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CONTENTS.

SUMMARY:—

The World's Fair, Boston.—A Proposed Site.—The Annual Convention of the American Institute of Architects.— Burning of the Morrell Storehouse, New York.— Electric Light Notes.— The Competition for the Monument to Victor Emmanuel.— Design of Mr. H. L. Gay.— Pneumatic Sewerage for Paris.— The Competition instituted by the <i>Société Industrielle</i> of Amiens.— The "Inner Circle" Railway, London.	189
OXYGEN AS A PURIFIER OF SEWAGE.	191
BUILDING IN HARTFORD, CONN.	191
PIERRE CHARLES L'ENFANT.	192
THE ILLUSTRATIONS:—	
Design for a Trades House, Glasgow, Scotland.— Gate of the Agora at Athens.— Children's Hospital, Boston, Mass.— Design for a House.	194
MEETINGS OF THE TRUSTEES A. I. A.	194
MODERN HOUSE-PAINTING.	195
WIMBORNE MINSTER.	195
THE CORINTH CANAL.	196
AMERICAN ART IN TOOLS.	198
COMMUNICATIONS:—	
The "Brattle Square" Church.—A Philanthropic Scheme.	198
NOTES AND CLIPPINGS.	199

THE citizens' committee of twenty-eight selected to consider the expediency of holding a World's Fair in Boston in 1885, have prepared a report from which, although it is not yet formally published, copious extracts are made in the daily journals. The report seems to be in every way a sensible and business-like document, and the committee show a disposition to study the discouraging as well as the hopeful circumstances of the enterprise which augurs well for its final success if it should really be attempted. After carefully estimating the cost of buildings and other works, the committee have concluded that a capital of five million dollars will be necessary to insure the carrying out of the project; and they frankly admit that no help is to be expected from the national, state or city governments, so that the whole must be raised by private subscription. This, however, does not seem to them impossible, and a canvassing committee is to be appointed to secure conditional subscriptions. If the required sum is pledged, further steps will at once be taken; if not, the whole matter will be dropped. The prospect that a large part of the cost will be reimbursed from the entrance fees of visitors is very favorable, but too much weight is not given to this consideration.

PRESUMING that the necessary funds can be secured, the question of site has been happily solved by the offer of Messrs. Jordan, Marsh & Company to place the Beacon Park race-course at the service of the managers for the necessary five years. Beacon Park is situated within the city limits, and in the immediate track of the advancing improvements which have already added to the old town one of the most beautiful urban districts in the world. It is reached at present from the suburbs by only one railroad, but this difficulty could be easily and quickly overcome by the construction of branches from other lines, which lie at no great distance, and before 1885 three or four lines of street-cars will pass near the entrance. The race-course itself contains hardly territory enough to accommodate the requisite buildings; but some vacant land immediately adjoining can be secured, which will give ample space, together with what is of hardly less advantage, a long frontage on the deep water of Charles River, affording not only coolness in summer, but pier accommodations for excursion steamboats and freighting vessels. On the Cambridge side of the river, directly opposite, is a large area of low land, which has recently been taken up by a number of capitalists for permanent improvement, and certain departments of the Fair would find pleasant accommodation there. With the great advantage which the securing of such a site affords, the main expense will be in buildings, the cost of which in Philadelphia in 1876 was more than five million dollars, and in Boston cannot be very much less, although no attempt would probably be made to erect any permanent structures. The cost of grading and improvements, other than buildings, would be small, as the ground is level, and a large part of it is already in admirable

shape, while the tidal flow might perhaps be utilized temporarily for drainage, thus saving a large sum. In fact, all the circumstances indicate that a much smaller outlay would be needed for accomplishing the same result than was necessary at Philadelphia, and the only question is whether the objects to be secured justify the cost.

THE Fifteenth Annual Convention of the American Institute of Architects will be held in Washington, D. C., beginning on Wednesday, November 10, 1881. Particulars of the papers to be read and subjects to be discussed are not yet ready, but will be published in due season. Even without the aid of papers and discussions, a visit of a hundred or more architects to Washington would be a most interesting occasion. No city in the United States offers so great a variety of important and monumental buildings, and in none perhaps do the possibilities of the future appear so brilliant to the professional visitor. The amateur of construction will find the work going on at the Washington Monument full of interest, while the lover of the beautiful will do best to look in the opposite direction, and devote himself to the study of the unrivalled dignity which impresses continually more and more the attentive observer of the Capitol. At the other extremity of Pennsylvania Avenue all tastes will find gratification: the Treasury, the State, War and Navy Departments, the picturesque railway station, and a little farther away the Patent Office, the Post Office and the White House, afford impressions which, if not wholly satisfactory, are at least vivid and long remembered. The private architecture of Washington has a heterogeneous character about it which is not pleasing as a whole, but there are many examples which will deserve study, and although few buildings display the luxury revealed in some New York houses, those of the best part of Washington have an air of spaciousness which gives unusual value to whatever beauty they possess.

THE burning of the Morrell storehouse in New York has called to the recollection of many persons the destruction of the Pantechnicon in London in 1874. Unlike the Pantechnicon, Mr. Morrell's building was by no means of fire-proof construction, although the sign "Absolute Security" is still to be seen in front of the smoking ruins; but iron beams and floors of masonry, as ordinarily constructed, would have availed little against the sea of flame which filled the building from the goods stored in it. As usual in such cases, the smallness of the openings, the shutters, and other precautions for preventing the entrance of fire from without seemed also to hinder the efforts of the firemen. Owing to the smallness of the reserved water-supply, the pressure in the Croton pipes is now reduced every night by partially closing the gates at the reservoir, and although the Deputy Commissioner of Public Works telegraphed for the full pressure as soon as he learned the serious character of the fire, it was necessarily some time before an adequate supply could be obtained at the hydrants. Both the proprietor and his customers seem to have entertained a most erroneous opinion of the solidity of the building. Mr. Morrell, who might, it would seem, have interested himself sufficiently in the history of his responsible business to be aware of the small security afforded by such constructions, entrusted his valuable books and papers to an ordinary portable safe, which was not even enclosed in a brick vault, and falling into the smouldering heap of debris was kept for several days at a heat which completely destroyed its contents, and hundreds of depositors had neglected to insure their property, and will suffer a heavy loss.

A NEW suggestion is made in regard to the electric lights which are thought to have been the means of causing the destruction of the Randolph Mills a few days ago. It has often been noticed that sparks will occasionally fall from the ordinary carbon lamps, and in one or two cases persons have been injured by them, but the general belief has been that they consisted of melted copper or other metal from the wires or connections. A correspondent of the Philadelphia *Bulletin* says, however, that they consist of burning bits of carbon from the electrodes, and are quite capable of igniting any inflammable substance on which they may fall. It would be so easy to close altogether the globes containing the electric lights that no opportunity

should be given for the fall of blazing particles. One great advantage of the incandescent lamps will unquestionably be their freedom from the dangers incident to the powerful currents and the intense heat of the arc lights, and it is not surprising to find that they are generally accepted as the most convenient form in which to employ electrical energy for the illumination of dwelling-houses. Our readers may be surprised to hear that so rapidly, though quietly, has the introduction of these lamps been carried on in New York that already more than eleven hundred buildings, in a single one of the twenty-seven districts into which the city is divided, have been fitted with wires, and before Christmas will be illuminated by at least twenty thousand incandescent burners.

A CORRESPONDENT of the Chicago *Times* writes to that journal some interesting particulars in regard to the great competition for the monument to King Victor Emmanuel of Italy. The terms of the competition will be fresh in the minds of our readers. No restriction was laid upon the competitors as to the style or form of the monument, except that it was desired to employ native marbles or other materials, and the cost was not to exceed sixteen hundred thousand dollars. The first premium was to be ten thousand dollars, the second six thousand, and the third four thousand. The time for receiving designs has expired, and no less than two thousand drawings have been submitted by artists and architects from all parts of the world. The designs were to be exhibited in Rome on the twenty-third of September, and we shall probably soon have further details in the foreign journals. The decision of the judges will, however, not be reached for about three months. Meanwhile, we learn from the letter to the *Times* that at least two Americans are on the list of competitors, — Mr. Larkin G. Mead, the sculptor, and Mr. Henry L. Gay, an architect of Chicago.

MR. GAY's design, to judge from the description given by the correspondent, must be a remarkable one. He has, it appears, "solved a difficult problem in reducing to an elegant form a monument which has for its base a five-pointed star, the emblem of the Star of Italy." The style of architecture adopted for this elegant affair is "gothic," because no other would "harmonize with the gardens of the Pincio," or would "render it possible to give to the monument a slender and graceful construction." Particulars of the shape are unfortunately withheld, but it seems that "there is maintained a wonderful harmony throughout the entire structure," and that "upon looking at the model even the most critical become attracted and are unable to find fault with it." This is perhaps less surprising, as the "monument is so well finished in all its details as to prove that Mr. Gay is master of his idea and carries it through to perfection in every part of the structure." The central figure of the late King, in particular, seems to have been so designed as to compel the suffrages of the "old patriots" who constitute the jury. According to the *Times* correspondent Victor Emmanuel is represented seated "in his customary posture" on a throne "resting on a handsome pedestal," holding in his hand the constitution received from his father, Charles Albert, "which constitution he (Victor Emmanuel) swore to maintain, and which he did maintain, and by so doing deservedly won the title of 'Re Galantuomo' (King-Gallant-Man)." It would be heartless to criticise this lucid explanation of the late king's career, and we return again to Mr. Gay's design, which as we learn from other sources, really merits something much better than the ridiculous description of an ignorant newspaper correspondent. So far as we can judge, the *motif* of the composition seems to resemble in some respects that of the Albert Memorial in Hyde Park. The total height is three hundred feet, and the structure stands on an expanded stylobate, some three hundred and thirty feet in diameter, and consisting of forty-five steps, each typifying a century in the history of Italy, and inscribed with the names of the great Italians belonging to that period. The main edifice is tensided, and like the Albert Memorial is intended to be adorned with bronze, mosaic and stained glass, as well as with painting and sculpture. These elements certainly include all the resources of monumental art. Whether Mr. Gay has succeeded in handling them successfully we shall know hereafter.

OFFICIAL authority has been given to M. Berlier, of Lyons, to introduce into an experimental district of Paris the Liernur pneumatic system for the removal of house refuse. From a building in the suburbs prepared with apparatus for utilizing

the waste matter a main collecting pipe is to be laid into the city as far as the Place de la Madeleine, with branches through the Boulevard Haussmann and other neighboring streets, all laid in the great sewers which form so convenient a means of underground communication. With these will be connected the small tubes which serve as soil-pipes for the houses on the various streets, and by means of powerful exhaust pumps all matters thrown into the soil-pipes will at stated periods be drawn by atmospheric pressure into the tanks at the terminal converting works. A company has been formed with a capital of a hundred thousand dollars to carry out the experiment, with the ultimate object, if the result should be favorable, of extending the system throughout the city. By a singular mistake, the *Revue Industrielle*, in its description of M. Berlier's plan, asserts that it is already employed at Amsterdam and at "Memphis in America;" adding its opinion, which seems to be entirely justified by facts, that there are systems in use which would be much better suited to the circumstances of Paris. In Amsterdam the pneumatic tubes are found to become coated with filth, and although perhaps less offensive than the "fosses" of Paris, they would not be endured for a moment in cities which had once become accustomed to a good water-carriage system.

THE *Société Industrielle* of Amiens, with a view of promoting industry and improving processes of manufacture, offers a number of medals and prizes to the authors of the best inventions and treatises relating to various specified matters of construction and the mechanic arts. Some of the problems whose solution is to be thus rewarded may be interesting to our readers. The first series of programme, that of mechanic arts, offers gold medals for models or drawings and descriptions of an improved machine for crushing the harder materials employed in manufactures; for a good water-meter for steam boiler or public water service; for a convenient and compact dynamometer; for a speed indicator which shall show at any movement the actual swiftness of rotation of a shaft or wheel; for a plan of a working-men's dwelling-house suited to the city of Amiens; for an inexpensive process of maintaining the atmosphere of weaving and spinning rooms at a determinate degree of hygienic saturation without inconveniently affecting their temperature, and for a simple means of measuring the quantity of water carried off with the steam from boilers. In the department of Agriculture, Natural History, Physics and Chemistry, gold medals are offered for the best mode of improving the quality of water supplied to towns and manufacturing establishments; for any manufacture of pottery for use in laboratories equal to that of Messrs. Doulton, of London; and for various essays on matters relating to the statistics of industry in the North of France.

AFTER a good deal of trouble and litigation the "inner circle" of the London Metropolitan Railway is in a fair way to be immediately completed. The main line, although it passes for the most part under streets and buildings of no very great importance, is said to have cost as much for legal expenses as for all the work of tunnelling and construction, and the new line has had to encounter even greater opposition, if not intentional extortion. As it is, it has only purchased an unobstructed route by undertaking to lay out new streets and to widen old ones under which its tunnel runs, at a total expense of about four million dollars. The railway is, however, regarded as of so much value to the city, in improving the communication between the different portions, that a subvention of four million dollars of public money will be contributed, a part in the shape of a donation from the Metropolitan Board of Works, and the remainder by the Commissioners of Sewers. The idea that an increase in the facilities afforded for communication between the different districts of a city is a public benefit, and should in case of need be promoted by the contribution of public funds, is quite strange to us. Liberal subsidies have in times past been given to railways intended to develop new farming lands in the West, but the day even of these has gone by, and city underground or elevated lines are regarded by public officers rather as objects to be plundered than as important factors in the growth and prosperity of the town which enjoys the benefit of them. Nothing is, however, more certain than that every improvement in transportation adds to public comfort and health, and to general business activity, and that unnecessary time spent in transit between two points is so much subtracted from the effective period of each man's life.

THE EMPLOYMENT OF OXYGEN IN PURIFYING SEWAGE.

THAT the supply of oxygen gas, whether in that form, or in the state of ozone, is one of the most efficient, perhaps the most efficient, means of restoring the purity of the atmosphere, we think is indisputable. We see the effect of a powerful dose of oxygen in the case of the application of the liquid known as Condé's disinfecting fluid, the action of which on tainted water or sewage is so direct and certain. In fact, for purifying water from organic pollution, the supply of oxygen may be regarded as the one specific. This is the secret of the action of gravel or sand in purification of polluted water. Oxygen is admitted into direct contact with the particles of foreign matter in percolation, and, in point of fact, consumes them. So it is if oxygen is thrown into the polluted fluid chemically, as by means of the fluid we have named. The action of the oxygen is the same, whether it be mechanically or chemically supplied. But the supply of oxygen to a vitiated atmosphere has been hitherto less studied than its application to polluted water.

The question of cost of production has stood much in the way of the utilization of oxygen for sanitary purposes. M. E. Guitton, who is the inventor of a new process for the production of oxygen, contemplates the manufacture of his gas at the price of half a franc per cubic metre and less in large quantities. This is just one per cent of the price which the French theatres now pay for a supply of the gas. A cubic metre contains 35.35 English cubic feet. Thus, ordinary coal-gas, at 3s. 3d. per 1,000 cubic feet, costs about 1½d. per cubic metre; so that M. Guitton proposes to reduce oxygen to less than the price of coal-gas. It is evident that, if this can be done, an immense step will have been taken in the progress of sanitary application.

