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STEPS have been taken toward the formation of an association of architects in Minnesota. At an informal meeting held at St. Paul a few days ago, a majority of the architects of that city and its neighbor and rival Minneapolis were present, officers were elected, committees appointed, and a day set for a second meeting, at which a permanent organization should be effected. There is no part of the United States where the prospects of such an association would be more promising, and we congratulate the profession at large, as well as the architects of Minnesota, on its formation. Those who have experienced the benefits which such a society can bestow upon its members; the quickening of professional enthusiasm by the opportunity which it affords for offering and receiving sympathy in professional work; the wholesome emulation which it fosters among those who care more to deserve the approval of their rivals and equals than to tickle the fancy of the vulgar, with the mutual consideration and respect which follows acquaintance and common interests, should do what they can to promote the constitution of similar bodies, wherever the material exists for them; and they may be certain that their endeavors will be well repaid.

AFTER the local societies have been formed, the next, and a very important step, is the establishment of some kind of correspondence between them, which may serve as a common bond to unite the interests and promote the mutual regard of members of the profession throughout the country. We have before referred to the wise, but neglected rule of the American Institute of Architects, which requires that the Secretary of each affiliated Chapter shall send to the Secretary of every other Chapter a copy of the notice of every meeting of his own society, besides copies of other printed documents prepared for the use of its members. It would be hard to estimate the value which the systematic observance of this rule would have to the architectural world. It is true that most of the meetings of such bodies are of a social, rather than a deliberative character, but even though the notices sent may consist of a single line, it is none the less pleasant and useful for each secretary to receive them, and to feel that he has been remembered by all the others, while the simple familiarity which each society gains with the names of members of the others is a bond of union more powerful than might be supposed. In case of business of real importance to architects or architecture, the way is thus prepared for securing a professional support which may often be of the utmost value, and the questions which agitate one society would naturally excite discussion in the others, to their mutual benefit. We have never much favored the fashion of setting a particular day on which to abandon vice and sloth and commence the practice of virtue, but we are tempted to make an exception to our rule, and to propose that during 1882 every architectural society in the country, whether connected with the Institute or not, shall send through its secretary to the secretary of every other society copies of all its printed notices and papers of every kind issued through the year. The list of such bodies is not long, and the number of stated meetings of each is small. A boy could address all the necessary envelopes for the year in an hour, and a few blue postage-stamps would do the rest. We will do our part to help by printing in another column a list of the professional societies at present known to us, with the names and addresses of their secretaries, and will keep the list standing, making corrections and adding to it to the extent of our information as long as required; and we trust that the secretaries of the various bodies will second our efforts.

FURTHER details received of the disaster at Shanesville, O., where by the falling of a floor a large number of persons were killed or injured. It seems that the building in which the occurrence took place was originally all of brick, containing a store on the ground floor and a lodge or assembly room, thirty feet long by twenty feet wide, above. The floor of the latter was supported in the middle by a girder, the outer ends of the joists resting in the side walls. Some time ago the rear of the building was cut through, and a wooden extension added, and a post was placed under the rear end of the central girder, which was deprived of its support by the removal of the brick wall under it. Whether there were other posts under the girders we are not informed, but if not, it was probably rather the failure of the overloaded timber than the slipping of the end of the girder off the post, to which some attributed it, which led to the giving way of the floor in a line through the centre, throwing men, women and children, stove, lamps and furniture into a confused heap in the middle, and then hurling them to the room beneath to be crushed, burned, or torn by splinters, as fate might decide. We hope that we have not yet heard the last of this accident, and that the person responsible for it will yet be brought to justice.

A SERIOUS accident occurred, January 2, on the Boston and Maine Railroad, near Kennebunk, Maine, by the falling of an iron bridge under the weight of a passing train, throwing three passenger cars into the chasm beneath and injuring half of their occupants more or less severely. The Boston *Herald* gives an intelligent and circumstantial account of the occurrence, accompanied with a rude diagram of the bridge, which however seems to indicate that the theory of the correspondent is correct, — that the breaking of an axle in the front truck of the baggage car, just as it arrived upon the bridge, threw it sideways off the track with great force against the truss which was crippled by the blow and overturned, of course carrying the most of the bridge with it. Such accidents are not uncommon, and great efforts are made in modern railway engineering to prevent the possibility of a car leaving the track while passing over a bridge. The object is partially secured by placing heavy timbers along the outside of the rails; but the car may under some circumstances part altogether with its trucks, and throw itself over the protecting guards, so that the breaking of a truss bridge by a heavy blow is occasionally inevitable.

THE *Builder* just received contains a long account of the life and works of George Edmund Street, whose untimely death the professional world has not ceased to mourn. Mr. Street was born at Woodford, Essex, in 1824, and at the age of seventeen was articled as a pupil of Mr. Owen B. Carter, of Winchester. Leaving this ancient town in 1844, he removed to London, and entered the famous office of Sir George Gilbert Scott, in Spring Gardens, remaining there four years, until his entrance into business on his own account. Ten years later he was appointed architect to the Oxford Diocesan Commissioners, and not long afterward removed again to London, where he has since resided. In 1868 he was commissioned as architect to the Law Courts, and in 1871 was elected a Fellow of the Royal Academy. His election to the Presidency of the Royal Institute of British Architects, took place in the autumn of last year. It is needless to say that his executed works are very numerous, and are scattered not only over nearly all parts of England, but throughout the Continent. In Constantinople, Rome, Genoa, Lausanne, Vevey, and Mürren are churches of his design, and another has just been begun in Paris for an American congregation, while in England the *Builder* names two cathedrals, thirty-three churches, and three private chapels, besides many other private and public buildings, as due to his genius. His industry and facility of drawing are well known, but only definite statements, such as that of the *Builder*, that he made with his own hand three thousand full-size sections

of mouldings for the Law Courts alone, enable us to realize how efficient, as well as active, his daily life was. Such industry met with merited success, and his career was prosperous from the outset. Besides the honors which his fellows at home laid upon him, he was a member of the Imperial Austrian Academy of Arts, and a Chevalier of the Legion of Honor, and even in death the last tribute of public respect was shown by the permission granted to his relatives for his interment in Westminster Abbey.

Another English architect of considerable distinction, though of a day less recent than Mr. Street, passed away a few days before his younger and more famous fellow. This was Mr. Decimus Burton, the architect of the Athenæum Club in Pall Mall; the Colosseum in the Regent's Park; the Hyde Park entrance; the buildings of the Zoölogical Gardens; the Charing-Cross Hospital; the Royal Botanic Gardens at Kent; Holwood House, Kent, and many other private and public buildings. Born in the first year of the century, the active period of his professional life coincided with the time of the classical, and more particularly the Grecian mania in England, and among the designers of the colonnades, crescents and porticos which even now excite our admiration, though not our emulation, in the older parts of West London, he stood nearly the first. Less fortunate, perhaps, than his contemporaries, in having survived to see his and their work disparaged and neglected, he might at least find consolation in observing how little of its charm, to those capable of understanding it, time took away from it.

Later accounts from the exploring expedition of the Archæological Institute at Assos indicate that the work grows more and more interesting and successful with each day's progress. Naturally, in a place which has been so often and so thoroughly stripped of every object which could be conveniently carried away, the deeper excavations alone would be likely to reveal undisturbed remains, and little success is to be anticipated until the search has been continued beyond the point where the patience or the covetousness of Gauls and Turks became exhausted. The mediæval ruins on the Acropolis have been examined, and many stones from the temple have been found built into their walls; among others, some fragments of the unique sculptured architrave, which present great interest. The sculptures represent a series of hunting scenes, in which men, bulls, sphinxes, wild boars, antelopes, lions, and centaurs are mingled in strange companionship. On the blocks brought to Paris by the French expedition of fifty years ago the form of the last-named animal is that which has long been familiar to us in the sculptures of the Theseum and the Parthenon, the head, arms, and breast being human, while the rest of the body is that of a horse; but one of the stones found by the American expedition represents three centaurs of a much more ancient type, having the front of the body and the forelegs and feet human, the equine nature appearing only as an appendage. This form occurs in vase-paintings, and a bronze showing the same conception has been found at Olympia, but it has always been regarded as very archaic, and its occurrence in conjunction with the later and more refined representation is quite inexplicable.

The *Sanitary Engineer* publishes an interesting account of some recent experiments upon the power of soil to absorb and filter sewage. The soil treated was of two kinds, one consisting of the subsoil and the other of the surface loam of the district where the experiment was made. A portion of each kind was placed in a box six inches square and three feet deep, and carefully watered with measured quantities of sewage of a known composition, and the effluent analyzed. On the box containing the surface loam two ounces of sewage were first applied every morning and evening. Before filtration the liquid contained thirty-two parts in a million of free and albuminoid ammonia. After filtration, from about four-fifths of one part in a million of the ammonia could be detected in the effluent. In the second experiment with the same soil the quantity of sewage applied was doubled, and, its composition remaining the same, one and one-fifth parts of ammonia were found in a million of the filtered liquid. After some weeks of this treatment the soil became saturated, so that it would not filter, but after draining and drying the experiments were recommenced, with the same result. A second box, containing earth of the same kind as the other was first saturated with water, and the same quantity of sewage applied, but in semi-weekly doses instead of twice in the twenty-four hours. Until the excess of water had drained away, the action of the soil in purifying the sewage was enfeebled, the effluent showing two and one-quarter parts of ammonia to the million; but after two months' service it had regained its powers, and reduced with certainty the proportion of ammonia from thirty-two parts in the million in the liquid to sixty-four hundredths of one part in the effluent—just one-fiftieth of the original pollution. The boxes containing the sandy subsoil showed less favorable results, the effluent containing from one-twentieth to one-tenth of the impurities of the sewage. The general result of the tests confirms previous experience, that the sewage, far from gradually clogging the soil, wholly disappears in its pores, so that after years of irrigation its density and chemical composition remain unchanged, while its purifying capacity actually increases with age.

La Semaine des Constructeurs speaks in terms of discriminating approval of M. Proust's changes in the administration of the École des Beaux-Arts. The official ateliers, whose suppression forms the principal feature of the reform, were only established in 1863, space being taken for them in the galleries devoted to the collections of the schools, and their abolition will restore to its intended use a considerable area which is now much needed. Meanwhile, although the official teaching of art is discontinued, new ateliers will be constructed within the school precincts, where students who prefer it, or who have not the means to pay for the instruction of qualified architects or artists in private ateliers, can work together and learn what they can by mutual teaching. The lectures on collateral branches, on perspective, history, archæology, construction, mathematics, literature, and æsthetics, will go on as before, and their number will soon be added to, and their efficiency if possible increased, while the various libraries and collections will be put even more fully than before at the service of the students. In fact, as the protest of the pupils of the official ateliers says, in the State school of painting and architecture everything will be taught except painting and architecture; but although the sarcasm is in a certain sense justified, there are very good reasons for believing that the best art cannot be taught, and that the talent of the individual, stimulated by emulation, and nourished by sympathizing companionship and the sight of good models, attains more quickly to a vigorous growth if left untrammelled than under the weight of a prescribed set of official formulas. At all events, the experiment of leaving the students in freedom is to be tried, and it is for those members of the school who favor the reform to prove by their example its beneficial effect. The periodical competitions will be continued with more éclat than ever, so that genius will not have to wait long for a chance to display itself.

Our readers probably remember the barbarous attempt made in Chicago by some iron-moulders on strike to murder the men who had taken their places by secretly placing gunpowder in the moulds which they used, and will be glad to learn that one of the infamous criminals has been brought to justice. This man, whose name is Henning, was appointed by the Chicago Moulders' Union as one of a committee to watch the premises of the Chicago Stove Works during the strike, and keep away "scabs." We trust, for the honor of human nature, that the committee exceeded its instructions, but be that as it may, it formed the project, as Henning himself confessed, of blowing up the foundry, including the new workmen. He, with another committee-man, procured the powder, and a deputation proceeded to the foundry to carry their purpose into effect. He watched outside, while two of his colleagues entered and put the powder into the flask, and during the whole of the next day the committee watched from a safe position, in the hope of seeing the works blown up, and, as he expressed it, "the arms and legs of the 'scabs' flying through the air." They were deprived of this pleasure, almost by a miracle, and Henning, a drunken as well as murderous wretch, was captured. The prosecution does not seem to have been extremely vigorous, for the other conspirators, notwithstanding the presumption against them afforded by Henning's repeated confessions, were left unmolested, and he himself escaped with the light sentence of a year in the House of Correction, and a fine of twenty-five dollars, which was immediately paid by the Union, in consideration of his denial when brought upon the witness-stand of the statement which he had twice voluntarily made to other parties.

SKETCHING IN NUREMBERG.

"A RAINY, drizzly night," said we, as doubling ourselves in the corner of the compartment as cozily as possible, we sped along through the rain. Anticipations of old walls, huge towers, crooked and narrow streets, with even more crooked gables and dormers, served to fill up the time, and enliven the otherwise dull journey from Munich. As we approached the old German city, lights began to glimmer ahead and on either side: lights which through the hazy atmosphere seemed to glimmer and then go out, in a most mysterious manner, now appearing on a level, then far above and in the distance, until at last the train drew slowly to the platform of a large and pretentious depot. "Nothing very picturesque about this," we said, expecting rather to find a depot covered with odd octagonal dormers, tumble-down tiled gables or pinnacled turrets, which might at least give assurance that we had arrived at one of the oldest of German cities, and one that had been before our mind's eye as the very acme of sketching-grounds.

Shall I tell you we were a little disappointed? The advancement of modern times, thought we, has probably almost obliterated *old* Nuremberg, and here we are among a people who, like the heathen in our own country, must needs tear down the relics of ancient days, in order to rear in their stead huge business blocks.

Happily we were disappointed in all these conclusions: the omnibus rolled through a little park outside the town; we were dimly conscious of passing under an immense arch, and we were in Nuremberg almost as it was during the sixteenth century.

The buss stopped, and we alighted with all the dignity which it was possible for two Yankees to assume who were equipped with blue shirts, sketching-stools, and a moderate amount of American independence. The hotel was the Rothe Ross. If the name sounds familiar to any ears, they will perhaps understand me when I say that we shall never forget it; nor will, perhaps, the hotel ever forget us. In explanation it is enough to say that upon our leaving there were just eleven disappointed garçons, each one of whom had made it his particular endeavor to be at our heels night and day. As we went up-stairs it became evident that the house was very ancient; huge timbers, massively carved, being the last recollections of our weary minds, which became strangely mixed with a little pinnacled roof opposite.

