses, and that the expense of the office for supplies, rent, light, fuel and wages, can be kept within about 35 per cent of the gross receipts.

The inducement should be sufficient to lure any one into a trial, and it is believed that once tried, the only changes that will ever be made will be such as are necessary to fit peculiar conditions of work.

[To be continued.]



THE 'MCGREEVY' SCANDAL.—THE HARBOR IMPROVEMENTS AT TORONTO.—THE FIRST EXAMINATIONS OF THE PROVINCE OF QUEBEC ASSOCIATION OF ARCHITECTS.—TESTING BUILDING-STONES.—ATTEMPT TO ESTABLISH A PERMANENT EXHIBITION OF ARCHITECTURAL DRAWINGS.—NATIONAL ELECTRIC ASSOCIATION'S CONVENTION.

WHERE is not very much more to add to what I have already written about the McGreevy scandal. Thomas McGreevy's lawyers did their best with the defence, endeavoring to show that the money extorted from the firm of contractors was stolen by Robert McGreevy and Murphy. It was admitted that Thomas McGreevy had been indiscreet in imparting to his brother information from the Public Works Department, but it was stated that that was the most that could be said against him. Messrs. Osler and Heney, Council for the Public Works Department in their report lay all the blame upon Thomas McGreevy with a share upon Perley, the chief-engineer of the department. Thomas McGreevy is now a fugitive. He sent in his resignation of his seat in the House, but it was decided that he could not resign. A warrant was issued for his arrest and twice the sergeant-at-arms has been down to Quebec, when it was reported McGreevy was there, to arrest him, but he could not be found. He will, however, be shortly expelled from the House.

In the course of the investigation, it came out that "Andrew C. Bancroft" who signed the check which Larkin, Connolly & Co., the contractors, deposited with their tender, was a fictitious person. The check was signed by the firm's foreman, Hughes, and thus the firm has let itself in for very serious consequences. Their action constitutes a crime of forgery. Apart from the forgery this conspiracy establishes such fraud and misrepresentation, as would be sufficient in an ordinary court of law to void the contract and destroy any claim the Connollys' might seek to establish against the Government.

It has been shown in the case of the British Government and Churchward, 1859, that "if fraud or misrepresentation or corrupt influence has been used, or attempted to be used, then Parliament and the Government is free in honor to cancel the contract," and therefore the contract was void. So that, all together, the perpetrators of these frauds through committing the "crime of being found out," have got into a mess they will not easily get out of.

Some time ago I mentioned the extensive works that were in progress for the improvement of the harbor at Toronto on Lake Ontario. The harbor is formed by a sand-bank known as "the island," on which very many people have summer residences. A few years ago the "eastern" entrance to the harbor was very small and by no means large enough for the passage of the lake steamers, while the "western" entrance was fully a mile wide and sufficiently deep. The sandy bottom of the harbor is continually changing its form, and now the western gap is almost closed by a new sand-bank, while the eastern gap has widened to several hundred feet. A plan was set on foot for making a permanent waterway through the eastern gap which should not be affected by the shifting sand, and about three years ago a contract was signed for the construction of breakwaters that would preserve the channel. These were to be between three hundred and four hundred feet in length, running out into the Lake. The contract was to be completed in fifteen months. The *Toronto Mail*, the leading Canadian paper, thinks it has unearthed another great scandal here and its charges will be investigated. The City of Toronto was to pay for a proportion of the works and the Government of the Dominion, for the rest. The *Mail* charges that, for political purposes, the contract was given to the firm, which is carrying out the work at a figure over forty-three thousand dollars above the lowest tenderer's, who was a thoroughly reliable and responsible firm; that the contractors, who have exceeded the time for completion by something like two years, are simply dawdling,

while they draw large sums in payment for supposed works and that at the rate at which the work is progressing it will take fifteen years to complete. It is stated that the wood cribs which are sunk for the foundation of the breakwater, and which are specified to be filled with stone, have been partly filled with sand, while payment has been made as if they had been filled with stone. The dredging, it is declared, has been measured by means of an opera-glass from a distance, and that about as much fraud as could well have been perpetrated on a job of this kind has been committed. Those who have been interviewed with regard to the charges brought against them in this matter, all deny them and declare the *Mail* to be mistaken. Such charges must be investigated, they are certainly libellous, so that if the Government did not take the matter up, the contractors, the engineers and the inspectors must do so.

Canada is having a regular "summer cleaning" such as it has never had before and which it is never likely to need again. The air is full of the dust and dirt that is being raked up by the Investigating Committees. Here is the Premier of the Provincial Government of Quebec charged, together with his colleagues, with misappropriating nearly two hundred thousand dollars with which a line of railway was to have been subsidized—one of the crew has gone off to Europe with one hundred thousand dollars of it. There is the administration of the Printing Bureau under investigation in which it has been proved that a certain Senecal, who made the purchases for the Bureau, demanded and received heavy commissions from all who supplied goods. This man got a doctor's certificate, just when he was most required by the investigators, and went off for his health to some seaside resort outside the boundary of Canada and has not been well enough to return. His alleged pickings amounted to fifty thousand dollars, so it is not expected he will be "well again" just yet. He is "wanted" still and a warrant has been issued for his arrest on account of his refusal to appear when summoned by the committee, which is a matter of "contempt."

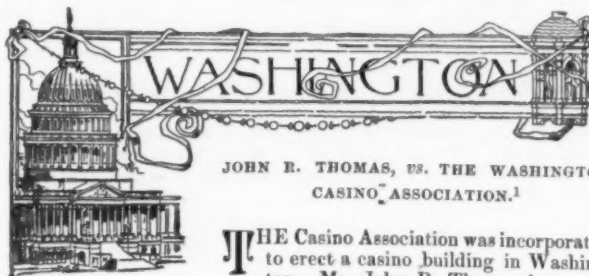
The Province of Quebec Association of Architects held its first examinations on July 30 and 31. It was the "preliminary" examination to be passed by students desirous of training for the practice of the profession. There were only two candidates, but both passed successfully. This small number of candidates must not be looked upon in any way as a failure in the work of the Association. Naturally there would not be so many at one time to present themselves for an initiatory examination. There are a large number of students waiting for the intermediate and final examinations which will probably take place in December.

A committee of the Ontario Association of Architects has been actively engaged in the past month testing the building-stones of the country—a useful and valuable work. Samples were secured from various quarries in cubes of about three inches and the testing took place at the School of Practical Science, Toronto, under the direction of Professor Galbraith. The results have not yet been arranged, but when the work is complete we shall have acquired a knowledge of our building-stones that hitherto it has been impossible to obtain. The laboratory will be an institution of universal value when complete: at present only one testing-machine and a lathe and drills have been set up, but new machines are arriving all the time. All the machines and the engines that drive them will be of the newest patterns and latest improvements. Samples of the materials tested, with the actual samples that have been tested will always be on exhibition with a description of the test to which they were subjected, attached to them. Photographs have been taken of all the crushed stones as soon as taken out of the machine.

Mr. Wright, the lecturer on architecture at the School of Practical Science, has sent a request to the Council of the Ontario Association of Architects to coöperate with him in establishing a permanent exhibition of architectural drawings, the Council has appointed a committee and the Registrar has issued a circular to all members asking for drawings that "will be instructive to the students and of sufficient importance in design and execution to be suitable for hanging." It is intended to change the drawings on exhibition from time to time so that the latest works may be exhibited.

The National Electric-Light Association is gathering in Montreal to hold its semi-annual convention. It is the first time this Association has met outside the United States, but to all appearances the meeting will be a very successful one; between three and four hundred members were present when the meeting was called to order (on the afternoon of September 7), Mr. C. R. Huntley of Buffalo is the President. In his address, which was for the most part devoted to considering the duties of the managers of electric stations, he referred to the question of putting the wires underground and pointed out the difficulty of supplying electricity to a building tenanted on a short lease, the tenant would move and his successor would not require the wires and a great expense would be entailed in taking them up, whereas the overhead-wire system enabled a company to supply the advantages at much less expense and until it became a general thing and every house had its wiring as a matter of course; underground wiring must be very disadvantageous to the companies and consequently to the public who could not get their wiring except at great expense. While he "hailed with delight every advance in the solution of the underground problem he hoped long to gladden his eyes with the sight of a pole well set, and a wire well strung." I do not know whether the Americans as a rule rejoice particularly at the sight of wires and poles; perhaps they do since the country has made such strides in electric science, but Canadians have not reached

that state of civilization where they attempt to "live up to" their poles and wires. To an electrician "a pole well set and a wire well strung" may be a sight to "enthuse" about, certainly poles are set and wires strung much better than they used to be, but even under these circumstances I do not think the general public are very fond of them. There is in connection with the convention an exhibition of electric appliances and machinery held in the Victoria Rink. Sir Donald A. Smith of Montreal opened the exhibition; by pressing an electric button the machinery was set in motion and the lights of all colors were lighted, presenting a very brilliant appearance. The Association will be in session for four days, but as it is time to despatch this letter, further news of their proceedings must wait another month.



JOHN R. THOMAS, VS. THE WASHINGTON CASINO ASSOCIATION.¹

THE Casino Association was incorporated to erect a casino building in Washington. Mr. John R. Thomas is a well-known New York architect. On June 1, 1883, an invitation was extended to "a few prominent architects" to make competitive sketch-plans for a casino building. In this invitation the desired accommodation was enumerated with considerable exactness. The following clauses were of particular note in the letter sent to Mr. Thomas.

"In considering the plans, we shall have a careful estimate made of the cost, and if it exceed the amount we are willing to spend on such plans, we reserve the right to decline accepting them unless they can be sufficiently modified."

"We will pay \$50 to the office of each architect sending us sketch-plans under this invitation, and thereafter the usual rates for the plans selected and decided upon."

Mr. Thomas's plans were accepted and he agreed to the following stipulations: Any increased outlay must first be approved by the Board, and the Executive Committee "have at all times the right to make any change desired in the plans or construction."

Mr. Ford, theatrical manager, was allowed the privilege of making [suggesting] minor changes. By letters from Lieutenant Paine, the secretary and a member of the Board, and which Mr. Thomas interpreted as orders from the managers, the following changes were made: a gallery on what is called the Conservatory Court was widened on four sides so as to require iron posts running to cellar. The gallery construction inside was changed—numerous posts being omitted but heavy iron girders being substituted to overcome the greater span. Ceilings in many parts of the building were changed from ordinary plaster to panelled wood, with moulded cornices [cherry and quartered-oak]. Then the wooden finish was made to conform with ceilings, throwing out cheaper woods. Press and moulded brick were substituted in place of red brick. Basement made deeper. Captain Davis, U. S. A., at this point became local superintendent, and at his suggestion the thickness of walls was increased, although Mr. Thomas protested against what he considered the unnecessary additional expense incurred. The plumbing was greatly increased. Stairs that were to have been made of wood were changed to marble. Large skylight and waterproof pit put in at the instruction of Mr. Ford. The front of the building was increased one story in height. Mr. Thomas furnished two complete sets of working-drawings.

When the bids were in, they were found to run considerably above the estimate on original sketches, as any reasonable person would have expected from the additions above noted. They requested Mr. Thomas to come to Washington and modify as per schedule enclosed: the greater part of which was to leave out what had been added. They wished \$30,000 cut off. At the meeting no complaint was made as to the excessive cost, the Board evidently realizing that they had tried to crowd in too many things. The bids for super-structure were \$131,700, \$137,000, \$145,000, exclusive of plumbing and heating.

The builders, Bright & Humphreys, to whom the contract had been awarded agreed to take off \$20,000 for certain changes.

Mr. Thomas suggested, according to his testimony, other reduction which would have amounted to more than \$30,000; these were not considered. At this time the builders were going on with the foundation.

The point made by the Casino Company was, that, changes were ordered by Mr. Paine, Secretary, not by authority of the Board, therefore Mr. Thomas had no right to add to the plans, and the building costing more than expected he should not receive compensation for his plans.

Mr. Thomas considered that when dealing with the Secretary he was dealing with the Board.

¹ John R. Thomas vs. Washington Casino Co. Wm. G. Johnson for Plaintiff, Mr. Ralston for Defendant. At Law No. 28,739.

The Board wrote to the architect accepting, and on the same day at a private meeting determined that no contract should be made with the architect or any one else until 100 shares were subscribed. Still the architect was ordered to finish the plans, and was not notified of this action of the Board.