It has long been known that barytes possesses the power of absorbing oxygen from the atmosphere at a certain temperature, and giving it out again at a higher temperature. But the practical difficulty that has hitherto interfered with the utilization of this property is, that after a certain number of repetitions of the process (about ten) the material used becomes inert, and incapable of continuing the same operation. The improvements introduced into the process by M. Guitton consist in (1) the preparation of the air, by the removal of carbonic acid and the supply of moisture, in order to render it easily decomposable by the barytes; (2) the use of pumps or fans to facilitate the peroxidation of the barytes; (3) the employment of a vacuum, or exhauster, for the extraction of the oxygen from the oxidized barytes; (4) the application of great heat, under the guidance furnished, by a special pyrometer; and (5) the preparation of the barytes itself.

The process is now being carried on at Passy. With an average of ten charges per day, forty cubic metres of oxygen are obtained from one hundred kilogrammes of barytes. The gas obtained was ninety-five per cent pure oxygen. The five per cent remainder was nitrogen, probably furnished by the atmosphere, owing to some defects in the apparatus. The cost was 0.619 franc per cubic metre; but with increased production it is estimated that it can be reduced to 0.127 franc per cubic metre, or 34d. per 1,000 cubic feet. Oxygen made from chlorate of potash and binocide of manganese costs 12 francs per cubic metre.

The uses to which an economic supply of oxygen can be advantageously put are many. If it be applied to the combustion of charcoal, or of mineral oil, a splendid light is produced, at about one-third the cost of Paris gas. As to its application to the purification of the atmosphere, whether of rooms or of streets, we have to await experiment. But it is, in our opinion, a matter deserving the most serious attention to consider how far the boon which the talent of M. Guitton has supplied to industrial chemistry may lead to a solution of the most pressing and most perplexed of the sanitary questions of the day.

Of that foul and noxious flood which the Metropolitan Board of Works is now constantly pouring into the Thames, the poisonous and useless element is the organic matter, in various states of decomposition. Of the solid and liquid elements of sewage, apart from the water used as a carrier, the organic portion forms respectively 4.62 and 4.15 per cent in weight. The ordinary dilution (exclusive of that by storm-water) is from 90 to 100 to 1. Thus out of 10,000 parts by weight of ordinary sewage, the poisonous element may be taken as 4½ parts. If this be removed or destroyed, the other foreign matters, mineral and gaseous, are not only unprejudicial, but have a chemical value of something over 4s. per unit of population per annum. And the sewage utilization problem is, how to extract this fertilizing matter at a less cost than its agricultural value.

So serious has every experimenter found the cost of such extraction to be, that the idea of sewage utilization, except under very favorable conditions, is gradually losing supporters; and it is indeed felt that the endeavor to secure a commercial value has greatly interfered with the progress that might otherwise have been made in the more urgent requisite of disinfection. For a considerable time our own opinion has been more and more steadily pointing to the conclusion that precipitation, filtration, and actual combustion of the solid deposit of sewage would have to be resorted to sooner or later. And as to this, the fact that the poisonous organic matter is itself combustible has led us to consider how far dried sewage may be made to consume itself, with but little extra fuel.

But if it be possible to drive through a volume of sewage a current

of oxygen gas, the combustion of the organic matter will be effected in the most ready and complete manner. In point of fact, if a sufficient quantity of Condé's fluid were mixed with a stream of sewage, the results would be admirable. The barrier, of course, is the expense. The possibility of supplying pure oxygen is therefore to be regarded, not so much mechanically as financially.

Here there comes in the question, if oxygen can be supplied at less than the price of ordinary coal gas, does it not afford us what we require? Under any circumstances, it is the combustion of the organic matter which is the great aim we have in view. Is it likely that this organic matter, when once it has been collected in great unmanageable reservoirs, can be more cheaply destroyed in any other way than by admitting to it as it exists in solution or mixture in the sewage the dose of oxygen necessary for its combustion?

As to the cost, it is, no doubt, considerable. But the point to consider is,—can the object be attained by any cheaper method? That we shall long go on polluting the Thames without stint we do not conceive to be possible. The nuisance is becoming intolerable, and pestilence will follow if it is not abated.

Ordinary albuminous matter requires about nine times its own weight of oxygen to consume the hydrogen and carbon which it contains. In 10,000 gallons, or 100,000 pounds of ordinary sewage, there is, as we have seen, about 45 pounds of organic matter. To consume this is requisite 400 pounds of oxygen. Now 11.89 cubic feet of oxygen weigh one pound, so that 4,760 cubic feet of this gas will be required to consume the organic matter in the 100,000 pounds of sewage. The cost of the gas, on M. Guitton's showing, will be about 13s. 6d. The 10,000 gallons of sewage may be taken as roughly equal to the proportion per unit of population; and the chemical value of the mineral elements of the sewage has been some time back estimated at 4s. 8½d. per unit of population. Thus if the actually poisonous matter be destroyed by the admixture of oxygen, the mineral elements will remain in a condition in which they may be dealt with without danger and without disgust, and at least a third of the cost of the process may be recovered from the results.

This is not so brilliant an outcome as has been often anticipated. But the question is, can anything be substituted which is cheaper, and equally likely to be effective? We desire to put forward the suggestion with all reserve. It is one which demands not only reflection, but experiment, in order to determine its value. But we confess that a great reduction in the price at which oxygen can be produced seems to us, at all events, to cast a ray of light in the direction in which we have been for some time straining our eyes. It is this ray that seems to us to emerge from the process of M. Guitton. We may be wrong. We may be too sanguine. But we feel convinced that the idea is one which should not be either scouted or neglected. It would, no doubt, require sustained experiment on a considerable scale to ascertain how much more than the quantity of oxygen than on paper would be fully equivalent to the combustion of all the organic matter in a given volume of sewage would be practically necessary in order thoroughly to purify that volume. The bit of experience which is most conclusive in our minds is the magical action of the fluid we have mentioned, which is much too costly for use on a large scale. But we call the attention of those of our readers who, like ourselves, have been long studying this great problem of civilization, with good hope of some wholly unexpected solution. And we invite the ingenious author of the process (whom we only know from the pages of the "Resumé de la Société des Ingénieurs Civils," and from the "Minutes of Proceedings of the Institution of Civil Engineers,") to add any contribution that his own experience can suggest to our attempt at a fresh step towards a definitive solution of perhaps the most vexed problem of civilization. — *The Builder*.

BUILDING AT HARTFORD, CONN.

HARTFORD, CT., October 13, 1881.

To the former chronicles of professional law-suits for architectural service another can be added which came under the notice of the writer, affording, as it does, an example of the "unexpectedness" of Hartford law, to which in architectural matters we are now becoming accustomed. In this instance it is refreshing to learn that the architect was the gainer. A school committee was empowered to secure and submit plans for a new school-house, and an architect prepared the same, which were duly presented for consideration. The membership of the committee was afterwards increased, and the balance of power was found to be in the favor of a second architect, whose plans were accepted and afterwards executed, the first one being unremunerated for his labor. He promptly sued the committee, and although the case was in court and the trial delayed, still, we are happy to state that a settlement was finally effected, the district paying the sum of two hundred dollars, which, although not a full compensation, serves as a slight check on the inane belief that drawings are of no value, if their proposed execution is frustrated.

Aside from a vast amount of work coming under the head of "alterations and improvements," the past season has witnessed considerable activity in building operations, both public and private, in and about Hartford. The most favored portion of the city for the erection of dwellings has been upon what is known as Lord's Hill, where marked changes have taken place since the opening of the year. A large residence for Mr. S. G. Dunham, upon Asylum Avenue, from plans by W. C. Brocklesby, is now building. It is of brick and Portland-stone, with gable faces and portion of siding finished

with shingles, and embellished with carving. The house has a frontage of 60 feet and total depth of 62 feet, and is three stories high. The interior will be handsomely finished in native woods. The house is finely placed in a natural park, surrounded by ample grounds. Upon the same avenue Mr. Trumbull, an artist, is building a cottage of brick and wood with half-timber work at gables, the designs being furnished by Mr. Keller of this city, who is also executing several out-of-town commissions, including houses at Simsbury and at Deep River, Conn. A striking design by Messrs. Kimball & Wisedell, of New York, is seen in the residence of Mr. Franklin Chamberlain, upon Farmington Avenue. The materials used in construction are a Connecticut granite from Stony Creek for the ashlar, with a finish of red brick used for belt-courses and for window-heads, jambs, etc. The chimneys are of an ornate character, and the roof picturesquely diversified. The interior of the house shows a generous hall and rooms of ample proportion so arranged that a good "vista" is obtainable at many points.

Close by this house is that of Mr. Clemens (more familiarly known as "Mark Twain.") which has lately been altered by Mr. E. T. Potter, of New York. The house is the first one in this city—if we rightly remember—where the brickwork was laid up with red mortar; the wood-finish was also of a reddish cast, and, as if not content with the general redness, the walls were treated to an ornamental belt of vermilion paint, which has just been retouched so as to shine with all its pristine glory, and to emphasize the remark of a local wit that the dwelling looked as though it had been "tattooed!" The grounds about Mr. Clemens's house have been vastly improved by an addition on the east, concerning the purchase of which there hangs a tale. The ground in question, as the story runs, was pressed upon him by a neighbor, but he declined to buy. The neighbor talked of building, and suggested to "Mark Twain" that he would locate his barn at the fence line between the two places, and before the main entrance of "Mark Twain's" house. This was considered a scare, and with that habitual drawl for which the humorist is noted, he said he would not buy the lot "if a candle-factory was built on it!" But to give a more realistic air to the building suggestion excavations were begun and the axe placed at the trunks of the lofty trees, when the owner of the vermilion bands rushed forth, and stopped further proceedings by buying the ground, and now he consoles himself with the twain thoughts that he has improved his own property and also the neighborhood, as he gazes at the ornate chimneys and the granite pile of his politic neighbor. The interior of Mr. Clemens's house is to be decorated by Messrs. Tiffany & Co., of New York.

Along the line of Asylum Avenue other houses attest the building activity of the season, among them one for Mr. Gross from plans by Mr. Mead. The house is of brick and brownstone, and is conspicuous for its treatment of a bay-window, which in the upper stories is finished as a tower.

A new dwelling-house on Garden Street, from designs by Mr. Brocklesby, is now well advanced and will be completed in the spring. It is built of brick, with stone finish at the first story, a portion of the second story being treated with red tiles, which will also form the gable finish. The interior shows novelty of treatment, especially in the large staircase hall, where carved work will form a conspicuous feature. The rooms will be finished in cherry, ash, and other handsome woods. Plans by the same architect are also being prepared for a house on a lot adjoining the one above mentioned. It is to be erected for Dr. G. W. Avery, of this city, and will be brick and brownstone, with a large proportion of shingled work at the second story.

In the matter of new public buildings, the most important structure, regarding size as well as architectural appearance, is the Goodwin Block, on Asylum Street, begun last spring. The block measures 100' x 110', and will be four stories high. The façades are rich in detail and illustrate the possibility of satisfactory use of terra-cotta and pressed brick, the former being extensively introduced, to the exclusion of the ordinary stone finish. The terra-cotta is of Boston manufacture, and has, we believe, proved of excellent quality, both in color and workmanship. The grouping and distribution of windows have been carefully studied, and throughout there is evidence of much thought in the design. At its upper portion the building is finished with brick, and terra-cotta dormers relieving the roof lines. The block will afford large and convenient stores on the ground floor, the stories above being planned for offices. It will not be finished until next spring. The architects are Messrs. Kimball & Wisedell, of New York.

The great architectural elephant of Trinity College has taken another step, this progress being due to the generosity of one of the trustees of the institution. One more building out of the vast scheme which was laid out by this institution a few years ago is now being built. It is known as "Northam Hall," after the giver, and technically as the "Gateway." It will form the connecting link between the two long blocks which were completed some time ago, and will rise to a considerable height above the adjoining roofs, and with the completion of the structure the west line of the large quadrangle will be finished. The "Gateway" is some sixty feet wide, with a drive-way of ordinary width, through the centre, passing beneath an arch on either side of the building, which also affords an approach to the entrance-doors opening on the right and left. The upper portion of the building is finished on the east and west with central gables flanked by square towers with pyramidal roofs,

and the two façades are pierced by artistically grouped windows, the harmony and characteristic features of the already completed parts of the original design being fully displayed. The materials of the Gateway are the Portland and the Ohio stone, the latter profusely used for finish. The building, beside affording a handsome approach to the future quadrangle, is designed for students' rooms, some of which will afford the most ample accommodation. The foundations and walls of the Gateway were built to the water-table when the adjoining blocks were erected, and work at this point was resumed last July, but the building will not be ready for occupancy before the summer of 1882.

The subject of a county building to be built in this city has been agitated for some time past, the chances of the structure becoming a reality being better at this writing than they were last year, the weighty question of an eligible site having practically been settled. The lot selected is upon Trumbull and Allyn Streets, near the Allyn House, and accessible from the depot. The lot has a frontage of over 100 feet and a depth of 214 feet. It is thought that the demands and requirements of the county will call for the expenditure of no inconsiderable sums, and, following the precedent of the State capitol proceedings, a limited competition will probably be the order of the day, notwithstanding the suggestions kindly made to the county commissioner by a builder-architect (through the medium of the local press) to employ one architect and establish a series of itinerant picnics in which the commissioner, pioneered doubtless by himself, should journey from city to city, and from town to town, studying architecture by the way, with special reference to county buildings.

CHETWOOD.

PIERRE CHARLES L'ENFANT.

THE New York *Tribune* some time ago published the following very interesting account of a personage whose name is familiar enough, but whose personality has hitherto been an unsubstantial shadow:

About five miles from the city of Washington, on what is called the Sligo Branch of the Anacostia River—otherwise the Eastern Branch of the Potomac—is the large stone mansion of George Riggs, the Washington banker. It replaces a frame building two stories and an attic high, and of long and peculiar construction, which was torn down some time previous to 1850. Here lived, through the closing months of his life, Major Pierre Charles L'Enfant, the first architect and civil engineer of any consequence in the United States.

It was he who designed the Federal Hall in New York City, or rather transformed an old building which had stood there, and adapted it to the uses of Congress, in 1789. The artistic resources of the new Government were then so poor that it was thought fortunate that there was in America a man with the capacity to put up an architectural façade. For that work he was given ten acres of ground in the city commons, comprising some of the richest real estate in the world and undoubtedly worth millions, perhaps tens of millions, now; yet by that system of oversight and ingratitude so often noted in popular governments, the old man never actually received a foot of the ground, and no money, for his pains.

L'Enfant also was sent to France by the Society of the Cincinnati, on one of the vessels of Robert Morris, to arrange for the engraving of the gold badge of that society, and he received its thanks in an elaborate paper, sealed with its seal, making him a draft for a sum of money. The writer has held the paper in question within a day or two, and the old man has written on the corner; "The draft voted was never drawn, nor any equivalent to it."

The next step of Major L'Enfant was to design and commence the erection in Philadelphia of the most ambitious house which had then been put up in any city of the country—that of Robert Morris, the financier. It gives the first instance ever seen on the Western Continent of Mansard roofs, which a century afterwards became so common here. The building was never finished, the estimates being too large, and the owner's money too irregularly forthcoming. While he was at work on this house, the President and Secretary of State selected him to plot the site of the Federal city, which he had completely done on paper and partly done on the landscape when he became involved in quarrels with the rapacious lot holders of Washington, and was discharged because he would not let them take advantage of his design and buy where they pleased to the prejudice of future public architecture.

