

PRICE 15 CENTS.

MARCH 9, 1895.

THE
AMERICAN ARCHITECT
AND BUILDING NEWS

VOL. XLVII.

* REGULAR EDITION *

NO. 1002.

ARCHITECTURE

ENGINEERING

DECORATION

211 TREMONT ST.

CONSTRUCTION

BOSTON MASS.

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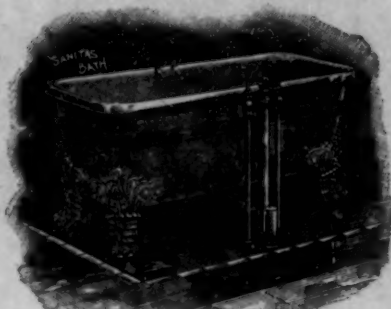
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THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. XLVII.

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No. 1002.

Entered at the Post-Office at Boston as second-class matter.

MARCH 9, 1895.



SUMMARY:—

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THE competition for the Minnesota State Capitol has been concluded, by the award of the first prize, which, it is supposed, carries with it the execution of the work, to Messrs. Wendell & Humphreys, of Denver, Colorado. The second prize was awarded to Mr. J. A. Schweinfurth, of Boston; the third to Mr. George R. Mann, of St. Louis; the fourth to Mr. George de Gersdorff, of New York, and the fifth to Mr. Warren B. Dunnell, of Minneapolis. The selection was made under the advice of Messrs. Edmund M. Wheelwright, of Boston, and Henry Ives Cobb, of Chicago; and it is hardly necessary to say that a better jury could not well have been selected. The competition has been an unsatisfactory one, inasmuch as the terms offered were not such as architects of standing in this country are usually willing to accept, and the better-known members of the profession in Minnesota itself generally held aloof from the contest; but the Commissioners, who were not responsible for the law under which they acted, did their best for the State by putting the selection into competent hands.

AT one of the legislative hearings made necessary by the recent attempt to compass the destruction of the Massachusetts State-house designed by Charles Bulfinch, those present enjoyed the rare pleasure of listening to the extemporaneous remarks of Colonel Henry Lee in defense of the building, remarks that could hardly have been better adapted to their aim by any device of rhetoric or oratory carefully prepared and rehearsed beforehand. We cannot in type reproduce the quietude and delicate emphasis of the speaker's utterance any more than we can picture the impressiveness and dignity of his manner, which conveyed to those present the proof of his perfect sincerity and disinterestedness. All we can do is to reproduce in another column the mere words of his speech bereft of their most subtle quality, the vocal expression of the sentiment which led to their utterance. Colonel Lee's remarks, like the whole matter of preserving the State-house, are based on sentiment, and as sentiment is a matter that the modern American is becoming more and more willing to neglect and jibe at, we, who believe with Colonel Lee that life without sentimental associations would be a pleasureless existence, feel that such an exposition of the value of sentiment as this ought to be recorded in a place where it can be referred to when a fresh battle has to be waged between Philistines and Sentimentalists over some matter of kindred nature. The great value of the plea or argument lies in its

applicability to similar cases where the brutality of modern progress needs checking in the interest of a reverent and patriotic regard for historical, artistic and sentimental association.

THE British landowner appears to be the object chosen at present by Fortune to practise upon with all her slings and arrows. It is well known that, in some of the Western States, large tracts of land are owned by foreigners; and the Philadelphia Press gives an interesting table of such holdings, showing that in Texas, Florida, Mississippi, Kansas, Virginia and elsewhere, tracts varying from a few thousand acres to three or four millions are owned by syndicates of wealthy Englishmen, or Hollanders, or Germans, or by single proprietors. Lord Dunraven, for instance, owns sixty thousand acres in Colorado; Mr. Robert Tennant owns two hundred and thirty thousand; Mr. Bryan H. Evans, of London, owns seven hundred thousand acres in Mississippi; the Marquis of Tweeddale owns nearly two million acres, and Viscount Scully owns about three million acres, all, or nearly all, in Illinois. Unfortunately for Lord Scully, Illinois is a State where people think and act energetically, and its inhabitants seem to have made common cause against the great absentee landlord. Under the present laws of the United States, no more such great estates can be acquired here by aliens, but Lord Scully is still entitled to collect rent from what property he already possesses, and is quite disposed to do it; while the citizens show an equal desire to make the operation as troublesome for him as may be. His own tenants appear to submit peaceably enough to the payment of rent, and are probably glad to get the use of their farms on such easy terms; but, as their leases impose upon them the burden of paying all taxes on the land, they naturally oppose everything in the way of public improvements, which they must pay for, while their landlord gets the benefit of them; and the "Scully counties" furnish, in consequence, a compact body of voters who can be relied upon to oppose every sort of State development which must be paid for by taxation. In a new and rapidly advancing community like Illinois, it cannot be denied that this is a serious evil; but Lord Scully refuses to sell his land, and, as his tenants, already discontented at some of the proceedings of his agents, are encouraged in their demonstrations by their fellow-citizens, there is a prospect of future trouble. Perhaps the best and fairest way to escape it would be to authorize the State by law to expropriate the land of alien owners, pay them a fair price for it, and resell it to actual citizens; but this would probably require the interposition of the Federal Government. Meanwhile, the English proprietors, alarmed at the present condition of affairs, have formed an association, which meets at the Bank of England to discuss American real-estate. In response to this, the tenants of alien landlords in Illinois, Nebraska, Iowa and Kansas are said to have formed an association for protection, and both sides have taken measures to be represented in the State Legislatures.

MR. R. IRMINGER, a Swedish engineer, has been making some interesting experiments to determine the effect of wind upon buildings, which are briefly described in the Builder. It is known to most architects that, in addition to the effect of wind blowing directly upon one face of a building, a strain is caused by the production of a partial vacuum on the lee side, which may, under certain circumstances, become serious; and one of the rudimentary maxims of practical construction is to fill the upper windows of a new house with boards or sashes, as soon as the roof is on, for fear that, in a high wind, the vacuum developed on the lee side of the roof, joined with the increased pressure on the inside, due to the blowing of the wind into the open windows, may lift the roof off; and Mr. Irmingier has devoted himself particularly to this part of the subject. By arranging model roofs in such a way that both the inward and outward pressure could be measured, he found that if an ordinary double-pitched roof, with rafters inclined to the horizontal at an angle of 45°, was exposed to a wind blowing horizontally, in a direction at right angles with the line of the ridge, the pressure on the lee side of the roof, from within outwards, normal to the plane of that side of the

roof, was more than three times as great as the inward pressure, normal to the roof-plane, on the windward side. Moreover, on the windward side itself, the pressure due to the wind was greatest near the eaves, diminished uniformly and rapidly toward the ridge, and near the ridge became negative, its tendency being outward and upward. In another series of experiments, a roof was used, forming a segment of a spherical surface, like the top of a gas-holder. With this roof, exposed to the wind, the pressure was everywhere outward, the resultant of all the pressures being nearly a vertical upward line. Although these results show that much more attention must be paid to the effects of partial vacuum than has hitherto been supposed necessary, they really accord with what is known of the remarkable properties, in other instances, of induced currents in air, and should be made widely known in the profession.

THE Royal Gold Medal of the Royal Institute of British Architects is to be awarded this year, by the recommendation of the Council of the Institute, to Mr. James Brooks, and the profession in this country, as well as in England, will certainly applaud the choice. Mr. Brooks must be an old man now, for his characteristic designs have been familiar in architects' offices for at least thirty years; but he has held firmly to the principles of simple and truthful building with which he began his artistic career, and he deserves to be honored for so doing. Our own professional training may have inclined us unduly toward the appreciation of breadth and simplicity in architecture, but, however that may be, we think that James Brooks's churches have given us more pleasure than any other modern architectural work in England. Beautiful as are the buildings of Norman Shaw, and some others, they are apt, in our experience, to be less charming than their author's pictures of them; while Mr. Brooks's work is more attractive in execution than in his drawings, and no architect, whatever his proclivities in regard to style, can study his churches without the conviction that a thorough artist designed them.

THE German Archaeological Institute of Athens is to conduct two excursions this spring, among the most interesting portions of Greece, including the islands of the Ægean and a little of the coast of Asia Minor. The first excursion leaves Athens on Easter-Monday, and proceeds at once to Corinth, where a day is spent. The next day is devoted to Tiryns; the next to Mycenæ, and a day each to Epidaurus, Argos, Mantinea, Megalopolis, Lycosura, Bassæ and Samicon. Olympia is next reached, and a stay made there of four days. The party next proceeds to Patræ, where a private steamer is taken across the Gulf of Corinth to the nearest landing to Delphi, where two days will be spent, the return to Athens being made April 30. The cost of this most interesting excursion is estimated at ten marks, or two dollars and forty cents, per day for each person. The second excursion leaves Athens May 6, in a private steamer, which forms the home of the excursionists throughout the trip. The first place visited is Ægina; then come Poros, Sunium and Thorius, Oropus and Eubœa, Rhamnus and Marathon, Delos and Myconos; and, if the Turkish quarantine regulations permit, a Sunday is to be spent at Assos, and two days at Troy. The expense of this "Island journey" will be about sixteen marks, or less than four dollars per day for each person. Foreigners interested in archaeology are received in both excursions, and ladies may take part in the island trip.