Clear and beautiful was the next morning, as we started out for our first sketching tour. On either hand were the quaint bits for which we had longed: high pitched gables full of little windows, open-timber work black and twisted, plaster panels which had stood for years and years, hanging oriels covered with every conceivable form of carving, innumerable octagonal dormers hanging into the street; and soon we came to an open square, on one side of which loomed up the old Nassau House, with its quaint turrets at each angle, and its central hanging oriel.

Ascending towards the castle, we pass the home of Albrecht Dürer, a high gabled house, full of windows, and soon tower after tower juts out from the mass of buildings, until at last we stand upon the high moat-wall, and look over and away to the mountains beyond.

On our left stands a round castle-tower, while on the right is an equally odd structure, in the tower of which was the old torture-chamber. Here a worthy old couple recounts to us in French the ghastly list of murders here committed by powerful monarchs, while the old man clinches his story by showing upon his own person the working of the horrible "iron virgin," in whose embrace the victim has no chance of life, and which, after the completion of its fiendish act, drops its victim into a bottomless pit. Pleasant memories these, and we gladly descend into the free air, noting as we come out the suggestive emblem of the skull and crossbones over the entrance.

Follow with us now this old wall, running as it did around the old city, and I venture to predict we shall run across many odd and picturesque bits well worth our sketching. The old castle where we stand is older than the town below, and as we find our way along the inside of the wall, we pass the four cylindrical towers which were built about 1550, interesting certainly as being designed by Dürer.

We soon find ourselves all mixed up amidst little alley-ways and ruins of old walls, which have become the homes of the poorer inhabitants. Here and there we follow along a gallery on the inside, and looking out from the little holes, seem to imagine the old warriors dodging the arrows, which could only have been now and then shot with such accuracy as to enter the little slots. Fun for us now, but no doubt often death to them then.

At last we strike down by a muddy little stream, and are at once confronted by a square tower looming up before us, and turning a corner, find that it is connected to an old house by a picturesque bridge with its black open-timber work and plaster panels; but this is not all, for as we walk under the old house, to the left we find another curious old tower, square on one side and round on the other side, its base meanwhile being square: a very good motive, think we, so jot the whole thing down.

It being a good place to cross the little stream, we act upon the suggestion and soon find ourselves on the road outside the walls, with the moat between, now grown up with shrubbery and trees. Sketch after sketch is added to our books as we tramp along, surprised by the number of beautiful scenes, and in turn surprising the natives, who wonder what we can see attractive in their old ruined towers and bridges.

"Surely," exclaims my chum, "there is an old building which spans a whole river," a prediction as true as the reality was picturesque, and which tempted us to take a large sketch which amply repaid our trouble. There it stands, a massive arch of stone, with turret on the right, away from which runs the old wall. They tell us that there was once a massive iron grill which hung down from the four slots in the arch, and that when the invaders attempted to enter the city by way of the river, they were treated to a mild shower of molten lead, or pitch, dropped through the convenient little shoots above. Truly, a warm welcome.

But the whole of Nuremberg is not made up alone of towers and walls. A tramp through the dirtiest portions serves to bring out

some of the most picturesque bits, a fact that became so strongly established in our minds that when my companion was wont to facetiously remark, "the odor is very high here," we at once began to make preparations for a good sketch — the subject always came to hand before long.

The point in hand was in the southern part of the city, where the little stream ran very sluggishly along. We had seen the town pretty thoroughly, and were picking our way one day through streets that were narrow, crowded, dirty, and exceedingly odoriferous, when my friend made his little remark as above quoted, and got in readiness his block. Having disposed of a rickety old staircase, we had just emerged upon the bank of the little stream, when before our eyes, on its opposite bank and within a stone's throw, there stood a half-dozen buildings which would have made the hair of an inspector of buildings stand on end at once. Dirty little boys sported in the muddy water, dirty men hung over the railings, dirty women hung out apparently dirtier clothes, while on one balcony hung a whole mattress that would have sent a bureau of health into convulsions. A soil-pipe projected from an upper window, and ever and anon

down spattered a filthy stream, into the water or on a luckless boatman, it mattered not. There were balconies supported by nothing more apparent than faith, windows and doors which seemed particularly made for infantile suicide, while the last building in the pile seemed as if it were endeavoring to get completely off its base. But the colors — they baffle all description: dull red tiles, moss-covered, wood-work black with age, brick and stone of all conceivable dull colors — enough, the *ensemble* was as charming a bit as had yet been seen, and after sketching it faithfully we came away with our ideas of the companionship of dirt and picturesqueness more firmly fixed than ever. C. A. R.

Forty Thousand Tons in One Blast. — At noon, December 22, a great blast at the limestone quarry of the Glendon Iron Company was fired, and 40,000 tons of rock were dislodged. To accomplish this, four tunnels, each 50 feet long, were run into the hillside, and at their end two chambers were built at right angles, each 8 feet long. Sixteen boxes of powder were placed in each chamber, and these boxes were connected with a battery by 3,200 feet of copper wire. Ten tons of powder were used, and when the electric current was sent along the copper wire, the face of the rock for a distance of 150 feet and a height of 25 feet was blown out like a high wave, and the rock above this excavation sank into the space with a roar.

THE FOURTH AMERICAN ARCHITECT COMPETITION.

THE jury has awarded the three equal prizes of fifty dollars each to the following designs by:

"*The Deuce*," Mr. J. W. H. Watts, Ottawa, Canada. (See *American Architect* for December 31, 1881.)

"*Carleton*," Mr. George Davis, Cincinnati, O. (See *American Architect* for December 17, 1881.)

"*Carom*," Mr. Martin Roche, Chicago, Ill. (See illustration in the current issue.)

The jury desire to preface their report upon the present competition by urging upon future competitors the importance of a careful consideration of the requirements of the programme, and of a patient study of a plan and scheme based upon these requirements, before the attention is absorbed by the details. The study and time spent in finding the best general disposition is more than regained by the ease with which the decoration will develop itself from such a well-conceived scheme. The most successful examples of decoration will be found usually to be due as much to the selection of a plan which lends itself both to the requirements of the problem and to decorative effects, as to the actual details employed. Young designers are tempted to shirk the study of plan, and in their enthusiasm to at once concentrate their attention upon ornamentation. Thus in the designs criticised below, there was an almost universal tendency to overlook the essential requirements of the programme, and to underrate the importance of the plan. The only striking requirements in the programme were the accommodation of three billiard-tables and the proper means of lighting them; yet there were few competitors who devised or studied their plans in reference to these capital conditions of the programme. After the preliminary study of the plan, and in conjunction with its selection, comes the question of a system of construction. This must be clearly worked out with a view both to constructive and to decorative advantages before any thought of mere ornamental details be entertained; thus when both the constructional and decorative points to be emphasized are impressed on the mind, the ornamental details will take their proper position and value as a subordinate yet integral part of the whole development of the scheme.

"*The Deuce*" lays before us a plan which is so well devised, from both a practical and decorative point of view, that it would command our first attention even were its capabilities less ably developed; but none of these opportunities have been lost, and the readiness with which the most has been made of them reveals a practised mind. The thoughtful disposition of the plan shows that the author has not been tempted by his facile hand to depend upon mere ornamentation, and his less skilful competitors should profit by this example. The slightly raised ladies' gallery, in itself a decorative feature, has been richly treated, and there is a most successful device by which the division of the bays of the roof is brought down upon the walls to form a slight recess for the cue-racks, and at the same time to give a dividing arm to the seats. Except an unfortunate uncertainty in the attachment of the base of the pilasters which support the roof-trusses, the construction is ingenious and well emphasized by appropriate decoration. There is, however, too great a contrast between the rich decoration of the ladies' gallery and the extreme plainness of the segmental screens over the wall bays, so that the latter appear too bald and poor. These same bays are shaded in such a way as to give at first sight the erroneous impression that they are of a depth equal to that of the ladies' gallery; in other respects the drawing is correct and very brilliant. The tables are well placed, well lighted, and graceful in design. The ventilation and lighting of the roof have been carefully considered. The chief objection to be brought against this design is that it rather oversteps the limits of decoration appropriate to the hotel in question.

"*Carleton*" is more nearly in the spirit of the country hotel, if modest simplicity should be insisted upon, and from this point of view his excellently drawn perspective is both appropriate and attractive. The alcove and its mantel are admirable for their decorative vigor, and the bay-window is well treated, but it does not give the light appropriate to a billiard-hall. A serious defect lies in the relation, or want of relation of the girders to the pilasters. The beams of the ceiling should have been doubled over the pilasters at the sides of the window, or some other arrangement made to establish a connection — purely decorative it might be — between the horizontal and upright construction. Then also there is no provision made in the ceiling for the chandeliers, and they are placed as they happen to come over the billiard-tables, which in turn have no recognized position in a hall which is expressly designed for their presence. Thus we are at once brought back to the necessity of beginning with a plan based upon the requirements of the programme, and to the importance of considering details of ornamentation as natural developments of a preconceived scheme. The proportion of the panels of the dado and that of the dado itself to the wall-space have not been sufficiently studied. The tables, except the curve of the legs, are well designed and in harmony with the general design. The ceiling can hardly be called "open timber," and this want of height and air is

rendered more prominent by the defective arrangements for ventilation. The drawings are skilfully presented.

"*Carom*" has a plan which just falls short of being a very good one, and this from the author's want of a clear conception of what was required. A chimney-corner is of secondary consideration in a billiard-hall, especially when as in this case a number of hot-air registers are provided; yet the whole scheme of the design is here made subordinate to the chimney alcove. This alcove is ingeniously introduced and the seats cleverly made to form an integral part of the design, but no thought has been given to the essential requirement of billiard-tables and their proper illumination. The three tables are unsymmetrically placed — though the hall has three strongly emphasized divisions — and the central table is apparently deprived of a chandelier from the nature of the divisions of the roof above. Far less ingenuity than that expended in the arrangement of the fire-place alcove would, if properly directed, have made this an excellent plan. The relations of wall and roof are intelligently treated, but the roof should not have been shown through the yellow-glass ceiling. There is a most unfortunate arrangement of the capitals of the pilasters, by which the architraves or lintels of the alcoves rest directly upon the pilasters, the capitals of which appear upon the face of the architrave itself. The details in general however are good, and the tables especially are graceful. The ventilation has received careful attention. The drawing shows a firm and skilful hand, but the perspective, though well laid out, has been over-elaborated and is too heavy and black to be effective.

"*Row Boy*" gives us an appropriate and cheerful interior with a light and simple roof, whose trusses divide the hall into three equal divisions for the tables. The lights for the latter hang conveniently from the truss-brackets, but the number of burners is insufficient. The trusses are shown by the section to be properly constructed, but the way in which the large brackets are brought down upon slight decorative pilasters does not suggest the importance of the perpendicular tie which connects the brackets with the roof timbers. The bay-window opens pleasantly in the centre of the side of the hall, and the raised seats are neatly introduced. So much refinement and invention is shown in making the cues form the chief feature in the simple stand provided for them, and in the treatment of various other details, that the commonplace and meagre design of the tables is a disappointment. The ventilation is quite insufficiently indicated. The perspective is simply and crisply drawn, but it is well-nigh ruined by "*Row Boy's*" inexplicable whim of introducing impertinent and wretchedly-drawn human figures.

The general aspect of *Fideliter's* hall is cheerful, and is well in the spirit of the programme. Its open-timber roof is light and unpretentious. The tables are good, and the chairs, the details of the wood-work, and the brick fire-place indicate thought and a refined taste; but the over-elaborated chandeliers are not in keeping with the rest of the design, and are not properly arranged over the tables. The existence of the latter receives no consideration in the plan, which is ill-devised — or rather, it may be said, has received from its author absolutely no thought. The position of the cue-racks shown in detail is not established upon the wall in the perspective, neither is there sufficient indication of seats nor raised platform for spectators. No scheme for ventilation is suggested. The perspective drawing is correct, but presented in a meagre and uninteresting manner, and what merit might be given to it for simplicity is destroyed by the puerile attempt to introduce human figures.

"*Massé*" gives us a straightforward, well-considered plan, where each table is placed in an architectural division provided with its own cue-rack and window, while clearer light is insured by a large window at the end of the hall. There is throughout the design a quiet dignity and simplicity, which conforms admirably with the requirements of the problem before us. The details are refined and modest. The low ceiling divided into compartments by beams does not come under the head of the "open-timber roof" called for in the programme: had this feature been introduced and treated with the same intelligence shown in the rest of the design, "*Massé*" would have stood several places higher in rank. He replaces the fire-places of most of his rivals by a buffet, and depends for heat upon hot air introduced under the platform of the seats. The ventilation has received its due share of attention. The chandelier is conceived in a spirit not in harmony with the rest of the design.

"*Nous Verrons*" shows more facility than thought. The perspective is brilliantly presented, and some of the details suggest an experienced hand, but this facility only brings into clearer relief the author's flagrant disregard of the first principles of good design. "*Nous Verrons*" has caught a smattering of some quaint old domestic interiors, without giving himself the pains to study them and distinguish their merits from their defects, and he has succeeded in offering us a *reductio ad absurdum* of the style he attempts to reproduce. The exaggeration of a fantastic but delicate ornament, often found crowning old Dutch clocks, into a mammoth chimney-breast is more than a sin against good taste, and still more wanton recklessness is shown in placing windows, for no apparent reason, directly over the mantel and thus forcing the chimney to be twisted sharply to one side — if indeed the designer ever remembered that his fire-place phantasy needed a chimney. The panels under the rafters should have been arranged to correspond with the latter, which in themselves do not show the best construction. The billiard-table is heavy and of inappropriate design. On the other hand the conception of the bay-window is charming and its treatment is refined and intelligent. The plan, too, is intelligently and thoughtfully arranged, and adds to our surprise at the author's very unequal efforts.

We find in "*Enitor's*" design little to remind us of a modest country hotel. He introduces us into a public billiard-saloon whose chief feature is the massive stone arch of an alcove for the fire-place. This arch and the ponderous hooded mantel would be not without merit in some great city hotel, but in the problem before us are out of place. The treatment of the windows, though intelligent, especially in its arrangement of the window-seats, is too pretentious. The clock *motif* is unhappy. If of wood, its design is far too heavy, and the character of its detail also suggests stone; but masonry demands that some relation be established with the stone arch below, from which it is at present isolated. The mural decoration with the cue-racks is good in itself, but its effect is destroyed by the exaggerated height of the plain wall about the window-arches. The designer allowed the proportions of his wall-surface — a point of capital importance — to be destroyed by the height of his alcove arch. He could have carried up his windows higher to give a predominating height to his decorated wall; or, better still, since his hall is unnecessarily lofty, could have lowered the cornice and have stopped it at the sides, allowing his great arch to rise within the gable. The plan is to be commended for providing a separate bay with a window for each table. The perspective, though clearly drawn, lacks animation and color, and the hood of the mantel is badly out of drawing.