The last work of Major L'Enfant was to design the fort now called Washington, on the Potomac River nearly opposite Mount Vernon, during the war of 1812. While here, his acquaintance with the proprietor of the ground, Mr. Thomas Digges, became intimate, and at the close of the war he remained on his farm as the superintendent and friend of the owner, and had nearly reached his seventieth year when his infirmities were relieved by death, and he is now buried in the garden of Riggs's farm, among myrtle vines, under some cedar trees.

The prominence of Major L'Enfant's name, as the planner of the capital city—which plan for so long a period was condemned as utterly extravagant, and has more recently been as extravagantly praised, as its perspectives and landscape effects come out in the tracery of houses and trees, may have led the reader to suppose that all the particulars of his life are well known. On the contrary, he is one of the most obscure characters in American annals. Although appointed by President Monroe professor of Engineering at West Point, the industry of General Cullum, in his three large volumes of

the biography of the institution, has been unable to tell his birthplace. At his death, his letters and papers were appraised, with all his other effects, at the total value of some \$42, and instead of falling into the hands of the Government, they were taken at the valuation by Mr. William Dudley Digges, and probably few persons have ever looked them over.

The writer's interest in the subject arose from a desire to write a Christmas story on the pathetic circumstances of the old Major's lonely decease, and fearing that from ignorance offence might be offered to some of the descendants of its projectors, inquiry was made if any of the Digges family was still alive. L'Enfant died in the spring of 1825, and in the interval of fifty-six years it was probable that the Digges family had been no exception to the usual mortality of old people on the western peninsula of Maryland, who are commonly said to die on the spot of their origin, preceded by the tumbling ruins of their old tobacco sheds. It was found, however, that a Mr. Digges was living under the benevolent care of one of the pretty institutions which have sprung up around the capital city. Another direct descendant of the family was the wife of Dr. James E. Morgan, a prosperous physician of Washington. Calling at this house, arrangements were made for the writer to look over such portions of L'Enfant's papers as had been arranged, and he was told that there was a large bag-full not yet ransacked.

Examining these papers several hours one evening, the story of the old man began to take lineaments and associations. It does not appear from what portion of France he came, but that he was a young officer in the French line — probably born 1758 — who came to America some time about or after 1777 is plain. He was wounded at the assault on Savannah under the Count d'Estang, thrown into the ditch and made prisoner, and in 1782 was exchanged for Lieutenant De Heyden, of the Anspach Yagers. His parole in French and English is extant. As most of the French contingent set sail from America soon after this time, Lieutenant L'Enfant became in a measure distinguished as a voluntary resident, perhaps citizen, of the country, with a variety of ornamental knowledge, more taste than was fashionable, and considerable suggestiveness as to public monuments. He became Major of Engineers 1783.

At that time Philadelphia was the most flourishing city in the country, and had become the seat of what was virtually the United States Bank, the creation of Robert Morris, to supply the Government with money and promote investment and exchange.

During the Revolutionary War Morris was at once the Salmon P. Chase and Jay Cooke of the Government, conceiving the schemes of credit and borrowing money with his own hand to execute them, and meantime he was a merchant also, and must have had a great advantage over his private contemporaries. Although his honor remains unquestioned, many of his processes were subject to investigation, and not all the efforts of his historical executors are able to obliterate the fact that he finally passed into obscurity in that City and State of which he had been the first Senator to the United States, and, as there seems to be no doubt, the nominator of Alexander Hamilton for General Washington's Cabinet.

It seldom happens that a man with the unlimited powers of a Fiscal Minister in time of war is able to conduct his private business at the return of peace with the frugality and coolness that had marked him before the conflict. Morris was no exception to the rule; nearly everything he undertook after the peace seemed to be extravagant and unsuccessful. The immediate cause of his downfall and imprisonment for debt was his reckless speculation in the public lands of the different States, which were hastily disposed of under the Government of the Confederation. He possessed the finest tracts of land both in Western New York and Western Pennsylvania, and, living on the scale of his prospects, he planned an elaborate mansion on Chestnut street, Philadelphia, taking up the whole square between Eighth and Ninth streets, and back to Sansom and Walnut streets. Major L'Enfant, then no more than thirty years of age, undertook to build this marble mansion for Mr. Morris for the sum of \$60,000, though it appears that no contracts were made. The marvelling diary-keepers of the period say that the cellars under the house were "three stories deep," probably an exaggeration of the idea that good provision was made for wine there. Pictures extant of the house show an oblong building altogether unlike the house of that day, but much like those of the present, with pavilion projections at the corners, recesses for architectural porticos and the steep French roof of the present date. Long before the house was done, its owner was in jail, and the correspondence between him and Major L'Enfant shows that he had invested the latter's salary and emoluments in the shares of the bank, where they were lost in the common ruin. At this time, however, the young Frenchman was too much engaged in the gay society of foreign speculators and American politicians and promoters who thronged Philadelphia, to exclaim against his loss. In after years he wrote bitter letters to Robert Morris, who was then lying in the public sponging house, harassed between his hopes of profit and his fears of the small-pox — which had broken out in the jail — and his letters to the Frenchman show an humble though polite spirit.

When the new Constitution was adopted and about to go into operation, in 1789, New York was at first selected to be the seat of Government, and the people resolved to transform their old City Hall, at the head of Broad street in Wall street, then about ninety years old, into a Federal Hall to accommodate Congress. The occasion required a man of quick eye and executive talent. L'Enfant stepped for-

ward. Wall street had been made important by the City Hall, which originally was a two-story building with a cupola surmounted by a clock and with low guard windows in the roof. The portal was low to the ground, or about three steps above the pavement, and consisted of three arches, over which was an open balcony on which the central window opened like a door. The corridor below extended to the rear, and on the left, going in, was a fire-engine and a dungeon behind it for criminals, and on the right was a stairway and behind it the keeper's room. The centre of the second story was a court room, with a jury room above the engine-house and the Common Council room on the other side. The debtor's prison was in the garret. Right opposite the front of the building, across Wall street, were a cage, pillory and stocks.

Major L'Enfant took this recessed building and filled up the centre with a portico of two stories and a pediment, over which was an eagle. He raised the upper story and gave it the appearance of an attic, and heightened the roof and extended it back, and also deepened the building, and crowned the whole with a more effective cupola of two stories. It was on the balcony of this central portico that General Washington appeared before the crowd and took the oath, in the presence of such men as John Adams, Oliver Ellsworth, Robert Morris, Fisher Ames, Daniel Carroll and Charles Carroll. This first capitol of the United States was torn down about 1812, while the present City Hall was in course of construction, and the lots on its site were sold for about \$8,000 apiece four years later. The corner lot became first the site of a bookstore, next a Custom House, and finally the Federal Treasury. The Mayor of New York, William Duane, wrote a most complimentary letter to Major L'Enfant on behalf of the freemen of the city, making him a freeman and giving him, as has been said, ten acres of ground on "the commons." At that time this land was not considered immediately available, and the young Frenchman did not take it up, but seems to have preferred a money compensation instead, and there are various letters from Alexander Hamilton, Robert Morris and other men of note, counselling him about his compensation. It would appear that he finally got next to nothing, if anything, for his pains.

The capital was removed from New York to Philadelphia, and with it New Yorkers lost their interest in the architect and sense of gratitude to him. In Philadelphia, L'Enfant was the most privileged guest of Morris, who had deepened and improved his acquaintance in New York when attending the First Congress. The building of the great house called Morris's Folly was the result of this acquaintance. Its materials were finally used to build other houses, and the unfortunate projector never inhabited it. There is no doubt, however, that the example of L'Enfant had a considerable influence upon the public taste of the colonies, and brought rivals into the field. About that time the Philadelphia Library, which still stands on Fourth street, at the corner of Library street, was designed by William Thornton, an Englishman and a clerk in one of the public departments. Mr. Jefferson was then Secretary of State and ambitious to be regarded as an authority in matters of taste and construction.

The moment it was resolved to build a capital on the Potomac River, Morris and half a dozen business men who took the "point" from him, jumped into the speculation for lots there, and they perhaps relied on Major L'Enfant to advise them as to the best grounds to select. In the interim the relations between Morris and L'Enfant had become extremely intimate. The Society of the Cincinnati was too poor to pay the Frenchman's expenses to Paris, and Morris had got him passage on one of his packets. The Major had returned April 28, 1784, to New York, after a voyage of forty-three days. His promotion to be the engineer of the new Capital City awoke in L'Enfant emotions of vanity and insubordination, partly to be ascribed to his self-confidence and partly to his disgust at the universal rapacity which considered him as a mere auctioneer of lots to serve the greed of trades people and farmers. Although the site of Washington looked very engaging to the eye of the tourist from the opposite hills — who imagined that its flatness would dispense with costly grades and engineering — yet it was in reality a mere gully, the alluvial overflow from the hills of Maryland, brought down by the heavy rainfalls and creeks. Much of it was a swamp, and the engineers were persecuted with insects and malaria, with mud and extortion, with foolish questions and more indolent criticisms. The principal parties on the work were Ellicott, the surveyor, and his assistant, the negro almanac-maker, Banneker, and Major L'Enfant, the engineer, and his corps of officers. One of these, a young man named Roberdieu, drawing his impulses from L'Enfant, was guilty of numerous acts and words of recklessness, which went to the prejudice of his superior. L'Enfant was considered a mere plotter of the profile and draft of the city, and he was responsible to three Commissioners, generally resident in the neighborhood, and interested in the land.

The celebrated family of Carroll, which had overspread Maryland and become opulent through the influence of one of their number who was surveyor to Lord Baltimore, possessed a large estate called "Duddington" immediately around the new Capitol building. Without any regard to the plans of the engineer, they had begun the construction of a large brick house in the middle of one of his streets. Considering himself a military officer, responsible only to the Government and not under obligation to go to Marlborough or Annapolis and await justice in the State courts, L'Enfant and his assistants attacked the new house and razed it to the ground, whereupon came

grave letters from General Washington, warning Major L'Enfant that he and everybody were subordinate to the common and neighborhood law. There are a number of such letters in the hands of Dr. Morgan, all valuable autographs and indicative of Washington's quality of mind. There were also letters from Jefferson, written in his delicate style, pleading with the engineer to understand and subscribe to the condition of things. Even old Davy Burns, who owned the farm where the White House and Treasury stand, is on record among these letters.

Finally L'Enfant lost his place, though he had finished the plot of Washington, by refusing to give up his plan to be examined by the commonalty, that they might buy lots at the regular sales wherever they listed. The Frenchman's criticism was that they would immediately leap upon the best lands in his vistas and architectural squares, and raise huddles of shanties which would permanently embarrass the city. Such insubordination Washington was in no frame of mind to permit, and at his order Jefferson wrote to the architect that his services were at an end.

A period of twenty years now ensues, in which this unfortunate genius almost disappears from sight, except through the medium of these letters. Hamilton writes him several times to come to dinner or supper, and discuss some question of taste. Secretary of State Monroe is particularly solicitous to lift the old man out of his misfortunes and give him a reliable support. The Society of the Cincinnati had never settled L'Enfant's claim, and the various officers of it write kind but ineffective letters, bemoaning his condition. Monroe appointed him a professor at West Point and earnestly entreated him to accept the situation, giving him at the same time his old rank of Major of Engineers, but on the copy of his commission the old man has scrawled the words: "Not accepted, but not refused." With a delicate artistic and military nature, he would seem to have been constantly fearing that he might do something to disparage his rank, and he preferred that the country should be ungrateful to him, rather than take less than his due. He was not without money all the time, and the schedule of his effects and bills shows a liberal allowance for wines at the army and social clubs of that day. He was for a while particular in his attire. In one of his bills is mentioned a surtout of light brown duff and a satin vest, lined with flannels. He had many suits of nankeen. Most of the time, however, he wore a long surtout of blue or green, with a bell-crowned hat. He was a bachelor and could get along on a small amount of money, especially under the hospitable conditions of that day, though the decline and poverty of slavery were rapidly bringing about a new generation possessed of neither the delicacy nor the means of their predecessors.

When the war of 1812 broke out and the British appeared on the Potomac, it became necessary to build a strong fort on that river, about ten miles below Washington. Secretary Monroe selected L'Enfant, and particularly cautioned him that "his critics had said he was too expensive and too slow" in his constructions. The Major planned the work, but in a short time became restive under some of the surrrounding conditions, and finally he was mustered out of the service. Thenceforward, for about seven years, he remained most of the time at Warburton Manor, the seat of Thomas Digges, within a few rods of the fort he had built. Some of the bricks and stones of the Digges house are still to be seen near Fort Washington, and also the graves of the proprietors, buried according to custom in one of the fields.

Thomas Digges died in 1821, and then began the old Major's troubles with collateral members of the family. Among them was Mr. Digges's sister, who laid claim to a part of the estate, and finding L'Enfant querulous or in the way, she made it unpleasant for him, whereupon the late Mr. Digges's nephew, William Dudley Digges, who lived at Green Hill, to the north of Washington, wrote to the Major to make his home at the latter house. He sent horses and a wagon to transport his effects, and about 1824 the old officer, then on the verge of seventy years, repaired to Green Hill. There, in the spring of 1825, Major L'Enfant was buried, and in the latter months of his life he is remembered walking around the garden, smelling of the flowers and looking at the sky. No stone has yet been put over his remains. Near by him is buried an army officer, the son of the lady who claimed Warburton Manor. This young man gave promise of great legal ability, but from some cause unknown he lost his peace of mind and cut his throat. He is interred by the side of the engineer of the capital, who will, perhaps, at some future day, be the subject of a public statue in one of the squares of Washington.

THE ILLUSTRATIONS.

DESIGN FOR THE PROPOSED TRADES HOUSE, GLASGOW, SCOTLAND. MESSRS. JAMES SALMON & SON, ARCHITECTS.

This design is copied from the *Building News*.

DESIGN FOR A HOUSE. MR. A. CLEEVES, ARCHITECT, OMAHA, NEB.

GATE OF THE AGORA. SKETCHED BY MR. F. H. BACON, NEW YORK, N. Y.

CHILDREN'S HOSPITAL, BOSTON, MASS. MESSRS. W. T. WINSLOW AND G. H. WETHERELL, ARCHITECTS, BOSTON, MASS.

AMERICAN INSTITUTE OF ARCHITECTS.

MEETINGS OF THE BOARD OF TRUSTEES.

SPECIAL meeting, August 30, 1881.

The Secretary produced a letter (of which copies had previously been forwarded to the Trustees) from Mr. George Keller, A. A. I. A., of Hartford, Conn., detailing transactions with a committee of the Common Council of Buffalo, N. Y., in relation to a soldiers' monument. . . . Mr. Congdon presented a series of minutes which, after prolonged discussion and a number of omissions and amendments, were adopted, as a preamble and resolutions, as follows:—

"The Board of Trustees of the American Institute of Architects, presuming the accompanying letter of Mr. George Keller, A. A. I. A., of Hartford, Conn., to be the correct statement of facts relating to a design furnished by him to the Committee of the Common Council of Buffalo, N. Y., for a soldiers' monument, have duly considered the matter as a question of professional practice, and resolve as follows:—

"If, as alleged, Mr. Keller's design was selected, two years ago, by a Committee of the Common Council of the City of Buffalo, N. Y., for a soldiers' monument, and the report of said Committee was adopted by said Common Council, and the monument authorized to be built, they are in honor bound to carry it into execution under the superintendence of the architect of the design, at the usual rates of compensation, as per schedule of charges A. I. A.