ANOTHER scientific mare's-nest appears to have been discovered by one of those indefatigable investigators, the reporters of the Boston *Herald*. It will be remembered that, a few years ago, the announcement was made that a Canadian blacksmith had "rediscovered" the "Egyptian art" of hardening and tempering copper. Nothing came of this "rediscovery," and it appears that "the expensiveness of the process" made it unavailable for use. Now, the same blacksmith has, we are told, succeeded in tempering aluminium, "so as to give it the consistency of iron." The "consistency of iron" is a rather indefinite expression, but, as indicating what sort of iron is meant, it seems that Mr. Allard, the ingenious blacksmith in question, has made a cannon out of his "tempered aluminium," and has fired a pound of powder out of it without injury, to the admiration of all beholders of the feat.

IT is well known that aluminium is not only altered greatly in strength by alloying it with other metals, some of these alloys having an enormous resistance, but that a peculiar hardness and elasticity can be imparted to it by the simple process of heating it in powdered charcoal, and allowing it to cool very slowly; and, without disrespect to Mr. Allard's merits as an inventor, it seems not unlikely that his discovery, instead of being a miraculous inspiration, is really only an improved application of principles already well known. As for the test said to have been applied to his invention, by firing a pound of gunpowder out of a cannon, twenty-six inches long, and of five inches bore, made with his new metal, it is hardly necessary to say that the same quantity of loose gunpowder, if in fine powder, might be fired out of a cylinder of pasteboard of the same dimensions; and the "enthusiasm" alleged to have been displayed by military men over the trial seems a little ridiculous. The inferences which the *Herald* reporter draws from the exhibition are, however, a good deal more so. The metal of the gun subjected to the test is said to have been a quarter of an inch thick, and the gun itself to have weighed fourteen pounds, which, with a liberal allowance for thickening at the breech, seems not very unreasonable. We are, however, further informed that "if it were of iron, and of the same dimensions, it would weigh one hundred and eighty pounds." As the specific gravity of pure aluminium is 2.6, and that of cast-iron is about 7.6, it is obvious that Mr. Allard's cannon, if it weighs fourteen pounds in pure aluminium, will weigh, in cast-iron, a little less than forty-four pounds, instead of one hundred and eighty. It seems, however, altogether likely, not only from the rather unaccountable weight of the cannon, but from the probabilities of the case, that Mr. Allard's aluminium was alloyed, and in this case the difference in weight between the gun in aluminium and iron would be still smaller. The *Herald* reporter goes on to say that in the opinion of the above-mentioned "military enthusiasts," "if the tempered aluminium superseded iron for the making of big guns, field-artillery men, instead of being dependent upon horses and gun-carriages for dragging their weapons over rough country, will be able to shoulder them like muskets." It would be a very small field-piece, to say nothing of "big guns," which would not weigh a ton, and as the same thing in aluminium would weigh at least seven hundred pounds, we imagine that it will be a long time before artillery men will march with their batteries shouldered "like muskets." At the same time, ordinary infantry would be glad enough to have the weight of their rifles reduced from twenty pounds to seven, and, if Mr. Allard has really discovered anything new in the way of imparting tenacity to aluminium, he will find that not only military men, but civilians, will take a great interest in his invention.

A NEW system of purifying sewage is said to have been invented by a German chemist, named Oppermann. Relying on the fact that the mixture of caustic lime and magnesia obtained by calcining dolomite, or magnesian limestone, has the property, as is alleged, of absorbing a large quantity of ozone, he mixes with the sewage a certain proportion of calcined dolomite, saturated with ozone, and then adds a small quantity of perchloride of iron. A precipitate is thrown down, which is collected and saved; and the water flows off clear and pure, except that it has caustic lime dissolved in it. This lime is, however, gradually precipitated, in the form of carbonate, by the action of the atmosphere, or it may be more rapidly separated by blowing in carbonic acid gas; and the water is then quite pure. The cost of the process is very small, it being estimated that the sewage from a town of six thousand inhabitants may be purified for seventy-five cents a day.

THE practice of requiring all candidates for election into the Royal Institute of British Architects to pass an examination, instead of destroying the popularity and usefulness of the Institute, as was predicted, seems not only to have begun to increase perceptibly its authority and vitality, but to have made membership in it more sought after; and at the next business-meeting, as we learn from the *Builder*, fifty-six candidates, having proved their qualifications, will present themselves for election as Associates.

THE TENTH LEAGUE EXHIBITION.—I.



Statue intended for the Parliament Building, Berlin.

WE never enter an exhibition in the rooms of the American Fine Arts Society without a new sensation of pleasure at the effectiveness with which the rooms, whether intentionally or otherwise, are grouped for such purposes. Even the steps between the entrance rooms and the Vanderbilt Gallery, although they do not attract encomiums from the near-sighted and gouty, add materially to the richness and brilliancy of the view. This year, the hanging-committee, although they have always done their work well, seem to have appreciated better than ever the resources which the arrangement of the rooms afford, and have disposed their material with a skill and success of which they may well be proud. As usual, perhaps more than usual, the first effect which the exhibition produces upon one entering the rooms is one of color. The black-and-white drawings form a comparatively small part of the whole, but, as those who have served on hanging-committees do not need to be told, the smaller the space that they occupy, the more difficult it is to provide for them, and in this case they have been admirably managed. The large room first entered is almost wholly hung with studies for stained-glass and mural decoration. Most of these, naturally, are in color, but some of the most important are in black-and-white,—charcoal or crayon,—and the skill with which these are made, by suitable position and surroundings, to count as pieces of harmonious blue-gray color, is most interesting to observe. Such a feat would hardly be possible, if it were not that the drawings in this room generally aim at the hazy, fresco-like tone considered proper for decorative painting. Looking through from this delightful room to the next, we see a more varied mixture of objects, in which white sculpture predominates; but through an opening on one side we see a small room filled with bright book-covers and similar bits of color, and, on the other side, a corresponding room, filled with black wrought-iron work, with here and there a bit of polished copper or brass to enliven it. Beyond all this, the clever grouping is brought to a close with the architectural drawings proper, hung on the red walls of the Vanderbilt Gallery, which appear sufficiently between and around the white paper of the drawings to give warmth and harmony to the general effect of the room, and combine it properly with the others.

Among the individual exhibits in the first gallery, one of the most interesting is the scale model of a scheme of sculpture, by Mr. J. Massey Rhind, for the exterior of Alexander Hall, at Princeton College. The whole end of the building, which includes a rose window, is shown in the model, painted of a very dark brown color; while the sculptured bands and spandrels are shown in a much lighter shade. The contrast of color is undoubtedly far greater than it would be in execution, and is too great for the best effect, the sculpture having, in the model, the effect of putty; but, apart from this disadvantage, no architect can fail to be charmed with the composition. It is a rare thing to see in this country a piece of architectural sculpture in which the idea of having the sculpture assist the architecture, and compose with it, appears to have been comprehended at all; but in this work it is thoroughly understood, much to the advantage of both. Moreover, in the details of the grouping, Mr. Rhind shows a knowl-

edge of the art of architectural sculpture which is even yet very rare among artists. The days are, it is true, gone by in this country when a pediment could be filled, like that of the Capitol, at Washington, with a few scattered figures, crawling over a waste of background, like flies on a table-cloth, with the approbation of the public; but the picket-fence still furnishes the model for grouping the figures in many a sculptured band which we are called upon to admire. Mr. Rhind chooses exactly the happy medium between the picket-fence arrangement and the Tinworth-naturalistic type, in which the figures appear to have settled irregularly to the bottom of the frieze. His personages have room enough to move in, but not too much; they neither sprawl on the ground, nor march shoulder to shoulder across the view; their movement is dignified, but sufficiently varied, and the shadows of the heads or limbs form, unconsciously, symmetrical lines, composing gracefully with the architectural lines near them. Such is true architectural sculpture, and Mr. Rhind will be remembered with gratitude by the profession for his success.

Turning from this to the schemes for color decoration, the most interesting drawings are, perhaps, the sketches, by Elihu Vedder, for the wall and ceiling paintings in Mr. C. P. Huntington's house. As the work of a noted artist, whose easel paintings have long been celebrated for their intellectual qualities, these sketches would excite curiosity anywhere; but they would attract attention even if their author were wholly unknown. They are very unequal in importance, some being mere sketches, and others finished studies, while a ceiling is shown at scale, painted with a perfect knowledge of decorative grouping and coloring. Naturally, Mr. Vedder's associations and training being Italian, it is an Italian scheme which he has laid out for Mr. Huntington, but it is not less beautiful for that.

Of a less ambitious sort are Mr. Robert Reid's sketches, in charcoal, for figures in the ceiling decorations at the Fifth Avenue Hotel; but, in their way, they are hardly less pleasing. It is not often that we see, in this country, figures nearly life-size, drawn in charcoal with so much boldness and precision, nor do we often see, in any country, figures designed with a more charming inspiration. Not only in the faces, but in the proportions, the pose, and even in the fall of the drapery, there is a certain sweet nobility which is far above mere clever draughtsmanship; and the artist who could carry out in finished color such an ideal as the sketches suggest would have a good claim to immortality.