By the Court:

Q. "Were those shares ever subscribed?"

A. "They never were; but we came near enough to it, along in July, so that we felt authorized to go on with the work. We were in a great hurry to complete this building and we felt authorized to start the work, and therefore we made this contract for the substructure."

Finally they made an effort to raise money on a second mortgage to complete the building at an increased cost, but did not succeed, as one of the Board stated, because it was simply an exclusive social affair, not a business enterprise; and all had subscribed as much as they desired for the purpose, expecting to put their money where there would be no return.

The Board practically agreed to carry the matter out under a \$20,000 reduction. Mr. Thomas had completed his work, except the necessary trips to Washington required in supervision of the work. Eight to ten visits to Washington at \$25.00 a visit was what he considered them worth. He had agreed to take five per cent on plans and supervision.

Mr. Fleming testified that he had gone over preliminary estimate of \$110,000 on sketches, and considered it as near as could be made from pencil sketches; that such a building could be built for the sum, but not such a building as the people of the city of Washington would be pleased with.

The following are extracts from the judge's charge, which goes over the matter quite fully.

"Although no formal contract was made with him [Mr. Thomas], yet that was the proposed agreement [five per cent when building was complete]. It was further proposed that at a certain stage of the work he should receive so much money and at another stage a little more money, amounting in all to \$3,000, which was to come out of the five per cent commission which he should receive upon the whole work. If the work had gone on under these plans, and if the bids had fallen within this estimate for this work, his commission on the whole work would have been \$5,500, and having already received \$3,000, he would be entitled to \$2,500 as a balance. The work, however, did not go on. The whole plan was abandoned by the promoters of the property."

The defendant's lawyer claimed full commission, because the architect had a contract and was ready to fulfil his share. The judge stated that this was good law in ordinary cases, but did not think it would hold between an architect and his client, as it would hold between a lawyer and his client.

"So that I think that standard of compensation, if he is entitled to anything, must be entirely discarded. He is not entitled to receive a commission here as if he had gone on and superintended the work to its completion, because they were not bound to do that. They had the right to abandon the work, and if they did abandon it all that follows is that the portion of the agreement as to his right to compensation simply falls to the ground, and he must be compensated in another way. He could not be compensated for work that he did not do, simply because he had the right to do it. But he is to be paid for what work he did do in pursuance of the terms of his employment."

He would be entitled to compensation, the judge said, in accordance with the schedule, 2½, 3½ and 5 per cent, according to Mr. Fleming's testimony. If there was no breach on either side, the architect would have been entitled to have 3½ per cent, on cost of \$110,000 when the Casino Co. abandoned the work. "And so, if these parties had enlarged their plans and had authorized and adopted the changed plans which greatly increased the cost, or had authorized the architect to go on and prepare working-drawings, etc., upon this improved and enlarged scheme, which involved a cost of \$170,000, we will say—I put it at that by way of illustration—then the architect would be entitled to receive three and a half per cent on that amount, less, of course, what he had already received; or if they did not authorize that, and after the architect changed the design very materially, so as to increase the cost, they ratified his act, and finally adopted it and approved of the later design, and really concluded to go on with the work at the increased cost, that would be the same thing as if they had originally authorized it to be done.

"He contends, as I understand it, that after the defendant objected to these later plans, he still submitted to them new alterations of them; that the proposed reductions in the plans which would bring the cost down to a practical basis, and which would have enabled them to go on with the work at about the cost they proposed; but that they voluntarily abandoned the work when they might have had the work as they had proposed to have it done in the first instance. If that is true, and they abandoned the whole thing without good reason, and if they might have gone on and completed the original design, then it would be fair that he should be paid just as if the estimate had finally fallen within the cost of the first estimate; and this rule, as testified by Mr. Fleming, would furnish a fair basis of calculation as to what he should receive.

"There is a condition of things which I could conceive of, which might entitle him to some compensation even in that view. The

management of this business seems to have been left entirely in the hands of one gentleman, Lieutenant Paine. The Executive Committee do not seem to have taken any active part in it at all, or to have consulted with the architect, but left him entirely to such advice and consultation as he could get from Lieutenant Paine. The arrangement made with the architect did not exclude the idea of any changes at all. He was notified, it is true, that no changes should be made which materially increased the cost of the building, without the approval of the Board of Directors, or the Executive Committee. He might go to work experimenting and suggesting changes, etc., on his own responsibility, as a mere experiment, which were to be subject to the approval of the Board of Directors or Executive Committee in the end. If he did that, he would have to take the risk of these changes being approved, and if they were not approved, of course, that was the end of it. The only question with me is whether the action and course of conduct of the defendant led him to feel authorized to make these changes experimentally, subject to approval, having nobody to consult with but Mr. Paine, and Mr. Paine suggesting one thing and another. If that is so, and if he had the right to think he might go on and make these changes, subject to approval, while he would not be entitled to compensation on the basis of a commission on these changed plans, he might be entitled to some allowance for the actual time and expense that he consumed in preparing them. This work, of course, would not be binding upon the Company. That is, they were not bound to accept the changes and adopt the plans. But if he was right in thinking he might do this work, at least experimentally, it would hardly be fair that he should lose all his work. It is only, however, in case you find from the evidence that the course of conduct of the defendant made that impression upon him, that he at least might go on and experiment in making these changes with a view to their future approval, that he should claim any compensation for his services.

"But if he did not work out any practical result, and did not present them with a scheme which would come anywhere near the amount which they proposed to invest in it, then, I do not see how he could be entitled to recover anything."

The judge said further "that if without any authority the architect increased the cost from \$110,000, to \$170,000 he would with difficulty recover any at all."

The judge said that the statute of limitation would not hold in this case.

Mr. Johnson: If your honor please, there are two things that have not been placed before the jury as fully as we are entitled to have them, although they are indicated in your honor's charge. The first is that if the jury believe from the evidence that the execution of those plans in this more elaborate form was done by the architect in good faith, and without any wrong on his part, that is, that he was justified from the reports of Lieutenant Paine, etc., in believing that he was authorized to go on and that they did not repudiate his work, or that they did ratify it, then he is entitled to a commission upon this increased cost.

The Court: I have already said that in almost so many words; but not at the rate of five per cent.

Mr. Johnson: At the rate of three and a half per cent for the drawings, and also reasonable compensation for his services in writing those descriptive letters, which are distinctly a part of the work of superintendence. There is one other item that is specifically proved here. It has been testified that he was employed to have perspective drawings on a reduced scale prepared, to be used for advertising purposes, and he stated the value of that work was \$400.

The Court: [To the jury.] If they employed him to have drawings made for the purpose of having lithographs made, with a view of interesting the public in this building, of course he is entitled to charge for that work; but if he has already been overpaid for that work, of course it would follow that he is entitled to recover nothing.

The jury made the award of \$3,500, in addition to the three thousand which had already been paid Mr. Thomas.

The award seems to have been made on a basis of 3½ per cent on the whole amount, with an allowance of the \$400 extra for drawings made for lithographs. The commission on \$175,882 [Mr. Fleming's estimate as to cost of building without reduction] with \$400 added [6,155 + 400 = 6,555] shows that they deducted \$55 from one or the other item.

It came out after the trial that one juror thought that 5 per cent should be allowed for the foundation which was complete.

3½ per cent on Humphrey's bid for superstructure, \$400 for drawings for lithographing.

Another juror was for allowing 5 per cent on the whole amount.

Mr. W. G. Johnson, attorney for plaintiff, has kindly given me the following account of the closing proceedings.

"A new trial was moved for on the ground that the verdict was excessive and after argument the court directed the plaintiff to enter a remittitur of \$1,000 from the verdict of \$3,500, or stand a new trial. The court held that under the evidence it seemed that there had been negligence on both sides in running up the cost of the building and that the architect could not therefore claim compensation upon the agreed rate of commission for work done, but only on a quantum meruit for the fair value of the work, which value the court thought would be covered by \$2,500 in addition to the 3,000 already received. The parties settled on this basis. The plaintiff entered the remittitur and the defendant paid the judgment."



SEVENTH CONGRESS OF HYGIENE AND DEMOGRAPHY.—OPEN SPACES IN LARGE CITIES.—THE EXTENSION AND INTERNAL IMPROVEMENT OF TOWNS.—THE INSANITARY ARRANGEMENT OF THEATRES.

THE great event of August in London has been the Seventh International Congress of Hygiene and Demography which has held a most successful meeting. These congresses of sanitary science were inaugurated in 1876 at Brussels, and have since met at Paris, Turin, Geneva, The Hague and Vienna.

It seems a little singular that the visit to London has been postponed for so long. England is generally admitted to be considerably in advance of the Continent as regards Hygiene, and one would have thought that the Congress would have turned naturally to London in quite the early days of its existence.

The interest and importance of the many papers read cannot well be exaggerated, and the field over which the discussions ranged was wide in the extreme. The Congress was divided into two main divisions of (1) Hygiene and (2) Demography, and the former of these was sub-divided into nine sections as follows:—

- (a) Preventive Medicine.
- (b) Bacteriology.
- (c) Relation of Diseases of Animals to those of Man.
- (d) Infancy, Childhood and School-life.
- (e) Chemistry and Physics in relation to Hygiene.
- (f) Architecture in relation to Hygiene.
- (g) Engineering in relation to Hygiene.
- (h) Naval and Military Hygiene.
- (i) State Hygiene.

The Congress was a wonderfully representative one, and was larger and more assiduously attended than any previous Congress. Delegates were sent by every important government in the world, besides British Colonies and the Indian Empire, and Sir Douglas Galton, in reading the report of the International Permanent Committee declared that it was the first time in the history of India that she has contributed so largely to a meeting of this nature held in Europe.

The President of the Congress was the Prince of Wales, who delivered the inaugural address at St. James's Hall, on August 10, to a crowded and appreciative audience. The Prince's address was short and of a characteristically workmanlike character. He referred to his own work as a member of the Royal Commission on the Housing of the Working Classes, and stated how much he learned there of the dangers to health, which may be ascribed to the constant increase of our great manufactories and to other industries from which, especially, come the over-crowding of our homes, the building of large factories, the pollutions of our atmosphere, the accumulation of refuse, the fouling of rivers, and the impurities of earth, air and water. Such a Congress as this could, he said, discuss important questions of this nature in a strictly scientific manner, calmly and dispassionately, without any reference to either general or municipal politics, or for any other purposes than the promotion of health. He considered that the results of these discussions could not fail to have an excellent influence on sanitary authorities, and still better could teach all people in all classes of society how much they could do for the improvement of the sanitary conditions, among which they have to live.

In conclusion, His Royal Highness declared that the questions before the Congress related not only to the prevention of death or of serious diseases, but to the maintenance of the conditions in which the greatest working power may be sustained. In this he included both mental and bodily power, for the highest possible prosperity must be when men and women of all classes, rich and poor alike, can safely do such good and useful work as they are fit for, and for which they are responsible to those among whom they live. To this end it is essential that they should enjoy the best possible health and vigor, and to obtain these it is necessary that everything possible should be done for the promotion and maintenance of the national health.

The Prince of Wales was followed by Dr. Brouardel, Dean of the Faculty of Medicine, Paris, Dr. Von Coler, Surgeon on the Headquarters Staff of the German Army, Prof. W. Roth, Surgeon-General of the Army of Saxony, Professor Corradi of the University of Padua, Italy, and M. J. Korösi, Director of Municipal Statistics of Buda-Pesth, and after the vote of thanks the opening of the Congress was terminated by the organ playing "God Bless the Prince of Wales," the audience standing during the recital.

The Architectural Section was presided over by Sir Arthur Blomfield, and met for the first time on Tuesday morning, when Sir Arthur delivered his inaugural address, in which he very ably endeavored to show the intimate connection of architecture as a fine art, with hygiene, and cited various authorities from Plato to Dr. B. W. Richardson, in proof of his contention.

FIRST DAY'S PROCEEDINGS.

The actual business of the Architectural Section began with a paper read by the Earl of Meath, but in reality prepared by Mrs. Basil Holmes, on the all-important subject of "Open Spaces in Large Cities." No man could be found more worthy to read this paper than the Earl of Meath, who has identified himself to a singular extent with the provision of parks and open spaces for London. He has written and spoken volumes upon the subject, and it is greatly due to his exertions that London's poor have so many breathing-spaces to-day. The paper was one of exceptional ability, and evidenced the writer's thorough grasp of her subject. After dealing in a general way with the influences that have been at work in closing up and covering with buildings the former breathing-spaces of the metropolis, and instancing the many disadvantages that were occasioned by this municipal lung-disease, she cited two ways in which she considered that this need could be satisfied, viz:

1. A systematic acquisition and preservation of land for public recreation in connection with towns and in relation to their growth.
2. Increased facilities for taking people from the towns into the country.