"The Committee, in rejecting Mr. Keller's design, after having adopted it two years ago, and in appointing a sub-committee to ascertain if a better design could be obtained (while still retaining Mr. Keller's original design, and notwithstanding a majority were still in favor of his design at a second competition), without giving him notice that the competition was abandoned, have, in the opinion of this Board, acted unjustly to Mr. Keller as an architect, and brought discredit upon the whole system of competition, which requires the utmost fairness in its detail to make it anything but unacceptable to the best interests of the profession and of the public.

"We would also state that, in the opinion of this Board, taking into consideration the circumstances of the case as stated in the accompanying letter of Mr. Keller, professional courtesy should prevent any interference with just rights while this matter is in its present unsettled state."

Regular monthly meeting, September 20, 1881.

The Secretary produced a mass of correspondence with candidates and inquirers, arising from the distribution of the Trustees' circular of July 1, inviting renewal and increase of membership; also acknowledgments of election from Messrs. Lloyd, Chas. Elliot Norton, and J. H. B. Latrobe.

The Secretary presented a paper in accordance with his instructions to reduce to homogeneous shape the written definitions presented by various Trustees, of the meaning of the word superintendence, used in the Institute schedule. After debate and amendments, the following form was adopted:—

"In answer to inquiries, it is the opinion of the Board of Trustees of the American Institute of Architects that the supervision or superintendence of an architect, as distinct from the superintendence of a clerk of the works, means such occasional inspection of a building in process of erection, or of other work, as the architect, personally or by deputy, finds necessary to ensure its being executed in conformity with his designs and specifications or directions, and to enable him to decide when the successive instalments provided for in the agreements are due and payable. It includes, among his other duties, the exercise of authority to stop the progress of work condemned under it, to decide in constructive emergencies, and to order necessary changes."

A. J. BLOOR, Secretary.

MODERN HOUSE PAINTING.

THE reign of color which is making itself so visibly felt among us here in America, is making strides in exterior house decoration, which those not wholly interested in it may not notice, but the man who loves color and who has that sense of love partially gratified in this particular, hails with joy the sight of any deviation from that much-trodden path of white houses and green blinds, or the sickly tints which have embodied the previous ideas of color. We in America have the advantage over the English in this matter, as in England they are under the necessity of building for the most part with stone, while we, building with wood, are compelled to paint it in order to preserve it. But little thought has until lately been given to this subject, which is now open to most endless artistic treatment. Many are the architects who have carried out all the ideas which were once dreams, and before them see a house all built, the consummation of their hopes; then the coloring of this house has broken the spell, and the whole beauty of the exterior is destroyed by the painting. The architect has been at the mercy of the ignorant house-painter. But a radical change is taking place, and one only needs to notice the houses built during the past two years to feel assured of future successes. Much of this success is due to the architects who have built for the richer classes at such places as Newport and Mt. Desert, for they have been allowed to carry their ideas into the interior decoration, and last of all, the painting of the outside of the house has become a study which is bringing genius to bear on one of the trades which has heretofore only demanded for its craftsmen men of no education or art culture. There are, of course, a great many colorings and combinations of color being painted on houses to-day, attempts of the new school, which are miserable in the extreme; but it is always so in any deviation from an old rule. There will be

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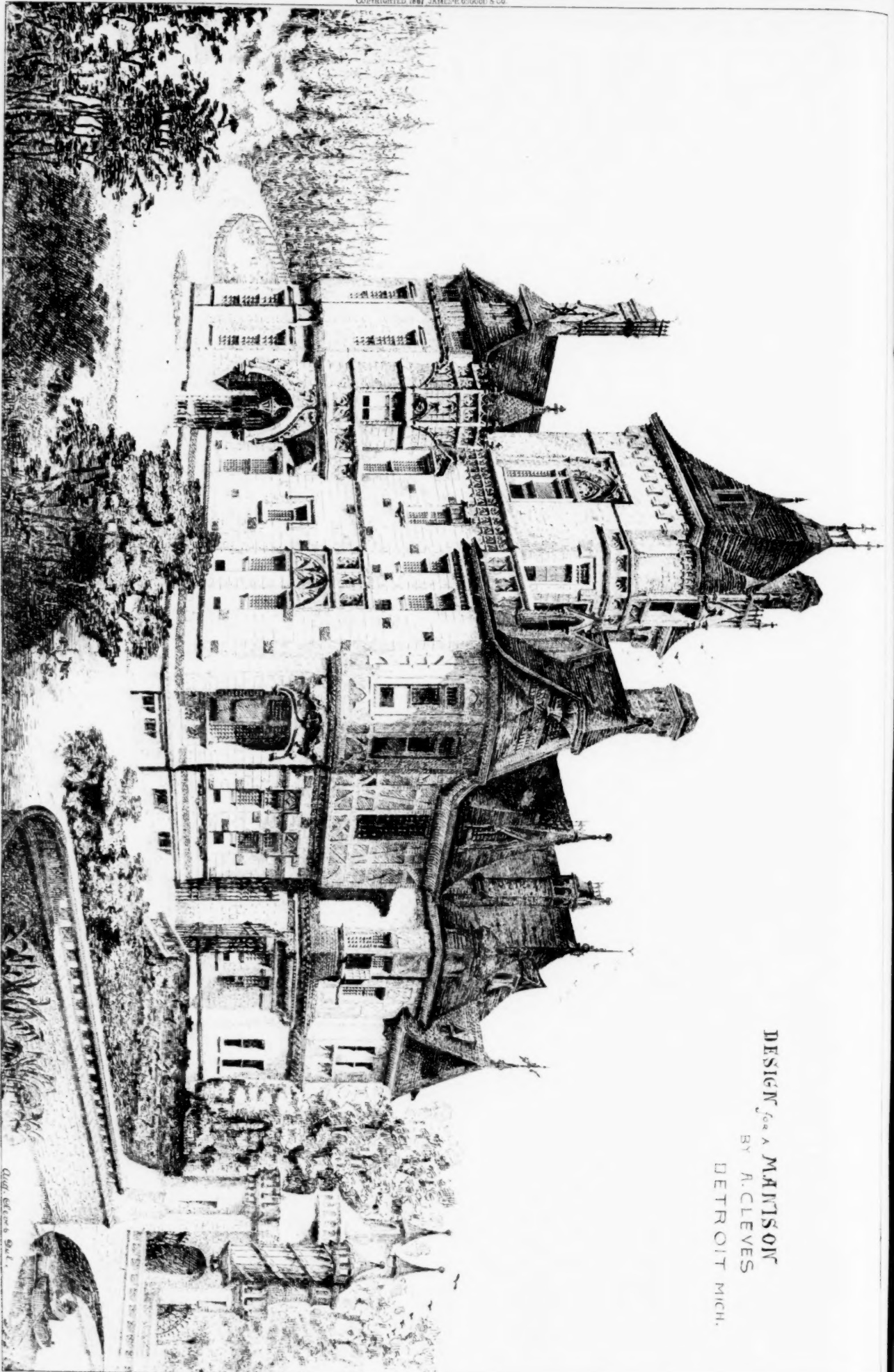
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DESIGN FOR A MANSION
BY A. CLEVELAND
DETROIT MICH.

Wm. E. Green & Son, L.



Proposed Building for the Trades' House, GLASGOW James Salmon & Son Architects

The Builder



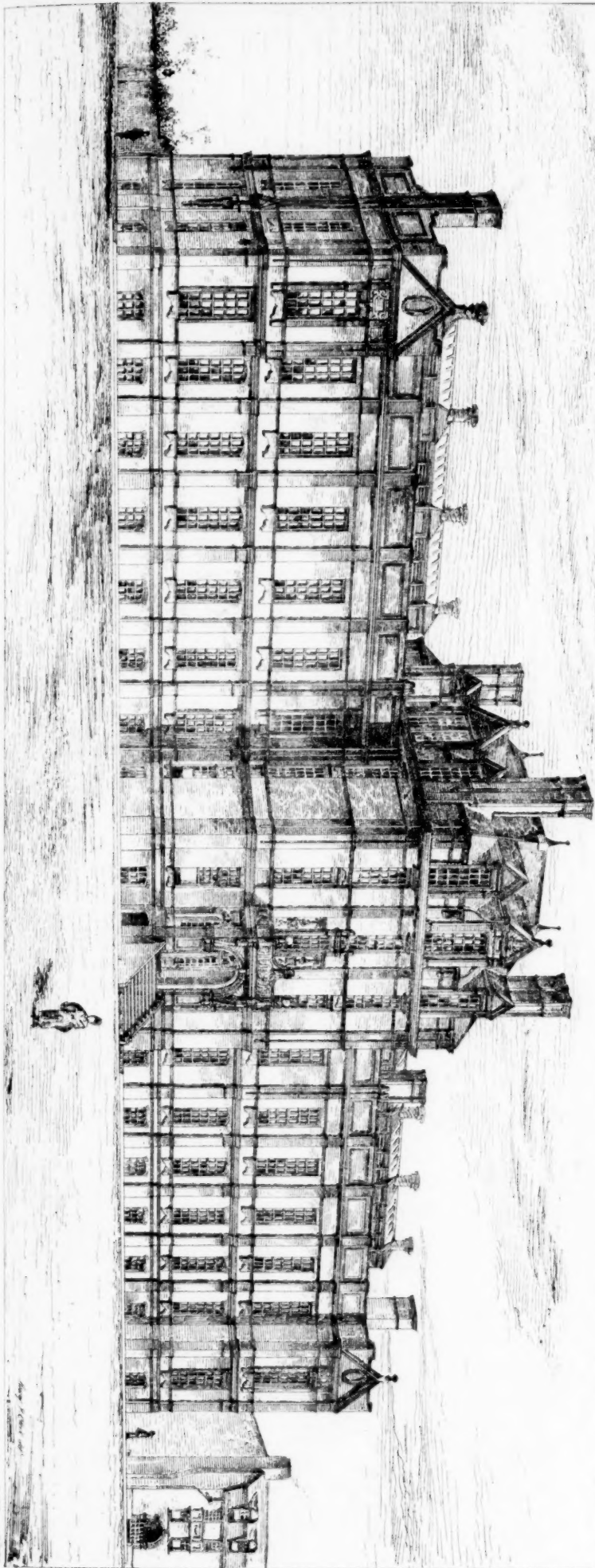
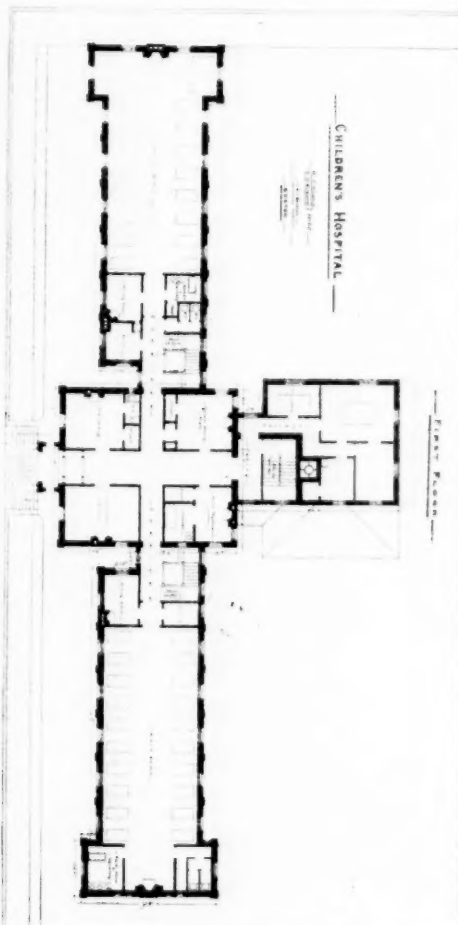
GATE OF THE AGORA
ATHENS AUG 25 - 1879

T. H. BACON

Engraved by J. S. Thompson & Co.

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The Children's Hospital
 W. T. Windlow
 & M. Wetherell, Architects
 Boston, Mass.
 Dr. B. Bradlee, Consulting Surgeon



failures and absurdities, and yet the good will also be felt. The real artistic talent will come to the top, and the chromo-like imitation will be so far in the background that it will soon be forgotten. The olive and sage greens, the old-gold and citron yellows, are names indicating colors of which the ordinary house-painter has not the least conception (but pretends to know all about), and probably if the test for color-blindness were to be applied by Dr. B. Joy Jeffries to house-painters, as a body, there would be as large a proportion of them found unable to distinguish red from green, as the recent examination by the above-named gentleman of the railroad employees of a Boston railroad proved to be lacking in this particular, and were afterwards discharged as incompetent for their positions. The house-painter, of course, is not to blame for his ignorance, for it has hitherto been no difficult matter to tint white lead with a bit of color; but when a russet is to be used it is an utter impossibility for a man without a good knowledge of color to mix an old-gold which will harmonize perfectly with it, bearing the same relations to the primary colors as the chosen russet does. Certainly the painter may chance to hit it; but the chances are against him. On whom then must we depend? Either on the person having the house built or on the architect. On interior decoration Mr. La Farge does not simply tell a set of men what colors he prefers to have used, and run the risk of their getting them, but he knows the primary colors which constitute the one he wants, and his "knowledge is power." I have before had occasion to speak of the staining of shingles, which is so much used on the exterior of the houses of the "English Domestic," or "Queen Anne" style, at the present time. Many an architect has rushed wildly into this style of decoration without knowing even the first principles of it and the proper stains to use. Some have gone so far as to leave it to a country house-painter, and the result is, as time will show, and is showing, that the wrong materials have been used. The house much admired at its first showing, but which, under the influence of the sun or the storms of a winter, has lost its effect of color, now lies a mass of blackened shingles fit for little else than an old barn. This is all remaining now of the once handsome exterior. The most successful staining is to be seen at Bar Harbor, Mt. Desert. The house which has truly won for itself the name of the "house with the golden roof," the body of which looks like mahogany, stands as a monument to mark the beginning of a new period in exterior house decoration. Certainly to Mr. Emerson we owe a great deal, not only for the introduction of the "English Domestic" style of house in his own original quaintness, but because he has dared to use colors which required confidence and knowledge. The new house at Bar Harbor, built for a Baltimorean, with a tower very much in the style of a lighthouse, is covered with shingles of all shapes and lengths, and this is to be stained with colors, beginning at the top with golden yellow melting itself into a citron, Vandyke brown, and burnt sienna, graded in the lower half of the tower, thus making a combination which should be glorious in its effect. These colors or stains will be applied in such a way as to give the effect which is often seen in an artist's study of a brilliant sunset. Mr. Emerson is certainly bold to attempt such coloring, but we have confidence that he will be successful, for his knowledge in this direction has done not a little to make Bar Harbor a most attractive spot. When we see the interior wall decoration taken up by such gentlemen as Mr. John La Farge and Mr. Louis Tiffany, and exterior decoration and house-painting done under the direction of architects of the highest standing in our country, may we not look forward to the day when, perhaps, on our own shores we may have the colors which make an artist's study of Venice so charming. The laborer known as the house-painter will be as the brush held by the artist, placing colors in combination which are born in the artist's soul.