"*Pool*" has a good plan and a good architectural development of it. He has made a proper provision for the tables and for lighting them. His proportions are good and he exhibits intelligence, and some good ideas in his details. The gas-drops are more eccentric than original, and are poorly composed. The billiard-tables are bad, wanting in invention and in feeling for detail. The sheathed waggon-vault is of excellent effect, but his section does not explain its structure, nor the function of the king posts. It is doubtful whether the great vault of his roof would be lighted by the windows below, and it would have been prudent to have introduced light through the panels just under the spring of the vault. "*Pool*" has much yet to learn in drawing; his work in the hands of a more brilliant draughtsman would have placed his work much higher on the list, but he has no reason for discouragement: practice will bring him what he now lacks.

"*Albino*" also gives us a light open roof; this is crossed by two beams, which can be of no benefit in their position, and their lines are in no way, neither constructionally nor decoratively, carried down to the floor as they should have been to divide the plan into proper architectural compartments. With its present structure, this roof would not stand. The chimney alcove should have been elevated above the floor. The tables are badly arranged, and no means are shown for lighting them at night. The arch of the fire-place is badly drawn, and the presentation of the scanty details tends to make them appear still more meagre. The tables, however, are of elegant design and well-drawn, and show that "*Albino*" can do better than he has vouchsafed us this time. He should have first considered his plan and construction and then have given to the decoration of his interior the same study and care he has to the tables and the result would have been very different.

"*Yankee Boy*" evidently determined to do something different from his competitors. The determination was better than the result. It would be difficult to give a room architectural character with the gable ends on the long sides of the parallelogram. His structure has a bad effect. The roof should have been crossed transversely by two or four trusses, instead of longitudinally by one, but the truss itself is intelligently treated. He has missed an opportunity for design in omitting the important and characteristic feature of spectators' seats. The tables are symmetrically placed, but with no architectural indications for their positions. The cloak-room, if necessary, should have been nearer the entrance. The details are good, as far as they go, for the interior offers but few of them. The perspective is safely drawn with no shading to endanger it, nor to give it interest. No cue-racks are given and no indications of ventilation.

"*Chamfer*" needs more experience in his draughtsmanship. His weak and irresolute lines would spoil even a much better architectural scheme than he has presented. Let him draw with a broader line and fuller pen. He has indicated no wall-plates in his main roof, and his upper plates have no support from the rafters, while the structure of his ceiling is such as to afford no effective tie for the upper rafters. He has detailed the construction with curious care, but has omitted the primary conditions of stability. It would be impossible to obtain a good exterior effect with a roof of this objectionable form. If the plan had been crossed with well-marked transverse trusses, the whole composition would have been far more architectural, and the structure would have been possible. The windows are inadequate for the lighting of the hall from its ends, and the position of the gas-lights is not shown. The table is bad in its details, which are illiterate and puerile. The chair is not only badly constructed, but the lines of the arms in the front view are false in their drawing. We recommend to "*Chamfer*" patient study of good models, and, for the present, of conventional and accepted examples.

THE ILLUSTRATIONS.

COMPETITIVE DESIGNS FOR A BILLIARD-ROOM IN A COUNTRY HOTEL, BY MR. MARTIN ROCHE ("*Carom*"), CHICAGO, ILL., AND MR. A. H. EVERETT ("*Albino*"), BOSTON, MASS.

HOUSES FOR R. J. MORGAN, ESQ., CINCINNATI, AND G. S. HORNER, ESQ., WALNUT HILLS, O. MR. J. W. MCLAUGHLIN, ARCHITECT, CINCINNATI, O.

SKETCHES IN NUREMBURG, BY MR. C. A. RICH, ARCHITECT, NEW YORK, N. Y.

For descriptions, see article in another column.

THE DISTRIBUTION OF TIME BY A SYSTEM OF PNEUMATIC CLOCKS.[1]

RECENT visitors to Paris — and the Exhibition of Electrical Appliances just closed has increased, during the past few months, the number of such visitors — must have noticed the numerous clocks standing on graceful light iron pillars in the squares, at the corners of streets, and in other conspicuous positions about the city. Many visitors must also have found that the clocks throughout their hotels were, what is unusual with hotel clocks, keeping accurate time. All these clocks, both public and private, are actuated by a single system of compressed air; and I thought it would be interesting to the members of this Society if they could be shown the precise method by which these important results are obtained. Paris and Vienna are the only two capitals in which such a system is now at work, but I cannot doubt that, as soon as the inhabitants of other cities know how great an advantage it is to have their time accurately marked for them, alike in public places and in their houses, it will not be long before a similar system is adopted in the towns and cities of this and other countries. I believe a general impression exists that the clocks in Paris are worked by electricity, as indeed is the case with a number of clocks in Brussels and elsewhere. You are, of course, aware that in London there are a certain number of clocks regulated by electricity from a common centre — indeed, the clock in this very room is so regulated. It is no doubt possible to accomplish this end by means of electricity, and even with more accuracy than is the case with the pneumatic system; but this can only be obtained at a vastly increased cost, and I hope to be able to show you that one can obtain, by means of compressed air, quite sufficient accuracy for all the practical purposes of daily life. In electrical clocks a clock itself, and it must be a tolerably good and expensive clock, is required. This is regulated, it may be every hour, by an electric current; the clock goes during the remainder of the hour without regulation, and, of course, it may be relied on during that hour to keep time as accurately as its mechanism will allow. The clock requires to be wound up; if it is not wound up and repaired, it gets out of order or stops, like any other clock. If anything goes wrong with the battery, the regulator no longer works. In fine, an electrically-regulated clock is rather more a delicate scientific instrument than a practical piece of apparatus for the rough-and-ready purposes of ordinary life.

Now, with our pneumatic clocks, the case is different. They are not, indeed, regulated to fractions of a second, but, after all, nobody ever wants to keep appointments by fractions of a second, and trains have not arrived at that pitch of punctuality that it is necessary to calculate by seconds whether one can catch a train or not. In the pneumatic system, one single good clock is required. At each station where time is to be shown, a very simple apparatus (the construction of which I shall shortly have the pleasure of showing to you) is all that is required. This requires no attention from year's end to year's end. Like any mechanical apparatus, something may go wrong, and the clock may stop, but so long as it is going at all, it is going right. In any event it requires no attention, in the case of a private house, from the person residing in the house. When once the system of pipes is laid down, the addition of almost any number of clocks makes no practical difference in the working. It is found in Paris that the Company can undertake to supply and maintain clocks in a private house for $\frac{1}{4}d.$ to $\frac{1}{2}d.$ per day per clock.

Before the present successful experiment in Paris, several attempts were made to transmit time by means of compressed air; the earliest of these, so far as I have been able to ascertain, was made in the year 1864.

In 1877, Messrs. Popp and Resch, two Austrian engineers, after having spent much time and money in practically studying the question of transmission of time by means of compressed air, and after a great many disappointments, resulting from the imperfection of the results which they obtained, set to work, confident in the ultimate success of their efforts. They were able on the 23d of February, 1877, to inaugurate, in Vienna, the first public service of distribution of time by means of compressed air. A certain number of clocks fixed in public buildings, and erected on lamp-posts in the public thoroughfares, were kept at work uninterruptedly for a whole year; the distance between the central works and the farthest being very nearly one mile, viz., 1,500 metres. The hands of the said clocks were at that time only propelled every two minutes, and two minutes at a time. During the first year, Messrs. Popp and Resch were able to carry out certain very important experiments (the details of which would perhaps be tedious) on a length of two and a half miles of pipes; and having ascertained that the compressed air issuing at one end did not take more than three and a quarter seconds to travel to the other end, with of course a certain loss of pressure, they took steps to transform all the clock-work, and to alter the arrangements of the central works, so as to propel the hands of the pneumatic clocks every minute, instead of every two minutes.

Messrs. Popp and Resch exhibited their system at the Paris Exhibition in 1878; it attracted much attention, and the jury awarded them a silver medal. At the end of the year 1880, a proposal was made to the municipal authorities of Vienna to supply the time pneumatically to the town, authorization being asked at the same time for laying pipes where they might be required; the said authorities, although consenting at the time to let all the necessary pipes be laid down where required, declined to grant a monopoly of fifty years, which was sought for. This caused the Viennese Pneumatic Clock Company to cease the experimental distribution of time in that town.

In November, 1878, Messrs. Popp and Resch obtained from the Paris municipal authorities the authorization to lay pipes in the sewers of the first and second arrondissements. One month later a further authorization was granted them for distributing the pneumatic time into private dwellings.

On the 1st of August, 1877, a company was formed, the name of which was the Compagnie Générale des Horloges Pneumatiques, Système Popp-Resch, and the work of the erection of the central works, and of laying the systems of piping, began at once, and was pushed with the utmost vigor. On the 15th March, 1880, the inauguration of the public service took place, six miles of pipes having been laid and four clocks (some with multiple dials) fixed on lamp-posts on the grand boulevards, which received the pneumatic time from the central works. The only trouble and annoyance experienced had nothing to do with the working of the system, which gave all the satisfaction that could be desired, but was due to mischief done by people who, from interested or other motives, interfered with the pipes. A proper look-out was kept, the clocks continued to work satisfactorily, and they are now an established institution, the public regulating their watches from the pneumatic clocks.

Nearly twenty miles of main pipes are now laid in the sewers, and 750 houses, in which there are over 4,000 pneumatic clocks, are actually connected with and receive time from the main works; fourteen public clocks, with thirty-three dials, being fixed in the public thoroughfares of the above-mentioned arrondissements. At the main works, which are situated in the centre of the said districts, air is compressed by means of steam-engines actuating some air-compressing machines, and stored into air-receivers or reservoirs, at a pressure varying from 15 to 45 pounds to the square inch. The air so compressed and stored is led into distributing receivers, after passing through a pressure regulator. A periodic transfer or discharge of compressed air from the high-pressure receivers into the distributing one takes place, replacing the quantity of air, which is at every minute discharged from the distributing receiver into the piping for actuating the clocks. The pressure of the compressed air in the distributing receiver is, therefore, constant.

The central or main clock, controlling all the system of pneumatic clocks, is a pendulum clock of great precision and perfect mechanism, and to it is connected a particular contrivance, specially adapted for the working of an equilibrium or balanced slide, which is successively opened and shut by the action of the main clock. The said main clock is, itself, self-winding, that is to say, the counterweights which are actuating the main clock are constantly brought back to their former position by the action of the compressed air, and this at each pulsation of the compressed air.

The hands of the main clock are travelling in exactly the same manner as those of any ordinary clock, and the valve, the motion of which is dependent upon the mechanism propelling the said hands, is actuated twice in every minute; the first operation, opening the valve, takes place at the sixtieth second of every minute; and the second operation, shutting the valve, twenty seconds after; so that the valve remains open, and compressed air is admitted into the systems of piping for a duration of twenty seconds at every time. This space of time is the result of experience, and may vary according to the distances to which the compressed air has to travel.

The valve chest is in direct communication with the distributing air-receivers in exactly the same manner as the valve chest of a steam-engine is in communication with the steam-boiler; it thus contains compressed air always at a constant pressure. Therefore, when the valve is opened by the action of the main clock, there is a

[1] A paper read before the Society of Arts by J. A. Berly, C. E., A. S. T. E.

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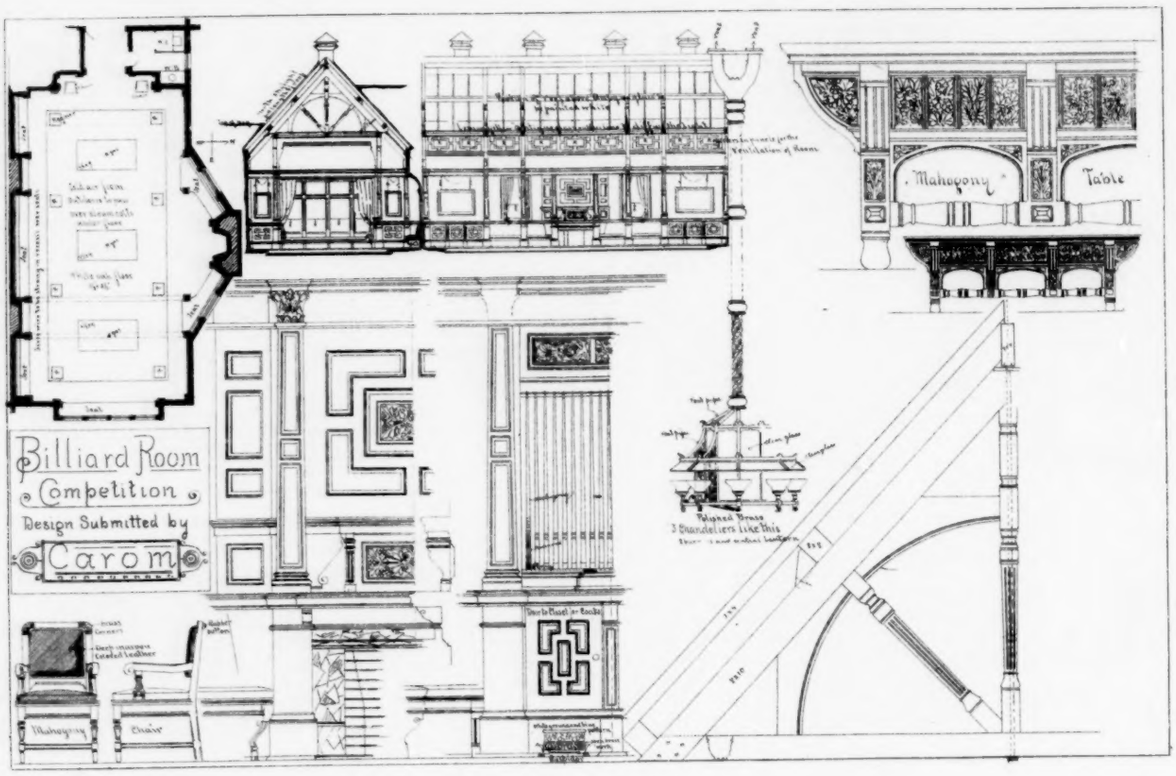