As is natural where so much ecclesiastical design is shown, there are in the room several works in which the sentiment professes to furnish the strongest claim to attention. Among these are two by the same artist, Mr. Arild Rosenkrantz, treating the same subject—"Mary's Vision of the Cross"—but with very unequal success. The larger of the two is in pastel, and is good in color and feeling, and tolerably well arranged; while the other, in oil, with equally meritorious sentiment and color, is spoiled by its unfortunate composition—St. Mary, illuminated by an appropriate aureola, occupying one end of the picture, while the cross, also shining with heavenly radiance, occupies the other. Either half of the canvas would make a more agreeable picture by itself than do the two halves combined; and the effect of the bicephalous arrangement is most unfortunate. Another piece of neglected composition is a cartoon for mosaic, by Joseph Lauber. The drawing is at the full size, in color, every bit of mosaic being indicated; but this only makes more conspicuous the crowding of the two right-hand figures, which, in execution, showing almost in silhouette against the gold background, would appear like one misshapen mass, with two heads.

Among the lighter decorative works in this room, the prettiest, perhaps, is the group of "Nymphs Fencing," by C. C. Curran. A nymph in a wire mask and padded jacket would not be a very attractive object, so we hasten to explain that Mr. Curran's nymphs are only playing with the foils, in the intervals of skipping about, in airy costumes, in a green meadow; and the graceful figures and sunny landscape, in soft pinks and greens and blues, make as pretty a piece of decoration as can be found in the exhibition. Another very clever piece of work is Mr. Walton's panel, to be set in black wainscoting, and consisting of naked figures relieved against a background of brilliant scarlet and orange. Set in a wide black frame, the panel does not look staring, and it ought to be charming in its intended place. Less agreeable is an "Allegory of Dancing," by Mr. Rosenkrantz, which smacks altogether too much of Walter Crane for our taste. Speaking of allegories, we suppose that a "greenery gallery" group, by Mr. Frederick Wilson, entitled the "Seven Deadly Sins," was intended to be allegorical, judging from the labels underneath the figures, which do not bear any apparent relation either to the figures or to deadly sins. No doubt, there is some hidden connection, which could be explained by persistent effort; but, to our mind, conundrums are very much out of place in connection with pictures.

A great part of the remaining exhibits in this room consists of designs or cartoons for stained-glass, of which we have marked in our catalogue Nos. 16 and 24, both by Helen Maitland Armstrong; No. 34, by Frederick Wilson; No. 84, by Ella Condie Lamb, whose lovely central figure would, as it seems to us, have had its beauty enhanced by a more symmetrical disposition of the rest of the group; No. 93, by Walter Janes, an intensely and consciously decorative sketch for a domestic window; and Nos. 116 and 125, the former by Frederic Crowninshield, and the latter by Edward Simmons. Of these, Mr. Crowninshield's work is the most elaborate, his group, most artistically designed, being shown by a large crayon drawing,

washed with color. Mr. Simmons, for his splendid figure, has chosen a rendering in charcoal lines, tinted in stump and in pastel. The same sort of medium has been adopted for several other cartoons in the room, with excellent effect, except that one regrets to see such good work entrusted to such evanescent materials.

A little different from these is the cartoon for the "Venice" decoration in the Walker Art Building, at Bowdoin College, by Kenyon Cox, which is shown in a large colored sketch, accompanied by pencil studies for details, evidently drawings from models, and by a color study for the head of the principal figure. Here, again, the dignity which symmetrical arrangement gives to decorative painting is strikingly shown. The symmetry is not obtrusive, a lateen-sail, on one side of the central figure, being ingeniously made to balance the wings of St. Mark's lion on the other side, but it is all the more charming for that, and architects, particularly, whose artistic training concerns itself principally with relations of lines and balance of masses, will study with delight the composition of this great work.

Before leaving this gallery, which we imagine every one does with regret, a few moments must be spent in examining the extraordinary burnt-wood picture, of Louis XIV, surrounded by appropriate devices. We may say that good oil-colors, skilfully spread on canvas, have always seemed to us a sufficiently satisfactory medium for the expression of artistic thought, but, supposing a gifted savage to be cast ashore on a desolate island, with nothing but a hot poker and a board for painting-materials, it must be confessed that he would not be so badly off as we supposed, for Mr. Fosdick has revealed in carbonized cellulose a richness of color of which few people have ever dreamed; and his picture, which is well-drawn and well-designed, is much more worthy of a place of honor than many works in a more ambitious medium.

(To be continued.)

HINTS TO ART STUDENTS ON TRAVELLING ABROAD.—IV.

A GUIDE-BOOK is indispensable to the tourist. Baedeker is always good and contains an astonishing mass of information, besides lists of hotels and maps of the cities. But it is rather bulky to carry and there is a certain advantage in having a very small book which is simply a catalogue of important things. Joanne's "*Guide Diamante d'Italie*" is such a book, written in French and inexpensive. It may be supplemented in the principal cities with Hare's voluminous books. Joanne is also the compiler of some very complete and inexpensive guides along the chief railway lines of France, such as Paris, Lyon et Méditerranée and Chemin de Fer de l'Ouest.

In regard to the method of carrying funds, there is considerable difference of opinion; some persons consider Cook's and Gage's notes most convenient.

A letter-of-credit on any large bank that does much business with tourists will be found satisfactory.

Where you intend to pass considerable time in small places, it is necessary to lay-in funds ahead, as you can draw money on the letter only at banks on its list—your banker to the contrary, who is very apt to inform you that his letter-of-credit can be drawn on through any bank of Europe.

Keep as little money as possible about you and never show it. Use a small purse, with a separate compartment for gold. It will save you the dismal realization, sometime, that you have given out a twenty-franc gold piece for a silver franc.

In Italy and Greece, where the currency is continually fluctuating, draw but five pounds at a time. In these countries the currency is badly depreciated and two weeks' time often makes a considerable difference in the amount of currency you receive in return for your English gold.

It sometimes happens that a traveller loses his letter-of-credit and purse at the same time and finds himself stranded and in a very disagreeable position. It requires considerable time to write for a new letter-of-credit, and to telegraph home for funds is an expensive operation. To avoid the possibility of such a situation, sew English bank-notes to the sum of two hundred dollars in the waist-band of your trousers, then if you lose everything else, you have money enough for contingencies.

Before arriving in a country, go to a money-changer and procure all the small coins in use; learn their names and value and learn to count in the language of the country. This will save you from being fleeced by the porters, cab-men and others who always charge strangers an exorbitant rate of interest in changing their money.

English money is the most intricate of all. The names of the pieces are not stamped on them, and it takes a little time to learn to distinguish the two-shilling piece or "florin" from the two-shilling-and-a-half piece called a "half-crown." The two-shilling piece can always be known by the Greek cross on the back of it. Another point to notice is that the sovereign and pound contain twenty shillings, while the guinea, which exists in name only, contains twenty-one shillings. There are twelve pence in a shilling which is a little confusing as a change from the decimal system; the crown contains five shillings; the penny is equal to our two-cent piece.

On the Continent the monetary systems are decimal.

In France, the basis of computation is the franc which is worth a

little less than twenty American cents. It contains a hundred centimes, which are coined in five and ten centime pieces. The ten-centime piece is like the English penny and our two-cent piece. The five-centime piece is called a "sou." Shopkeepers often name the price of an article as so many sous.

In Italy, Spain and Greece, the currency is similar to that of France. The piece that corresponds to the French franc, in Italy, is the lira; in Spain, the peseta; in Greece, the drachma; and in Germany, the mark. The five-centesimi piece in Italy is called a "soldo," and in Spain, a "perro chico," that is, a little dog, because there is the image of a little dog on it.

The Italian lira contains 100 centesimi; the Spanish peseta, 100 centimos; the Greek drachma, 100 lepta; the German mark, 100 pfennig.

The Spanish reis is equal to twenty-five centimos. The five-peseta piece is called a "douro." It is necessary to examine the currency carefully in Spain, for there is an immense quantity of counterfeit in circulation and the railroad ticket-agents do not hesitate to attempt to pass it.

In France and Italy, refuse all foreign coins except gold ones, and beware of the Papal coinage. This was issued by the Papal Government in Italy, and is now worthless. It has the head of the Pope on the back.

Passports are not generally required for the ordinary tourist, but they are very useful to the student. They are required by the American Consul in obtaining a recommendation to work in museums: they establish one's identity at post-offices and banks, and in case of being arrested as a spy, they are useful indeed. They can be obtained through any notary public, but are more cheaply obtained by writing to Washington. It is most useful when made out under head of artist rather than architect, as there is a certain distinction made by the museums abroad in favor of the artist.

Students can obtain free access to all museums in Europe, by presenting at the museum, a letter of recommendation from the American Consul of the city in which they happen to be. After the first museum card of admission is obtained, it is only necessary to present a former card at any museum to obtain similar privileges.

The student, armed with his passport, repairs to the office of the American Consul and requests a letter to the secretary of the museum, recommending him to the admission privileges of a student. This letter usually costs a fee of a dollar or two. The student presents this letter to the secretary of the museum, accompanied by a written request on stamped paper, costing from fifteen to thirty cents, that he be allowed to study in the museum, and receives a card either at once, or in the course of a day or two. Sometimes permission to study in a place can only be obtained at the main office in another city and the student finds himself forced either to make a journey of several hours in a railroad train, or leave the place without making his studies. For instance, permission to study in Pompeii must be obtained in Naples, at the Accademia Belle Arti; for the Certosa di Pavia, at the Accademia Belle Arti, Milan.