In the towns themselves, she thought that public recreation grounds should be provided in each parish by the governing body in proportion to the number of its inhabitants.

The quotation of statistics of the work done in London by the Metropolitan Public Gardens Association was interesting. It appears that this public-spirited body has, since the close of the year 1882, laid out, or assisted to lay out, 65 gardens and play-grounds; granted seats to 31 other sites; granted money towards the formation and "up-keep" of 23 public gymnasias; secured the opening of 166 play-grounds belonging to the London School Board (on Saturday); laid out and thrown open 19 recreation-grounds; planted trees in 37 thoroughfares, and has in other ways assisted in the preservation and formation of very many useful recreation-grounds. This is a record of which an amateur association may well be proud.

The paper concluded with a careful examination of the prospects of the extension of suburban life, which Mrs. Holmes thought capable of great development.

In the discussion, Dr. Engel R. L. Gould of the U. S. Department of Labor cited statistics which showed that London held the twentieth position with regard to its open spaces, measured by the number of inhabitants per acre. Vienna had a population of 473 per acre, Paris 495, Brussels 637, while London had 694. The Earl of Meath appeared to be in favor of small instead of large spaces. He found that London took higher rank when the large parks were left out of the reckoning. Without the great parks, London had a population of 909 per acre; but Philadelphia, which had a population of over a million, and had only 340 per acre on the average, had 17,649 per acre when its greatest park was left out, and Vienna would have had 3,300 with one great park left out.

A few words from Dr. Gladstone terminated the meeting.

Hon. J. Stübgen, the City Architect of Cologne, followed with a paper upon the various hygienic principles for the extension and internal improvement of towns. He classified these principles in the following way:

1. Sufficient width and useful direction of the streets, and the proper construction of the same.
2. The planting of trees in the streets.
3. Cleanliness of the streets.
4. Proper provision for the supply of water and lighting.
5. The production of suitable building lots in sufficient quantities and quality.
6. The hygienic arrangement of buildings, work-rooms and dwellings.

The official measures which he considered necessary to secure the proper observance of the principles were nine in number, five being of a positive and four of a negative or repressive nature. The former should, he thought, be—

1. Establishing a comprehensive building plan.
2. A uniform project for the improvement of traffic.
3. The provision of streets and open spaces in the event of private enterprise not providing enough building land to meet the demand.
4. The acquisition of land for dwellings for the lower classes which may be unsuitable for other purposes.
5. Police regulations for the hygienic condition of the interior and exterior of buildings.

The repressive measures he advocated were—

1. Forbidding buildings being erected contrary to the official building plan.
2. Forbidding the erection of buildings in unfinished streets.
3. Forbidding the following of trades within the town which interfere with public health.
4. Forbidding the occupation of unhealthy dwellings and over-crowding.

The evident text of Herr Stübgen's address was "*Salus publica suprema lex*," and in carrying out his theory he advocated schemes of municipal action that sounded strange to English ears. He suggested that the Municipality should draw up an official building plan, extending the same to the fields on the outskirts of the town, and proposed that the authorities should have the right, if necessary, of forcing an individual owner into submission if he proved obstinate.

These strict disciplinarian views did not meet altogether with favor in the meeting, and even Herr Ludwig Lechner, Baudirektor der Stadt, Buda-Pesth, demurred to them and pointed out that they constituted a violation of private rights and privileges which interested parties would in many cases object to. "These forcible measures were not altogether pleasant, and were apt to excite a whole population."

Monsieur Charles Lucas, architect, of Paris, next dealt with the hygiene of groups of dwellings at low rentals, and referred in detail to the work of La Société Française des Habitations à Bon Marché, which your Paris correspondent so ably described in a recent article.

The next paper dealt with the "Control of the Construction of Dwelling Houses" and was by Mr. Thomas Blashill, the Superintending Architect to the London County Council.

The chief structural conditions of a habitable building which are recognized as being necessary for its healthy occupation are these:—

1. It must stand upon a site the subsoil of which is naturally dry, or is properly drained and free from impurity; and effective measures must be taken to prevent the admission of air from the soil into the building.

2. The building materials, particularly the bricks, the mortar and the plaster of the walls, must be of good quality, so that neither moisture nor impure air can be admitted through them into the building, and means must be taken to prevent the moisture from the ground rising up the walls.

3. All parts of the building and not merely those parts which are actually inhabited must be properly ventilated and lighted, the habitable rooms being of sufficient size and particularly of sufficient height.

4. Provision must be made for the removal of refuse whether solid or liquid from the building and from its near neighborhood before the refuse begins to pollute the air.

He then went on to cite the various official laws and regulations that dealt with these matters in London, but after he had finished his citation, he said that although the structural conditions of a healthy house did not appear to be numerous they were exceedingly difficult to define so that they can be clearly understood and enforced by law. He seemed to feel from his remarks that the only really satisfactory remedy was the somewhat drastic one, contemplated by the Model By-Laws, wherein the occupation of a house is forbidden until it has been certified to be fit for human occupation.

The discussion was a long and important one. Professor Aitchison said that the speculative builder knew perfectly well that his houses were useless unless they could be let at a certain price. The consequence was that every kind of bad material and bad workmanship was put into requisition, and every attempt was made to outwit those who were appointed to see about the carrying out of the regulations. Mr. Coard Pain, of Liverpool, followed the same line, and pointed out the enormous difficulty of enforcing by-laws. All of them who had anything to do with the superintendence of jerry-building must know how utterly impossible it was to get the by-laws carried out if the builder was short of money or otherwise unable to do his duty, and he suggested that the officials of local authorities should be jointly appointed by the government and the local authority. Thus a more efficient and educated official would be obtained than was usually the case in small communities.

A short paper on "Furnishing Steam from Central Districts for Heating and Power in Cities and Towns" concluded the first day's discussion in the Architectural Section.

The general tendency and feeling of the meeting seemed to be in favor of further and more stringent municipal action, both in the direction of positive work and repressive and remedial legislation. Public health was generally assumed to be of such overwhelming importance as to justify almost any encroachment on the rights of the individual, and it is to this somewhat socialistic end that public opinion is to-day drifting.

There is unquestionably much to be said in favor of such views, but it is possible to sweep too clean, and there are many dangers and disasters flanking this apparently attractive path. Particularly is this the case in this "City of Immensity," as Sir John Coode called London. The hugeness of this city of cities is brought a little within practical grasp when we remember that the number of inhabitants in London considerably exceeds the number of the inhabitants of the cities of Paris, Berlin, Vienna and Rome all combined, and that the streets and roads of the metropolis would, if placed end to end in one continuous line, extend from London to Land's End, and thence across the Atlantic Ocean to the mouth of the Gulf of St. Lawrence, in Canada, on the west, or, going eastward, would stretch across the entire Continent of Europe and beyond the Ural Mountains into Asia. When one fairly realizes this, the thought of really efficient hygienic supervision makes one almost despair. The problems of drainage and water-supply that I am endeavoring to explain to you are but examples of a vast range of hygienic conundrums awaiting solution.

SECOND DAY'S PROCEEDINGS.

The proceedings in the Architectural Section on the second day included a number of interesting papers on "The Sanitary Construction of Detailed Parts of Buildings" and an "Indictment of Theatre Construction from a Sanitary Point-of-view," by Dr. Lennox Browne and Mr. Ernest Turner. These two latter papers

are of such serious importance that it will, perhaps, be better to consider them first.

It appears that these gentlemen, although possessed of a considerable stock of knowledge as regards theatres, did not feel themselves sufficiently acquainted with the exact and precise information that they required, and they therefore inspected no less than twenty of London's theatres, besides a number in the provinces. As a result of their inspection, Dr. Lennox Browne declared at the outset that in many the arrangements, from a sanitary point-of-view, were the reverse of satisfactory, although he felt bound to testify that the defects were for the most part due to structural causes, and that the blame should rest rather with the architect than with the proprietor. He felt that the insanitary conditions were found in their most objectionable form behind the scenes. Dealing first with the general situation of a theatre, Dr. Lennox Browne considered that the only site suitable for a theatre was an isolated one, and condemned utterly the plan that had been adopted in one or two recent cases of constructing the theatre below ground. In such a situation really efficient sanitation was a matter of impossibility.

As regards accommodation for dressing-rooms, in only one case did he consider the arrangement absolutely satisfactory, although in the later-built or reconstructed houses there is good dressing-room accommodation, with sufficient air-space, ventilation and light for the occupants.

In the older houses, however, things were different. "In one theatre, built as a music-hall, we discovered fifteen or sixteen rooms below the stage. Some even at a second level, and in only three of these were there windows. In two, he was informed, and for all he knew in the third, these windows were, of necessity, kept shut because they opened into areas with grating coverings, through which the staff and others were in the habit of urinating. One of these rooms measured 38 feet by 7 feet by 7 feet 9 inches, and was occupied by from sixteen to eighteen ladies." In many other cases he found closets either in or close to the rooms, separated in some instances only by a partition of matched boarding.

Dr. Lennox Browne cited a large number of other most unsatisfactory arrangement of closets and urinals. Indeed, the accommodation of this latter nature appears to be utterly disgraceful. I quote a few remarks.

"In one theatre we found a stand-up urinal situated beneath the stage at the back and centre."

"In one, the urinal of the working-staff was in the corner of the stage itself."

"Sometimes there are none whatever for the working-staff, so that accommodation is often sought for either against the walls or down the areas of the theatres themselves, or at the adjoining public."

Mr. Ernest Turner followed, with a similar paper, explaining, by means of diagrams, the generalities which Dr. Lennox Browne had cited. He justly stated that the plan of the apartments was of primary importance from an architect's point of view, for "if this be imperfect," he said, "no subsequent so-called sanitary engineering can make amends for the original defect."

The papers created a great impression, and there was an animated discussion.

The other papers were of a less important character. Mr. P. J. H. Cuypers, architect, of Amsterdam, described the elaborate preparations of the soil which was necessary to prepare sites for houses in Holland, and Mr. H. H. Statham, the editor of *The Builder*, condemned what he termed "some insanitary superstitions in house-building." These superstitions included the ordinary system of flooring with joist and flooring, the ordinary domestic sloping roof, skirtings and casings, sash-windows and curtains, and the positions and material of the ordinary cistern. Professor Emile Trélat of Paris protested against the modern tendency towards thinner walls.

The discussions on the third and fourth days I shall have to leave until a future paper.



THE CONGRESS OF FRENCH ARCHITECTS. —
THE LACK OF GOVERNMENT SUPPORT TO
ARCHITECTURE. — INSTRUCTION IN THE
CONTROL OF BUILDING ACCOUNTS. —
THE LOCAL PRESERVATION OF ARTISTIC
TREASURES.

THE *American Architect*, in its issue for July 18, spoke of the Congress of French Architects, which opened on Monday, June 15, and lasted a week, after the ordinary custom. You have noticed the names of the artists who by their works and honorable conduct won some of the principal recompenses decreed by the Société Centrale at the close of the Congress, and I will now refer to the questions which were stated and discussed during the session, which gathered together all the Parisian and provincial architects, inspired with the same spirit of fraternal

good-fellowship. Several of these questions have a general and professional interest to my friends and *confrères* in the United States. In the opening session M. Frantz-Jourdain made himself the mouth-piece for the complaints and expostulations of all those architects who for a long time have deplored the kind of neglect, or at least want of interest, which public authorities show toward architecture. Until this year, in fact, architecture alone was held off at arm's length, while painting and sculpture with increasing regularity shared the benefits of the purchases made by the State. M. Frantz-Jourdain believes that such a situation is not only unjust and wounding, but even dangerous from a point of view of general interest and the intellectual development of France. Already too much inclined to confound the trade of builder with the art of the architect, the public have in the Government indifference towards our profession an excuse if not a direct encouragement for its own prejudices. This condition of affairs cannot but retard the progress of an art whose real grandeur and importance are not discussable. Our career is a difficult one. We have no means of making a direct appeal to the public, of which we have so much need. The *projet*, that sketchy piece of design, so incomplete, and I will even say so inexact so far as the real aspect of grouping is concerned, is the only means of attracting to ourselves the attention of the crowd. Now, says M. Frantz-Jourdain, with much justness, the purchase of a *projet* by the Department of Fine Arts, would frequently present the only means of encouraging the further study and completion of the work which the artist, discouraged by the uselessness of the struggle, now leaves in its sketchy state in his portfolios.