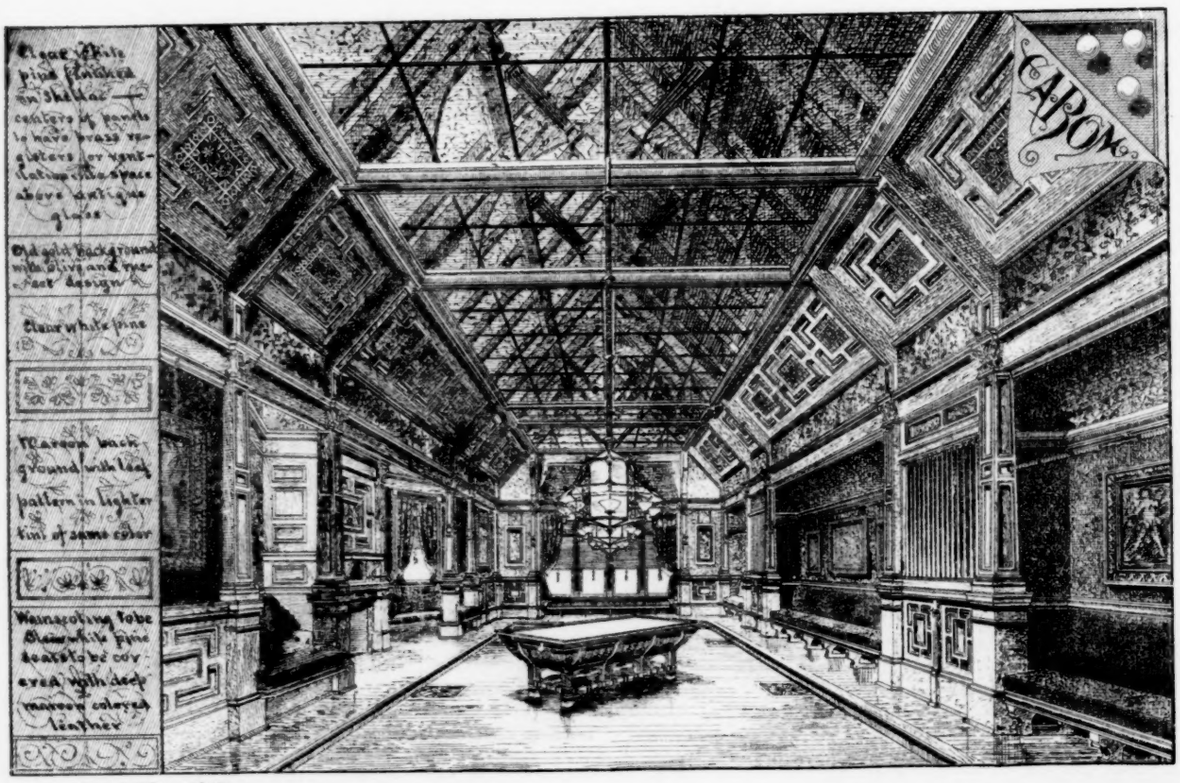

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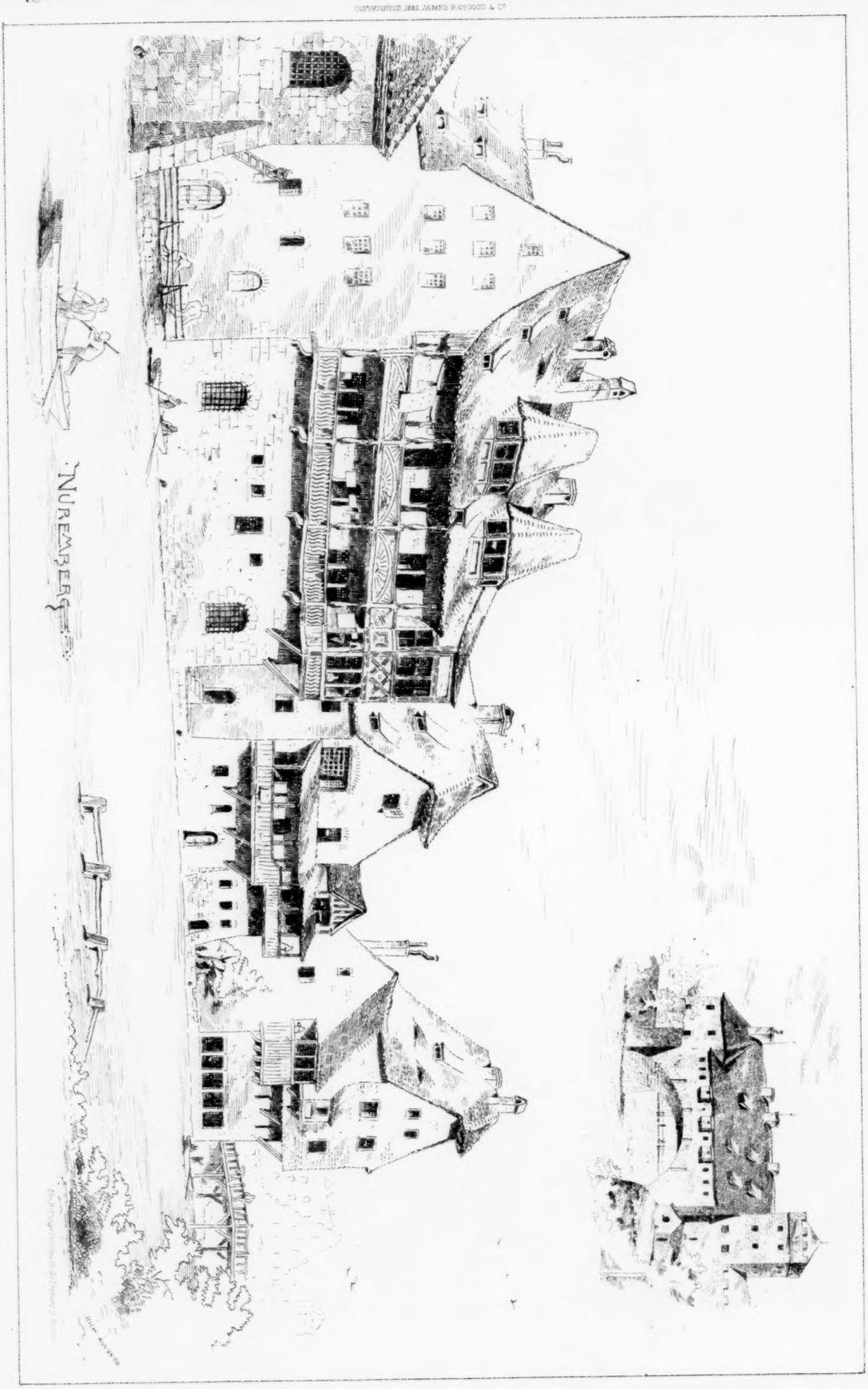

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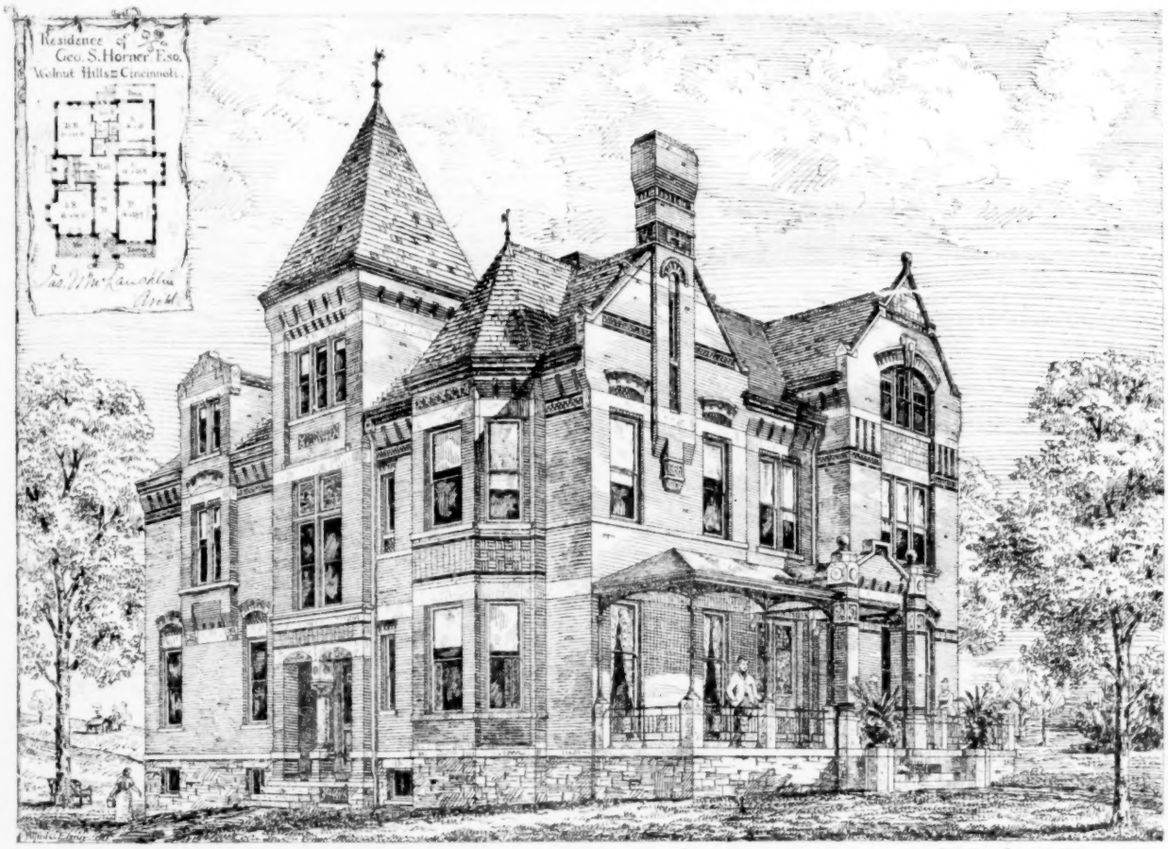
Residence of R. J. Morgan Esq.

ALPINE PLACE,—CINCINNATI, OHIO.



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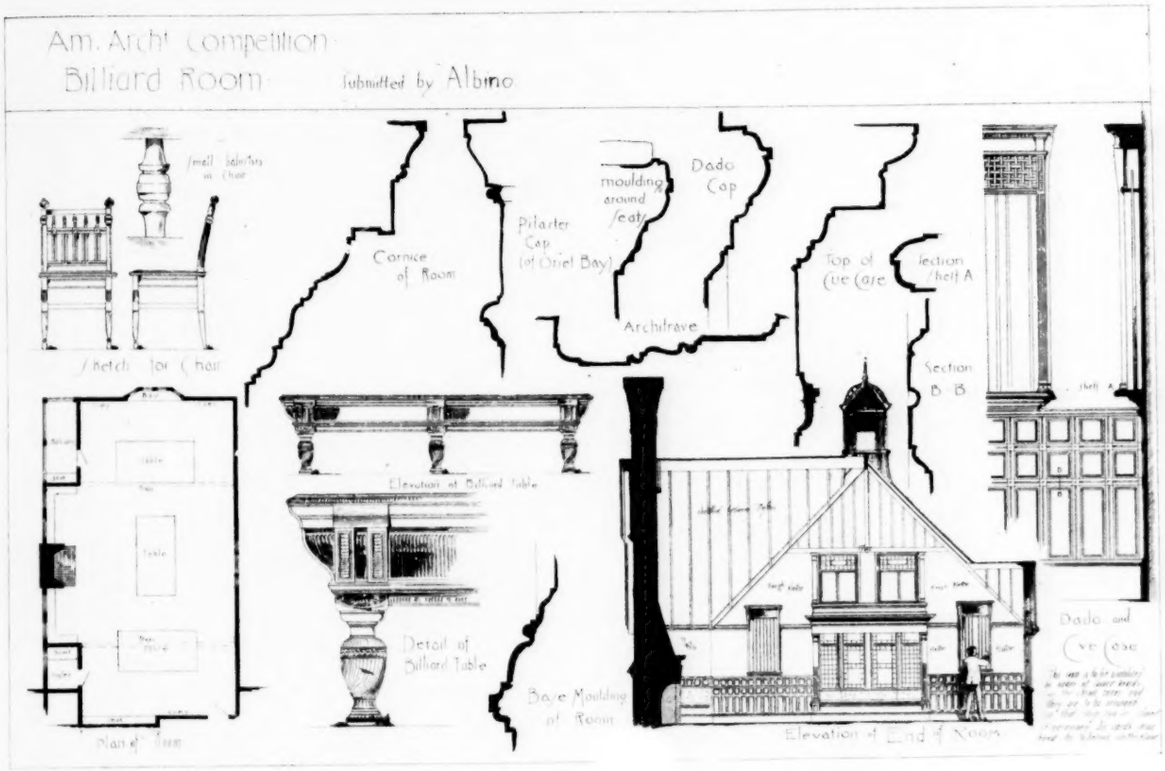
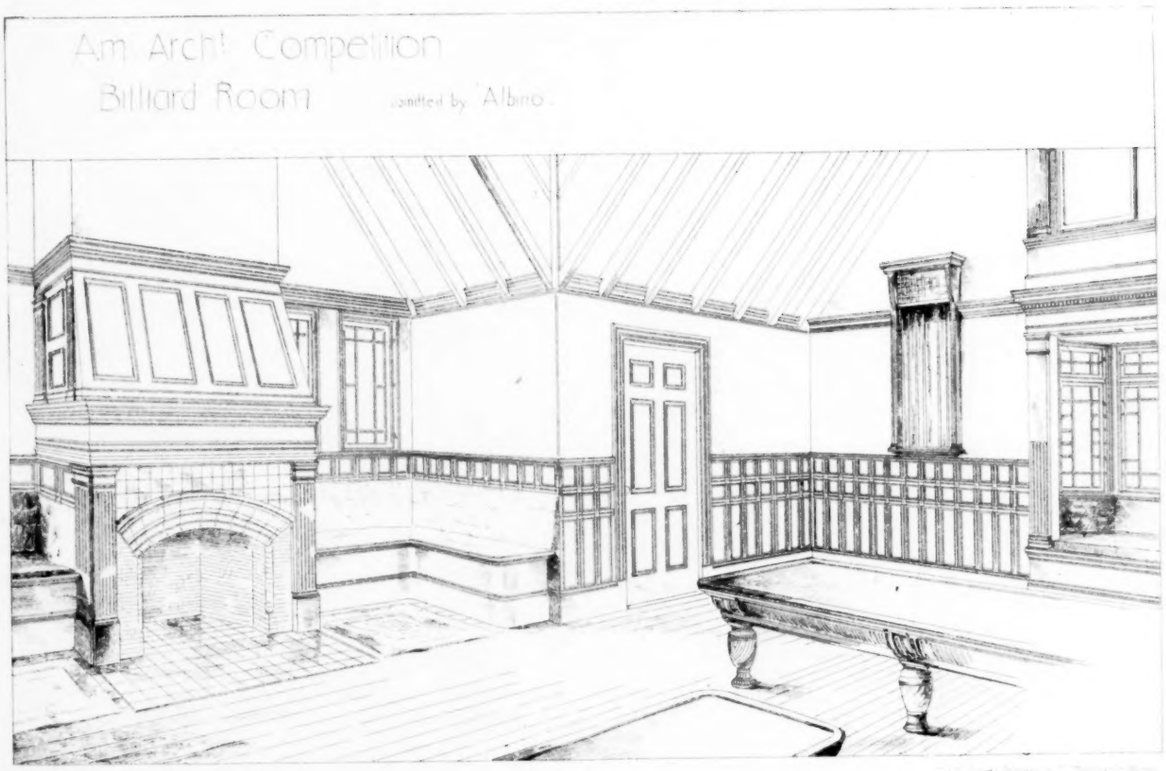




flow of compressed air in the systems of piping, and all the clocks branched upon the said piping are actuated at the same time.