There are also general permissions, which are good for a number of places.

Permission for all Sicily may be obtained at the Museum in Palermo.

For all Greece, in Athens, from the Minister of Public Education, Rue d'Hermes.

For the Historical Monuments of France, in Paris, at the Bureau des Monuments Historiques de la France, Rue Valois near the Rue de Rivoli. For the Louvre, Luxembourg and Trocadéro, Paris, apply at the Louvre; ascend small staircase in corner of main court of Louvre on the side toward the Seine.

The Maggiordomo of the Pope, in Rome, also issues a permission for all ecclesiastical work in Italy. It is very difficult to obtain, however, as is also permission for the Vatican and Laterano Museums. In fact, unless one has plenty of time, it is useless to try to obtain permission from his excellency. Influence, however, will do it.

The following addresses will save a great deal of time in seeking permissions in Rome:

Permission for Santa Maria in Cosmedin, 18 Via Clare d'Oro, near Trojan's Forum.

For the Forum, Palace of the Cæsars, etc., Augusto Castellano, near Fountain of Trevi.

Vatican and Laterano Museums, get a letter from Mr. O'Connell, Head of American College, 30 Via del Humilità, take it to Monseigneur della Volpke, Maggiordomo of the Pope, second floor at main entrance to Vatican.

In Siena, permission for the Duomo can be obtained of Carlo Pericoli, 2 Via San Martino.

Florence, permission for Boboli Gardens, Villa Petraia, etc., address Comm' Dott' de Nutti, Scrittore della Casa Reale Pitti.

Permissions are not usually required for churches in small places, so long as the student is quiet and unobtrusive, does not place himself in conspicuous places during services and gives the usual tip to the sacristan for showing him about.

It is well to have a little tact. Do not alarm the attendant by too much show of preparation. You will have little trouble with attendants if you are courteous to them under all circumstances and conform to the rules and regulations of the place.

Students sketching about strange cities and wandering about in all sorts of places are sometimes suspected of being spies and put to a great deal of inconvenience. In such a case, it is a great advantage

to have some means of identifying one's-self, and as the foreign guardians of the peace are seldom able to read English, and French is very generally read throughout Europe, it is a good thing to have some official French paper showing who you are.

When in Paris, go to the Préfecture de Police, on the Seine, near the Sainte Chapelle, present your passport and be registered. You will be given a printed form stating that you are an American citizen, an architect, etc. There is no fee. It carries the signature and seal of the Préfet and will establish your identity, not only in France, but throughout the Continent.

The establishment of American schools abroad will be of great benefit to students. They will give him more influence, will enable him to gain admission to otherwise inaccessible museums, permissions to study buildings and bring him in contact with other students, the exchange of ideas with whom will be of great benefit.

There is an American Art Student's Association established in Paris, at No. 131 Boulevard Mt. Parnasse, an American School of Archaeology in Athens and a School for American Art Students has just been established in Rome, of which Mr. A. W. Lord is Secretary. Such schools could be of immense advantage to travelling-students, in giving information in regard to museums, buildings, classes, lectures, etc., and a draughting-room in which travelling-students could work up large drawings would be a very advantageous feature. Art students will find it to their advantage to club together to secure recognition, influence and increased facilities for study.

It is difficult to realize before going abroad how great the profit will be. The student gains new ideals, new inspirations. It is for him an architectural Renaissance. He is surrounded on every side by objects of beauty and gains insensibly in appreciation. And he gains new ideas not only in art, but in history, literature and general culture.

His aim should be not merely to become an archæologist, one capable of reproducing buildings in all their original beauty, but an architect in the true sense of the word, one capable of producing new and original designs by the satisfaction of given requirements.

J. W. CASE.



THE NEW POST-OFFICE MATTER.—THE NEW ELEVATED ROAD.—A JAPANESE GARDEN AT LINCOLN PARK.—THE ARCHITECTURE OF PAINTERS AND SCULPTORS.—PROPOSED ENLARGEMENT OF THE ACADEMY OF SCIENCE BUILDING.

SINCE the time of the writing of last month's letter, the McGann Bill has been passed, authorizing the construction of a new post-office here in this city, and four millions of dollars will be appropriated for it. It certainly looks now as if there might be less delay in the work than is usual in such Government matters. No time has been wasted here in Chicago since the passing of the bill in making arrangements for the housing of the different departments of Government work, during the demolition of the old structure and the erection of the new one. Mr. Hessing, the postmaster, applied immediately to the Council for permission to use certain space on the Lake-Front for the site of a temporary building. This request was granted, subject, however, to the approval of the abutting property-owners, which condition was imposed on the city when it was decided in the courts that the property belonged to her. Immediately that the bill became a law, telegrams were sent to the postmaster here, asking for information concerning the requirements of the temporary quarters. The reply was as follows: "The Council has passed the order giving permission to use the north end of the Lake-Front for a temporary building and consent of the abutting property-owners can be obtained. No building in Chicago will answer our purpose. We need 150 [sic] square feet of floor space, and the lowest rental will be fully \$50,000 a year. A building 50 by 250 feet can be constructed in four months on Lake-Front for \$150,000, and contractors will wait for money till January 1, or until the appropriation becomes available. At least, \$700,000 of the \$4,000,000 should be appropriated now. This would provide plans, lay foundations and erect as much of the superstructure as could be done during the next fiscal year. Present building can be taken down for salvage."

The Columbian Exposition Salvage Company offered the Government Building, at Jackson Park, to be utilized as a temporary home for the postal-service. The company considered that the structure was well adapted to the purpose, and though larger than would be required for the post-office, could be used in part. One of the officers of the company is reported as saying: "My proposition to the postmaster includes the removal of the material to the Lake-Front, where it is proposed to erect the temporary structure. The building is so constructed as to render its taking apart and subsequent reerection a matter of small expense. I think the trusses and other framework can be taken apart and delivered on the Lake-Front at a cost, including the price of material, of about \$15,000.

From the standpoint of expedition, the plan of utilizing the structure is greatly superior to that of putting up a new building.

"We have already begun the work of demolition and can deliver it on the grounds more rapidly than the builders can put it together again. If necessary, the entire structural work could be on the proposed site of the temporary post-office within two months' time."

This proposition it was finally decided not to accept, and the bill has been placed before the House for an appropriation of \$125,000 for the erection of temporary quarters on the Lake-Front. This will be erected with all haste, that the work of tearing down the old building may be begun. If all reports as to its ruinous condition have been true, it would hardly seem as if it could be made to come down slowly enough for the work to be attended with any kind of safety to those engaged on it. In the actual appropriation bill now under discussion, \$30,000 are allowed for the preparation of plans. These, evidently, are to be forthcoming after the usual manner of Government work, and those anxious that the proposed post-office should be a building as fine as might be from the size of the appropriation, already sorrow as those without hope of the future. Yet somewhat of an effort is being made to have it otherwise, since our postmaster, after having consulted the Postmaster-General, communicated with the Secretary of the Treasury, suggesting that some half-dozen of our most prominent architects should submit plans to the Supervising Architect, for which they should receive \$1,500 each. Should any one of the plans be accepted, arrangements could be made by which the author could superintend the work. As this idea was cordially received at the Treasury Department, Mr. Hessing further suggested that a Commission be appointed, composed of some one prominent Chicago architect, a first-class engineer and an expert, who would be able to give accurate information as to the actual needs of this special post-office. Chicago being such a great distributing centre, these requirements are much more exacting than in many other large cities.

We are told that Mr. McGann, with admirable foresight, has succeeded in securing the pen with which the President signed the bill. This is to be placed in the new building in a glass case, and whatever may be its character, we are sure of one thing, at least, and that is, that the new building will be built around this case.

Among the applicants for the office of Supervising Architect of the United States, the name of a Chicago man appears. Mr. Clinton J. Warren is spoken of in connection with this office, and if reports are true, he runs a fair chance of getting the appointment. As far as Chicago is concerned, in view of the large piece of Government work to be undertaken here, it would seem a wise arrangement could a Chicago man who knew something of the conditions here, the nature of the soil, etc., receive the office.

Among the elevated roads that were spoken of in last month's letter was the Northwestern, then in a quite unfinished state so far as the actual work of the enterprise was concerned. The contracts for the ironwork have since been let, and matters are taking more tangible shape. The contracts amount, in all, to \$1,500,000 approximately. The Union Bridge Company, of New York, taking the entire iron contract, sublets a portion of it to another New York firm. The Columbian Construction Company has the contract for the entire work, and has sublet these contracts for the superstructure. The road will be provided with four tracks at the northern part of the road, while the portion which leads through the down-town districts will have but two tracks, as the speed in this portion will have to be slow anyway and the arrangements for speed will be made farther out. The road, which it is expected will be finished in ninety-six, will be seven miles long.