There are many ways in which the same paint or stain can be productive of very different effects. One is gained by using shingles of different lengths, put on with the utmost irregularity, thus breaking up the color, which upon a plane surface would be all alike. By the use of rough shingles the roughness takes the color from the brush, while the brush sweeping lightly across another part that is smoother leaves the stain light and varied, often allowing the original color of the wood to be preserved by the oil. Then again the shingles may overlap each other with rounded ends, like the scales of a fish, or be cut in wave-like or diamond shapes. These different shapes will serve as touches of shadow. All the success in the future will be governed by those having it in their power to say what colors shall be used on the houses to be built now or at a future time. To be competent to judge, not only does the matter of combination of color come in, but the most trying question occurs: What colors will stand the rays of the sun and the severe winter weather without fading or wearing dull? Generally speaking, the manufactured chemical colors are not suitable for outside work, as they are fugitive, but ochres, stone-yellow, Venetian-red, burnt and raw umber (when used for staining), and raw and burnt sienna are reliable, and can be depended upon. The chrome yellows and chrome greens, Prussian-blue and American vermillion are fugitive, either singly or in combination with other colors. There is that largely patronized paint business to-day known as "ready-mixed paints," which are made for the most part of the poorest materials. The writer recently sent to the Patent Office at Washington for the synopsis of one of the most widely-known of these patent ready-mixed paints, and it proved to be twenty-five per cent lime, twenty-five per cent linseed oil, an equal quantity of soap and water, and the other part

of zinc and color. Surely this is not a fit mixture to paint a house with.

The rule is broken which only allowed two colors to be used on the exterior of a house, one the body color, and the other for the trimmings and blinds, a shade darker, or a contrasting color. Why should a house be alike on all sides? The Queen Anne style of architecture does not oblige it as the former box house with a French roof did. The broken lines of the new style rather tempt artistic diversification of color. Certainly upon the east and south side of a house, no matter how much piazza one may have to shield him from the sun, a subdued color of olive or bronze goes far to make one comfortable, whereas the same parts painted white would make it impossible to sit there during a sunshiny day, with the glare of the white paint meeting one on all sides. On the north side of the house, warm mellow tints of yellow and citron, with a bit of yellow cathedral glass in the end toward the west, will take the chill off, at least of the imagination, and our imaginations often make us warm or cold. I can well remember being in Halifax in the depth of winter, at a hotel where heat was not furnished; we sought a room with a reddish-brown paper on the walls, with furniture in red, rather than the room on the front of the house with a pleasant outlook, which had white walls and cretonne covering in light, cold blue. We imagined ourselves much warmer.

An artist who draws on his canvas the outline of a landscape with trees and hills in the background, a long stretch of pasture with sheep feeding in the foreground, and clouds simply sketched in, leaving the colors to be chosen by the purchaser and painted by an unknown hand, would do little less than the architects have done in leaving the coloring of their work to men who know nothing about it. The future depends on the immediate action of our architects. The public have been willingly brought to the new style of architecture, and it will be decided in a very few years whether the old style of white houses comes back to us, as have other attributes of the homes of our Puritanical forefathers out of their graves, or whether with the interior decoration the exterior will be allowed to keep close companionship.

RECTUS.

WIMBORNE MINSTER.

We are sorry to learn that another of our great historic churches is in trouble. The central tower of Wimborne Minster has recently given signs of failure, and prompt and decided measures will have to be taken to arrest the mischief. Wimborne, though not one of our grandest minsters, and much inferior in size to the neighboring churches of Sherborne, Romsey, or Christ Church, scarcely yields to any of them in architectural and historic interest. Its remarkable outline, presenting a low, massive central lantern, and a tall western tower, reproducing on a miniature scale the outline of Ely, and that of Hereford till a hundred years back, cannot fail to attract attention. These two towers indicate the double destination of the church. The central tower, of Transitional date, was that of the collegiate church; the western, of a thoroughly parochial type, was added by the parishioners in the middle of the fifteenth century, as at Blyth, and Christ Church, and elsewhere, to hold the peal of bells. It is the earlier of these towers, that standing in the centre of the fabric, that is in danger. Serious cracks, we are told, have shown themselves in the northeastern pier of the crossing. The other three piers also afford ominous indications of internal movement; and, as the fractures are slowly but surely increasing, it is no longer a matter of doubt that the tower is, in builder's language, "alive," and that nothing but a process of underpinning and strengthening the supports of the lantern will save this chief ornament of the fabric from eventual, perhaps speedy, ruin. The foundations of the tower appear to be sound, which is not always the case in Norman buildings, and give no indications of settlement or weakness. The source of the weakness lies in the piers themselves. These, like the works of Norman builders generally, with all their seeming solidity, are so inartificially constructed that the wonder is, not that they should be failing now, but that they should have stood so long. Their huge bulk and apparent strength are simply deceptive. Norman pillars are really nothing more than outside cases of ashlar, or cut stone, enclosing a core of rubble brought into something like cohesion by a vast quantity of mortar, but with no real bond, either in its own incoherent mass or with the external shell. For a time, longer or shorter (and certainly some of these Norman structures may boast of a tolerably extended existence), these vast bulks stand by the sheer force of dogged resistance. But they carry the elements of their own ruin within them. In the lapse of centuries, the cohesion of the core, small at first, weakens; the rubble becomes more and more friable, and is kept in its place merely by the strength of the outside case, from which, when an aperture has been made, it has been known, as in the central tower of Hereford, to gush out in a continuous stream of powder for several seconds. As long as the shell is able to resist the outward strain the structure will stand. But when once, as at Wimborne, the skin begins to burst, its fate is sealed. The ruin may be more or less gradual, but it is inevitable.

There is hardly one of the grand old Norman towers which impart such stateliness to our cathedrals and abbey churches which has not proved a *damnum hereditas* to after generations. Indeed, almost from the time they were first built they have been tumbling about people's ears. Bishop Walkelyn of Winchester was hardly cold in his grave when, in 1107, the massive tower of the cathedral he had built fell to the ground, in indignant remonstrance, so men said, at

the unhallowed corpse of the Red King having been buried beneath it. Towards the end of the same century towers fell at the cathedrals of Gloucester and Worcester. The central tower of Lincoln came crashing down in 1240, while one of the canons was preaching in the nave, "the very stones crying out," as he asserted, against the alleged oppression of Bishop Grosseteste, in claiming to perform an official visitation of his cathedral church. Abbot Simeon's central tower at Ely, though outlasting that of his brother Walkelyn at Winchester by two centuries, came down in 1321, after long threatening, "with a horrible ruin and collision of stones, which shook the whole city like an earthquake." A fortunate loss, we may consider it, as it gave scope for the erection of what Mr. Fergusson has justly termed "perhaps the most beautiful and original design in the whole range of Gothic architecture," Alan of Walsingham's unrivalled octagon. The faulty principles of construction of the mediæval builders are shown by a multitude of similar catastrophes at Evesham, Dunstable, and elsewhere, as well as by the instances where the threatened ruin has been averted, either, as at Peterborough (somewhat on the principle of the Irishman who killed his pig to save its life), by pulling down the falling tower, or, which was more commonly the case, as at Wells, Salisbury, and Canterbury, by internal buttresses and strainer-arches, and other engineering devices, commonly more successful than beautiful. But, passing these by and coming to modern times, the Norman central tower of the grand abbey church of Selby, which forms so conspicuous an object to travellers on the Great Northern line, fell in 1690, crushing the south transept, which was never rebuilt. The tower itself was replaced by an ugly structure in the bald Palladian style of the day, which we hope will not be allowed to disfigure the beautiful church much longer. The western tower of Hereford Cathedral, standing, like the bell-tower at Wimborne, in the centre of the west end, was allowed to crumble to pieces in 1786, before the very eyes of its guardians, who, probably congratulating themselves on being well rid of a source of constant trouble and expense, made no attempt to rebuild it; and, to close the list, in our own day, on the 21st of February, 1861, the central tower and spire of Chichester Cathedral fell, in spite of the most strenuous and well-considered efforts to avert the ruin; to quote the late Professor Willis's graphic description, "the spire descending perpendicularly into the church as one telescope tube slides into another, the mass of the tower crumbling beneath it." A similar downfall was averted in the cathedrals of Hereford, St. David's, and St. Albans, by the engineering skill of Mr. Cottingham and Sir Gilbert Scott, and still more recently in the southwestern tower of Lincoln Cathedral, where the enormous weight of the fourteenth-century belfry was crushing Bishop Alexander's Transitional work below, and even the apparently solid substructure of Remigius, by that of Sir Gilbert's distinguished successor as the Cathedral architect of the day, Mr. J. L. Pearson. In the last-named cases the work of underpinning and rendering the crushed substructure once more equal to the support of the enormous weight above it, which during the operation had to be borne up in mid-air by huge balks of timber, was one of gigantic difficulty as well as of the extremest delicacy.

At Wimborne, from the smaller dimensions of the fabric, and the less formidable weight of the tower, the difficulties will be less alarming and the work less costly. It is, however, a task which imperatively calls for the best architectural skill, and for that courage united with discretion which nothing but large experience can supply. We earnestly hope that local or diocesan claims will not be allowed any undue weight, but that those with whom the responsibility of the restoration rests will not scruple to take counsel with the first architectural engineers of the day, and will place the actual work in the hands of one who has elsewhere proved his ability to cope with the difficulties and dangers inseparable from such an undertaking. The seat of the evil lying within, in the originally faulty construction and the subsequent disintegration and decay of the masonry, no measure can prove really effectual but the taking down of the defective pier or piers, and their rebuilding with the utmost solidity. All patching or piecing is to be deprecated. It would merely hide the mischief temporarily, deferring, but in no sense arresting, the downfall. Such a course was at first adopted at Chichester. New stone-work was built up round the rotten core and bonded with its mass, and with what result we know only too well. The old fissures spread into the new masonry, and new ones soon began to open. The outside casing exhibited only too plainly the hopeless state of disintegration of the mass behind, and before many months were over the tower and spire collapsed, and the whole work had to be begun, where it ought to have originally commenced, from the foundation. The only true policy in such cases is Strafford's "thorough."

We must at the same time express our hope that the restoration of the tower will not extend beyond the necessary reconstruction of the failing piers, and the resetting of any portions of the external work which are actually dangerous. The pyramidal pinnacles and heavy battlements added after the fall, in 1660, of the spire which once crowned it, for the removal of which some are clamoring, though coarse in detail and out of harmony with the beautiful Transitional arcades beneath them, are by no means bad in effect, and are of great value as marking an epoch in that history of the fabric which is so distinctly written, century after century, on its walls, and which would be falsified by their destruction. The re-erection of the spire, however much we may regret its loss, would certainly be

unwise. Strengthen the piers as much as you please, still, unless the whole of the tower were rebuilt (and that, we fancy, the Wimborneans are not quite prepared for), the additional weight could hardly fail to prove a great element of mischief to the already crazy structure.

Wimborne Minster suffered such irreparable injury at the hands of restorers twenty-five years back that the very thought of a second restoration is alarming. We are far from denying that some very desirable changes were then effected, in the removal of the pews and galleries with which the interior was encumbered, the opening of the beautiful central lantern and of the western tower arch, while the removal of the plaster disclosed a most interesting feature in the original Norman clerestory of the nave. But these gains were sorely outweighed by other unwarrantable changes. Old features were done away with, and new ones introduced, to the confusion of the archæologist; mouldings were re-cut, and the stone-work re-tooled; the exterior of the choir was cased in smooth new ashlar, imparting a painfully modern air to the venerable building; while, by that complete misconception of the true purpose and meaning of a collegiate church which has operated so fatally elsewhere, which treats what is really two churches as one to be used at one and the same time from end to end, the choir was, as far as was practicable, thrown into the nave, and the essential distinction between the church of the college and the church of the parishioners was obliterated. Happily it was impracticable to destroy the grand ascents by which the eastern limb is elevated, and the sacristium, which stands upon a vaulted crypt, raised again to a still greater height. But the incomparably rich cinque-cento choir fittings, with their stalls and gorgeous over-arching canopies and elaborate screens, dating from the fall of the spire, which exhibited the most perfect example of a Jacobean choir in England, the organ occupying its true position over the western entrance above the returned stalls, were ruthlessly sacrificed to the vain hope of making the whole area available for congregational purposes. As it stood a quarter of a century ago, the choir of Wimborne Minster was one of the most charming things that could anywhere be seen; beautiful as a work of art, and invaluable as an example of ritual arrangement. But, in spite of the late Mr. Petit's earnest pleading in their behalf, the stalls were lowered, the canopies demolished, the organ dethroned, the choir-gates removed, and the whole so completely reconstructed as to lose nearly the whole of its architectural interest and the whole of its ritual value, and to afford one of the many proofs that restoration and destruction are too often convertible terms. No such barbarism is, we hope, possible now, though such examples as the west front of St. Albans and Lincoln's Inn Chapel are not reassuring—but we shall watch the works at Wimborne with painful interest. Hints that have been let fall as to the restoration of the transepts make us apprehensive lest their venerable masonry should be destined to disappear under a casing of modern ashlar, as that of the choir has done, and the exterior lose the small remains of antiquity it still exhibits. No single stone should be tampered with, unless its state of decay is such as to endanger the stability of the building. A smooth modern wall may be very pleasing to the eyes of a nineteenth-century restorer, but to a lover of the past it is utterly uninteresting.

This danger, however, is not unlikely to be averted for the present by the want of funds to carry out the restoration. Wimborne, rich as it is in historical memories as one of the chief towns of Wessex, from the days of St. Aldhelm and King Ine down to those of Alfred's elder brother Ethelred, who lies buried in the minster, and Edward the Elder, is but a little county town of no great wealth; while the county of Dorset has suffered more severely than most from agricultural depression—its population having fallen from 195,544 in 1871 to 196,979 in 1881—and is hardly in a position to contribute very largely to the restoration of its venerable heroic minster. Three hundred and forty years ago, when the central tower, then weighed down by its tall stone spire, had "foundered and was lyke to fall," and there was "no money left yn the church boxe," the silver reliquary which had in more religious days enshrined the head of their sainted foundress, Cuthburh, King Ine's sister, presented itself to the minds of the parishioners as a hopeful means of raising the necessary funds. In a still extant letter to Thomas Cromwell, then omnipotent with his royal master, dated 1538 (the year of the demolition of shrines and the confiscation of reliquaries to the King's use), the guardians of the church state that "need constrainth" them "to sell the sylver y^t ys about the seyed hed of Seynt Cuthborow," which they conceive belongs to the parishioners, "as y^t was made by their charity," and they beg the then universal referee to certify them "y^t they may sell the sylver and not offend their prince." Whether the reliquary was used as the parishioners desired or went to the King's melting-pot we are not informed. But as not very many years afterwards the dreaded catastrophe took place in the fall of the spire, we may perhaps conclude that the latter was the case. Happily Canford Manor is not far off; and we may hope that the iron of the mines of Dowlais may prove a more effectual means of reinstating the foundering tower than the silver of St. Cuthburh's head.—*The Saturday Review*.