In our times, adds our *confrère*, every branch of human knowledge possesses its special museum—ceramics, tapestries, art-industries. Architecture alone stands neglected. And then, in an animated manner, the speaker demanded a place for architects in the national museums. Later, he said, when we have finally secured a footing, we can undertake the organization of these museums. It would perhaps be interesting at that time to group about the chief centres, the elements of architectural history in such a way as that each region should find its own souvenirs and indications of its past, and send, for example, to Marseilles the Roman and Gallo-Roman restorations, and the Romanesque and Gothic work of the South; while there was reserved for Tours, the Renaissance architecture of the Loire, etc. The Parisian museums might be a kind of epitome for higher instruction, in consonance with a perfectly national method, and the most remarkable productions of dead and living masters might be classified therein. This would give a reason for collecting together precious documents which to-day are scattered everywhere—at the National Library, at the Hôtel Carnavalet, at the Archives, where they are without profit to any one.

While M. Frantz-Jourdain was explaining his attractive programme to the Congress of Architects, the State was purchasing at the *Salon*, some few frames of architectural drawings, and was preparing the new hall of architecture in the Louvre. But what a hall! a narrow corridor, situated behind a small staircase in a corner, wholly lost and not easily to be found—where some old drawings tacked to the walls have the audacity to represent our art. It isn't anything of this sort that we need. The supposition seems to be that we can probably be contented with this corridor, and that it is a piece of the utmost audacity on the part of the architects to presume to ask for a real hall. They have thrown a bone, as it were, to a grumbling dog, but the poor dog is not yet content with his niche. Oh, the scoundrelly dog—I mean to say the rascally architect! Meanwhile the Congress of Architects has recorded its desire that "architecture henceforth may be treated on an equal plane with painting, sculpture and engraving, and as a consequence that drawings and models in relief shall share the benefit of the purchase of works of art which is made each year by the State, and shall receive in the museums a special place both at Paris and in the Provinces"; and with this the whole matter is probably buried out of sight.

The proposition read to the Congress by M. Delaire is also of importance, and turns on the matter of instruction in accountability and the administration of building operations. The necessity of such instruction has become incontrovertible, and M. Delaire expressed the hope, which was unanimously adopted, that it may be introduced in the official programme of architectural studies from this time forth in the *École des Beaux-Arts*, and, as a consequence, in the other schools and faculties of architecture which may hereafter be created. The execution of this proposition would, in fact, fill a long-felt want in the instruction at our School of Fine Arts. The architect, as M. Delaire judiciously remarks, finds at every instant the need of making use of his knowledge of such matters. There are the schedules to prepare, the checking of supplies during the execution of the work, the accounts, the verification of builders' bills and their adjustment, all of which form an important portion of an architect's duties. I do not know whether American architects have to endure the reproaches which are showered upon their French fellows; but here the public, which ignores the talent of the artists, and particularly appreciates the qualities of an economical administration, pretends that architects do not know how to draw up an exact schedule, and drag their clients into unexpected extravagances.

It must be said that the *series de prix*, which for some years have been issued, are becoming more and more detailed and complicated. They include a great quantity of subdivisions, to which are now added special "*plus-values*," and the handling of this voluminous work demands a wontedness and special knowledge which all archi-

tecs cannot possess. Under necessity of acquiring a great amount of scientific knowledge, so as to keep them abreast with the progress of modern industry, they have, as a rule, ceased to busy themselves with the administrative and account-keeping part of their functions. They have thus left this part of their work to measurers and verifiers, whose ability is exercised in complicating and still further obscuring the accounts and the preparation of bills. Now, a young architect, on leaving the *École des Beaux-Arts*, where he has devoted himself to studies which are principally artistic in character, finds himself at the very outstart obliged to verify these building accounts. You can imagine, then, the difficulties he has to surmount if he is unwilling to trust himself absolutely to a stranger, and if he wishes to render his own account for the work which has been intrusted to his charge. At the *École des Beaux-Arts*, there are courses in mathematics, stereotomy, perspective, descriptive geometry, construction, physics, chemistry and legislation; but, as for accounts, there is no heed paid to the matter. M. Delaire, therefore, demands that this gap should be filled. The ranks of the profession are already well filled, and are constantly expanding, but, if the functions of the architect become heavier, he considers it a still greater glory to discharge his functions worthily. It is natural, therefore, that scholastic instruction should broaden at the same time as the field of professional work enlarges, and should respond to all its new demands. It is, of course, understood that the theoretical side of a course of instruction of this kind should be completed by practical studies made during a period of probation in an architect's office; but, on graduation, the pupil ought to have at least some notion as to the administrative organization of the profession, on the accountability of the office, the mode of computing the cost of the work, the manipulation of *series de prix*, and the verifying of measurements, builders' accounts and so on.

The Congress justly thought that an examination of this question was of the greatest interest, and recorded the resolution I have stated above—a desire which has already been realized, as it appears, in the Department of the North, where courses of this nature already exist.

The third important suggestion laid before the Congress of Architects had for its theme the conservation of the riches of art in the places of their origin. This matter was discussed by M. Charles Lucas. The expression "*richesses d'art*" ought to include in the history of the people everything which bears any artistic character whatever; everything which shows an effort of any artistic nature, and this whatever may be the size, form or destination of such work and the material in which it is executed. Now, this is the point upon which M. Lucas insists. Only those monuments, that is to say, those stone structures, with some specimens of cabinet-work, or iron-work, or stained-glass, or mosaic—only such works as these, which constitute the "historical monuments" are classed together, and as such are protected by the law of March 30, 1889, and the decrees of January 3, 1889. M. Lucas expresses the opinion that the regulations of the law of 1889 as to the historical monuments, should be, as in the case of certain laws in foreign countries, extended so as to cover works of art in general. Some foreign laws, as for instance, the Danish, the Italian and the Grecian, are in reality better adapted to such end; and Belgium is now preparing a special law which will embrace the whole artistic domain.

When once the preservation of works of art is assured, it remains to be considered whereabouts such preservation can best be effected. It is indisputable that a work of art for its comprehension ought to be seen in the place where it was prepared, amid the surroundings which possibly influenced its creation, in the place where it was conceived and comprehended by the artist—in a word, in the place of its origin. M. Lucas hopes that, being granted a certain tendency to the reconstitution of provincial schools of art in those centres where they formerly flourished, the riches of art will no longer be so easily snatched away from their places of origin, where it is desirable to see them preserved from the double point of view of history and art itself. This preservation in the place of their origin forms the second part of his interesting suggestion. A circular of the Ministry of Public Works, May 28, 1891, to the engineer-in-chief of the Ponts et Chaussées, proves, moreover, that this question is already receiving consideration, and that means are being sought for preserving monuments which have an interest for art and history, whether such monuments are "classed" or not.

Such are the most important questions studied by the Congress of Architects for 1891. You perceive that they all three tend to give to the architecture of our country an impulse which will still further augment its grandeur through the respect imposed on all for its place and its mission in history.

A few words now for the competition for the Prix de Rome, which was decided August 3. I particularly desire to speak in approval of the programme, which was very modern and practical in character. It proves that on a subject which, at first sight, may not seem to lend itself to those decorative and grandiose developments which are demanded in a competition for the Prize of Rome, real artists always know how to reveal themselves, and find the side which can be interpreted with grandeur and majesty. The programme formulated by the Académie des Beaux-Arts was as follows: "A central railroad station, with a vast hotel for travellers and the administrative buildings of a great railway line. The station must occupy the side of a large public place, and the rails of the tracks must be fixed at such a height that direct communication with the hotel may be had on

one side, as well as with the administrative building on the other, without interfering with the circulation of carriages for incoming and out-going travellers." It would not be possible, the programme further said, to give too monumental a development to the grand group which is proposed as the subject of the competition. The railroad company itself, the city and the State are all understood to share the expense. The glazed train-house must have a minimum length of 100 metres on one side, the greatest width of the site accommodating the hotel and the administrative building may not exceed 300 metres. I will not examine in detail each of the ten designs submitted, but I will say that several drew their inspirations from the machinery-gallery of the last Exhibition, notably, M. Paul Normand, who carried off the first second-grand-prize, and that all gave, in spite of what the programme said on the subject, an exaggerated monumental development to the whole of the railroad station itself; but that is a defect which could be quickly corrected by practical considerations, and our young *confrères* graduating from the school do well to show that they are capable of composing great designs though they may never build them.

I will finish by saying that M. H. Eustache, pupil of M. Ginain, obtained the grand prize; M. Paul Normand, pupil of MM. Normand, André and Laloux, obtained the first second-grand-prize; and M. F. Chaussemiche, pupil of MM. André and Laloux, won the second second-grand-prize.

MECHANICAL VENTILATION.



A Persian (brick) Minaret. From the *Revue Générale de l'Architecture*.

IN a paper by Mr. William Key read at the late meeting of the British Association, he described the arrangements he had carried out in the Victoria Hospital, Glasgow, for changing and heating the air in the building. The main features which the author had kept in view were the admission of air at the base and eduction at the roof; filtration through a damp surface; the diffusion of air and expulsion in a way to prevent deposition of dust; the renewing of air in occupied rooms at least six times an hour without draughts. The infirmary contains 400,000 cubic feet of air-space. The fresh air is drawn by propellers down an inlet 16 feet by 4 feet, the mouth of which is placed ten feet above ground level, so as to escape dust. To renew the air six times an hour, two million cubic feet are required. The air admitted is washed by passing through an air-washing screen of cords formed of horse-hair and hemp, closely wound over a top rail of wood, and under the bottom rail, forming a close screen 16 feet long by 12 feet high. There is a constant stream of water trickling down the screen, by which dust and soot particles are removed and carried away to the drain. By an automatic flushing-tank, twenty gallons of water are instantaneously discharged over the screen every hour. By the screen fog is entirely removed, even at its greatest density. The author deprecated the employment of dry screens of cloth or cotton-wool as being positive sources of danger, owing to the accumulation of dust and germs. After passing the wet screen the air is warmed by steam coils. Air-tempering doors are erected between the incoming washed air and the heating coils. In this way a certain part only of the air is passed over the heating coils, and is then mixed with unheated air in the proportions required. The two volumes of heated and unheated air are mixed together in passing through the fan. The Otto gas-engine is used as a source of motive power for the fans. The author stated that, with Crossley's engine and the Blackman air-propeller, the cost was 2d. per million cubic feet of air propelled into the infirmary. This figure, he said, had been reduced to 1.42d. per million by the introduction of his gas-engine exhaust-box, which not only prevented noise and purified the escaping gases, but reduced the back-pressure. The air is in some cases again warmed by passing through other heaters. The air enters each ward by wide, shallow ducts, placed five feet above the floor, and is directed towards the ceiling. The escape of air is by openings at the floor level, and then through ducts to the roof outlet. Formerly, the escape-air passed into the space under the roof, but this led to the accumulation of dust. By this system, the author stated, so imperceptible is the movement of air through the wards, that when it is renewed completely once in seven minutes no draught is perceptible. The air of the building is under slight compression, from $\frac{1}{16}$ in. to $\frac{1}{8}$ in. by water-gauge. The author would have all air that circulates through a building to pass downwards from the ceiling to the

floor, so as to carry off dust, etc. The author deprecated blowing the fresh air into the whole basement of any building.

In the discussion which followed, Sir Douglas Galton pointed out the danger of this class of ventilation through the breaking down of the mechanical appliances. When everything was new things went all right, but his experience was that, after a time, either through neglect or the apparatus wearing out, there was a falling off, and inconvenience resulted. He thought that the dry screen was good if renewed often enough, but the wet screen of the author was worthy of consideration. In the Madison Avenue Theatre, New York, the air was brought in eighty feet above the street-surface. It was found that at a height the air was much freer from dust and floating particles, and it had been suggested to draw the air for the Houses of Parliament down by the Victoria Tower. In New York hospitals, they went on the system of heating a small volume of air to a high temperature, and then tempering this with the unheated air, so that the nurses could regulate the temperature by means of valves. Sir Douglas congratulated the author on his success, which he had heard of, although he had not visited the building, and he suggested that a similar system should be carried out in Board Schools, where the atmosphere was frequently of a very foul description. The great difficulty in ventilation questions was the architect, who would not arrange for any special fittings. He was afraid Sir Frederick Bramwell would not approve of the system, however, as it did away with the pokable fire.