An interesting piece of engineering work is being carried on in connection with the down-town terminal of the Metropolitan Elevated Road. A six-story steel building on Market Street and one directly behind it on Franklin Street are having their first three stories converted into one large one, and the tracks are being laid entirely through the two buildings, while the offices are undisturbed in the upper story. It is planned to have three platforms run directly through the two buildings, giving ample room and avoiding the crowding which is experienced at the station of the Lake Street road.

The Commissioners of Lincoln Park have now under consideration, a scheme which promises to add one more interesting feature to this already most interesting park. This idea is to incorporate a bit of Japanese landscape gardening into the midst of the western pleasure ground with its Occidental proportions. The Oriental scene, with all the tiny picturesqueness peculiar to the Japanese gardens, it is planned to set down by the side of our great untamed Lake Michigan. The plans submitted to the Commissioners are by a native Japanese draughtsman, now living in our city, and if one can judge from the drawing, contain much which is picturesque. Where North Avenue and the Lake Shore Drive meet, there is a space of about three acres, the shore-line at this point taking a slant towards the east. This space is, at present, not utilized and it is proposed to locate the Japanese Garden here. The plan intends that a sea-wall shall protect the garden on the eastern side from the encroachments of the lake. This wall is to be built of rough stone so shaped as to simulate water-worn rocks; at various points it rises into quite lofty proportions, expanding itself into arched rocks and various picturesque contortions till at the northern end it assumes the dignity of a cliff. Over this cliff a cascade would be expected to pour or trickle, according to the generosity of the Commissioners, which water-fall

will fill the shallow lagoon which occupies the centre of the garden. This lagoon is relieved from giving any impression of monotony in true Japanese style, by having its surface broken with stepping-stones, water-plants, islands and bridges. It has been thought possible to use our native pines to produce the dwarfed and gnarled specimens which form so curious and charming a feature in Japanese landscape gardening. A bamboo gateway would admit one into this unexpected little corner, whose Japanese character would be further obtained by means of the introduction of little bamboo cottages and bridges. The plan as presented to the commissioners is very attractive, but the question of expense cannot help but be one which enters most decidedly into the scheme, and no decision is expected to be arrived at till estimates are made by the designer.

The Cosmopolitan and Palette Clubs are now holding a joint exhibition at the Art Institute. The collection is stronger in point of number of works, but presents no marked improvement over the grade of work of previous years. To this remark, exception should be made to the work of the sculptors, who for the last few years have been making remarkable progress here. Some charming little portrait figures, which would seem to draw their inspiration from the Tanagra figurines, are shown in the exhibition, while a most excellent bust of Orington Lunt destined for the new Orington Lunt Library, two plastic bas-reliefs, eventually to be cast in bronze for the Marquette Building before spoken of, a good bronze figure, entitled "Illinois welcoming the natives," are noticeable objects in this part of the exhibition. In the last-named work the pedestal, however, is an especially weak feature. The mouldings show decided want of study or discriminating knowledge. Sheaves of wheat are bound together to simulate the Roman fasces, but their treatment is not successful. The figure is extremely good, especially the head and drapery, and the whole work, which is that of a woman, Miss Bracken, is one of a good deal of promise.

There are certain features in the exhibition which would lead one to think that if the union of the two clubs, the Palette and Cosmopolitan, was a thing to be desired, the association with a third, the Architectural Sketch-club, might not be without beneficial results. When anything architectural is attempted, in most cases the result is marked by total failure. The catalogue is this year quite an ambitious volume, opened by an essay by Mr. Hamlin Garland on our local art, deploring the bad and extolling the good which is found in it. The first page of the catalogue is covered with a little sketch, evidently a bit from a picture-gallery during an exhibition. The grouping of the figures and the decorative coloring of the whole are pleasing, but the architecture is something which ought to make the Architectural Sketch-club rise and insist on total abstinence, or compulsory education. Two would-be Ionic columns rise on either side of a doorway in the background. The shafts taper finely towards the capitals, the one eighth or ninth proportion being ignored. A sort of Doric cap intervenes between the shaft and the volutes, at whose base is a tastefully tied bow-knot of ribbon with flying ends. The little matter that the abacus lacks a moulding or two, that the cap is three times too wide for the beautifully tapering shaft below, and that the proportions and mouldings of the entablature are such as might disturb the spirit of Vignola, have not prevented the design from being accepted as a frontispiece for a catalogue of works of men, who if they themselves are not architects, at least are supposed to have enough appreciation of the kindred art to understand its first rudiments. Did Saint Gaudens and such men struggle in this wise before they sounded the depths of their ignorance and decided to put into hands that could make a success of it that part of their work which they had not the knowledge to satisfactorily perform? The entire, the total lack of appreciation of the differences between the good and the bad in this line by ninety-nine one-hundredths of otherwise decently educated people is something most discouraging. They have absolutely no idea that architecture is a fine art, they forget that Michael Angelo, and Leonardo da Vinci, and Albrecht Dürer and scores of others laid their claims to immortality quite as much through what they accomplished in architecture as in sculpture and painting. The people who would resent it as an insult, should they be asked to admire a gaudy chromo, or some painted plaster image, will of their own free will express themselves as enthusiastically pleased with some equally meretricious architectural work. A little knowledge may be a dangerous thing, but a little is better than none at all, and the popular courses of architectural lectures, which the different Art Institutes are at present holding, seem like a step in the right direction.

Designs are now being made by one of our Chicago artists for the decoration of a memorial library to be erected at Brandford, Connecticut. The library is to be known as the Blackstone Library and is being erected there by a Chicago man in memory of his father. The plans of the building, which is Classic in style, are being made by a Chicago architect. The artist who is assisting him did some good work at the World's Fair, and for the credit of Chicago it is to be hoped that this work in the East will equal, if not excel, anything which he has heretofore accomplished. The decoration of the dome of the building is to be a series of designs illustrative of the growth of the book.

Speaking of work done at the World's Fair brings to mind the often expressed wish, by members of the profession, that pieces of the architectural ornamentation, or casts from the models of some of the figures and animals used around the buildings could be obtained.

It is not very generally known that many of the models are now owned by one man, and that to obtain any of them is as simple as to obtain any other cast. His address is Hugo D. Loeb, 268 Wabash Avenue, Chicago.

Not very long ago the new building of the Academy of Science in Lincoln Park was spoken of as having been just completed. Recently as the building has been erected, it is already too small for the needs of the association and sketches have been made by the architects for a large structure of which the present building would only be the north wing. The sketches are on quite a magnificent scale, and the entire building will stretch over an area over seven hundred feet in length. The idea is to build a central structure, over twice as large as the present one, which aside from its size will gain added prominence by a dome which shall surmount it. A structure similar to the present building will rise at the south of the central and chief building, both being connected with it by L-shaped galleries. With the recessed central building, the grouping can be made quite attractive. The idea would be to place the museum in the large division, leaving the other portions to be at the disposal of the society lecture-hall, committee-rooms, etc. It seems incredible that the association can need such extended quarters, but upon reading the report of the curator one can see how rapidly the building is becoming too small. By the original contract, it was arranged that the Park Board was to have its rooms in the building and that the Park police force should also have its quarters there. This, of course, curtails the number of rooms at the disposal of the society. Much as the association may need the space, however, it will probably be some time, with the present existing financial depression, before a sufficient fund will be forthcoming to make the entire structure possible, but one excellent feature of the sketches is that a part of the building could be erected complete in itself.

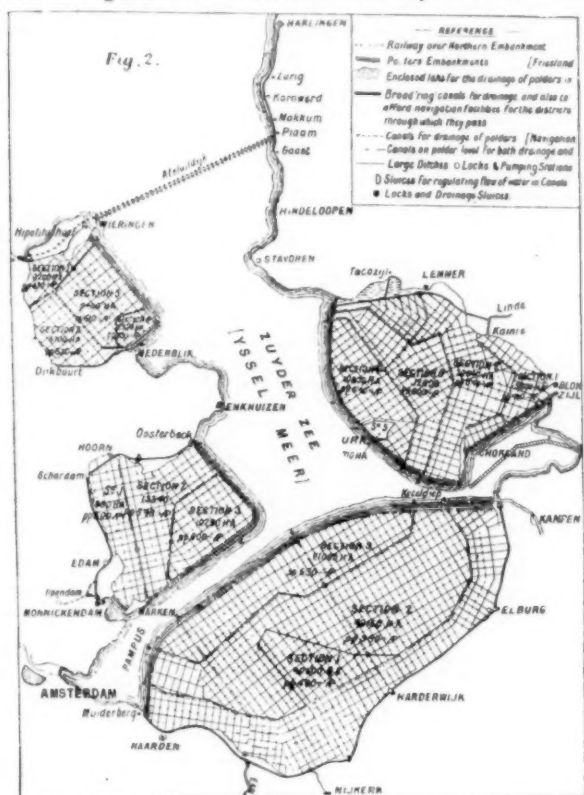
THE DRAINING OF THE ZUIDER ZEE.