THE CORINTH CANAL.

THE following paper was read by General Turr before the International Geographical Congress at Venice a few weeks ago:—
The territory of the Isthmus of Corinth is comprised between the chain of the Géeraniens Mountains—from 800 to 900 metres high—

on the north, and that of the Oniens Mountains—about 600 metres high—on the south. These two chains form the isthmus, which presents itself “as a deep depression offering only a slight relief.” The water-shed traverses the isthmus obliquely from the north-east on the Gulf of Egina to south-west near the Acrocorinth. It is a plateau of which the highest part is 78 metres, but not very broad; so that on the whole line the dense, solid matter which will be pierced by the canal is only $3\frac{1}{2}$ kilometres long, the remainder being through alluvial plains, sand, and pebbles. To the south-west of the present port of Kalamaki, at the foot of the ruins of the ancient city of the isthmus, a valley about 30 metres broad winds obliquely from north-east to south-west, through the central *massif* (dense strata). On the other side of this *massif* is another valley, which, following the *ligne de faite* for a short distance, and making a *détour* at the foot of the ruins of the ancient wall, opens out into the Bay of Corinth. In the first of these valleys is a perennial spring, which was evidently used by the ancients. In the other valley several wells furnish abundance of water. The central plateau is studded with groves of young pines (*Pinus maritima*), and is constantly refreshed by the sea-breeze blowing alternately from either side. At the narrowest point of the isthmus are found, in a perfectly straight line on the two slopes of the plateau, vestiges of the works carried on by the Emperor Nero in the second half of the first century of the Christian era. On the side of the Gulf of Egina one sees a vast depression, about 40 metres wide at the base, which advances to within 1,500 metres of the coast. The earth removed to form this depression has been deposited on either side, forming parapets plainly visible; the trench or depression presents several lines of attack in the rock (mounting to the height of 59 metres), but at each of these lines of attack the trench is only a few metres deep. On the opposite slope the vestiges of the trench are visible to within two kilometres of the sea, but on this side likewise the works have been of small importance. Between the last vestiges on either side we find in a straight line a succession of square wells, dug to depths varying from 3 to 16 metres, the vertical sides of which (cut eighteen centuries ago) have remained almost intact. Two vast cisterns in a perfect state of preservation exist on the plateau in the vicinity of the wells. The cisterns may be utilized in the new works. To complete this description of the ground I may add that the isthmus has retained along its whole length the ruins of the great wall destined for the defence of the Peloponnesus against the invasions from the north, and shows to the south of this wall the remains of the great cities built by the ancients.

Since I obtained the concession for the opening of the canal, I have sent to the spot to select the best line, and to make a detailed survey of the ground, M. Gerster, chief engineer of the Canal Français, and who had already surveyed the Isthmus of Darien, with a view of constructing the inter-oceanic canal (Panama). This engineer, having under his orders subordinates and assistants for his operation, has surveyed the whole isthmus between the two mountain-chains bounding it north and south, and has had borings carried out. Three traces have been specially studied and levelled. The first coincides with the line chosen by the engineers of Nero; it is 6,342 metres long, in plan, and rises to a height (at its highest point) of 78 metres above the level of the sea. A second trace follows the two valleys which surround the *massif*. This trace is 6,740 metres in plan, and 73 metres at its highest point. The third trace, further south, starting from Kechrivés, on the Gulf of Egina, follows a valley nearly parallel to that of the second trace; it then repeatedly crosses winding gorges, and follows the valley of the River Leoka, on the opposite slope, and, after having continued along the course of the river for a short distance, reaches the sea south of the new city of Corinth. This trace is about 11-kilometres long. The surveys have given the following results:—The first trace, 9,430,000 cubic metres; the second trace, 9,186,000 cubic metres; the third trace, 12,424,000 cubic metres. The second and third lines have numerous curves of a minimum radius of 2,000 metres, while the so-called “trace of Nero” has the inestimable advantage of forming a straight line.

The superiority of this latter trace shows itself in two other ways. First, the composition of the solid matter to be cut through, which in this trace consists of friable grit and of calcareous rock, substances which are comparatively easily excavated, and naturally form strong and durable embankments, while the second and third lines would traverse much harder “grit,” of sufficient tenacity to form building materials for the ancients, as is proved by the numerous quarries in the neighborhood of these traces. Another advantage of the first trace consists in the disposition of the slopes, which favors it, inasmuch as the canal would be then protected against the floods in the ravines along the slopes, while the two other lines would catch these waters. Moreover, this first line could utilize these valleys for an economical system of depositing the earth excavated in forming the canal. I may add that, for the purposes of navigation, the first trace will be immensely superior, as it is without a single curve, and forms a rapid and easy line of transit across the isthmus. At the mouths of the canal on the gulfs we find also, at a very short distance out from the shore, deep and calm water. It is, therefore, this trace—already chosen by Nero—that we propose to adopt.

The depth of the canal and its width in section will be much the same as in the Suez Canal—viz., about 8 metres deep and 22 metres wide. The navigation at present is very active, both in the Gulf of Corinth and in that of Egina, despite the difficulties and inconveniences arising from the very existence of the isthmus, which at present necessitates the overland transport of merchandise and passengers.

The statistical data of the last few years enable us to establish a yearly average of 446 steamers, which enter the two ports of the isthmus, not taking into account innumerable sailing craft. The conditions of the coasts and the winds prevailing in the Gulf of Corinth are peculiarly favorable, according to the description given by the most competent persons; we may therefore be sure of not being contradicted by facts if we say from this time that the majority of the vessels which are at present obliged to double Cape Matapan will be glad to pass by the canal of Corinth, once this new line of communication is opened. They must use this route, because it presents the advantage of being by far the quickest—viz., shortening the distance for the crossing from the Adriatic to the Piræus by fully 185 maritime miles, and by 95 miles in going from the Mediterranean to the same port. In fact, a glance at any geographical map shows that Messina and the Piræus are on the same degree of latitude—the 38th—while Cape Matapan and the Island of Cerigo are on the 36th degree. Steamers issuing from the Straits of Messina are thus at present obliged to go south from the 38th to the 36th degree, and afterwards go north to the 38th, after having doubled Cape Matapan. All these vessels, profiting by the new canal of Corinth, will be able to sail continuously on the same degree of latitude, and will avoid the *détour* round this cape, which has so often proved a fatal voyage to navigators.

To appreciate at a glance the manifest advantage which the canal of Corinth offers to merchants and travellers, let us imagine for an instant that, instead of the Straits, there were an isthmus of Messina; it would be easy to calculate the great disadvantage that would fall upon navigation, obliged in such a case to make the whole *détour* of the island of Sicily, as is necessary now in going round the peninsula of the Morea. I take the liberty of adding to this statement a statistical table showing that 4,645,700 tons of merchandise annually pass the Isthmus of Corinth. The astounding development of industry and commerce latterly in Greece is especially remarkable in the increase of her shipping. I shall merely say that Greece, which in 1830 possessed only 1,050 vessels, of a gross tonnage of 30,000, had in 1871 as many as 6,135 vessels, of a gross burden equal to 415,355 tons; and the progress since the latter year has been increased proportionately. The shortening of the time of the sea route insures a considerable profit to navigation companies—a profit in which merchandise and passengers alike participate. The charge per ton and per person for vessels from the Adriatic will be one franc, and from the Mediterranean half a franc. The large navigation companies of the Adriatic having been consulted on this subject declared that they were ready to accept this tariff, which they considered very fair; on the other hand, the most competent financiers, after having examined the statistical tables and calculated the probable profits, have found that even with a low charge the returns will permit of a good percentage on the capital employed. Greece, apprehending the importance of the canal of Corinth for the commerce of other nations and for her own prosperity, has given us the assurance that she will further to the utmost of her power the success of the works, which will soon be commenced.

The Isthmus of Corinth was always considered by the ancients a great obstacle to commerce. “They saw in it, as it were, the challenge of a wicked genius to the power and will of man.” Many attempts have been made to remove this barrier. The earliest records of such attempts go back to the tyrant Periander—i. e., the year 625 B. C. Superstition, and above all the want of machinery, have always caused the failure of these projects. The priests of Corinth, fearing that strangers passing by the canal would no longer stop to visit the temples of the city and leave their offerings, invoked the interference of their gods, and caused blood to flow from the rocks, and intimidated the workmen by means of their oracles. Even the Roman Emperors failed to carry out this work, attempted notably by Claudius, Caligula, and Nero. This great work was reserved to the century of progress which we are proud to call our own. Thus we have seen the Suez Canal (which certainly existed in ancient times), once having been destroyed, remain in a state of neglect, notwithstanding that two centuries ago a powerful king like Louis XIV., and a great man like his Minister Colbert, took a lively interest in the re-establishment of this important highway of commerce, by which they expected to greatly benefit France. To carry through the Suez Canal it required the genius and iron will of a Lesseps, who, never allowing himself to be diverted from his object, succeeded at length in overcoming all obstacles. And observe, gentlemen, that his greatest difficulties were not those from Nature, but from ignorant, incredulous, and envious man. However, his firmness and perseverance triumphed over the bad wishes of his enemies, and at the first Geographical Congress at Anwerp, in 1872, M. de Lesseps was able to announce to men around him that the Suez Canal was a *fait accompli*. In the second Geographical Congress in Paris, in 1875, the plans of the great inter-oceanic canal (Panama) were examined, without, however, any of the lines being agreed on. It was then I asked for the concession of that canal; and, forming an association with several friends, we sent two expeditions to examine the ground under the orders of M. Lucien Bonaparte-Wyse. Fortified by the constant support and good counsels of M. de Lesseps, who later on put himself at the head of the enterprise, we have to-day heard from his mouth that the canal is being actively pushed forward, and that its success is completely insured. Now, in presenting myself to the third Congress, I am happy to be able to announce that we have completed the designs and worked out the details for cutting the

third maritime barrier—the Isthmus of Corinth; and that these designs have just been completed, and that the works for the cutting will shortly be undertaken. The geographical societies have ever lent a generous support to all great works facilitating communications, no less than to explorations of unknown countries.

In assembling at this time in the native city of Marco Polo, we cannot but be inspired, gentlemen, by the memory of that hardy and intelligent traveller, who, at a period when communications were so difficult and perilous, accomplished his marvellous explorations, and described them so fully and clearly that his book may seem even now as a starting-point for the study of Central and Eastern Asia. According to the Chinese legend, the gratitude of the people won for the statue of Marco Polo a place in the temple of the 500 genii of Canton. Marco Polo has thus traced out our mission, gentlemen—it is to do good in our explorations, to come with our knowledge to the help of all people less intelligent and less instructed, and thereby make ourselves beloved by them; in a word, to bring all peoples into closer communion with each other, and, as has well been said by our president, Ferdinand de Lesseps and Prince Teano, to cause the last vestiges of barbarism to disappear from the earth. *Savans* divide the world into two kingdoms—vegetable and animal; let us force them, gentlemen, to admit that, distinctly marked off from the latter, there is also the human kingdom.

AMERICAN ART IN TOOLS.

AN inspection of the illustrated trade circulars of our American merchants designed for foreign markets has given me some new ideas regarding American art; perhaps I should say conclusions which at first glance may seem to be somewhat heterodox or sophistical. But I think an examination of the objects in question to which I shall allude, joined to reflection on the fundamental principles and aims of art, will sustain me. Generically, I would say that those objects and edifices which my countrymen put forth as their highest and most successful efforts of art fail to fulfil its conditions, and are not in any eminent degree artistic or æsthetic. If we take our conspicuous public buildings and costly private houses, with not numerous exceptions they are neither artistic in construction nor æsthetic in feeling. In general they are inharmoniously composite in appearance, made up of selections of architectural bits, styles, and designs of Old-World origin and various epochs, distorted in application and tyrannized over by New-World conditions of life and utilitarian or economical exigencies, with no unity of purpose or original constructive design, based upon purely American material aims and ideas. Many are costly; still more are meretriciously showy; some are superficially imposing; all are fragmentarily suggestive of other climes and civilizations, while but few offer any hints of more than a chance artistic success in some special details, or any promise of a genuine American school of art on a par with those European or Asiatic schools which grew up into solid, beautiful shape out of their incipient civilizations, keeping pace with them, and forming distinctive and characteristic national schools of art. We have very free-handed, many sided, fallacious fashions of building and decoration, but the result is not good architecture or beautiful ornamentation. On the contrary, largely, although not wholly, it is mistaken work and bad taste. Tamely copying the styles of other races, borrowing and misapplying their work in detail; straining after novelty by excess of an imperfectly trained fancy, disregarding the fundamental principles and purposes of genuine art or else basely sacrificing its essentials to vulgar convenience and pretence, with no central, creative principle as a guide, cannot beget a worthy national art, whatever mechanical ingenuity may be shown in accommodating parts or skill in separate details. We have a passion for mixing incongruous things and designs and putting them where they do not belong.

Look at the new National Museum building at Washington. Structurally and symbolically it should have represented in a broad, imposing unity of architecture its cosmopolitan purpose and its national ownership, the artistic offspring of the greatest of republics, and its unexampled progress in material civilization and aspirations for its higher æsthetic phases. In short, as a national monument to contain whatever there was to be procured of the best efforts of other peoples in the arts in which we are seeking to rival and surpass them it should have been unmistakably imposing and beautiful, in perfect keeping, so that a child could know it, with its objects, at first sight. How convenient it may be inside I know not, but outside it looks like a cross between a railway station, a hospital or asylum, and fancy restaurant; a mob of parts loosely connected, unpicturesque, undignified and homely; the counterpart of hundreds of other edifices of like lack of sound architectural principle and construction that now disfigure our country, and are multiplying with dishonoring rapidity. We still await the coming genius who is to put us in the right track in architecture and in ornamentation of all kinds, laying the foundation of a pure national style, or, at all events, giving examples of absolutely sound taste.

The finest art yet developed in America, one in which my countrymen excel all other peoples, is in a direction which they themselves have never recognized or suspected. They have perfected it in its department simply because they have been governed by sound principles joined to a keen consciousness of lines and forms, wedding sharpest practical use to completest beauty of its kind by unconscious pursuit of perfection—in a very limited direction, it is true, but one which forms the starting point for all others, highest art inclusive. I refer to our tools—the axes, hatchets, spades, shovels, hammers,

and other metal weapons, by which we hew, plant, and conquer our virgin soil and tame it to our needs. So shapely are they, so nice their gradations of lines, so thoroughly adapted to their ends, graceful, light and strong, bright and cheery to look at, honest of purpose, sincerely made, that there is in them a touch of the æsthetic as well as the sense of the artistic, unmistakable as the repose and beauty of Greek art. Their makers have worked better than they knew, and nature has led them into art while thinking only of use.