A duplicate main clock, with a valve attached, is kept going, and giving exactly the same time as the other; the valve being disconnected, so that, in case of anything happening to the main clock, the connection of the duplicate main clock with its valve is instantly and automatically made, and there is no interruption in the distribution of time. The pressure of the compressed air in the high pressure and distributing receivers, the motion of the main clock and its duplicates, as well as the self-winding mechanism and motion of the slide-valve, etc., are all automatically controlled, so as to require a minimum amount of supervision, and anything abnormal occurring is instantly and automatically signalled.

The piping actually laid down in Paris in the "arrondissements," or districts, is twenty miles long. It is at the centre or point of departure divided into ten distinct parts, radiating from the centre and leading to various quarters; these twenty miles of main are composed of iron pipes, the inside diameter not exceeding one inch (in French measure, 27 millimetres). All these main pipes are fixed in the sewers, and wherever the time has to be delivered, transmitted, or given to a customer, an ordinary gas-cock is inserted on the main pipe opposite the customer's house, and a branch pipe led from it into the building. This branch pipe is a quarter of an inch in diameter.

At each floor or landing, as many small cocks are inserted on the ascending branch pipe as there are tenants; and on any tenant subscribing to the pneumatic systems, a smaller pipe, one-eighth of an inch in diameter, is sub-branched on the ascending branch, and led into his apartments, where it is connected to the various clocks which are to be actuated.

No difficulty has ever been experienced with landlords as regards permission for carrying pipes into houses. Over 750 houses in Paris, in the two districts or "arrondissements" above mentioned alone, are thus connected with the main system, 177 miles of branch and sub-branch pipes being thus laid beside the 20 miles of main pipes already mentioned.

Leakages inside the houses or dwellings, as well as in the main pipe, have no influence with the general working of the system; even supposing one of the main pipes to be completely severed, the working would only be interrupted in that portion of the system which is situated farther than the fault, and any fault in one of the mains would not in any way affect the other mains. As to leakages occurring in private or dwelling-houses, they are of no influence at all, excepting on the very clocks which they are supplying in the apartments where the leakages exist, and on the central works being informed of the occurrence, the fault or leakage is made good immediately. It may be said that the Compagnie Générale des Horloges Pneumatiques of Paris has now, in the working of their system, reached a point of absolute security: and on the 19th July of this year a contract was entered into between the town of Paris and the said company, granting the latter the authorization, for a period of fifty years, of laying and fixing their pipes underground for the purpose of actuating clocks by means of compressed air carried through the said pipes. . . . . .

The distribution of time to private individuals is effected by the Company under the following conditions: —

The subscription must be for at least one year, and is renewed for not less than one year at a time.

The Company supplies, free of cost, to the subscriber, clocks of various patterns, which can be selected at their show-rooms. They also undertake, at their own cost, all the work of fixing and laying pipes, supplying the necessary materials required for such, of connecting and fixing the clocks, substituting, when desired, the clock-work of their system for the clock-work of existing clocks, and keeping the clock in good working order.

Their charges for supplying the time are as follows: 5 centimes a day (or 14*s.* 7½*d.* per year) for the first clock; 4 centimes a day (or 11*s.* 6*d.* per year) for the second clock; 3 centimes a day (or 8*s.* 9½*d.* per year) for the third and others.

The piping, connections, clocks, etc., remain the property of the Company, and statements to that effect are signed by both the proprietors of the house, and the tenant subscriber to the clocks. A due authorization must, of course, be previously obtained from the landlord. There is no example yet of any landlord having refused to give it.

The main features of the contract entered between the town of Paris and the Company are as follows: —

1. The town of Paris grants to the Company the authorization for fixing and keeping under the streets the pipes for conveying compressed air for the purpose of the pneumatic distribution of time, and this for a period of fifty years.

2. At the expiration of the contract taking place naturally at the end of fifty years, or before that delay should the contract be determined for any cause whatever, all the pipes, taps, connections, etc., or other materials, placed underground, or in establishments of the public service, become the property of the town of Paris, the town of Paris having the option to purchase or not the plant, etc., existing at the works, and in the central stations.

3. All the expenses of carrying out the air-compressing works, central stations, and systems of piping from each station, for the scheme, is to be borne by the Company.

4. All pipes to be fixed in the sewers, wherever these are found to exist, and those fixed in trenches to be removed to the sewers as soon as those are completed.

5. In large thoroughfares, where there exist two sewers, two main pipes should be fixed — one for each side of the street.

6. The rental of the underground pipes to be paid quarterly by the Company to the town of Paris, is fixed as follows: For each kilometre of main, 20 francs per year (or £1 5*s.* 9*d.* per mile per year); for each branching for private clocks, while their number does not exceed 10,000, five pence.

When the number exceeds 10,000, 5½*d.* for each per year; 11,000, 6*d.*; 12,000, 6½*d.*; 13,000, 7*d.*; 14,000, 7½*d.*; 15,000, 8*d.*; 16,000, 8½*d.*; 17,000, 9*d.*; 18,000, 9½*d.*; 19,000, 10*d.*

7. The Company undertakes to instal, keep in working order, and renew, if necessary, any number of public clocks which the town of Paris may, at certain agreed periodical times, instruct the Company to fit up for them, and under the heading of public service are comprised all the clocks of cab stations, kiosks, street-clocks mounted on lamp-posts, the clocks of the town-hall (Hôtel de Ville), and all the arrondissement town-halls (or mairies), the police-courts and police-stations, the patrolling stations, municipal barracks and theatres, schools, markets, slaughter-houses, parks and squares, churches, etc.; the town paying for such clocks at the following rates: Clocks from 3 feet 4 inches to 17 feet diameter, per year, each £2 5*s.*; medium sizes, from 2 to 3 feet diameter, per year, each 12*s.*; small sizes, under 12 inches diameter, per year, each 1*s.* 8½*d.* After a lapse of five years, those prices to be reduced by 20 per cent; five years after, 30 per cent; five years after, 50 per cent; five years after, 75 per cent; and after a lapse of twenty-five years, the same to be gratuitous.

8. The Company shall deal as they think fit with their private customers, this constituting the commercial part of their concern. There are, besides, numerous clauses regulating, as it is usual in contracts between municipalities and contractors, the conditions in which the works shall be executed, maintained, controlled, etc., the fines to be paid in cases of non-compliance, or irregular supply, etc.

The Compagnie des Horloges Pneumatiques has undertaken to complete the public service of distribution of time in Paris, at the following periods: In the 1st and 2d arrondissements, within six months; in the 3d and 4th, in the course of the year 1882; in the 8th and 9th, 1883; in the 6th and 7th, 1884; in the 5th, 10th, 13th, 19th, 1885; in the 11th, 12th, 14th, 15th, 17th, 18th, 20th, 1886. It will be seen that within a delay of five years the whole of the public service of Paris will be completed, the system of piping extending to the whole town, and all the clocks of the town being worked by the Company's pneumatic system.

In order to carry out the contract with the town of Paris, it is now proposed to divide Paris into nine sections, each working independently with its normal clock. Each of these nine stations will supply from thirty-five to forty-five miles of main street-piping, so that the total of main pipes, sufficient for the distribution of time in 50,000 houses, would be about 360 miles. One central air-compressing station is being erected in the Belleville quarter of Paris, and will supply the compressed air to the distributing stations to which it will be connected. It is estimated that the clocks coming under the heading of "public clocks" will number about 8,000. It is estimated that a piece of ground, of an area of about one acre, would be sufficient for the erection of the central works in which the engine-houses for the compression of air, the motive power air-pumps, fitting-shop, etc., the offices and residences for the chief engineer and foreman, would find room. The cost of the ground is estimated at £7,200. The cost of the buildings, containing three 50-horse-power engines, five air-compressors, two pumps, the workshops, and the residence for officials, is estimated at £6,800. The cost of plant, consisting of two steam-boilers of 100-horse-power each, three 50-horse-power engines, two air-compressors, of laying down lighting by electricity, water, shafting, etc., and furnishing the offices, etc., is estimated at £8,000. The machines, tools, etc., for the workshop, at £400. The thirty-two high-pressure air-receivers (107′ long × 5′ diameter), £9,400.

Each distributing station having two normal clocks and their appurtenances, five distributing or low-pressure air-receivers would cost, together with the furniture, fixtures, etc., £1,000; the nine would therefore cost £9,000. The laying of 600,000 metres of main pipe, the branching to 50,000 houses, and the installation of 200,000 clocks, will cost £400,000. The horses, traps, office furniture, £400. The total expense will therefore be £441,200.

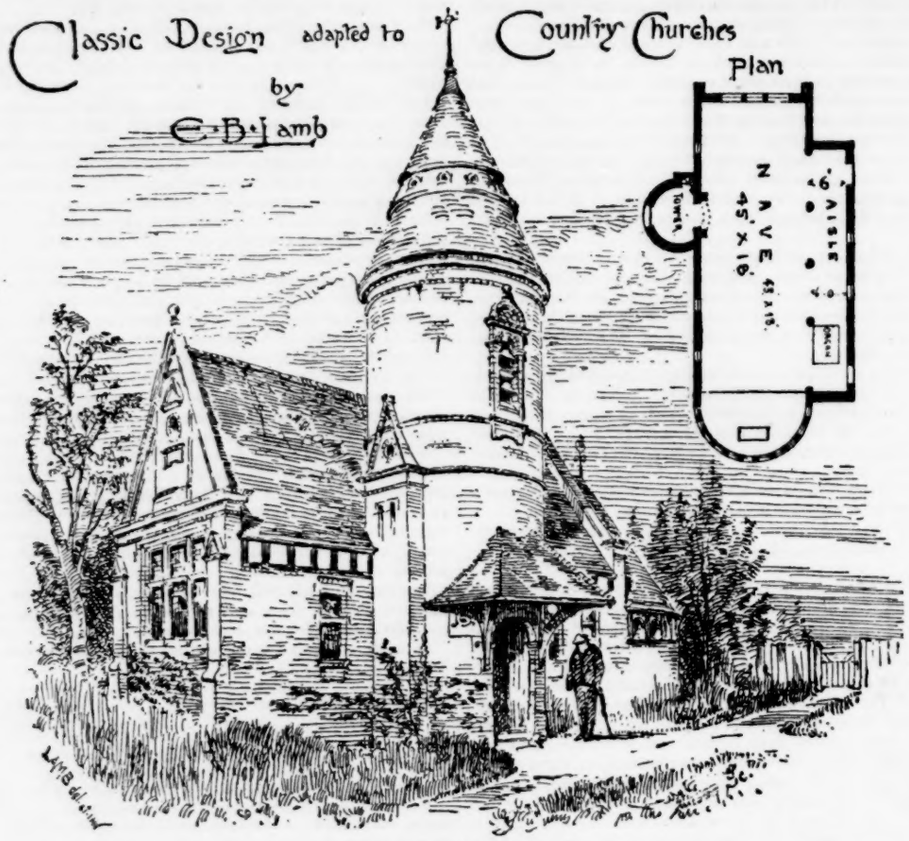
The working expenses are estimated as follows: A. Central works, wages, £600; B. Water and fuel, £1,600; C. Distributing stations, wages, and current, £6,400; D. Carrying department, £960; E. Central administration, salaries, wages, and current expenses, £3,200; insurances, rates, taxes, management, etc., £3,200; or a total, in round figures, of £16,000. It is estimated that the whole of the works will be completed in two years, each section being, meanwhile, brought to completion from time to time.

The Company, in carrying out the experiment on a comparatively large scale, of pneumatically distributing the correct time to public and private clocks for a period of fifteen months, have demonstrated the absolute practicability of the scheme, the demonstration having resulted in the contract for fifty years already referred to, and they have also ascertained with what favor the extension of the system is likely to be received by the public.

The result has been highly satisfactory in every respect; and it is anticipated that the number of clocks which (judging from the facts which have characterized the experimental period) will, putting it at a minimum, be subscribed for when the whole of the expenditure above mentioned has been effected, and the system is extended to the whole town, bringing a gross income of £128,000.

A pneumatic clock company is very similar in its establishment, working, and effects and results to a water company. A great many instances have been found in which the amounts paid in the same house for water

and pneumatic clocks were similar, and to cite one instance, the well-known Meurice's hotel, in which there are 148 pneumatic clocks, pays to the Clock Company a sum of £56, which is exactly the amount which it pays to the Water Company for the supply of water to the whole of the establishment. Another striking coincidence is to be found in the comparison of the Lyons Water Company and the Pneumatic Clock Company. The cost of establishment of the Lyons Water Company, was £508,000; that of the Pneumatic Company, £441,200. The working expenses of the Water Company are £16,920. The working expenses of the Clock Company have been estimated at £16,000. The gross income of the said Water Company is £64,960. The estimated gross income of the said Clock Company is £128,000.



[From the *British Architect.*]

The pneumatic system of distributing the correct time to distant clocks can be successfully applied to all towns of a certain importance.