Sir Frederick Bramwell said he rose to protest against what his friend had said. He did not object to this system for hospitals, because, unhappily, the inmates were seldom in a position to enjoy the luxury of poking the fire, and, therefore, it involved no loss to them. For his own house, however, he preferred the open fireplace. With regard to the screens, he used at home dry screens, and had six of them placed one in front of the other. The outside one was taken out every day and washed, and the others moved up one place each. In this way they were each renewed in turn. With regard to the space required for ventilation, it might be of interest to state that a distance of eighteen inches at each end of the theatre of the Institution of Civil Engineers was occupied by ventilating devices and shafts. Here they had fans worked by hydraulic motors. The only way to get rid of draught was by adequately large ducts in inlets.

Professor Osborne Reynolds pointed out that in the arrangement described by the author there was danger that the air in the upper part of the room might not be changed. If a number of people were in a room, the air from their bodies would supply additional heat, and the air in the room would, therefore, be warmer than that entering. In such a case, the warmer air would ascend to the top part of the room, above the inlet, and remain there.

Colonel Allan Cunningham said that in India grass screens were used, and these were kept wet in order to cool the incoming air. This was effectually done, but the air became so laden with moisture that it was often preferred to have the hot, dry air. A large number of military hospitals were now being rebuilt, and, if the fog could be washed out at the price named, it would be a great advantage, not only to them, but to private houses. The most perfectly ventilated chambers in the country were the debating chambers of the Houses of Parliament. The plan of admitting air from a height had been tried by means of the clock-tower. It was found, however, that at any considerable height the atmosphere was very smoky, and it was preferable to take the supply from a few feet above the Thames, where there was little dust or smoke. The air was filtered through many layers of cotton-wool, and this got exceedingly black in a short time. The escape-air went up the tower, where its ascent was further induced by its being heated. A fan was used for drawing in the air, so that there was a dual system of propulsion. In hot weather the air was passed over ice.

Mr. Beaumont questioned whether the gas-engine and fan could be worked at the price given by the author, including all those items which should fairly be charged to working. The simple cost of gas was one thing, but this did not exhaust the expenses, which should be taken into account. Possibly the author used the air for ventilating for cooling the cylinder, and so got a regenerative system.

Mr. Jeremiah Head pointed out as a great advantage the fact that the building in this case was subject to a plenum, and not to a partial vacuum. This caused any draught to be in an outward direction, in place of being inwards, as in ordinary cases. The speaker also pointed out that opening a window of a house often in vitiated air, proceeding from dust-bins or elsewhere. In this case the air would always be taken from one selected spot. Mr. Marshall had been in the Victoria Hospital, and spoke of the purity of the air in the wards.

In replying, the author said that he was led to study the subject of ventilation by being subject to rheumatism for many years, and unable to bear the slightest draught. He had, however, done away with open fireplaces, and used stoves, which he found prevented draughts, and he no longer had rheumatism.

YEs?—Specially skilled and artistic architects are among the best paid of professional men. The best known artists in this line sometimes receive \$700 for drawing the details of a single handsome doorway, and the cleverest of them do not score together hints from the old-fashioned fanlights and pillared doorways of houses in the older part of the town.—*Philadelphia Telegraph*.



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

HOUSES ON 86TH ST., NEW YORK, N. Y. MR. J. G. PRAGUE, ARCHITECT, NEW YORK, N. Y.

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

HOUSE OF STEPHEN B. ELKINS, ESQ., RANDOLPH CO., W. VA. MR. C. T. MOTT, ARCHITECT, NEW YORK, N. Y.

[Issued with the International and Imperial Editions only.]

RECEPTION-HALL OF THE SAME.

[Issued with the International and Imperial Editions only.]

MAIN STAIRCASE OF THE SAME.

[Issued with the International and Imperial Editions only.]

FIREPLACE IN LIBRARY OF THE SAME.

[Issued with the International and Imperial Editions only.]

CHILDREN'S ROOM OF THE SAME.

[Issued with the International and Imperial Editions only.]

EDZELL CASTLE, SCOTLAND, EXTERIOR OF THE GARDEN WALL.

[Issued with the International and Imperial Editions only.]

BUILDING FOR THE MENDELSSOHN GLEE-CLUB, NEW YORK, N. Y. MR. R. H. ROBERTSON, ARCHITECT, NEW YORK, N. Y.

The front of this building is to be of gray Belleville stone and grayish mottled brick.

PLANS AND LONGITUDINAL SECTION OF THE SAME.

ELEVATION AND CROSS-SECTION OF THE SAME.

DETAILS FROM THE AMBULATORY OF THE CHOIR OF THE CATHEDRAL, CHARTRES, FRANCE.

[Additional Illustrations in the International Edition.]

HOUSE IN THE KARLRING, BUDA-PESTH, HUNGARY. HERR JOSEF KAUSER, ARCHITECT.

[Gelatin Print.]

THE GALLERY OF THE PROPHETS, RHEIMS CATHEDRAL. AFTER A DRAWING BY M. MARGOTIN.

[Photogravure.]

DETAILS OF THE SAME.

[Photogravure.]

These drawings were exhibited at the *Salon* this spring.

ALL HALLOW'S, SOUTHWARK, ENG. MR. G. GILBERT SCOTT, M. A., ARCHITECT.

ALL HALLOW'S, EAST END, SOUTHWARK, ENG. MR. G. GILBERT SCOTT, M. A., ARCHITECT.

ALL HALLOW'S, MORNING CHAPEL, SOUTHWARK, ENG. MR. G. GILBERT SCOTT, M. A., ARCHITECT.

ALL HALLOW'S, INTERIOR, SOUTHWARK, ENG. MR. G. GILBERT SCOTT, M. A., ARCHITECT.

NATIONAL BANK OF SPAIN, PRADO, MADRID. SENOR EDUARDO ADARO, ARCHITECT, MADRID.

This imposing pile, said to be the largest and handsomest structure for commercial purposes in Europe, was completed and occupied in March last, and holds the same position in Spain as the

Bank of England does in London. The main frontage is to the Prado, a magnificent boulevard some two or three miles long, where, in the season, all the nobility and *élite* of Madrid may be seen driving or riding very much as in Rotten Row. The main front extends nearly 550 feet, and has three entrances, while another entrance is in the north front, to the Calle el Calla. The building rises to a great height, the principal rooms being 25 high in the clear. Above the ground level are five floors, four of which are appropriated to the business of the bank, and the upper or third floor is altogether set apart as residences for the staff and servants, many of whom live on the premises. The two principal cashiers have commodious suites of apartments at each end of the second floor. The principal entrance is from the Prado, where a magnificent marble staircase, built by workmen specially brought over from Italy, leads to the principal floors. Three more main staircases lead up from the other entrances, in addition to which there are four hydraulic hoists or lifts. Two large central courts, one on each side the main entrance staircase, give light to the interior of the pile. Nearly the whole of the basement is taken up with strong-rooms for storing bullion and jewelry, and surrounding the whole building, below the street level, runs an ambulatory, where a number of armed guards parade day and night, and from whence, by means of niches opening into the strong-rooms, they can see all that goes on in them, and they have instructions to fire upon any burglar who may have gained an entrance to these treasure-houses. The remaining portion of the basement is used for the boilers of the heating apparatuses and for storage of fuel. There are twelve boiler-rooms and twenty-one boilers, from which radiate no less than twelve miles of piping, traversing the whole building. At suitable positions coils of piping are introduced covered with handsome electro-bronzed iron coil cases, of which there are 130. The contract for the heating has been carried out very successfully by Mr. Renton Gibbs, of Liverpool and Birmingham. The basement is fitted up with a series of strong-rooms, eight in number, for various purposes, such as notes, bullion, silver, copper, securities, etc. Each of these rooms is secured by massive steel doors, with gates of heavy description, furnished by Messrs. Hobbs, Hart & Co., of London, corresponding with those supplied by them to the Bank of England and branches. This firm have also produced some specially-designed locks for multiple control. The weight of the steel doors, with the frames and gates, ranges from 2½ to 4 tons each, and are much admired. Messrs. Hobbs, Hart & Co. are now completing for this bank probably the largest steel room in the world, being over 50 feet in length, 26 feet in width and 17 feet high, with a staircase and gallery and wrought-shaped balcony. The entrance is protected by another of the "Hobbs-Hart" steel doors, as before described, and a man-hole door of corresponding strength. There are four pairs of steel shutters to correspond, of similar strength, over 10 feet high. The electric-lighting of the building is taken from the mains of the German company, between whom and the English company a keen competition exists for the lighting of Madrid.

FOUR INTERIOR VIEWS OF THE SAME.



[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 CORRECTION.

CHICAGO, ILL.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—The name of the designer of the Chicago Architectural Sketch-Club Toll-Gate, the author of which you failed to credit in the August 22d number of your journal, is E. C. Jensen.

Full particulars were sent with the drawings agreeable to your request, directly underneath the heading of your department devoted to illustrations.

Respectfully,

C. BRYANT SCHAEFER.

[It seems rather needless to say that had full particulars been received they would have been made use of in due routine. We regret that Mr. Jensen was unintentionally deprived of the proper credit for his work.—EDS. AMERICAN ARCHITECT.]

PLASTER BOARD.

BOSTON, MASS., September 12, 1891.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—A little of my own personal experience may not be without value to some of your readers. A few nights since, a part of the plastering of the ceiling of my dining-room, which is rather a large room, fell down. Being desirous of avoiding plasterers with their necessarily dirty methods, and also wishing to avoid the delay in drying a new coat of mortar, I ordered from the Eastern Plaster

Board Company, New York, a sufficient number of plaster boards (with tinned nails and bosses) to cover the ceiling. These boards are scored in curves on the side which comes into view, being thus scored for the purpose of holding a skim coat, which I proposed to put on. Two carpenters removed the remainder of the plastering without even taking up the carpet which was covered with a cloth to protect it. This took them less than one day. The next day the plaster boards were nailed up and I was notified that the room was ready for the skim coat.

But, upon examination of myself and friends, it was decided that the ceiling would be much more satisfactory in every way without a smooth skim coat than with it. It has therefore been left and has been much admired by my friends. Had this been the original intention, a little more care might have been taken in adjusting the plaster boards and in finishing at the cornice, but these little defects can easily be remedied.

Had I fully considered the matter we might also have used aluminum in place of the tin for the bosses and thus been free from corrosion.

This ready and simple method of repairing a ceiling at small expense in a very aesthetic manner may commend itself to others.

Yours very truly, EDWARD ATKINSON.

P. S. Since writing the enclosed, your number for September 12, has been received. Concurring wholly with you as to the uselessness of asbestos paper when placed between floors as a fire-stop, I beg to ask you for what purpose asbestos paper or board is good? You speak of it as "invaluable for many purposes." I should be glad to be informed of what use, in what places and under what conditions asbestos paper has ever proved to be of any service of any kind. Resin-sized paper between floors may do a little good as a fire retardant and is of great service as a water retardant. A fire-stop of mortar between floors, covered with resin-sized paper will serve both purposes.

E. A.

[Our experience is that asbestos paper, in several thicknesses, and still more the wire woven "superator," forms a good protection for the exposed woodwork of cellar ceilings, over boilers or furnaces, and is useful for wrapping furnace pipes exposed to currents of cold air, and for many other purposes where a pliable, incombustible and non-decaying covering is required.—EDS. AMERICAN ARCHITECT.]

NOTES AND CLIPPINGS

BOSTON FIRES.—Fire-Marshal Whitcomb of Boston, has issued his report for the year ending April 30, 1891. We quote from it as follows: "Seven hundred and forty fires have occurred during the year, as against seven hundred and forty-seven last year. These have resulted in a direct fire-loss of \$970,303 53, or an average loss per fire of \$1,311, as compared with the average loss last year of \$6,645 19, and an average loss the year previous of \$1,308. There have been two hundred and fifty alarms which were false, needless or for bonfires. With few exceptions the various causes of fires maintain very nearly their usual percentages as to the number of fires and the amount of loss resulting therefrom. . . . The statistics of Russian and Polish fires show a marked improvement—thirty-four per cent of the total number of incendiary fires being placed among them this year, whereas fifty-four per cent of the total number were attributed to them last. While last year fifty per cent of the total number of Russian and Polish fires were classed as incendiary, this year but sixteen and two-thirds per cent of their total number of fires are incendiary."—*The Spectator*.