A SCHEME which will take 33 years to carry out, will involve a total expenditure of 26,250,000*l.*, will lead to the reclaiming of 750 square miles of land from the sea for agricultural and other purposes, and will add a new province to the country which undertakes it, is one well deserving to rank among the greatest of practical projects that the science of engineering has yet advanced. Such, in effect, however, is the proposal put before the Dutch Government by the Royal Commission appointed for the purpose of considering the best method of draining and utilizing a large portion of the area now flooded by the waters known as the Zuider Zee, though, at one time in history, forming part of the mainland itself. The problem has for many years engaged the attention of the engineers in Holland, the proposal being one that far surpasses in magnitude any of the other works of land reclamation previously carried out there; and the real question now at issue is not the practicability of the scheme, opinions on this point being almost unanimous, but whether the country will be justified in incurring the great financial obligations involved. Some members of the Royal Commission have, on this ground, hesitated to recommend

the carrying out of the scheme; but the majority hold that, while the project may be regarded as one that would not be a good commercial speculation, still the Government may at least hope to defray expenses by the sales of land, etc., while, on the broader considerations of national progress—in the expansion of territory, in the increase of trade and agriculture, and in the giving to thousands of people the opportunities of profitable employment—the scheme, vast and costly though it be, is one that will certainly recommend itself to patriotic Hollanders, and insure for them, should they carry it out, the gratitude of future generations.

The work to be done, according to the proposals of the Zuider Zee Association, and approved by the Royal Commission, is of a twofold nature: first, the construction of an extensive embankment from almost the extreme point of North Holland to the Friesland coast, so as to shut out the ocean from all further access to the Zuider Zee; and, secondly, the formation, by means of further embankments, of four great "polders" on different parts of the shores of the Zuider Zee for the purposes of land reclamation. These are shown, not only on the map (Fig. 1), but in greater detail on the plan (Fig. 2). This is a very different, and perhaps not quite so striking a proposal as the original idea, first projected many years ago, of draining the whole of the Zuider Zee area, and converting it into one vast basin of agricultural or pasture land. But it has one merit which the original proposals did not possess, and that is practicability. The greatest of the various problems which the engineers had to decide was what they should do with the



rivers that now find an outlet into the Zuider Zee, and one cannot but feel that no more satisfactory solution of this problem could be found than the one suggested, which is, not to attempt to drain the whole area in question, but to leave still a considerable expanse under water to serve the double purpose of providing an outlet for the rivers, and of leaving open the waterways to Amsterdam, Kampen, Stavoren, and other places. The plans, too, are so arranged that these waterways will be precisely along the deep-water channels, while the land reclamation will take place on what are the shallowest parts of the Zuider Zee. Instead, therefore, of the navigation to the principal ports being prejudicially affected, it will be greatly improved, because the possibility of vessels going out of their course, and getting stranded on the sandbanks, will no longer exist. This is a consideration to which much importance is attached, as it will practically abolish dangers of navigation which have led to the destruction of many a fine ship, and to the loss of many lives. There is hardly a sandbank in the Zuider Zee of which some more or less tragic story could not be told.

From an engineering point-of-view, the most interesting part of the scheme is the construction of the great northern embankment which is to shut out the ocean, and change the region in question from a branch of the sea into an inland and, eventually, fresh-water lake. After a good deal of consideration, in the course of which six different lines of direction were examined, the Commission decided to recommend that this embankment should begin on the northwest coast opposite the Island of Wieringen, and, in the first place, join that island to the mainland, thus closing the neck of sea known as

the Amstel-diep. Commencing again on the western point of Wieringen, the embankment would stretch for close-on 25 miles right across the Zuider Zee to the coast of Friesland, where it would join to the land again at Piaam. This embankment, as shown on the map (Fig. 1), is not only to shut out the sea, but is to form a public highway between North Holland and Friesland, and is to afford space, too, for a railway connecting two portions of the Netherlands, between which, save for a very wide detour, communication can now be carried on by water only. In order to fix the height of this embankment, the Royal Commission had first to consider what possible sea-levels must be provided against, judging from past experience. The greatest height known to have been attained by the sea waves along the coast of the Zuider Zee was in December, 1883, when, during an extremely severe storm, the sea rose near the Noorderdijk of Drechterland, at Andijk, to a height of 2.30 metres above the sea-level at Amsterdam, while the waves ran up to the summit of the embankment there, a height of 5 metres, and washed away the gravel road. The average height of the new enclosing embankment has, therefore, been fixed at 5.40 metres, that is to say, it will commence at 5.20 metres on the western side, and rise gradually to 5.60 at the eastern. It is thus believed that the summit of the embankment will be safe even during the severest storms that are likely to occur. The Island of Wieringen will be protected by an embankment of similar height.

The total width of the embankment, above the sea-level, will be 70.80 metres, though the actual summit will have a width of only 2 metres, so that this portion of the embankment will not be available for vehicular traffic, for which provision is made at a lower level on the inner side. The embankment itself will be formed of sand and soil, with heavy stone facings on the lower portions on each side. The use of willow twigs will be an important feature in the making of the embankment, their merit consisting in the fact, so well recognized by Dutch engineers, that they solidify the layers of earth, etc., thrown upon them, and help largely to form an impervious mass.

The willow berme on the northern side will be protected by a mass of stone rubbish 1 metre in thickness, and just above it will be a stone "lip" inclosed between two rows of oaken piles. Then will come a talus protected by stone-facing to a height of 4.50 metres above the sea-level, the average thickness of the stone-facing here being 0.40 metre, with a stipulation, however, that in the centre it must be not less than 0.55 metre. The stone-facing of the inner side—where it will rise to a height of 3.50 metres (increasing to 4 metres) above the sea-level—is to be of equal thickness to that of the outer side because, although this side will not be exposed, like the other, to the fury of the ocean itself, it will be steeper—3 in 1 as compared with 4 in 1—while the influence of wave action from the inland lake (otherwise the Yssel Meer, as it is to be called) must not be underestimated, more especially as such wave action may be of considerable force during the prevalence of gales from the south and southeast. Immediately above this inner talus there will be a stretch of level ground, 17 metres in width, of which the outer 10 metres will be the track of a railway from North Holland to Friesland, and the remaining 7 metres, on the inner side, a carriage road. Then comes a space 3.50 metres in width, and rising 2½ in 1, which will be used for the storage of material for repairing the embankment, and still higher will be the actual summit. Above low-water there will be a layer of clay or loam, 1 metre in thickness, except in regard to the railway-track, where it will not be put at all, while in the case of the carriage-road the thickness of the layer will depend on the material used for road-making.

The one great idea of the engineers seems to have been to design an embankment which would be able to resist the strongest forces of nature ever likely to be brought to bear against it. On this point it may be of interest to quote the following observations from our Dutch contemporary, *De Ingenieur*: "The Commission have evidently tried to project a profile that, humanly speaking, affords absolute safety, and in our opinion they have succeeded in this. We are, however, not convinced that the same result might not have been attained in a somewhat more economical manner. The construction of the outer talus is, owing to the extent of the basalt stone-facing, likely to be very costly. If the outer berme were constructed under an incline of 4 in 1, at a somewhat greater height than proposed by the Zuider Zee Association (0.50 metre, for instance), and if behind the incline a broad band of stone were placed, would not this afford an equally secure but less costly solution? Our second remark has reference to the carriage-road by the side of the railway. Is it really to be expected that between North Holland and Friesland the ordinary traffic along the enormous distance of about 40 kilometres will be such as to warrant the construction of this roadway? We cannot suppose so, yet this consideration alone would justify so great an expenditure. The carriage of materials for maintenance, etc., would be better, and in a less costly manner, provided for by the construction of a simple narrow-gauge tramway, whilst for the storage of such materials, the summit of the embankment, and the adjoining part of the inner berme afford ample accommodation."

The fact that there will be a constant inflow of water into the Yssel Meer from the various rivers now running into the Zuider Zee, gives great importance to the question of constructing adequate sluices through which these surplus waters would escape into the sea, or, indeed, through which water could be admitted into the Yssel Meer for the purposes of military defence, or otherwise. The final

decision arrived at with regard to the position of these sluices, and also of the necessary locks, was that they should all be concentrated at one point on the easterly side of the Island of Wieringen. Right through this island there is to be cut a canal, 1,000 metres in breadth, increasing at the northern end to a breadth of 1,200 metres between the two pier-heads, of which that on the west will extend 1,200 metres, and that on the east 750 metres, beyond the Wieringen embankments. The depth of the canal will be 5 metres below low-water. On the southern side the canal will widen to 1,500 metres at the junction with the Yssel Meer. The walls, constructed of basalt, will reach a height of 1.50 metres above the sea-level. Across this canal, and occupying altogether 775 metres of its total breadth, will be five groups of six sluices each, with plateaux 100 metres broad between the groups. These sluices are to have a depth of 4.40 metres below the sea-level, and are to be limited in width to 10 metres each, so as not to afford facilities for the entrance of hostile ships into the Zuider Zee, in case of war. In this large canal a dam will be constructed in order to form on the west and alongside of the sluices a navigable canal 150 metres wide (increasing on the north to 250 metres); and here there will be two locks lying side by side, one of them 10 metres wide and 97.50 metres long, and the other, intended for fishing-boats only, 6 metres wide and 40 metres long. The sluices, it may be added, will be so arranged as to allow of the height of the water in the Zuider Zee being strictly regulated, while the effect of their working, combined with the steady inflow of water from the different rivers, will be such that the waters of the Zuider Zee will be entirely changed from salt into fresh within three years of the time when the closing embankment is completed.