The application of the system in London would not differ very much from that in Paris. London is, it is true, a very much larger city than Paris, but it has, on the other hand, a corresponding number of houses and inhabitants; more distributing stations would be required, owing to the larger area to be covered, but not to the number of clocks to be maintained, as an almost unlimited number of clocks can be maintained from the main pipes of the distributing station. There is one circumstance rather in favor of the system in London which does not exist in Paris, viz.: that the city being almost entirely devoted to business, those who use it in the day time mostly reside far away from it, and thus an enormous number of clocks are, so to speak, duplicated, the commercial people requiring both clocks at home and in their places of business in the city. Another favorable circumstance is to be found in the fact that the majority of the shops in London are provided with clocks, while in Paris this is the exception.

Although it could not be maintained that the possession of the correct time is an absolute necessity to the community, such as water is, it can safely be asserted that from a convenience it is rapidly becoming a necessity. The old English proverb, "Time is money" is becoming more and more an axiom; with a tendency to work less and less, and to condense work more and more; with the increasing facilities afforded in travelling; with the alterations introduced from time to time into the laws regulating labor, etc., the want of the correct time may be said to be felt more severely every day. It cannot be maintained that gas is a necessity, excepting that it has become so owing to the force of habit, the convenience which it affords, the comfort which it provides, and its economy compared to other illuminants. Gas took the place of candles and oil, and where gas is not an established institution, or is likely to fail, the services of candles or oil are, or can be, put into requisition. But the trouble of procuring the candle or oil, the trimming the lamps, the complication of attending to so many objects, coupled with the cost of maintaining them, have contributed to make gas popular, and very generally adopted.

The comparison between ordinary and pneumatic clocks will, in a similar way, stand good in favor of the latter. Ordinary clocks are expensive to purchase; they require winding up periodically (the majority of them weekly); they are either fast or slow; rarely correct; they are often out of order; frequently require repairs, and are affected by the weather, especially in severe frosts.

Should the care of winding them up and keeping them in good order be entrusted to a watchmaker, the cost of it, leaving out the inconvenience and annoyance attached thereto, would even prove dearer than the charges for receiving pneumatically the correct time; the Company taking all the risks, and supplying everything, down to the clocks themselves, free of cost, and no annoyance or discomfort being attached to the maintenance of the said supply in the manner described; it can therefore safely be assumed that what has occurred in the case of gas, will, in a like manner, occur with pneumatic clocks, and the general adoption of these is only a question of time, — not pneumatically speaking. In a similar manner, the electric light and the telephones will soon become necessities of our existence, the one taking the place of gas, and the other (who knows), perhaps, the place of telegraphy.

And when I say that the adoption of the pneumatic clocks is only a question of time, I intend to convey that it will, most likely, soon become general, as now-a-days progress is notable, and a thing has no sooner proved itself to be of industrial or commercial value than it is widely adopted, and soon becomes an established institution.

THE ROMAN EXHIBITION.

A CORRESPONDENT of the *Piccola* of Naples, who has returned from England, has given his opinion on the proposed Exhibition in Rome. After blaming the eulogies of the Italians on what they have accomplished in the industrial arts, as shown by the late Exhibition in Milan, he says: "I do not deny that we have a profound sentiment for these arts, but we do not know how to apply it. For example, the Italian architect is quite capable of constructing a fine square, a handsome theatre or opera-house, a beautiful church, and even a princely palace; but he is completely ignorant of how to build a comfortable, healthy abode, well provided with all that is necessary for a citizen's family. He cannot construct a good market-place, a hospital, a House of Parliament, or any administrative official building, and the Financial Palace at Monte Citorio shows the maximum of Italian architectural knowledge. The silk stuffs produced by our artisans are defective in color and harmonious de-

sign. Cotton and woollen goods err in price, because the Italian manufacturer has no proportion in the application of the arts; he has the commercial sentiment, but not the English conception of commerce, which is concentrated in the sublime axiom, cheap and good. I shall admire Italian manufacturers when they have democratized their productions; when a workman can buy in Italy an excellent cotton shirt, costing only 1*s.* 8*d.*, or 33 soldi, a shirt infinitely superior to one for which I paid 11 francs at Rome last June, and when he can buy a whole suit of good substantial warm clothes for 8*s.* 6*d.*, that is, 10 francs. All that I have heard from enthusiastic Italians does not persuade me that I should find in Milan what I have seen in England. They speak of an international exhibition to be given in Rome in two or three years. I hope that the Government will not plunge its hands into such a dishonest speculation of the Roman promoters of the undertaking, and then have to pay something like sixty millions that will have been taken from the contributors. This undertaking has no other object than to throw the unconscious visitors who would go to Rome into the clutch of hotel-keepers, lodging-house keepers, and all kinds of shop-keepers. The exhibition will be an *assommoir* for the unfortunates who go there. A great English merchant said to me, 'I give no more credit to Italian merchants, because I was constantly robbed!' What would the foreigners say who became a prey to Roman speculators? I will not participate by my absence as a deputy and journalist in this bad action. Rome is not yet ripe for a great exhibition. There is only one that would be worthy — that is a retrospective exhibition: an exhibition of antiques and of the Renaissance, if all Roman and Italian nobles would agree to lend the objects of art that adorn their palaces, and make for six months a species of South Kensington Museum in Rome. We must not forget that Rome is an altar and a tomb — an altar of so many grand recollections, a tomb of the Quirites and the Cæsars, and even of the Popes. Do not let us desecrate it by a modern international exhibition. What in that case should we have to offer for the admiration of the world? The exhibition would be, most surely and lugubriously, only an exhibition of ourselves!"

THE ATLANTA EXHIBITION.

ATLANTA, December 29, 1881.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

TO-MORROW is the last day of the International Cotton Exhibition of Atlanta, a most important event to this city in particular and the South generally; especially so since it has proved such a decided success, first, in establishing more intimate and amicable relations between the "Yank" on one hand and "Johnny" on the other; second, in being a financial success, as it brought here over one quarter of a million of visitors.

The whole of the buildings having cost, all included, only about $140,000, and covering as they do an immense area of ground, compelled everything to be of the very simplest character possible, which on the whole has proved a great boon from an artistic point of view, since it caused the absence of all cheap and vulgar jimcracks, that so overloaded the Centennial buildings. Forms that should ever grace palatial buildings, and those only, become the thinnest kind of trash in cheap imitation.

All of the buildings are of the very simplest and most primitive character in design, the best one being the main building, originally designed in Boston, I believe, and afterwards remodelled here to make it cheaper, but still retaining its former general character, (which is a cross in plan), a flat roof with projecting sky-light ventilators, and the walls, as nearly as possible, all glass. The balance of the buildings show no special point of interest to the architect except their sensible simplicity, which is most prominent in the depôt, the art and industrial building, the restaurants, and the Exhibition Hotel. The only finished building on the grounds, is the small building of the Baltimore Fertilizer Co., a bit of Queen Anne which seems to say to the visitor: "I belong not to these parts."

The points of interest to us inside are pretty well scattered. Foremost among which stand the little Chinese pavilion, (a tea stand), and Clarke's O. N. T. Spool Cotton show-case, the one representing the barbarian, the other the civilized man. The walls of the former are built of open fret-work of bamboo, tied together with cane shreds in the usual manner, covered with a roof of paper (I suppose it is, for they make everything of paper) painted and decorated with birds, flowers, etc., the usual excellently carved dragons over the corners, and the whole surmounted by a flag-pole carrying the yellow flag with the black dragon. The decorations are painted with an artistic touch that only a Chinaman can give. Below the eaves there is a frieze-like line of tapestry clear around, wrought with very coarse threads, much gold among them. In figure subjects, the faces are so fine, the expressions so deep, marked and vigorous, that when I think of our own common products of the same nature, and compare them with the work of these "heathen Chinese" — but "comparisons are odious." The pavilion as a whole, in general effect, variety of detail, and excellence of execution, challenges our best efforts.

The O. N. T. showcase in cherry and ebony, with a beautiful design of a miniature pavilion, formed of cotton spools in a most ingenious manner inside, is the best thing of its kind here. The whole thing is beautiful in design and exquisite in execution, but, alas! the beautifully carved capital of one of the four corner-columns is put on upside down. I asked the attendant how that happened, he said, "he had never noticed it before: the man who put it up must have done it": a curious fate for a beautiful bit of work. I think I saw this case in the Centennial, but it will command admiration the second as well as the first time.

The Willimantic Company have a very fine model of their entire works outside of one of the entrances which received a great deal of merited attention. The Kansas Pavilion is a tremendous affair, showing a great variety of products of the soil. It is put up with immense labor to make it stunning, but as to its artistic merit the less said the better.

Our Georgia Agricultural Department have a very neat little pavilion thatched with sugar-cane, for cresting a row of cotton stalks, the shafts of corner-columns bundles of cane, caps formed of cane tassel, the overhanging eaves covered with rice, front gable covered with cane radiating, rising sun-fashion to a big pumpkin in the centre, the cane thatching weighted down by pumpkins and gourds, like the Swiss roof with stones. The lattice apron below the roof made of cane, tied with moss with cotton balls for rosettes, the whole garlanded with strung red-peppers and neatly draped with hanging moss. The best hanging-moss effect belongs to the Alabama Great Southern Railroad, where natural branches of trees were put into the posts and draped with hanging moss, giving a peculiarly realistic effect, so charming in a Southern landscape.

A new departure in railroad-car decoration in the direction pointed out by Collings in his Art Foliage, is notable in a car by Jackson & Sharpe. It proves quite a relief from the conventional Pullman Car decoration, which though very excellent in its way, was yet rather spotty and at last became monotonous; and this decoration solves the problem of car decoration most effectually. It came on me very much like the egg problem of Columbus on the Spanish courtiers, it is so easy and simple to do, but in effect as a whole, both in form and color, I know of no motif equal to it between the time that Giulio Romano painted arabesques down to our day. An exception to this, however, should be made of the sickly brown cotton and ribbon business in the centre panel.

Another beautiful color effect was a curtain background — American Watch Co. — the mass was "old gold" with a broad strip of maroon velvet near the top, with real peacock-feather ends in crossed pairs about six inches apart, pinned on, producing a most subtly fine effect.

The spool-cotton men had several large framed cards, where colored cotton spools were used like stitches in embroidery, very large simple designs that from a distance produced a splendid effect. Two large butterflies about three feet square in the Coates' display were evidently the best there.

The greatest amount of artistic skill displayed here seems to have been in arranging goods on show-cards to the best advantage for ornamental effect. Combinations of the most arbitrary and unmanageable forms have been made to produce a most agreeable effect. Thus Smith & Sons displayed a remarkable ingenuity in producing a beautiful design as a whole, simply by the variation and disposition of a lot of rows of straight lines of various lengths, *i. e.*, needles. Again a black background, twenty-five feet square, hung with saws, the great Sisson circular-saw in the centre, with smaller ones around, with all manner, forms and sizes of hand-saws, single, in rows, and crossed, interspersed among the circulars, produced an ornamental design worthy of special notice as a whole. The principle of the disposition of the masses and the subordinate decorative details is here well understood and skilfully applied, although the result is only a show-card.

In the province of metal-work, W. F. & J. Messeran exhibit some brass furniture exquisite in design and execution; McHenry, of Cincinnati, some beautiful gas-fixtures; the Newell standards deserve special note; in fact it would appear that some of our very foremost designers work in brass.

In a fence exhibit of the Cleveland Wrought-Iron Fence Company, I saw about the best thing I know of in the way of automatic gates, a most ingenious and successful affair.

There is a tomb-stone exhibit in Art Hall with some excellent sculpture and carving, of the modern Italian school, so remarkable for its technique; but the idea of attempting to copy nature (not figures, but trees and grass) *verbatim et literatim* in marble is futile, for a reasonable success is impossible. We have here a number of old tree-stumps setting on top of a pile of stones, with ferns, grass and ivy here and there, which though beautifully carved, show how impossible success is in this direction. In figures, the tendency of the new school is in the right direction, for the expressions of some of those cold marble faces are so subtle and sweet as to imbed themselves lastingly in one's memory.

In architectural drawings there were but two exhibits: the Chicago Club-house, a residence and commercial building, by Burnham & Root, Chicago, all excellent in design and technique; the other is the Moore & Marsh Building and St. Philip's Church, the work of your humble servant. The art department, being only a side-show of a cotton exhibition, is consequently very weakly represented; some photographs and crayon portraits of Motes were the only

things on the floor notable for excellence. The criticism of a young lady in my hearing regarding some full-length oil portraits was very good. She said: "they are just as nice as the pictures painted on fronts of clothing-stores." Several stained-glass windows were notable only for mediocrity, and for being copies from the books.

There was quite a lot of inlaid work, very good both in design and execution, mostly in Eastlake, a style specially adapted for inlay. The billiard-tables and the Raven & Knabe pianos deserve mention here. The Carpenter Organ Co. also shows some excellent design in organ-cases.

Various of the large exhibits had considerable assortments of woods, very interesting, but not novel except in one point. The South is the home of the yellow pine, hence arises the low esteem for its beauty. There are a great variety of native and foreign plain, crotched, and burl walnut, mahogany, rosewood and ebony, cherry, ash, satinwood, and chestnut, all varnished and finished, to show all there is in them; but a curled yellow-pine plank, varnished, laid across the top of the rows, for beauty of grain and brilliancy of color excelled them all. All the lights and shadows of gold were in it, and this plank will give a place to yellow pine among the hard-woods for decorative purposes, for everybody that saw it admired it.

Very respectfully, JOHN MOSER.

A NEW ARCHITECTURAL ASSOCIATION.

ST. PAUL, MINN., January 6, 1882.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Pursuant to invitation, the architects of this vicinity met at the office of Mr. Corser, in Minneapolis, and took steps toward the formation of an Architectural Association by discussion of ends to be attained and methods of procedure.

Officers were elected and committees appointed. A more complete organization will be effected at the next meeting, which will occur January 17, at St. Paul.

A majority of the architects of St. Paul and Minneapolis co-operated in the first meeting. Respectfully yours,

D. W. MILLARD, *Cor. Sec.*

VERTICAL ANGLE CRACKS IN PLASTERING.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — In lathing a house is it best to run the laths behind intersecting partitions, or should the stud A be placed flush against studs B and C, thus forming a solid angle?

Or if either of these is not the best, what is the correct way to prevent an angle crack, presumably caused by unequal settlement in the partitions?

By passing upon this disputed point you will oblige

HAFERMEHL.

[The studs should be spiked together as solidly as possible. — EDS AMERICAN ARCHITECT.]

AMERICAN ARCHITECTURAL ASSOCIATIONS.