LONDON'S SOOT.—The amount of carbonaceous and other particles deposited upon glass houses is a good indication of what the London atmosphere contains, and in many cases it is only possible to procure a due admission of light to the plants by frequently washing the glass roofs. At one establishment, says the *Pharmaceutical Record*, two tanks constructed to collect the rain from a house completed a few years since, were cleared out, and no less than ten barrow-loads of sooty matter were removed, all of which must have been conveyed into the tanks from the glass. One scientific man has been engaged in computing the amount of soot deposited from London air, and arrived at the following conclusions. He collected the smoke deposited on a patch of snow in Canonbury one square link (about eight inches) in extent, and obtained from it two grains of soot. As London covers 110 square miles, this would give us for the whole area 1,000 tons. As the quantity measured fell in ten days, a month's allowance would need 1,000 horses to cart it off, and these stretched in a line would extend four miles.

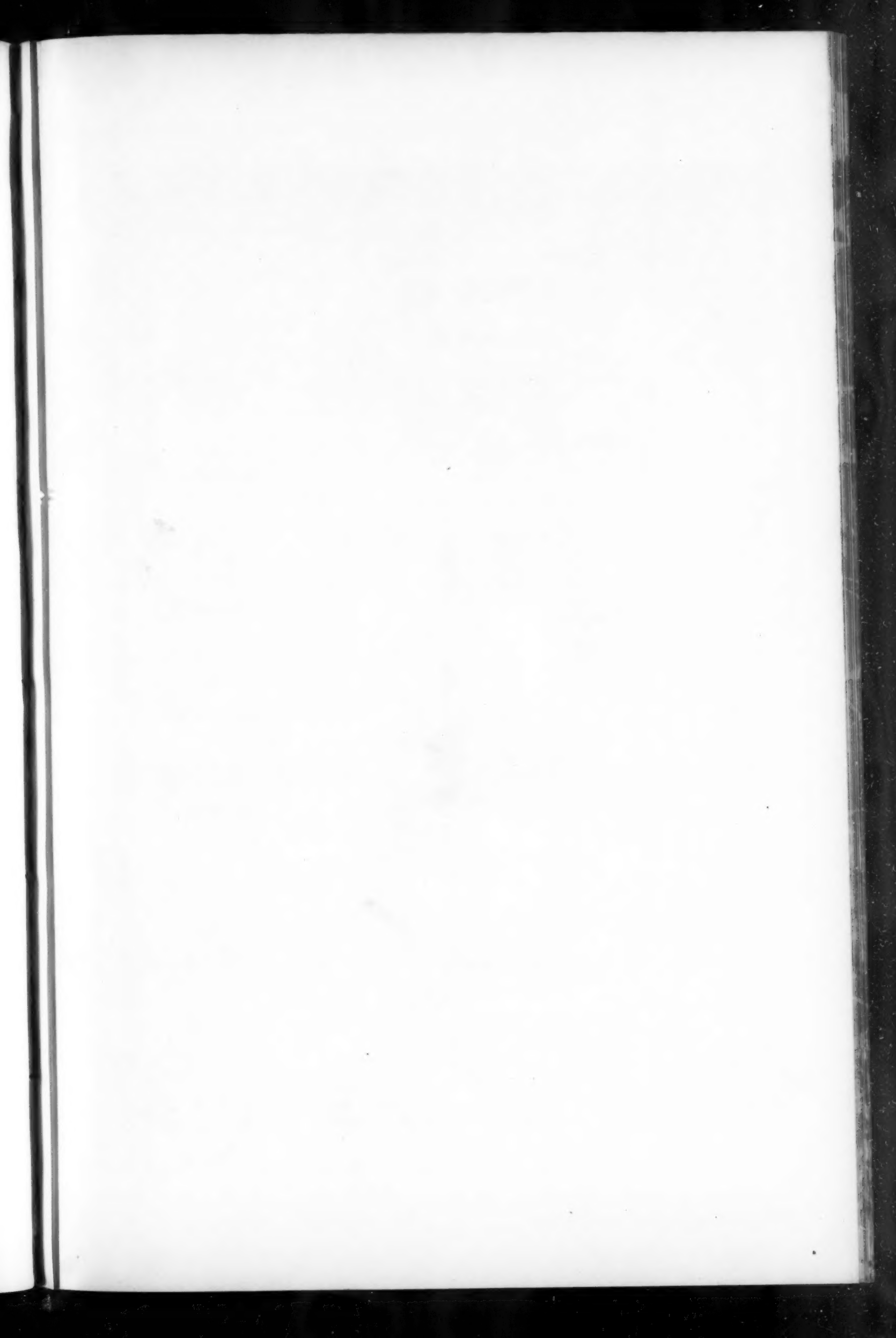
EARLY HISTORY OF THE FUSIBLE STRIP.—Here is an interesting little story about the fusible strip. Early in November, 1879, was a momentous time at Menlo Park, N. J. Mr. Edison had invited the New York aldermen, a number of prominent officials and well-known electricians, to be present at his laboratory to witness the trial of the incandescent light. He had invented his three-wire system and carbon-filament lamp, and was about to show the world what could be done with them. The party was invited to be present at night. On the morning of that day one of his faithful assistants remarked: "What will happen to it if somebody should lay a bar of metal across these wires?" "It would short-circuit the whole business, the lamps would burn out and the thing would be a fizzle." Mr. Edison pondered over the matter for a few minutes, and saw the importance of the question. It was all the more important as it was known that some of the guests who were invited were not Mr. Edison's warmest friends. After thinking the mat-

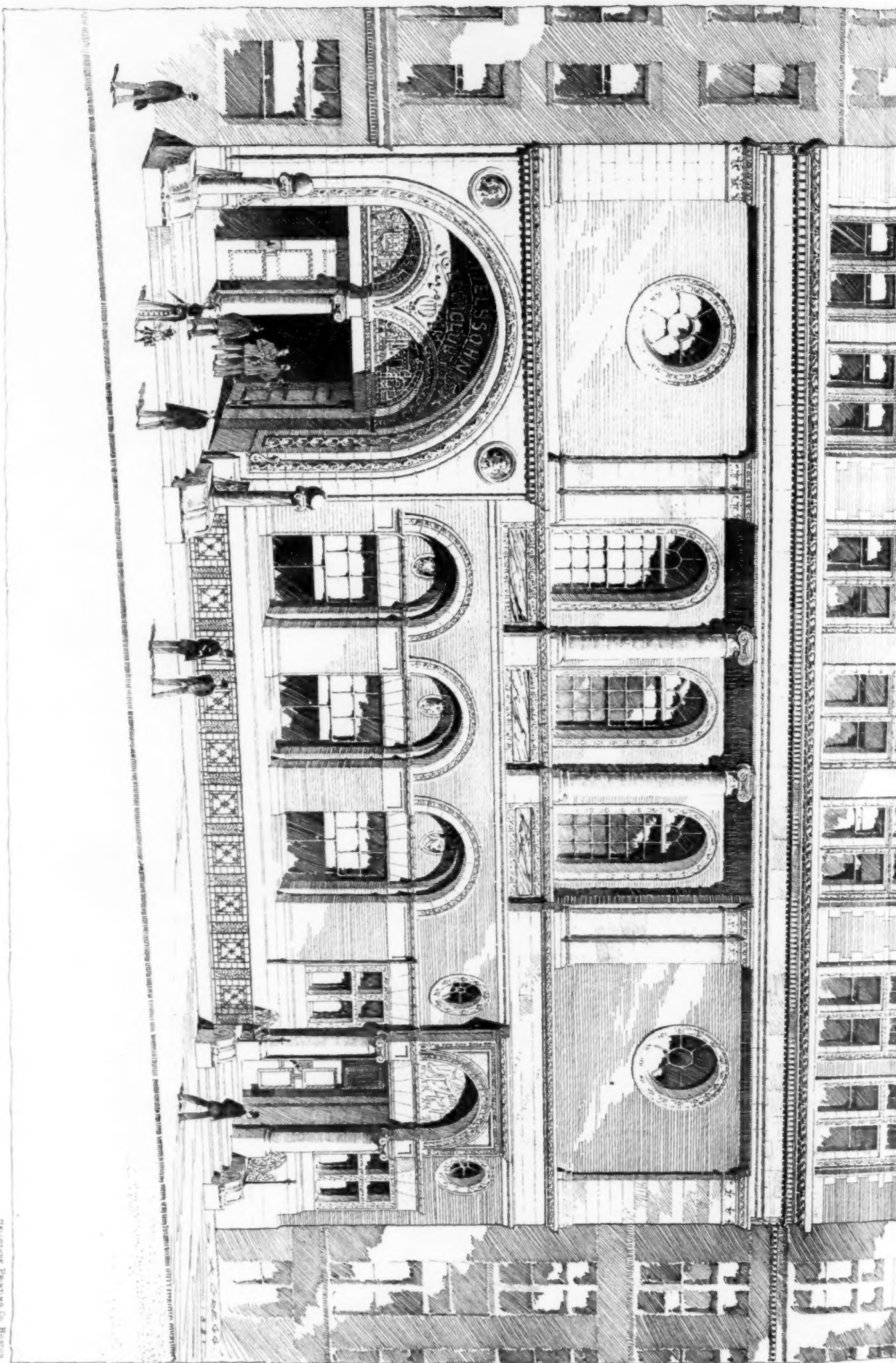
ter over for a few minutes, Mr. Edison retired, and in an hour came back and ordered the wires to be cut in several places. These breaks were then connected by means of little strips of lead. The whole laboratory force was kept busy all that day casting these little strips of lead, so it will be seen in the short space of an hour's time, after the emergency had presented itself and asserted its importance, Mr. Edison had produced what is to-day one of the most valuable and vital devices in every electrical circuit. To finish the story, it may be said that when the evening came a now well-known electrician was standing with one of Mr. Edison's assistants and said to him: "I think I will play a joke on Tom, and just lay this bar of copper across the circuit." The assistant replied: "You can't hurt anything by doing that." Nevertheless, the bar was laid across. Four lamps burned out, the balance kept right on at work. A man came and repaired the fuses, and, much to the astonished electrician's surprise, everything went on as smoothly as before.—*N. Y. Electrical Review*.

AN ACT OF VANDALISM ON A STATUE.—The judges in the courts of Rennes will shortly have to give a decision which will throw light on the law as it relates to vandalism in France. The action is taken by the Municipal Council of Lorient against some of the inhabitants, most of them being young men, and the damages claimed amount to £2,000. A statue of a local poet named Brizeux was lately placed in a public place of Lorient. But it gave offence to a party of young people, who may have had exalted theories about poetic composition. Accordingly, in June of this year, the statue was overthrown, defaced and covered with tar. Action was taken against the vandals, and they were mulcted in damages, but they have appealed to the superior court of Rennes, with what result remains to be seen. The Municipal Council have decided to make an act of reparation to the deceased poet. On September 12, which is the anniversary of his birth, the members will march in procession to the cemetery, and deposit a wreath upon the poet's tomb. Throughout the day the statue will be draped in black.—*The Architect*.

TRADE SURVEYS

THE manufacturing and commercial interests of the United States continue to be greatly elated over the enormous crops and enormous foreign demand for cereals. All investigation appears to bear out the belief that the United States will very largely profit by the exceptional crops on this side, and the exceptionally light harvests abroad. The effect of this improvement is being discounted already, and jobbers in a number of channels speak of an improving demand in wholesale circles. The wholesalers, however, are asking for longer time for payments in a good many cases, and manufacturers and others are rather disinclined to depart from customary rules as to time; in fact, there is a very strong feeling working in the opposite direction: namely, to restrict credit and to bring commercial intercourse more nearly to a cash basis. It is probable that, as confidence grows, there will be no objection to long dating ahead. One of the latest cereal estimates is that we will have 214,000,000 bushels of wheat to sell, which will bring us \$225,000,000, against \$100,000,000 for last year's crops, which excess will have a very favorable influence upon trade in general. Gold has begun to come from Europe, and a large inflow seems to be expected by bankers and those who take their opinions from them. The conditions point to this result. Heavy treasury disbursements are helping to keep money markets easy. European bankers are abundantly supplied with coin, having some 75,000,000 in excess of a year ago. The possibility of a general foreign war is increasing interest in the commercial world on this side in European affairs. The railroads throughout the United States are doing well indeed, the latest reports showing gross earnings of 143 railroads for August at seven per cent over the same month last year. The increase for the entire year is very favorable in comparison to the same time last year. The cotton-planters are also in luck, and expect to realize an increase over prices last year. Troubles with pickers have disappeared, and the crop will be picked, shipped and sold without trouble. Northern spinners are working quite freely, and helping to give the market an upward tendency. Textile manufacturers are also buying liberally of all kinds of raw material, which is having a favorable effect upon prices. Hosiery manufacturers seem to be doing the same, but are not running their mills very full, owing to the danger of overstocking the market. Prices for all textile goods remain steady, though competition is beginning to make itself felt where it was least expected; namely, between the manufacturers of exclusively American goods in the lower grades. The iron trade is beginning to feel the effects of better conditions, but lumber manufacturers are complaining of dullness, low prices and large stocks—larger than they expected to have at this time. Mill-capacity has been so increased throughout the country, and little manufacturers of lumber have been so anxious to keep their machinery at work, that more lumber has been prepared for the market than decreased building activity this year required. Still, there is no serious trouble surrounding the lumber interests. Prices are simply low, and manufacturers are obliged to carry their stocks over, perhaps, until next season before realizing. In a general way, however, there is no over-production in any channel. Jobbers are hopeful of an increased demand between now and December for all lines of goods. There is no serious stringency in financial affairs, although collections continue slow and difficult. Shop and mill manufacturing interests all over the country are running to about ninety per cent of their capacity. Railroad-building is falling to a very low ebb, but, with improving markets, a considerable amount of new work will be undertaken during the winter. The steel mills, as a rule, are running full time. Furniture manufacturers throughout the West have stocked-up pretty heavily, and are now checking up. Architects report an abundance of capital available for new building operations, but that the urgency for house and shop room has ceased. There is a great deal of improvement going on in the smaller cities throughout the West at the expense of the larger. Influences are at work which are developing the smaller towns and cities; this fact is shown in a good many ways. There are more sales of real estate in the smaller towns, and a new population seems to be drifting towards an improving local traffic. The business of the country is gradually settling on stronger foundations. The spirit of competition never ceases to protect buyers against high or exorbitant prices, and at no time in our history has this protective influence been so energetically employed as at present.