Compare these plain, unadorned tools and their beautiful curves and outlines with the species of crass ornamentation, gilt or saw-cut, the gross realization of decoration laboriously wrought for defined purpose in our machine-made furniture, organs, pianos, sewing-machines, and the innumerable Yankee notions, good enough in themselves practically, but made hideous by the abortive attempts to make them beautiful as well. These tell the story of our defective æsthetic training, and what deformity is sure to result from attempts at ornamentation before the taste is sufficiently trained to distinguish artistic truth from falsehood. If the makers of these things would simply try to perfect them, keeping their objective aims strictly in view, following the example of the tool-makers—and I can include in some degree makers of woodenware—they would produce far more artistic work in the end than they are now doing with all their eagerness to recommend their wares by labored, overdone decoration. Theirs is the slang of ornament, as ungrammatical and false as pigeon Chinese or back-wood's speech, and ten-fold more unnatural. We cannot make any substantial progress in industrial art until this whole haphazard system of decoration is thrown away, and we begin anew at the right end, i. e., learn the simple alphabet of art before trying to make eloquent speeches in its language.

Years ago, when the material interests of the nation and its heart also went oceanward, in seeking to build the fastest ships, our builders, following the hints of nature, and keeping their own aims steadily in view, succeeded in producing the most beautiful vessels possible; perfections of marine architecture, complete works of art, the like of which the world seems destined never again to witness. This was the result of knowing what they wanted and perseveringly studying means to ends, perfecting the ships as to character, and consequently as to comeliness; for even in material things the spiritual holds sway and begets beauty from truth of form. I honor these American tool-makers as the serious pioneers of American art, unwittingly though it may be to themselves. Theirs is the correct principle and right path of labor and progress. Thus the sight of a trade circular, with its fine cuts of American tools and its showy, tasteless pictures of pretentious furniture, organs, etc., has led me into this homily, which may be not without benefit to those interested in the ways and means of our æsthetic progress as a people. The Japanese have the finest sense of decorative ornament in detail of all peoples, simply from closely studying nature and working on a correct principle in the beginning, without blindly following it, but rather getting at its ideas and modes of working, and then giving full freedom to their own powers of invention and application. Our decorative art is cheap and nasty, and theirs cheap and lovely.

American civilization is making progress even in conservative, slow-going Florence. One of the principal hotels has put up a hydraulic elevator, and announced the fact in gigantic letters in three languages—German, French and English—on its façade. It does not add Italian, knowing no properly educated Italian would venture to try one.—*James Jackson Jarves in the New York Times.*

THE "BRATTLE SQUARE" CHURCH.

PROVIDENCE, R. I., October, 12, 1881.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

IT was with great pleasure that I heard, some time since, that the Brattle Square Church was to be utilized for an orchestral concert room. I have long admired the tower of that building, esteeming it far beyond the other monumental structures by which it is surrounded. For bold treatment and simple dignity it is surpassed by none of them. Whether near at hand we regard its apparently accidental variety and warmth of color, or from a distance admire its fine outline and massive strength, it is an object that that section of the city, architecturally well favored as it is, can ill afford to lose. You may thus judge of the regret of at least one beholder, who learns on such good authority that the building is at length doomed to fall.

Could not the tower, like that of St. Jacques at Paris, be saved, even if the proposed buildings must be placed close to its base. The time may come when it could be suitably enclosed, only a small space being absolutely necessary. Of course there is no historical sentiment to be considered as in the case of St. Jacques. But for its value alone, as the only lofty object now standing on what is destined to be one of Boston's finest, though at present, notwithstanding its variety of house fronts, in danger of becoming one of its most monotonous thoroughfares, shall it not be spared? Can Boston afford to tear down deliberately one of her noblest monuments? S. E.

A PHILANTHROPIC SCHEME.

PHILADELPHIA, PA., October 15, 1881.

TO THE EDITORS OF THE AMERICAN ARCHITECT:

Gentlemen,—Messrs. Drexel and Childs of this city have purchased upwards of six hundred acres at Wayne Station, Pennsylvania Railroad, upon which it is intended to erect houses of such a character as to enable young people of respectability to secure one at a moderate cost. It is

evident that this place will need the services of architects. I believe it is proposed to employ them.

As in New York, Boston, and elsewhere, the measure of compensation for architectural talent is very limited. It may be that the fraternity might be glad to have an opportunity of entering the lists under circumstances favorable to the encouragement of the liberal arts, and thereby aid philanthropy in its commendable project.

It is proposed that architects shall have the privilege of submitting as many designs as they may feel inclined to send in, with the express understanding that only such as may be selected for erection by parties wishing to build shall be paid for.

I am told that several prominent architects in this city have accepted the favor thus extended, and I am sure others will do well to embrace the opportunity of advertising the speculation and themselves, at their own cost.

Yours respectfully,

HENRY PHILLIPSON.

NOTES AND CLIPPINGS.

A TUNNEL UNDER THE ST. LAWRENCE RIVER.—It is stated that the money required for building a railway tunnel under the St. Lawrence River has been raised in Paris.

THE ENGLISH CHANNEL TUNNEL.—The Paris *Bourse* publishes a letter from General Sir Garnet Wolsey in which he says he earnestly trusts the Channel tunnel project may never be carried out, as he feels that its construction would be a lasting source of danger to England.

DRAINING THE CITY OF MEXICO.—The Mexican government has contracted with Mier, Celes & Co., for the drainage of the valley and the City of Mexico for \$9,000,000. The company is composed entirely of Mexicans.

FELLING TREES WITH DYNAMITE.—M. Pinsot, the forester of the Bois de Boulogne, has experimented with dynamite upon several trees which it was thought desirable to remove. He finds that dynamite can be used very advantageously, both in point of economy and rapidity of execution, for uprooting and dividing stumps of trees, but it is not applicable to felling trees which are to be used as timber.—*Les Mondes*.

NEW HEATING APPARATUS.—The great calorific capacity of water has hitherto rendered it the most usual reservoir of utilized heat. There are, however, some fusible bodies which allow the storing of a much greater quantity of heat in the same volume without increasing the temperature of the vessels which contain them. Acetate of soda, for example, when melted, contains about four times as much available heat as water. M. A. Ancelin has accordingly experimented with it in suitable boxes for warming cars and carriages. His experiments upon the French railroads have been so satisfactory that his system seems likely to be adopted by many of the roads in Portugal, Italy, Spain, and England.—*Comptes Rendus*.

AILMENTS PRODUCED BY TURPENTINE FUMES.—The effects of turpentine on some three hundred painters having been studied by a French physician, he now publishes his conclusions, namely, that these effects can never be so severe as to cause death, unless they be volatilized in an extremely confined space,—also, that where there are free movement and good ventilation, no liability to fatal accident exists. The vapors of turpentine coming from different sources, it appears, have not all the same energy, that of the French product, for instance, being far less injurious than the Hungarian or American. The most general form of indisposition exhibited—usually among new workmen, and directly attributable to the turpentine—are headache, watering of the eyes, coryza, cough, granulations on the larynx, and disordered digestion.—*New York Tribune*.

GREEK MOSQUES.—The Greek Government has ordered two magnificent mosques to be built at the public expense—one at Athens and the other at Corfu—for the Mohammedan subjects of King George, who will now frequent those cities. This act of Comondoros's Government is intended to show the determination of Greece to reconcile and govern on equal terms the various races and creeds embraced in the territory which has just been transferred to the Hellenic kingdom.

GALVANOPLASTIC FIGURES.—A process has been patented by which a galvanic deposit is produced on a casting of easily fusible metal, which latter may be removed by the action of acids, thus producing galvanoplastic hollow figures of an exceedingly thin material. The models of the required figures are of zinc, cast in carefully constructed, separable brass moulds, of which the single pieces are soldered together, when required for use, by an easily fusible solder of three parts of lead, four of zinc, three of cadmium, and nine of bismuth. The casting is thoroughly cleansed, and is then covered with a deposit of copper, silver or other metal, as may be desired. Should the deposit required be one of silver, the model must first be coated with a thin film of copper, and to insure the uniformity of the deposit, anodes of silver, following the outlines of the casting, are suspended in the cyanide bath, equidistant from the opposite sides of the former. As soon as the deposit is of the required thickness, the body is removed from the bath, thoroughly washed, and subjected to the action of acids which dissolve the zinc matrix. The process of solution is greatly accelerated by the presence of a copper wire in the zinc, thus producing a powerful galvanic action. The hollow silver figure may afterward be boiled in a solution of cream-of-tartar, by which process a bright whitish color is produced. Should a copper figure be required, the zinc model, as well as the copper deposit must be coated with silver, in order to guard against any galvanic action when removing the matrix by acids. Another method of producing such hollow figures consists in casting the model itself of the above-mentioned easily fusible solder, and afterward removing it by the action of steam or hot water, the fused mass escaping through holes left specially for this purpose.—*Iron Age*.

ART ACADEMIES IN ITALY.—Mr. Matthew Arnold, who, as M. Scherer said of him the other day, carries his affection for the French so far as to praise even the French Academy, will be shocked to hear that the present Education Minister in Italy is meditating the total abolition of art academies in that academy-ridden land. Their buildings are to be turned into galleries and museums, and their educational functions to be left to private institutions, wholly independent of the state. In any such design he will have plenty of enthusiastic support. The younger artists of Rome recently signed a memorial to the Minister in which it was asserted that academic instruction is incompetent to train artists, and that the sums spent upon it by the state are therefore spent to no purpose. The wish is at the same time expressed that the academies may be turned into galleries and free schools for the study of the nude. It is of course difficult to say how far this movement may be the work of mere rebellious incompetence, and how far of a true sense of the need for freedom. In countries which have shown themselves capable of developing a great art as the flower of a great civilization, academies have only been instituted when art was already in its decay. That decay academies have shown themselves powerless to arrest; perhaps they have hastened it. The middle of the seventeenth century saw the foundation of the Academy at Rome, and that was also the date of the final collapse of Italian art. The Madrid Academy in Spain was founded by Philip IV., and with its foundation Spanish art also temporarily disappears. In the same way Flemish art ended with the Antwerp Academy, and in Paris the Academy was more often hostile to genius than favorable to it. These coincidences between the decadence of art and the beginnings of academies may, of course, be purely accidental, but it is at any rate difficult to maintain merely on a study of the facts that academies perform such services to art as to be fit recipients of endowments from the state.—*Pall Mall Gazette*.

CRITICS IN A DILEMMA.—The *Athenaeum* of September 17 says: "According to some of the French journals, three Belgian art critics of reputation have assailed M. Jean Van Beers on account of his pictures 'Lily' and 'La Sirène,' which we admired in the last *Salon*, and which are now in the exhibition at Brussels. The assailants allege that the painter has employed photography in a nefarious and entirely illegitimate manner in the production of these works, so that, it is averred, they are neither more nor less than photographs deftly colored, and worth only a few francs instead of the considerable prices set upon them by M. Van Beers. The allegations in question were put forward in a very lively manner and without compromise as to terms and style. One or more of the writers averred that traces of photography are observable in parts of the pictures, which are undoubtedly finished in the most exquisite manner. The writers did not hesitate to use hard names. M. Van Beers has replied to his foes very tersely, and stated that the price of 'La Sirène' is 20,000 francs, that of 'Lily' 10,000 francs. He will allow properly qualified experts, French or foreign, to scrape (*gratter*) either of the pictures. If the least trace of photography is found by this means the artist will immediately pay the value of the picture in question, which sum he will deposit in advance with any banker named by his antagonists. If, on the other hand, no traces of photography are discovered, M. Van Beers will expect that the critics will give the value of the picture to the Benevolent Society of Artists at Brussels." Later accounts from Brussels state that a jury of eight specialists, among them two professors of chemistry, examined the picture and came to the conclusion that it was not painted on a photograph.

AN EMPLOYERS' LIABILITY CASE.—*Fatman vs. Javens*, the first case in a London court under the Employers' Liability Act, was tried on Wednesday before Mr. Besley. The plaintiff was a carpenter and the defendant a builder. On June 29, the plaintiff and other workmen were engaged in lowering from the second floor of the workshop a "sugar-shelf" weighing about three hundred-weight. A rope and an ordinary pulley were used to carry the load. The shelf, in the course of its descent, struck on a projection on the first floor, and the plaintiff was ordered by the foreman to go down and ease it. When he touched the shelf some one above jerked the rope, causing the shelf to fall rapidly to the ground, and in its passage it lacerated the plaintiff's right hand. He attended at the London Hospital for several weeks, and was still unable to work. The defence was that the accident was the result of contributory negligence on the part of the plaintiff in suddenly pushing the shelf off its resting-place. The plaintiff admitted that there was a post on the stage where he was standing, for the purpose of winding the rope round to afford a better hold, but the rope in use at the time was too short to enable him to avail himself of it. The amount claimed was £50, but the verdict of the jury was for £10.—*The Architect*.

SUBTERRANEAN TELEGRAPH LINES IN GERMANY.—A recent official return gives some interesting information respecting the subterranean telegraphic lines which have been laid down in Germany during the last few years. The system of lines recommended by the committee originally appointed to report on the expediency of employing subterranean in preference to overhead wires has been lately completed by the laying down of lines from Berlin to Stettin and from Cologne to Aachen, the total length of the cables buried amounting to 5,471 kilometres, or 2,920 miles. The cost of laying down these subterranean lines has naturally been far greater than that of setting up a similar length of overhead wires would have been, the total sum expended on them being estimated at 30,210,975 marks; but the cost of keeping them in repair will, it is expected, be very trifling, while they afford a complete immunity from the interruption of communication by storms or gales.—*St. James's Gazette*.

UNITED STATES LIGHT-HOUSES.—The annual report of the light-house board will show that the number of light-houses now aggregates 700, not including about 800 lights distributed along the western rivers. It will also recommend that \$50,000 be appropriated to introduce electric lights in several of the more prominent light-houses. The estimates for the current year amount to about \$3,000,000.

BUILDING INTELLIGENCE.

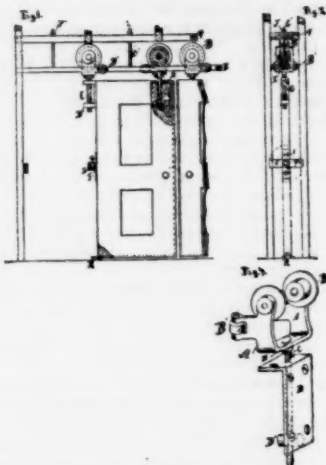
(Reported for The American Architect and Building News.)

[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.]

246,286. DOOR-HANGER. — Caleb Brinton, Chicago, Ill. The bracket A, having vertical and horizontal arms, with wheels B and rolls B', suspension-rod C, with the angular attaching-plates D, having lug D', Fig. 4, constitute the hanger. The square-sided single track E is secured to header F, which itself is secured rigidly to and forms part of the building. The track E can be raised or lowered, as may be desired, by means of nuts. The suspension-rods C are threaded upon the lower end, so as to be turned into corresponding threads in part D' of plate D, by which the doors are suspended and adjusted. The recess in the lug H on the underside of the bracket A is elliptical in form, which admits of an oscillating motion of the bracket A on a line with the axes of wheels B, thus allowing adaptation of the wheels to any irregularity of the track. The rolls B' serve to keep the axes of the flanged wheels B at right angles to the longitudinal line of the track E. The angular plates D are secured to the top and front edges of the doors, to



which the suspension-rods C are adjusted. A single wheel, with or without flanges, may be used in lieu of wheels B. If the flanges are omitted, the wheel can travel upon a way or within a groove upon the under side of said track. The guide K at bottom of door, Figs. 1 and 2, is secured to floor even with the side of the door-jamb, and fits into the groove in the bottom of the door. In the construction of the hangers, hard-wood track and iron wheels are used, with their axle-bearings bushed with anti-friction metal. It will be observed that the carriages act independently of each other, and that the track is single and made with the least waste of material. The doorway is clear of obstructions and the appendages out of sight. The door can be readily adjusted at any time to conform to any irregularity of the frame or floor.