Minnesota Architectural Association,
D. W. Millard, Secretary, Fourth and Jackson Sts., St. Paul, Minn.

Boston Society of Architects,
T. M. Clarke, Secretary, 178 Devonshire St.

New York Chapter A. I. A.,
A. J. Bloor, Secretary, 335 Broadway.

Philadelphia Chapter A. I. A.,
Edward Hazlehurst, Secretary, 508 Walnut St.

Chicago Chapter A. I. A.,
S. A. Treat, Secretary, 80 Dearborn St.

Baltimore Chapter A. I. A.,
John Murdoch, Secretary, Lexington and Charles Sts.

Cincinnati Chapter A. I. A.,
Charles Crapsey, Secretary, 46 Wiggin's Building.

San Francisco Chapter A. I. A.

Rhode Island Chapter A. I. A.,
Geo. C. Mason, Jr., Secretary, Newport, R. I.

St. Louis Institute of Architects.

NOTES AND CLIPPINGS.

SANTA MARIA DEL FIORE. — It is said that the Ex-Grand Duke of Tuscany has undertaken the sole cost of restoring the Church of Santa Maria del Fiore.

BUILDING-STONE AND THE TARIFF. — As an example of how the tariff works we will instance the case of our sister city, San Diego. There is no building-stone within reach of her in American territory, but just across the Mexican border, within a few miles of her, easily reached by vessels, is an island containing a vast quarry of most excellent brown freestone, which could be laid down where needed at a trifling cost. In the other extreme of our country, nearly 4,000 miles away, the little State of Vermont has some marble quarries; and in order to protect these Vermont quarries against the importation of Italian marble, in order to force the users of this material in the East to support a few men in bad business, San Diego is prevented by prohibitory tariff from using a most excellent building material that lies at her very doors. — *San Bernadino [Cal.] Times.*

TERRA-COTTA LUMBER. — A recent American invention is that of the manufacture of lumber from fire-clay, patented by Mr. C. C. Gilman, of Eldora, Iowa. The composition consists of kaolin clay, free from grit, one part; resinous sawdust, from one to three parts, as porosity may be required; water sufficient to thoroughly incorporate the above, by the aid of machinery, into a plastic mass. Removed from the grinding tubs, where it has been ground, the spongy product is forced by plungers driven by steam through iron or steel cylinders to express the superfluous moisture therefrom, and issues forth in the shape of long blocks or logs, of length, form, and size best fitted for handling, usually eight to twelve inches in thickness, and four to six feet in length. When sufficiently dry to render handling safe, these logs are moved into kilns or clamps calculated for the purpose. After the steam and vapors are driven out by a slow, steadily increasing fire, the temperature is rapidly raised to nearly a white heat, which not only consumes the sawdust, but brings the clay itself into the first stages of vitrifaction. On cooling, the logs are removed to the mill and sawed into planks, boards, and dimension-stuff, as lumber from wood is manufactured, and subsequently fashioned in the workshop into such forms and articles as demanded by purchasers. This material, being free from grit and tough in texture, can be cut, sawed, bored, planed, and carved with edged tools, and before or after such treatment can, after slipping and glazing, be submitted to a second firing, with fine results in ornamentation obtained. Kaolin is the upper stratum of fire or feldspathic clay beds, and owing to the absence of sand or free silica is unsuited to common pottery uses, as its warpage in drying and firing unfits it for moulding purposes. Mr. Gilman's invention, so he claims, overcomes this trouble, inasmuch as the material is reduced to form with edged tools subsequent to firing. Terra-cotta lumber, it is claimed, is indestructible by fire, gases, or acids; is a poor conductor of heat, sound, and electricity; and possesses molecular attraction to an extent which allows of plastering without first lathing. Its weight is one-half less than common building brick, and is erected with nails instead of cement or mortar, virtually rendering fire-proofing a work of carpentry instead of masonry as heretofore. — *The Building News.*

THE TRIMOULET ART COLLECTIONS AT DIJON. — One of the most valuable art bequests of recent years has fallen to the museum of Dijon, in France, a museum already well known to travellers not only from the value of its contents but from the interest attaching to the building which houses them, the old palace of the dukes of Burgundy, built in the fifteenth century. M. Anthelme Trimoulet, who seems to have been a typical specimen of an antiquary — a specimen such as France only can produce in full perfection — died some time ago leaving all his varied collections to his wife, and at her death to the city of Dijon. Almost all departments of mediæval art are represented; and as M. Trimoulet began his work of collecting many years ago, before the relics of the Middle Ages had become universally desired, many branches are explained by work that is both profuse and of the very highest excellence. Especially notable are his ivories of many epochs, and his metal work, which includes domestic utensils, armor and magnificent weapons of every description. The enamels are also numerous and very good, and the jewelry and metal bric-à-brac of all kinds almost equally remarkable. The collection of Oriental ceramics is announced as admirable, and the list of departments is by no means exhausted even when we have mentioned, furthermore, cameos, Venetian glass, coins, medals, Italian faience, Sevres, and Dresden porcelain, furniture, tapestries, mosaics, engravings, pictures, and sculptures. In short, everything seems to have been fish that came to M. Trimoulet's wide-spread net. Excellence in its peculiar direction seems to have been the only claim needed to attract his attention to a work of art and to open wide the doors of his hospitable cabinets. The city has lately come into possession of this magnificent legacy, owing to the death of Mme. Trimoulet. The objects have already been arranged in the museum, though they are not yet catalogued or quite in order. — *Philadelphia Bulletin.*

ANCIENT ISTHMUS CANAL SCHEMES. — Don Justo Zaragoza contributes to the *Boletin* of the Geographical Society of Madrid a series of interesting papers on ancient canal schemes between the Atlantic and the Pacific in Central America. There were three places which the Spanish of the sixteenth century thought of for these schemes; the Isthmus of Tehuantepec in New Spain, now Mexico; the river of San Juan, of the Lake of Nicaragua, in the republic of the same name; and the Chagres River, and other parts of the Isthmus of Panama. The investigation of Tehuantepec was abandoned at that time, to be renewed in the present century; those of Nicaragua were actively pursued in the seventeenth century, and were nearly being executed about the middle of the eighteenth century, during the reign of Charles III, and the scheme of a canal through the Isthmus of Panama, also abandoned, has now been renewed by M. Lesseps. In the paper published in the October number of the *Boletin*, D. Zaragoza gives some information of the little-known scheme of a canal via the Lake of Nicaragua, which scheme appeared in the year 1548, with a map of the land prepared by Arias Gonzalo. In 1606 Captain Ochoa de Leguizamo explored, on the same account, the Puertos de Caballos and Fonseca Bay; and during the years 1780 to 1783 a map of the projected canal, still existing, was prepared, and a survey was made between the Pacific and the Lake of Nicaragua, which last proved to be 133 Castilian feet above the sea level, the height of the watershed being about 604 feet. This scheme met with great opposition, the chief reason for which was found in the statement of Juan Bautista Antonelli, an engineer sent by Philip II, who declared the scheme quite impracticable; and D. Zaragoza publishes a memoir, by J. Antonio de Escartin, to prove the possibility of the canal.

THE VIENNA THEATRE DEATH-ROLL. — A list of the victims of the Ring-Theatre fire has been issued by the police. It gives the total number of victims as 794, of which the bodies of 144 have been legally identified. A later list places the total at 449.

Prospectus for 1882.

THE present indications are that during the coming year the editors will be enabled to make the *American Architect* more interesting and valuable than ever before, and the fact that each successive year has added new attractions to what was already of considerable merit may be taken as a guaranty that during the year 1882 the standard of its performances will be in no degree lowered. The editors would prefer not to make any announcement of their intentions until some plans now under discussion are definitely decided on, but custom seems to require that about this season of the year a prospectus for the ensuing year shall be issued by all publishers of periodicals, and we follow in the beaten track, suggesting to our subscribers, however, that they may safely read between the lines promises of more than actually meets the eye.

The character of the illustrations depends so largely on the interest which the more capable designers in the profession take in the publication of this journal that the editors might stand excused from pledging themselves either to maintain the standard of excellence already attained or to raise it still higher. But there are certain veins of individual endeavor which the increasing prosperity of the journal will enable them to pursue with considerable vigor, and as "nothing succeeds like success" they may hope that the impetus that they are able to give this important feature of the *American Architect* will be followed up by former contributors, and that those members of the profession who have never contributed a design to its pages will no longer leave to others the privilege of upholding in the eyes of the reading public of both hemispheres the dignity of architecture in America.

As in past years the illustrations will consist of photo-lithographic reproductions of American and foreign buildings, while the pure Heliotype views from nature will as before be published occasionally as circumstances may demand — and it is sincerely hoped that the demand may occur with increasing frequency. In like manner colored prints of interior decorations and other suitable subjects will be published in the course of the year. The feature, however, which will add most to the attractiveness of the paper will be the publication of a greater number of cuts in the body of the text of each number, which will give to the journal an entirely fresh and, it is hoped, more attractive aspect, for it will be the endeavor of the editors to make every cut of value to the architect as well as interesting to the general public.

The Competitions in design with money prizes will be continued through the year.

The general tone and literary character of the journal will accord with its past performance, and it is perhaps invidious to particularize even those papers for which arrangements have already been made. The papers on "Building Superintendence" which have appeared during the year 1881 in the first issue for each month — or the Monthly number, so-called — and which have detailed the manner of constructing a stone chapel, and have proceeded so far in the construction of a wooden dwelling-house as the plumbing work, will be continued during the year, and after completing the construction of this house will next describe the manner of building a large city office-building, during which description a discussion of the strength of materials and other matters of general scientific construction will be taken up. The instructive series of papers on "Building Stones" will probably be extended through the year.

In the line of fresh endeavor it may be stated that arrangements are now making for series of papers on the following topics of general and special interest: —

A series of illustrated papers by different writers on the architectural character and buildings of different cities throughout the country; a series of papers on village improvements and village improvement societies; a series of practical papers on scaffolding; a series of illustrated papers on what American decorative artists are accomplishing; a series of papers on wood-engraving; a series of papers on sanitary matters; and possibly a series of papers on steam heating.

About this skeleton-work of subjects, which as may be seen are diverse enough in character to suit the most dissimilar tastes, while they are all of much general interest, will be arranged articles on kindred topics and matters of current interest, as has been the custom of the journal in former years.

The following well-known writers may be expected to contribute of their knowledge during the coming year:

EDWARD ATKINSON,
PROF. CHARLES BABCOCK,
ALEXANDER BLACK,
ERNEST W. BOWDITCH,
J. M. BRYDON,
PROF. T. M. CLARK,
F. CROWNINSHIELD,
CHARLES A. CUMMINGS,
HIRAM A. CUTTING, PH. D.,
CHARLES H. HART,
PROF. W. P. P. LONGFELLOW,
PROF. N. CLIFFORD RICKER,
R. RIORDAN,
ARTHUR ROTCH,
MONTGOMERY SCHUYLER,
HENRY VAN BRUNT,
MRS. SCHUYLER VAN RENSSELAER,
PROF. WILLIAM R. WARE,
GEORGE E. WARING, JR.

In conclusion it may be said that the policy of the *American Architect* is in the largest and best sense a liberal one, and its aim is to cover with what completeness it may the whole field that by the widest construction may be conceived to be included within the limits of its elected province, which is defined only by the boundaries of Architecture, Construction, Sanitation, the Fine Arts, and the Arts of Decoration.

The journal is not and will not be partisan in tone; its pages are open to the discussion — within proper limits — of any pertinent subject from every point of view; it is not the tool of any association, clique or body of men; it is conducted solely by its editors, and they alone are responsible for its utterances and the facts and theories it promulgates.

To those who have in the past helped to make the *American Architect* what it to-day is the editors desire to express their grateful acknowledgments, and at the same time to assure them that their coöperation in the future will be cordially accepted.

BUILDING INTELLIGENCE.

(Reported for The American Architect and Building News.)

[*Although a large portion of the building intelligence is provided by their regular correspondents, the editors greatly desire to receive voluntary information, especially from the smaller and outlying towns.*]

BUILDING PATENTS.

[*Printed specifications of any patents here mentioned, together with full detail illustrations, may be obtained of the Commissioner of Patents, at Washington, for twenty-five cents.*]

251,686. Boring-Machine. — Benjamin F. Allen, Boston, Mass.

251,688. Windmill. — William S. Baugh, Farmers' Institute, Ind.

251,692. Ornamental Glass to imitate Wood. — James Budd, Boston, Mass.

251,698. Jack-Screw. — William R. Coats and William H. Vibbard, Kalamazoo, Mich.

251,713. Step or Stair. — Charles H. Gould, New York, N. Y.

251,732. Door-Check. — Francis V. Phillips, Chicago, Ill.

251,741. Water-Heater and Circulator. — Peter Smith, Detroit, Mich.

251,746. Process of Reproducing Drawings and Designs. — Maurice Tilhet, Paris, France.

251,762. Curtain-Fixture. — Thos. M. Burgess, Big Rapids, Mich.

251,767. Water-Closet. — William H. Daniell, Pottsville, Pa.

251,775. Faucet. — Josiah B. Gathright, Louisville, Ky.

251,778. Window-Frame and Sash. — Francis W. Hettinger, Reading, Pa.

251,786. Basin-Plug. — John C. Ludwig, San Francisco, Cal.

251,790. Door-Check. — Lewis C. Norton, Boston, Mass.

251,813. Water-Closet. — H. William Atwater, Boston, Mass.

251,854. Shutter-Fastener. — Henry J. Fisher, Jr., Point Pleasant, W. Va.

251,891. Roofing-Seamer. — Robert Jones and Thomas C. Belding, Waynesburg, O.

251,915. Sash-Fastener and Holder. — John B. Montague, Franklin, Ky.

251,916. Sash-Fastener and Holder. — John B. Montague, James T. Booker, and Enoch C. Dinning, Franklin, Ky.

251,918. Compound for Preserving Wood and Metal. — Lorenzo D. Mott, Marshalltown, Iowa.

251,921. Manufacture of Prepared Roofing. — Tobias New, New York, N. Y.

251,943. Sash-Balance. — John A. Quick, Palestine, Tex.

251,947. Paint, Whitewash, and other Brushes. — James A. Read and Calvin D. Read, Ayer, Mass.

251,988. Knob-Attachment. — John W. Young, Stamford, Conn.

251,990. Water-Closet. — John C. Daggett, Neponset, Mass.

252,001. Pipe-Joint. — Jacob K. Dimmick, Newport, Ky.