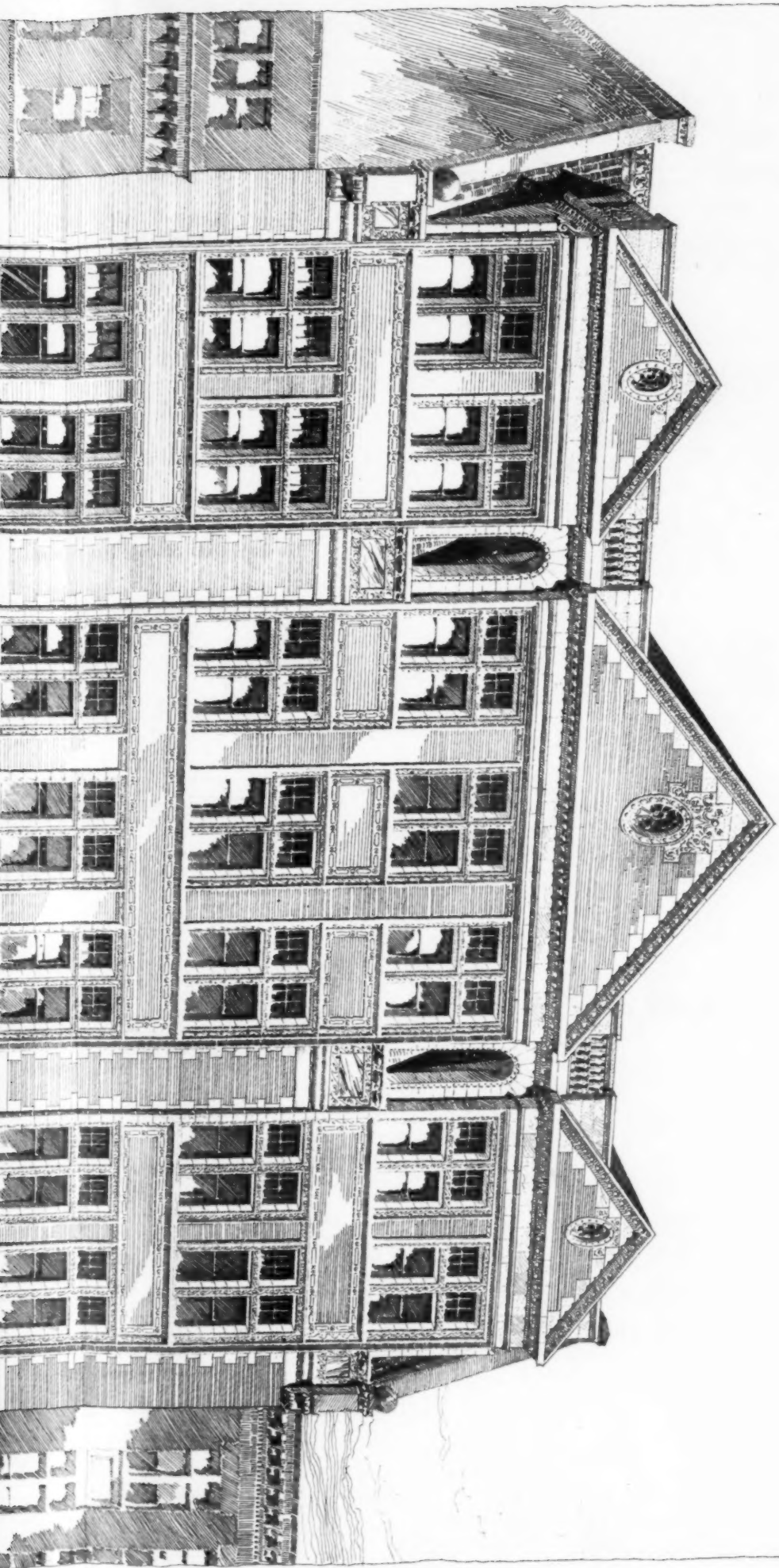


THE MENDELSSOHN CLUB BUILDING, NEW YORK R. ROBERTSON, ARCHT.

No. 521.

AMERICAN ARCHITECT AND BUILDING NEWS, SEPT. 19, 1891.

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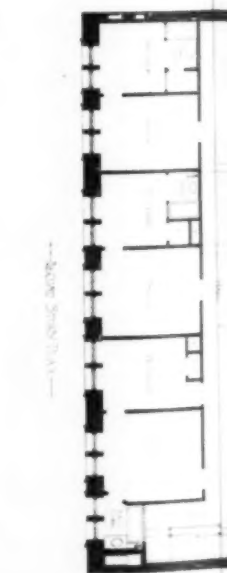




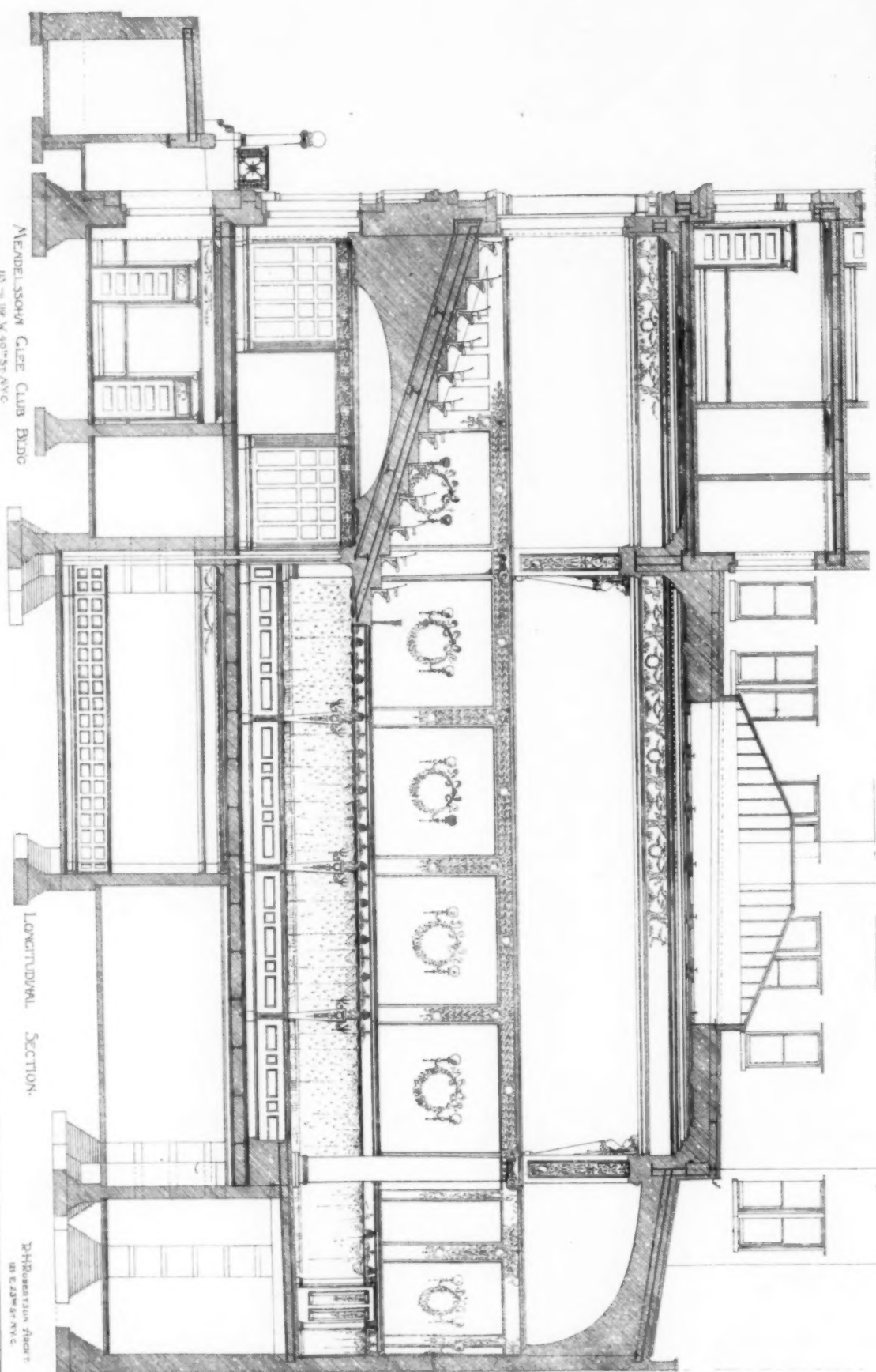
Basement Plan



First Floor Plan



Second Floor Plan



Mendelssohn Club Bldg

115 W 40th St NYC

Longitudinal Section

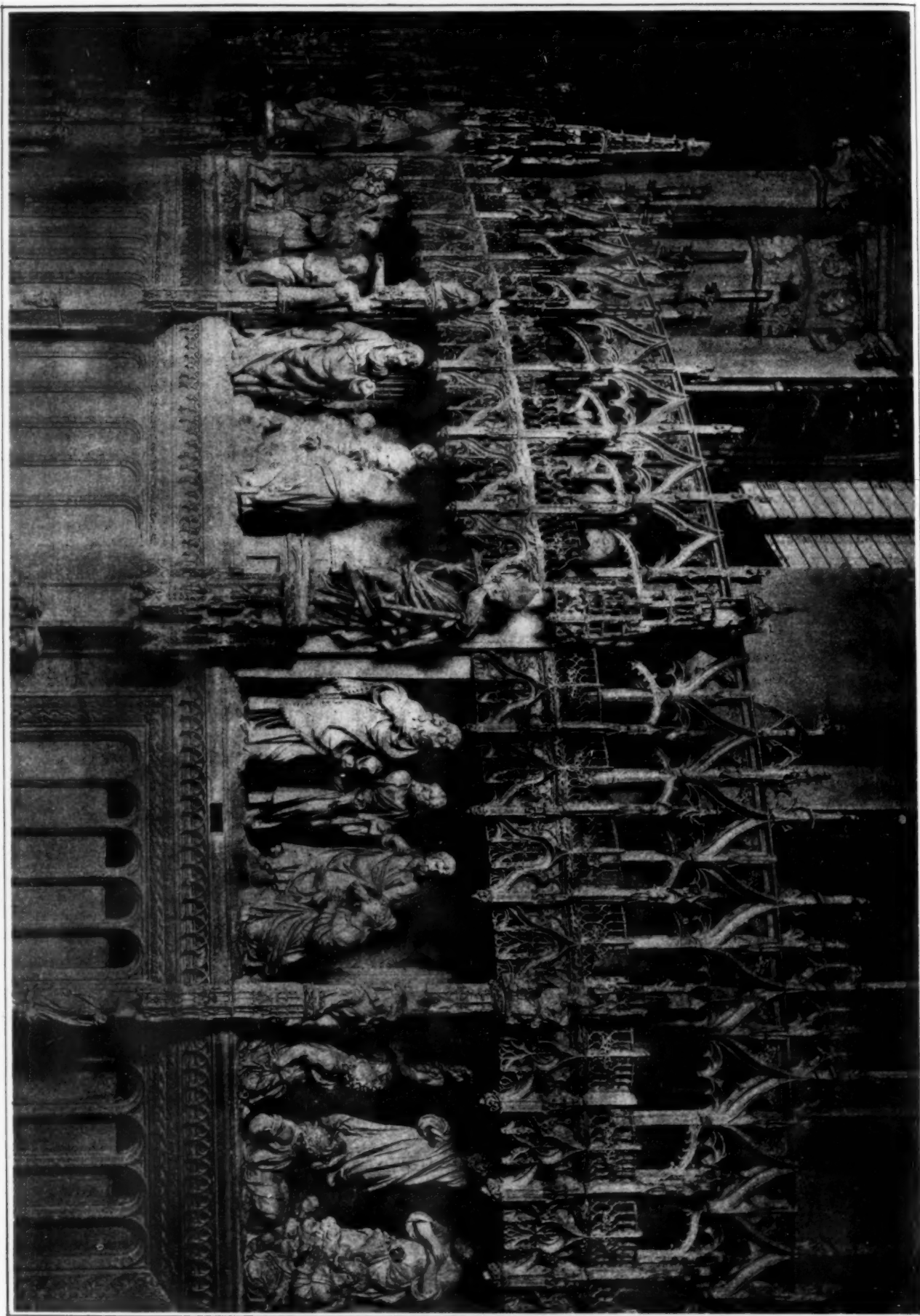
Pharmacy Floor

115 W 40th St NYC

Halotype Printing Co Boston



DETAIL IN CHOIR OF CHARTRES CATHEDRAL.