Operations are to be commenced by the filling-in of the Amsteldiep and the construction of an artificial island on what is known as the Breesand, situate half-way between Wieringen and Friesland. Each side of this island would have a harbor of 1,500 metres in length and 100 metres broad, as a basis of operations, so that work on the main embankment could be carried on independently from four different points at once, namely, the two harbors, the eastern point of Wieringen, and the coast of Friesland. But even in this way it is expected that the work of constructing the embankment alone would extend over a period of nine years.

The second division of the scheme deals more especially with the land reclaiming, which will not be taken in hand until the great northern embankment has been finished, and operations can be conducted without the difficulties that would arise from tidal changes in the water-level. The "polders," as already stated, will be four in number (Fig. 2), and the course pursued by the Dutch engineers may be briefly described as follows: Along the outer line of the space to be reclaimed, in each instance, a dyke will be constructed powerful enough to keep out the force of water represented by the Yssel Meer, such dyke being much about the same in form and character as the northern embankment, though, of course, it will not require to be so strong as the one that is to keep the ocean itself in check. Each dyke will be broad enough to have its roadway and pumping stations, and as soon as it is ready, these stations will be built, and the pumping-engines will be set to work to pump the water out of the inclosed space into the Yssel Meer. As already mentioned, a great deal of the Zuider Zee consists of shallow sandbanks, and it will not take long, when the pumps are in full working order, before these banks appear above the surface of the water. As soon as a certain space is cleared, it will be surrounded by a small embankment and form the first section, on which operations with a view to preparing it for agricultural purposes may be commenced at once, while the pumps are operating on the lower parts of the large inclosed space that are still under water. So the work will go on until the whole of the space inclosed by the main dam of the polder has been laid dry, and the different sections of that polder, each with a separate embankment of its own, and varying in shape according to depth, have been completed. The polders, will, of course, be fully protected from any inflow of water from the Yssel Meer, while the drainage of an expanse of land which will lie considerably deeper than the surface of the lake shut out from it, will be secured by a network of canals of various dimensions and at different levels, the water being pumped from the lower into the upper, until it can run into the Yssel Meer, and thence, through the sluices, into the sea. All this, however, will be a familiar story to those who are familiar with the construction of the polders already existing in various parts of Holland. But, although the work itself may be much about the same, never before has it been projected on such a scale as this, for the total extent of the area to be reclaimed is no less than 750 square miles. The four polders will be dealt with in the following order: (1) northwest; (2) southeast; (3) southwest; (4) northeast; and the plan of operations is so arranged that the whole work, including the construction of the northern embankment, will extend over 33 years. The total cost, including compensation in respect to the destruction of the Zuider Zee fisheries, is put down at 26,250,000*l.* On the other hand, something like 25,000 acres of reclaimed land will be made ready each year, and the capitalized value of the land to be recovered for the purposes of Dutch agriculture is estimated at 27,166,000*l.* But the Commission urge in their report that beyond the mere question of pounds, shillings and pence, there are many substantial, though indirect, advantages which Holland would secure from the carrying-out of this great scheme.

The engineer, who is chiefly responsible for the scheme in the form it has finally assumed, is Mr. C. Lely, who was himself chairman of the Royal Commission, and was also for a time Minister of the Water Department of the Dutch Government. Mr. Lely has devoted great attention to the project, more especially since 1886, when the Zuider Zee Association came into existence. He it was who brought forward the proposal for the great northern sea-wall, with its locks and sluices, and first offered something really practical for consideration, in place of a variety of other proposals which were all more or less impracticable. Whether or not the Dutch Government will be able to summon up sufficient courage to give the order for the execution of this most ambitious and most costly scheme is a point that the future must decide. — *Engineering.*

WROUGHT-IRON WORK IN CHARLESTON, S. C.

THE interest which has been excited on the subject of the ornamental ironwork for the exteriors of churches and dwellings of the city by the article on "Charleston" in *Harper's Magazine* for January, by Mr. Julian Ralph, has caused *The Sunday News* to have the history of the matter inquired into by one of its reporters. There is but little that can be referred to as authentic about it in the newspapers of the early years of the century. Those do not contain any references to pretty designs and skilful workmanship in the handsome ironwork to the fronts of churches and dwellings as they were being erected. They were evidently considered, as they were being fitted to their places, as part of the ornamentation in architecture which happened to be the fashion of the day, and it is only through the lapse of time and their intrinsic beauty, as appearing to a stranger seeing them for the first time, that attention has been directed to them. It has, therefore, been mainly through the information obtained about them from some of the older citizens that any definite knowledge has been acquired.

The reporter has interviewed certain of these, and the result of his inquiries develops that for many years after the Revolution, there existed here certain very skilful workers in iron, who were an inheritance from the Colonial period, when, through the difficulties and slow processes of inter-communication, everything that could be made at home was necessarily preferred to what might have been, with greater difficulty, procured either from the North or from England.

Many of the most expert blacksmiths of the city, up to the years 1835 and 1840, were native whites, who had, as their assistants, slaves, whom they owned. These latter were, in many instances, as skilful as their masters, who only directed their work, and many an ornamental iron railing or gate made during that time, supposed to have been made by an expert white man, was only designed by him and put together by an expert black man.

All the ironwork of those days was wrought, and the amount of labor expended in hammering out the intricate figures was immense. In addition, too, to the hammering, was the filing which was necessary in adjusting two pieces of iron that crossed each other. There was even more labor in this than in hammering, although the files that could be procured then were English—a luxury that high duties have since rendered too expensive. These details are worth mentioning, so that we may realize, as we examine one of those elaborate superstructures over the most highly worked gates, the amount of labor that was involved.

Of the churches, those which have the most elaborate of these entrances and surroundings to their graveyards, as well as entrances to porches, are St. Phillip's, St. Michael's and the Lutheran Church in Archdale Street. Of these three, the gates of St. Phillip's and the Lutheran Church are the only ones which are perfect specimens of the laborious work which was necessary to achieve such results. The thicknesses of the irons used in the curves are in no case less than three-eighths of an inch, and in some parts as much as a half inch. Whereas in the two gates of St. Michael's Church, constructed, perhaps, between 1845 and 1850, the iron for the curves is never thicker than a quarter of an inch, and there are cast-iron rosettes in the centres of the curves, which were an innovation indicating a decline in the art. The builder, Mr. Lusti, is still living among us, and is an honorable survival of an honest industry which seems to belong irrevocably to the past.

Washington Square, which was laid out as a city square when Chalmers Street was widened, has in its gates as intricate designs as in those of the churches, and the thicknesses of the irons for the curves show that when they were made, the skilful workmen had not yet all died out.

Of the private dwellings having their fronts ornamented with this kind of work, the most conspicuous are the Adger Smyth house in Legare Street, the Nathaniel Russel dwelling in Meeting Street, now occupied as a school by the Sisters of Mercy, and the Conner dwelling in the same street, originally built and owned by a member of the Brisbane family. The letters "N. R." are still to be seen in the scroll-work of the small piazza to the second floor of the dwelling, formerly of Nathaniel Russel, and the letter "B," for Brisbane, has only been recently removed from a similar piazza to the second floor of the Conner dwelling.

Of these three examples of what was done for private residences, the ironwork in front of the Smyth house is the most elaborate and beautiful. The two curves which the scroll-work on both sides of the house-entrance is made to assume are quite unique, and are marvelous examples of professional skill. The thickness of the curved

irons, in this case, is three-eighths of an inch. The owner of the house, a Mr. Simmons, had the ironwork done long after the house had been built. The whole of the front of the lot is closed-in by a combination of masonry and iron, which is very complete in its details, parts of the marble ornaments of the brick pillars having been sent for to England. The cost of the whole is said to have been \$8,000. Soon after the whole had been finished, Mr. Simmons sold the house to Mr. George Edwards, who had the two letters, "G. E.," inserted in the two curves, thus producing the general impression that it was during his ownership that the work was done.

It appears from further inquiries that the concluding statement in the preceding paragraph is wrong. Mr. John Simmons only built the Smyth house, and it was really Mr. Edwards who had the ornamental ironwork added. The nearest relatives of Mr. Simmons moved to the West afterwards and some of them are living in Memphis now. Mr. Edwards was the step-father of the late Governor William Aiken and father of Mrs. Ogden Hammond.

This wrought work was necessarily costly, and, for that reason, was used to a very limited extent for private dwellings. Only the wealthy could indulge their taste for the beautiful in that direction, regardless of expense. The ability, therefore, to give occupation of the kind to workers in wrought-iron, of the period we are considering, had about expended itself when the half century closed, and there was another style of ironwork that was ready to take its place. This was cast-iron, which had become susceptible of very beautiful designs, light as well as durable, in consequence of improvements in the methods of preparing the moulds and of handling the molten metal.

A German, named Werner, whom many of us can remember, for he has not long been dead, was the one who first introduced the new kind of iron. His large workshops were at the southwest corner of State and Cumberland Streets, and it was there that he prepared the very beautiful cast-iron front for the dwelling now occupied by Mr. Arthur Barnwell, in Broad Street, opposite to Orange. He also fitted, at about the same time, to the ancient Colonial dwelling of Gen. C. C. Pinckney, in East Bay, west side, a few doors above Market Street, an even more elaborate cast-iron front than on Mr. Barnwell's house. This was ordered from him by Mrs. Izard and Mrs. Harriet Pinckney, the General's daughters, and it was entirely destroyed by the great fire of November, 1861. Werner's workshops suffered the same fate on the same night.