SUMMARY OF THE WEEK.

Boston.

Building Permits. — Section 7, Chapter 280, of the Acts of 1871, provided that the Inspector of Buildings shall submit to the City Council a half-yearly statement in detail of the transactions of his department. Below are the official records of said department, from its organization, October 2, 1871, to December 31, 1881, as given in his semi-annual and annual reports.

Comparative statement of work for each six months ending June 30 and December 31 since organization of office: —

	Brick.	Wood.	Repairs, Alterations and Additions.	Special.	Boilers, Engines, etc.	Heating Apparatus.	Street permits.
1872	531	658	456	8			
"	443	393	385	13			
1873	372	456	689	16	31		
"	274	447	614	14	40		
1874	303	618	957	10	40		
"	218	660	1095	13	60		
1875	210	384	981	4	37		
"	138	325	855	7	33		
1876	126	288	958	9	35		
"	74	244	978	8	89		
1877	145	269	1136	5	74	151	
"	120	263	1207	8	107	330	263
1878	111	210	1070	8	104	121	558
"	76	233	1121	15	111	225	549
1879	89	230	1211	39	128	148	605
"	114	345	1356	5	181	292	706
1880	152	232	1124	5	157	163	710
"	187	262	1170	4	202	307	574
1881	147	337	1274	7	206	121	703
"	161	450	1211	6	190	440	702

For October, November, and December, 1871: wood, 272; brick, 245; repairs, etc., 205.

Houses. — A house is being built on Commonwealth Ave., for Mr. —— Thayer. It is a four-st'y stone front, 25′ 8″ x 62′; J. W. Tobey, contractor; O. F. Smith, of Boston, architect.

W. H. Coffin is building a four-st'y brick and stone dwell., measuring 25′ x 62′; O. F. Smith, of Boston, architect.

Baltimore.

Building Permits. — Since our last report nine permits have been granted, of which the following are the more important: —

Henry Schwarzenbach, two st'y brick front building to No. 184 Caroline St., between Bank St. and Eastern Ave.

Samuel G. Wintemitz, two-st'y brick building, s w cor. Howard and Dover Sts.

Geo. W. Hopper, 4 three-st'y brick buildings, Bloom St., beginning at the s e cor. of Etting St.

Wm. Schwartz, additional story to store and other improvements, No. 104 Broadway, between Bank and Gough Sts.

J. Weitzell, 3 two-st'y brick buildings, beginning at the s w cor. McElderry St. and Madeira Alley.

Benj. C. Payne, 2 two-st'y brick buildings, Madeira Alley, north of Gough St.

E. W. Gorman, two-st'y brick building, Madeira Alley, north of Gough St.

Brooklyn.

Building Permits. — *Atlantic Ave., Nos.* 1050 *and* 1052, between Clason Ave. and Grand Ave., one-st'y frame stable; cost, $3,000; owner, estate A. Chichester, executors, Jackson, Schultz & Co.; builder, Jas. McKee.

Greene Ave., s w cor. Vanderbilt Ave., four-st'y brick flat; cost, $36,000.

Verona Pl., w s, 80′ n Fulton St.; cost, $5,000; owner and architect, D. H. Fowler, 14 Verona Pl.; builders, Thos. Baker and D. H. Fowler.

Broadway, e s, opposite Read Ave., one-st'y frame store and dwell.; cost, $5,000; owner, Joseph Ryan, 817 Broadway; builders, A. Sachs and John Rueger.

Fourth Pl., n s, 100′ e Clinton St., 2 three-st'y brick flats; cost, $8,000; owner and builder, P. J. Carlin, 549 Clinton St.; architect, T. F. Houghton.

West Graham Ave., Nos. 455 *and* 457, 50′ n Herbert St., 2 three-st'y frame tenements; cost, each, $4,000; owner, H. Will, Graham Ave., cor. Herbert St.; builders, W. Bayer and Jno. Rueger.

Knickerbocker Ave., w s, 25′ n Palmetto St., three-st'y frame tenement; cost, $3,500; owner, M. Smith, Knickerbocker Ave., cor. Palmetto St.; builder, Joseph Hopkins.

Chicago.

Building Permits. — J. McCarthy, three-st'y brick dwell., 22′ x 33′, 122 Townsend St.; cost, $2,400.

Geo. A. Seaverns, 6 one-st'y brick cottages, 32′ x 120′, Beers St. near Douglass Ave.; cost, $5,000.

Haskell Bros., three-st'y brick trunk factory, 40′ x 100′, 15 and 17 North Green St.; cost, $10,000.

John Krewer, two-st'y brick dwell., 20′ x 24′, 158 Clayburn Ave.; $3,500.

J. B. Patterson, two-st'y and basement brick dwell., 22′ x 40′, 340 Webster Ave.; cost, $4,500.

A. S. Maltman, 3 two-st'y flats, 36′ x 260′, Bloomingdale and Western Aves.; cost, $20,000.

P. J. Wagner, 2 two-st'y dwells., 40′ x 55′, 525 and 527 Warren Ave.; cost, $8,000.

Joseph Kinney, three st'y and basement brick store and dwell., 30′ x 40′, Desplaines and Randolph Sts.; cost, $7,000.

John Horn, two-st'y brick dwell., 24′ x 60′, 586 La Salle St.; cost, $6,000.

J. D. C. Whitney, two-st'y brick dwell., 22′ x 60′, Belden Ave., near Hurlbut St.; cost, $2,900.

John Bence, 2 four st'y brick flats, 45′ x 100′, 74 and 76 Johnson St.; cost, $8,000.

John Garvey, two-st'y brick barn, 29′ x 70′, Dale Place, near Twenty-second St.; cost, $2,000.

John Cunningham, two-st'y brick flats, 20′ x 50′, 288 Dayton St.; cost, $2,800.

F. W. Luke, three-st'y and basement brick dwell., 30′ x 51′, 1009 North Clark St.; cost, $6,000.

John Sutton, two-st'y dwell., 21′ x 42′, 3819 Dearborn St.; cost, $2,500.

James Lamb, two-st'y and cellar dwell., 23′ x 57′, 360 Mohawk St.; cost, $3,000.

Thos. Nicholson, 2 two-st'y and cellar dwells., 36′ x 60′, Vernon Ave. and Thirty-fourth St.; cost, $8,000.

B. D. & W. W. Iesendrath, three-st'y factory, 45′ x 85′, Sangamon and West River Sts.; cost, $6,500.

John F. Davis, 8 two st'y flats, 55′ x 176′, Bissell, near Garfield Ave.; cost, $35,000.

C. L. Hutchinson, 3 three-st'y dwells., 48′ x 70′, 2608–2610 Calumet Ave.; cost, $10,000.

B. & P. Mahon, three-st'y flats, 23′ x 64′, Third Ave., n of Polk St.; cost, $7,000.

Webster & Comstock Manufacturing Co., factory, 50′ x 100′, 123–125 Ontario St.; cost, $5,000.

H. B. Rogers, four-st'y store, 52′ x 80′, 79 Van Buren St.; cost, $14,000.

A. Magrefen, two-st'y store and dwell., 24′ x 70′, Hinman and Paulina Sts.; cost, $4,500.

Twenty-two permits issued; whole cost, $107,900. Average cost, $4,904.55.

New York.

Notes. — There is no new work worth mentioning in the architects' offices. A cheerful feeling however pervades, as there is every indication of a better year's business even than that of 1881. It is expected that building operations will not be delayed so far into the spring as last year.

Building Materials show little change. Though there have been plentiful arrivals of brick, prices are firmly sustained at rates as quoted in price-list.

Building Permits. — *Eighty-seventh St.*, n s, 325′ w Ninth Ave., 8 three-st'y brick and brownstone dwells., 16′ 8″ x 50′; cost, $8,000 each; owner, John W. Stevens, 405 West Eighty-fourth St.; architect, Wm. Howe; builder, R. F. Taggart.

Lexington Ave., s e cor. One Hundred and Fourteenth St., four-st'y brick and brownstone store and tenement; cost, $16,000; owners, Ph. and Wm. Ebling, St. Ann's Ave., One Hundred and Fifty-Sixth St.; architect, A. Pfund.

Lexington Ave., e s, 21′ 5″ s One Hundred and Fourteenth St., 4 four st'y brick and brownstone tenements; cost, each, $12,000; owners, Ph. & Wm. Ebling, St. Ann's Ave., One Hundred and Fifty-Sixth St.; architect, A. Pfund.

One Hundred and Ninth St., n s, 100′ e Lexington Ave., 4 four-st'y brownstone tenements; cost, $11,500 each; owner, Charles Sedgwick, 206 Bowery; architect, Chas. Baxter.

One Hundred and Nineteenth St., n s, 150′ w First Ave., four-st'y brick tenement; cost, $18,000; owner, S. S. Hinman, Ave. A, One Hundred and Twenty-first and One Hundred and Twenty-second Sts.; architects, Cleverdon & Putzel.

East Houston St., No. 132, five-st'y brick store and tenement; cost, $14,000; owner, Christian Wenzel, 244 East Forty-ninth St.; architect, Frederick Jenth.

Fifty-sixth St., s s, 99′ 9″ w Ave. A, 6 five-st'y brownstone apartment-houses; cost, each, $17,000; owner, Peter Doelger, 405 East Fifty-fifth St.; architect, Wm. Jose; builder, John Goerlitz.

Fifty-first St., n s, 47′ e Fourth Ave., two-st'y brick engine and boiler house; cost, $18,000; owners, The F. & M. Schaefer Brewing Co., 112 East Fifty-first St., cor. Fourth Ave.; architect, J. Kastner.

One Hundred and Thirteenth St., s s, 120′ w Third Ave., four-st'y brick flat; cost, $20,000; owner and builder, Thomas Fealey, 2069 Third Ave.; architect, Bart. Walther.

Alterations. — *Canal St.*, s w cor. Thompson St., four-st'y brick extension, interior alterations, etc.; cost, $10,000; owner, Edward R. Satterlee, Dobb's Ferry; architect, Wm. Jose.

Old Slip, Nos. 10 *and* 12, refitted for offices; cost, $7,000; owner, Storm estate, 35 West Fifty-eighth St.; architects, McGinnis & Van Horn.

Broadway, No. 452 *and Nos.* 14, 16, *and* 18 *Crosby St.*, repair damage by fire; cost, $12,000; owner, Charter Oak Life Insurance Co., 71 Broadway; architects and builders, Molton & Chesley.

West Twenty-sixth St., No. 352, carriage elevator put in, also alter pitch of roof; cost, $3,000; owner, Stephen Merritt, 210 Eighth Ave.; builders, Jacob Vix and J. L. Hamilton.

West Twentieth St., No. 155, one-st'y brick extension, interior alterations, etc.; cost, $4,000; owner, Ferdinand Neumer, 116 West Twentieth St.; architect, J. Kastner.

East Seventy-eighth St., No. 304, two-st'y brick extension; cost, $2,000; owner, Rev. J. J. Dougherty, 334 East Seventy-ninth St.; architects, Babcock & McAvoy; masons, Giblin & Lyons.

East Fourteenth St., No. 136, two-st'y brick extension; owner, George Theiss, 156 Canal St.; architect, Arthur Crooks; builders, J. & L. Weber and Henry Schiffer.

Eighth Ave., Nos. 287 *to* 293, centre walls, first floor removed, iron supports inserted, new plate glass fronts and doors; cost, $10,000; owners, Ehrichs Bros., on premises; architect, H. J. Dudley.

Front St., Nos. 232 *and* 234, remove peak and replace by flat roof; raise one-st'y; cost, $3,500; owners, Isaac T. and John G. Frost; builder, J. J. Deboesen.

East Thirteenth St., Nos. 126 *and* 128, extension on front, etc.; cost, $13,000; owner, Geo. F. Gillman; architect, John Sexton.

Philadelphia.

Depot. — The Pennsylvania R. R. Co. contemplate the erection of a new depot-building and train shed at Kensington, main building to be 45′ x 60′, baggage building 25′ x 45′, train-shed 45′ x 200′.

Warehouse. — The Pennsylvania R. R. Co. will build on the site of the old navy-yard a brick warehouse, 50′ x 400′.

Building Permits. — *Canal St.*, between Pollard St. and Germantown Ave., four-st'y stable, one-st'y spring-factory, 20′ x 35′ and 100′ x 105′; W. Steele, contractor.

Indiana Ave., between Sixteenth and Seventeenth Sts., two-st'y stable and office, 22′ x 22′, and 14′ x 45′; Jno. Adgins, owner.

Second and Vine Sts., four-st'y addition to building, 18′ x 51′; Jas. Hood, contractor.

Ash St., s e of Girard Ave., one-st'y store-room, 11′ x 188′; Liebrandt & McDowell, owners.

Cooke St., between Gaul and Memphis Sts., one-st'y addition to dye-house, 25′ x 40′; A. Eichler, owner.

Martha St., n of Huntingdon St., two-st'y dwell., 14′ x 28′; Barney Mesloy, owner.

St. Louis.

Building Permits. — Ten permits have been issued since our last report. But two of these are of any importance, viz.:

Owner's Name.	Use.	Stories	Rooms	Cost.
R. A. Cutler	Dwell.,	2	8	$ 2,500
J. M. Bemis	Dwell.,	2	9	10,000

General Notes.

Asbury Park, N. J. — At the corner of Kingsley and First Aves., Mr. Jno. McMullen, of Philadelphia, is building a three-st'y hotel, main building 34′ x 60′, brick building 18′ x 24′; John J. Deery, architect.

Atlantic City, N. J. — From plans of J. J. Deery, architect, Philadelphia, the Wyoming House, on Atlantic Ave., is being remodelled into 4 dwells. and stores for Mr. Thos. Daly, the work being under the supervision of the architect; three-st'y, 64′ x 70′.

Bernardsville, N. J. — Two houses, first st'y stone, above wood, are to be built from designs of Messrs. Lamb & Rich, of New York.

Bryn Mawr, Pa. — The Hon. Wayne McVeagh is having extensive alterations to a large stone house near Bryn Maur, from plans by Theophilus P. Chandler, architect, Philadelphia.

Rudolph Ellis is building a large stone house and stable; Theophilus P. Chandler, architect, Philadephia.

Camden, N. J. — A dwell. for Christian Bros., in connection with Church of Immaculate Conception, has been started, to be three-st'y, main building 20′ x 38′, brick building 16′ x 20′; J. J. Deery, architect, Philadelphia.

Detroit, Mich. — No permits have been issued since our last report.

Building operations in Detroit were unusually brisk during the past year.