247,735. COMBINED WEATHER-STRIP AND BURG-LAR-PROOF LOCK FOR DOORS. — John M. Applegate, Novelty, Mo.

247,737. ELECTRIC GAS-LIGHTING APPARATUS. — George D. Bancroft, Boston, Mass.

247,755. MULTI-WAY COCK. — Alexander Fyfe and Thos. Rawson, Paterson, N. J.

247,764. SCREW-CUTTING LATHE. — Andrew Hyde, Hatfield, Mass.

247,783. MACHINERY FOR THE EXCAVATING AND CONSTRUCTION OF SEWERS. — Jno. H. Schenck, New York, N. Y., and Sydney Maltby, Washington, D. C.

247,786. WEATHER-STRIP. — William H. Tapper, Alda, Neb.

247,788. WOOD-PLANING MACHINE. — Asa R. Wells, San Francisco, Cal.

247,789. WATER-CLOSET VALVE. — Peter White, St. Louis, Mo.

247,791. LUMBER-TRIMMING MACHINE. — Alfred Williams, Moline, Ill.

247,801. FIRE-ESCAPE. — Rudolphus S. Dashiell, Greenborough, N. C.

247,828. WATER-CLOSET FIXTURE. — John H. Jennings, New Bedford, Mass.

247,854. HEATING-DRUM. — Dexter M. Small, Providence, R. I.

247,865. FILTER. — Julius Wodiska, New York, N. Y.

247,885. METAL-ROOFING. — Jno. B. Casley, Coolville, O.

247,894. BENCH-DOG. — John M. Doyle, North Springfield, Mo.

247,939. SQUARE ATTACHMENT FOR SAW-BLADES. — Thos. U. Mekeel, Poughkeepsie, N. Y.

247,947. APPARATUS FOR TREATING TIMBER FOR PRESERVING IT. — Joseph W. Putnam, New Orleans, La.

247,956. LOCKING-LATCH. — Edward Snyder and Israel Adams, Worcester, Mass.

247,966. METHOD OF ORNAMENTING WOOD. — Albert Thalheimer, Reading, Pa.

247,987. CHAIN-WRENCH. — William H. Brock, Corona, N. Y.

247,996. TILE FOR ILLUMINATING PURPOSES. — James G. Pennycook, Boston, Mass.

248,007. SMOKE-CONSUMING FURNACE. — Alfred Berner, Boston, Mass.

248,011. COMPOUND FOR RENOVATING BRICK SURFACES. — Frederick J. Berry, Boston, Mass.

248,014. COMBINED STEP AND EXTENSION LADDER. — C. A. Boardman, Boardman, Wis.

248,015. FLOOR-CLAMP. — John A. Brown, Marlborough, Mass.

248,016. HOT-AIR FURNACE. — Abner H. Brown, Royer's Ford, Pa.

248,025. LIFTING-LATCH. — Francis Clymer, Gallon, O.

248,028. MEANS FOR OPERATING STAGE-SCENERY. — John Crossy, Philadelphia, Pa.

248,029. COMPOSITION FOR FILLING THE PORES OF WOOD. — Frank Donnet, Gallipolis, O.

248,038. AUTOMATIC FIRE-EXTINGUISHER. — Alphonso S. Harris, Chelsea, Mass.

248,043. HAND-SAW. — Lewis Lawson, New York, N. Y.

248,049. HEATING-DRUM. — August Meyer, Port Washington, Wis.

248,072-075. COMPOSITION FOR ROOFING AND PAVING. — Cytus M. Warren, Brookline, Mass.

248,076. BASIN-WASTE. — Henry M. Weaver, Mansfield, O.

248,092. VENTILATOR. — Christian A. Fredericks, Brooklyn, N. Y.

248,093. FIRE-PROOF COMPOSITION. — Charles C. Gilman, Hardin County, Iowa.

248,128. SHUTTER-FASTENER. — Henry B. Ayer, New Orleans, La.

248,141. HEATING FURNACE. — Benj. D. Childrey, Philadelphia, Pa.

248,150. SAFETY DEVICE FOR ELEVATORS. — Albert C. Ellithorpe, Chicago, Ill.

248,160. APPARATUS FOR THE ODORLESS EMPTYING OF SINKS, SEWERS, ETC. — Urban Götsenbrügger, Vienna, Austria.

248,164. SCREW. — Hayward A. Harvey, Orange, N. J.

248,207. VENTILATOR. — Joseph Patchett, Lawrence, Mass.

248,216. REMOVING HOUSE-SEWAGE AND VENTILATING THE PIPES THEREFOR. — Henry Reese, Baltimore, Md.

248,253. FIRE-EXTINGUISHER. — Albert M. Burritt and Lewis D. Castle, Waterbury, Conn.

SUMMARY OF THE WEEK.

Baltimore.

BUILDING PERMITS. — During the past week thirteen permits have been granted, of which only the following deserve special notice:

K. Walpmann, 4 three-sty brick buildings, Chew St., bet. Hand St. and Broadway.

W. H. Wehn, 4 three-sty brick buildings, s e cor. Mount and Lexington Sts.

W. H. Wehn, 2 three-sty brick buildings, east side Mount St., in rear of buildings mentioned in above permit.

Chr. Otto, to rebuild and alter hall, south side of Haw St., 100' east of Fremont St., into 3 two-sty buildings.

Boston.

BUILDING PERMITS. — Brick. — Hancock St., near Stoughton St., for Micah Dyer, Jr., family hotel, 59' x 74', four-sty masonry; Sampson, Clark & Co., builders.

Water St., opposite Joiner St., for Hoosac Tunnel Dock and Elevator Co., engine-house, 28' x 50'; Charles K. McLean, builder.

Marlborough St., near Exeter St., for C. J. Blake, dwell., 22' 6" x 82' 2", four-sty masonry; J. H. Kelly and McKenzie & Campbell, builders.

Newbury St., near Gloucester St., for W. W. Lewis, dwell., 16' 6" x 57', three-sty; Woodbury & Leighton, builders.

Newbury St., near Gloucester St., for A. T. Lowe, dwell., 16' 6" x 57', three-sty; Woodbury & Leighton, builders.

Commonwealth Ave., Nos. 228 and 230, for Chas. W. Parker, 2 dwells., 20' x 60', two-sty masonry; L. P. Soule, builder.

Water St., opposite Joiner St., for Hoosac Dock and Elevator Co., boiler-house, 34' x 70'; Charles R. McLean.

Beacon St., Nos. 333, 335 and 337, for Samuel T. Ames, 3 dwells., 25' x 48', three-sty.

Wood. — Cedar St., near Terrace St., for James W. Kenney, stable, 25' x 62', two-sty.

Hoffman St., cor. Gilbert St., for Michael Mitchell, dwell., 28' x 34' 6", two-sty; John L. Dakin, builder.

George St., near Magazine St., for Maximilian Kaiser, 32' x 32', two-sty; F. J. Fortunato, builder.

Washington St., near Blue Hill Ave., for Geo. L. Gardner, dwell., 37' 8" x 38', two-sty; Milton H. Howard, builder.

Parkman St., near Adams St., for J. Lodge Eddy, dwell., 20' x 27', two-sty; Studley Bros., builders.

Hancock St., rear of, near Downer St., for Wm. Hendry, 2 dwells., 18' x 28', two-sty; John Quirk, builder.

Olney Street Pl., near Olney St., for Thomas A. Cox, greenhouse, 10' x 97'; Rob. M. Lapham, builder.

Draper St., near Auburn St., for Oliver Ditson and John H. Robinson, 2 dwells., 26' x 36', two st'y hip; C. H. Wetmore, builder.

Brooklyn.

BUILDING PERMITS. — Herkimer St., s s 40' w Utica Ave., 2 two-sty brick dwells.; cost, each \$4,000; owners, Koryon & Newton, 528 Union St.; architect and carpenter, Theo. Pearson; mason, C. Bedell.

Partition St., s s 200' e Conover St., four-sty brick store and tenement; cost, \$8,000; owner, Henry Dohrman, 134 Partition St.; builder, C. M. Detlefsen.

Madison St., s s, midway between Clason and Franklin Aves., two-sty brick stable and dwell.; cost, \$4,500; owner, A. W. Pollard, 73 Monroe St.; architect, W. H. Burhaus.

Monroe St., Nos. 140 and 142, being 145' e Bedford Ave., 2 three-sty stone dwells.; cost, \$5,500; owner and builder, L. W. Seannans, Jr., De Kalb Ave. and Fort Green Pl.

Third Pl., s s 75' w Smith St., 4 three-sty brick tenements; cost, total, \$16,500; owner, architect and builder, Wm. Taylor, 83 Third Pl.

Penn St., s s 100' w Harrison Ave., 2 two-sty brownstone dwells.; cost, about \$4,500 each; owners, John F. Saddington & Bro., 201 1/2 Halsey St.; architect, G. W. Casey; builder, T. B. Saddington.

ALTERATIONS. — Washington Ave., No. 251, two-sty brick extension; cost, about \$7,000; owner, Geo. C. Martin, on premises; builder, W. H. Hazard.

Chicago.

BUILDING PERMITS. — G. A. Bush, two-sty brick dwell., 22' x 66', La Salle Ave., near Chestnut St.; cost, \$10,600.

J. Cosmarck, two-sty brick dwell., 21' x 56', 741 Van Horn St.; cost, \$30,000.

G. W. Merchau, two-sty brick dwell., 40' x 50' 397 Dayton St.; cost, \$5,000.

A. J. Gross, 2 two-sty brick dwell., 38' x 42', 224 Wilmet St.; cost, \$6,000.

C. Anderson, two-sty brick dwell., 21' x 42', Center St., near Halsted St.; cost, \$5,000.

Hunter & Scott, three-sty brick store and dwell., 25' x 66', 135 Fourth Ave.; cost, \$5,000.

M. Heppscher, one-sty brick dwell., 20' x 30', Lewis Ave.; cost, \$2,000.

W. Mackl, two-sty brick dwell., 20' x 39', 3515 Lowe Ave.; cost, \$4,000.

G. A. Seavorns, elevator, 85' x 183'; Twenty-second St. and river; cost, \$25,000.

Miss Hooker, two-sty brick dwell., 24' x 33', 739 Jackson St.; cost, \$4,000.

H. L. Parmalee, two-sty brick dwell., 23' 4" x 51', 20 Ogden Pl.; cost, \$3,500.

E. C. McLeod, 2 two-sty dwells., 40' x 45', 228 Park Ave.; cost, \$9,000.

F. Weising, two-sty brick dwell., 28' x 42', 752 West Twenty-second St.; cost, \$2,800.

D. Murphy, two-sty brick dwell., 24' x 38', 262 Oak St.; cost, \$3,500.

F. Seibel, two-sty brick dwell., 24' x 6', 217 Orchard St.; cost, \$28,000.

O. Fischer, two-sty brick dwell., 21' x 46', Dayton St., near Lincoln Ave.; cost, \$2,560.

C. A. Blaurock, two-sty brick dwell., 46' x 46', Leavitt St., near Harrison St.; cost, \$4,500.

L. P. Williams, two-sty brick dwell., 19' x 61', 627 Sedgwick St.; cost, \$6,000.

F. Walpole, three-sty brick dwell., 25' x 38', 27 Lincoln St.; cost, \$6,000.

J. Scott, two-sty brick dwell., 20' x 42', 636 West Twelfth St.; cost, \$2,800.

Stark, two-sty brick dwell., 24' x 66', 307 Hubbard St.; cost, \$4,000.

U. S. Rolling Stock Company, one-sty addition to factory, 88' x 100', Hoyne St., near river; cost, \$6,000.

J. W. Garvey, three-sty brick factory, 76' x 126', Paulina St. and Blue Island Ave.; cost, \$11,000.

Eva Varden, three-sty brick dwell., 20' x 40', 362 Ohio St.; cost, \$4,000.

A. Brevett, two-sty and basement brick dwell., 25' x 40', Garfield Ave., near Clark St.; cost, \$3,500.

F. D. Reynolds, 3 two-sty brick dwells., 42' x 46', 3730 Johnson Pl.; cost, \$5,000.

C. H. Durand, one-and-a-half-sty brick barn, 50' x 52', Twenty-second St. and the Lake; cost, \$3,500.

U. W. Brayton, 2 two-sty and basement brick dwells., 46' x 65', Vincennes Ave., near Thirty-fifth St.; cost, \$9,000.

Glennon & Bee, one-sty brick boiler-shop, 60' x 132', Fulton St., near Clinton St.; cost, \$8,000.

J. B. Hammond & Bro., two-sty brick dwells., 43' x 46', Seminary Ave., near Webster St.; cost, \$4,000.

Geo. Engler, two-sty and basement brick dwell. and store, 22' x 50', 145 Sedgwick St.; cost, \$2,500.

J. P. Roach, two-sty brick addition to dwell. and barn, 17' x 27', 2320 Calumet Ave.; cost, \$3,500.

V. Churan, one-sty brick store, 22' x 70', 1073 Blue Island Ave.; cost, \$2,700.

D. E. Gross, two-sty brick store and dwell., 22' x 46', Ashland Ave. and Thirty-sixth St.; cost, \$2,350.

S. Peterson, 3 two-sty and basement brick dwells., 61' x 64', 723 to 727 Sedgwick St.; cost, \$10,000.

Jerome Beecher, 12 two-sty brick dwells., 20' x 62', 208 Calumet Ave., near Thirty-fifth St.; cost, \$42,600.

Augusta de Horn, 4 three-sty brick stores and flats, 50' x 80', Wentworth Ave., near Twenty-seventh St.; cost, \$18,000.

Wilson & Wheelock, 2 two-sty brick dwells., 44' x 56', 911 and 913 West Monroe St.; cost, \$5,000.

R. Bezugsen, three-sty brick flats, 24' x 58', Evergreen Ave., near Park St.; cost, \$6,000.

Cleveland, O.

HOUSES. — Stone house for Stewart H. Chisholm, on Euclid Ave. near Case Ave.; cost, \$40,000; Wm. Robertson, carpenter; Thos. Simmons, mason; Geo. H. Smith, architect.

Stone house and stable for Chas. J. Sheffield, on Prospect St., near Kinnard St.; cost, \$35,000; Thos. Linas, mason; Geo. H. Smith, architect.

STABLE. — Stone stable for J. D. Rockefeller, on cor. Euclid and Case Aves.; cost, \$14,000; Thos. Simmons, mason; Geo. H. Smith, architect.

New York.

BUILDING PERMITS. — East Eighty-fifth St., No. 311, four-sty brownstone tenement; cost, \$14,500; owner, Fred. Schuck, 516 East Eighty-fifth St.; architect, J. Brandt.

Fourth Ave., n e cor. Seventy-third St., six-sty brick apartment-house; cost, \$60,000; owner, Charles H. Bliss, 204 East Seventy-second St.; architects, Thom & Wilson; mason, J. Kennedy.

Fourth Ave., s s 45' 2" n Seventy-third St., 3 five-sty stone apartment-houses; cost, each, \$15,000;

(Continued on next page.)