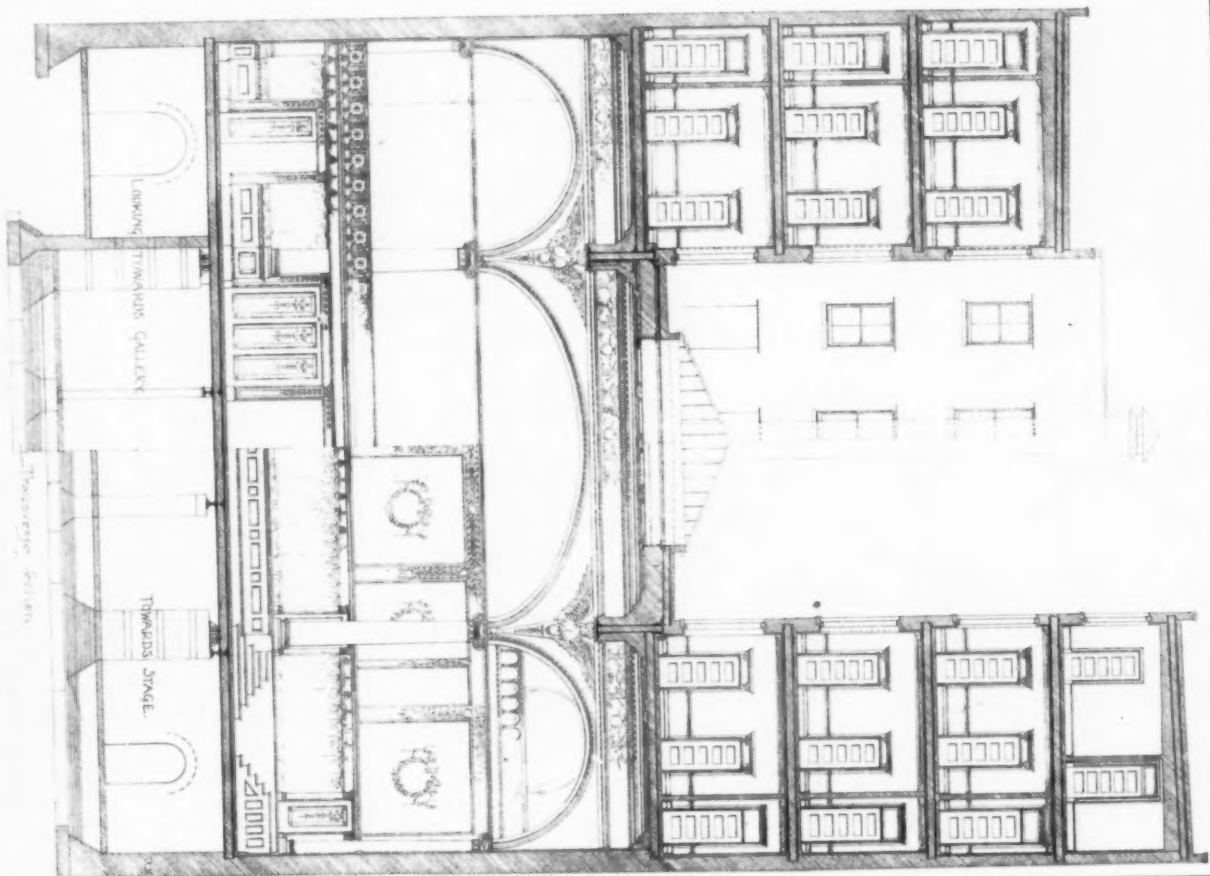
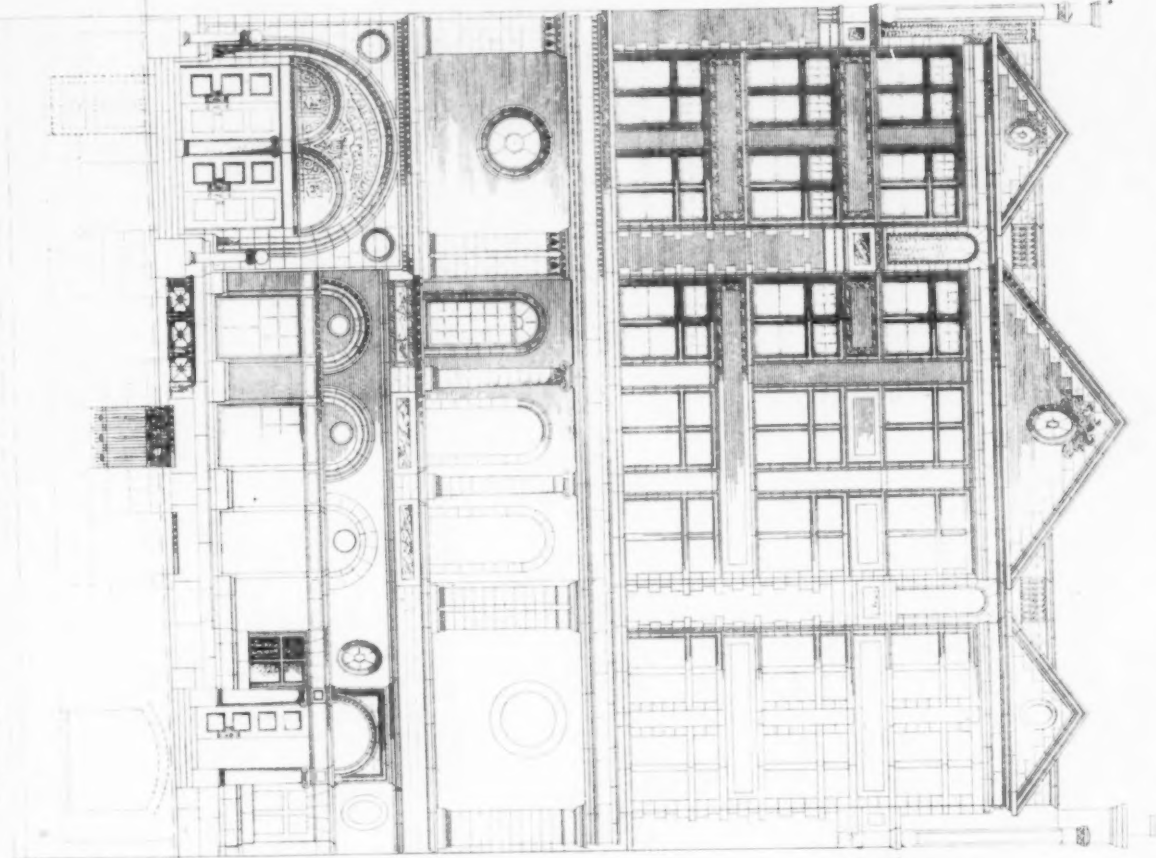


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Plaza Hotel	-	-	-	-	"	Atlantic Brewery	-	-	-	Staten Island.
Lion Brewery	-	-	-	-	"	W. Fellows's Residence	-	-	-	Montclair, N. J.
Corbin Building	-	-	-	-	"	Matthiessen Vaults	-	-	-	Woodlawn, N. Y.
Sidenberg Building	-	-	-	-	"	Morgan Stables	-	-	-	Newport, R. I.
Mt. Sinai Hospital	-	-	-	-	"	Exeter Chambers	-	-	-	Boston, Mass.
Edison Electric Illuminating Company,						Cox Stable	-	-	-	"
26th St. Station	-	-	-	-	"	Bay State Gas Company Building	-	-	-	"
39th St.	-	-	-	-	"	Colorado Telephone Co's Building	-	-	-	Denver, Colo.
Sun Fire Company Building	-	-	-	-	"	Dover City Hall	-	-	-	Dover, N. H.
Lyons Building, Bleecker Street	-	-	-	-	"	Philadelphia Market	-	-	-	Philadelphia, Pa.

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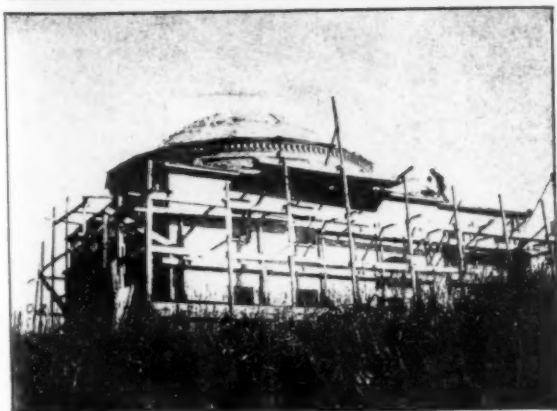
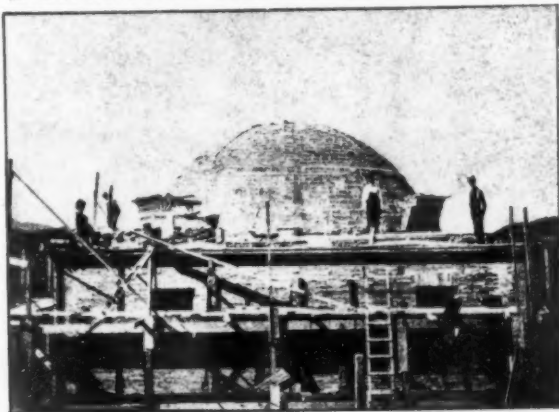
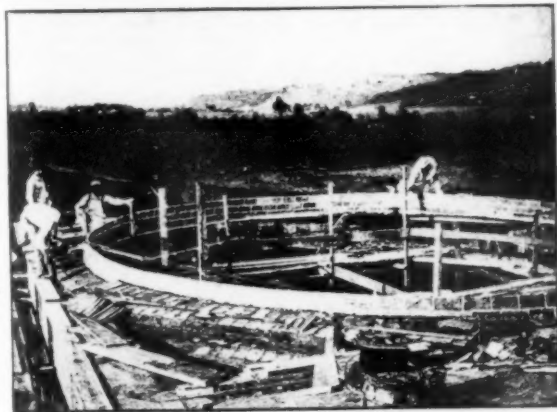
Havemeyer Building	-	-	-	-	New York, N. Y.
Howard & Childs Brewery	-	-	-	-	"
Arcade of Madison Square Garden	-	-	-	-	"
Edison Electric Illuminating Company,					
Cor. Elm and Pearl Sts.	-	-	-	-	"
Paterson Savings Bank	-	-	-	-	Paterson, N. J.
Lowell Library	-	-	-	-	Lowell, Mass.
Boston Library	-	-	-	-	Boston, "
Massachusetts State House Extension	-	-	-	-	"
American Legion of Honor	-	-	-	-	"
Boston Gas Light Company Building	-	-	-	-	"
Hitchcock Hospital	-	-	-	-	Hanover, N. H.
Ansonia Library	-	-	-	-	Ansonia, Conn.

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