Like most men of genius, Werner was at first thought to be a visionary crank, but when his light and airy designs had stood the test of time and weather, he was universally commended for his skill. His last two efforts were an iron sign for the McLeish blacksmith and wheelwright shops in Cumberland Street, between State Street and East Bay, and another light and airy design with a cross in the centre, which has served since to mark the spot of his burial in St. Laurence Cemetery.

There is a good deal of Werner's work scattered through the city, and to show that he did not only handle cast-iron, it may be mentioned that shortly after his arrival here in 1849, and before he had accomplished the two beautiful house fronts that have been mentioned, he prepared for a well-known dwelling in the lower part of the city, all the necessary balusters to a new staircase, which were entirely of iron. These are adjusted to the outer end of each step, thus allowing the entire step to be eased, which is not the case when the wooden balusters are dovetailed into the step itself. It was the impression at the time, that Werner had never seen similar balusters before, as the plan is French, and, as soon as the idea was explained to him, he proceeded to carry it out, and even improved upon it. These are interesting and valuable reminiscences of the past which are worthy of being permanently on record, for although the times have so changed that it is now necessary to send either to Philadelphia, New York or Boston for the veriest trifle that may be wanted, there was a period when work was done in Charleston in iron, both substantial and beautiful, to the credit of which the free white man and the black slave were equally entitled — work that cannot be seen better done in any other American city, and which has arrested the attention of a much-travelled visitor who has recorded his impressions in strong words of admiration.—*Charleston, S. C., Sunday News.*

THE VALUE OF SENTIMENT.

ONE of the most interesting incidents that have attended the renewed attempt to destroy the State-house on Beacon Hill, Boston, was the plea of Colonel Lee, and we feel sure that those who heard him left the room with a better appreciation of what sentiment actually is and what a "monument" ought to be, than ever before.

As these remarks are pertinent to any similar act of vandalism, we have repeated them that they may be found at the hour of need.

Mr. Fay.—I have the great pleasure to introduce one of our most eminent and able fellow-citizens, Col. Henry Lee.

Colonel Lee.—The adjectives might have been left out. I am sorry Governor Rice¹ doesn't know how to speak. I heard it said when the first library was dedicated on Boylston Street, "What a good speaker that young Mayor Rice is." He stood between Mr. Everett and Mr. Winthrop, and he held his own; made as good a speech as

either of them. He must have degenerated since then. That is a good while ago. I rather regret the adjectives which were applied to me. I can say nothing to fulfil them.

This is a matter of sentiment, as Governor Rice said. He who does not value sentiment ought not to be here. John Winthrop valued sentiment, or he would not have come here; so did his companions. They had nothing but sentiment and piety to preserve them and keep their courage up, as had the Plymouth Fathers. It seems to be rather late in the day for us of Massachusetts to abandon sentiment. It has money value as well as its moral value. When I first remember Boston, it was filled with sentiment. The buildings, which stood mostly apart with their gardens, were Provincial, some of them going back to Colonial times. As the city grew—as the town grew, for it was not a city then—as the town grew and room was wanted for the population, these old buildings came down gradually and gave way to blocks of buildings; but many of them might have been preserved, and in looking back, we see that if the sentiment of the time had inspired people to their preservation, there would have been money value in it. There stood the old Province House, a proud old building, one of the few remains of Colonial magnificence, built in 1679 by Peter Sargent,—for many years the vice-regal court of this Province, the abode of nine Provincial governors, one after another, from a testy old Colonel of Marlborough's army down to Sir William Howe, who left it at the time of the evacuation of Boston. That might have stood behind its oak trees on its terraces, a grand, stately old building, and would have been much handsomer in my opinion, than our new City-hall—I suppose Mr. Cook² would have preferred the new City-hall; I don't. There was Sir William Phips's house, that old buccaneer, to fulfil the dreams of his boyhood; and when I was a boy, it was used as the Boys' Asylum; that stood down on Charter Street, a grand old building. There was the house of Governor Hutchinson and his father, which house was so fine that, after Hutchinson was made governor, he said he didn't want to go and live in the Province House, because he had a better one down at the North End; that and the house of Sir Harry Frankland stood side by side in Garden Court Street. That house I have seen in my boyhood, and am one of the few now living who ever saw it—a most remarkable specimen of Provincial architecture; but pulled down ruthlessly. It would have been well to have preserved it. There was the beautiful Hancock House, well remembered; and Governor Andrew did all that he could to preserve it. It would have been most appropriate for the official residence of the Governor of Massachusetts, and could have been bought for less than you paid for an ordinary house on the other side of the way a few years afterwards; and there, sentiment, if it had ruled the hour, would have been found in the end to have been profitable. There were long lines of houses: all Pemberton Hill was covered with them; Peter Faneuil's house, the giver of the hall; there was the house of Sir Harry Vane, afterwards Rev. John Cotton's house; there was Governor Bellingham's house; and these with their grounds would have made a beautiful park for the city, and we should not have had to go out five or six miles to find our park. It would have been well to have preserved them.

There were fortifications. Some one spoke here as if there had never been any associations in this country—ex-Senator Blanchard—no other associations but the Revolutionary associations. I think there have been a great many associations, but if you come to Revolutionary associations, there was the fortification on the Common—that was levelled when I was in College; there were the fortifications at the South End; there were the fortifications on Mystic River, where afterwards the convent was built, and a cordon of earthworks from Mystic River through Somerville, Cambridge, Brookline, Roxbury ending with Dorchester Heights; memorials of the Siege of Boston and of Washington's trials. And I think a beautiful parkway could have been made and these fortifications preserved for a very small amount of money, and sentiment would have been found to have been economy in the end. But those were the interesting monuments of my boyhood and youth.

A monument—what is a monument? There were some rich men that thought a monument ought to be something new; they had Mr. Cook's idea about it, that it ought to be something new, something in the present style.—I don't know whether the dome of St. Peter's had been changed to the modern style to attract people, or not! They thought this monument ought to be something new, something pretty fine. When my father took me over to see Bunker hill, there were the earth-works; one could see the redoubt on which Prescott stood; see the breast-work; see where the rail fence ran. One could see all the way down to the Navy Yard, to Moulton's Point, where the British landed. That was something like a monument; it was not a mere record which the monument afterwards was; it was a reminder of the scene, and that is what a monument should be. You stood there, and all the sentiment of the battle came to you. Now, you go there, and you stand upon a hill, nicely graded and all the redoubt and breast-work filled up and erased, and you have the pleasure of seeing an Egyptian obelisk! Well, it is a matter of taste: to me the old earth-works would have been more inspiring, more suggestive, without the Egyptian obelisk. Mr. Cook has a different mind. It is a free country; we all have a right to our opinion.

If you want to save the State-house, you want to save it as a matter

¹ The preceding speaker.

² A previous speaker who favored the demolition of the State-house.

of sentiment: it is easier now that they have built that remarkably exaggerated building behind.

During the war, when Governor Andrew worked night and day, when war as well as peace were carried on, the State-house was sufficiently large. What they want a building seven times as large for, I don't know, unless every legislator is seven times as big as he was in those days. I was to-day guided through; I went to the further end. I was told you were to be in No. 29. Then I came to No. 8. I could not come without a guide. What you want such a building for, I don't know; but it is built — I suppose you want it, as Mr. Cook says, to advertise the State; or it was wanted for some other purpose. Well, I think it is a great pity.

A great many years ago, my father bought a house in Brookline. It was an historic house; it was, part of it, two hundred and thirty years old. In that house had been born Susannah Boylston, the mother of John Adams — the first John Adams. I have a letter of John Adams's, saying that he has not been there since he was a youth and brought his mother on horseback on a pillion behind him. The carpenter told me when I wanted him to make some repairs for my father, "I tell you, Mr. Lee, the cheapest thing you can do is to pull that house right down." He found that there was some dry-rot in it, that there were some of the studs worn off at the bottom, and some other things; and that carpenter was of Mr. Cook's opinion, that a new house was wanted; that it would advertise my father better than the old house. And I did not do it; I kept the old house in spite of its being "powder-posted;" I have kept it, it is now forty years, and I can say that I never go to that house, for I don't live in it — one of my sons lives in it — I never go to that house without an active sensation of pleasure. Why? Well, when you go abroad, what do you go to see? Do you go to see the new houses in London? Do you go to see the new Law Courts? Do you go to see that griffin that they put up where Temple Bar stood? No, you go at once, the minute you can dust your clothes, out you go to see Westminster Abbey. I have no doubt there is rot in Westminster Abbey. I have no doubt some stones have crumbled, and I think it would advertise London if they built a new one. But what should you think when you came to London and asked for Westminster Abbey and they should say, "Well, you can't see the Abbey, but you can see a model of the Abbey; it was thought in the way and we thought we ought to have something new, something to advertise London, and we have taken down the Abbey."

Now, is it healthy? Perhaps that is one reason they took it down; took it down because it was too old and too much dry-rot in it, and they wanted something new, something up to the times, Mr. Cook. And the Tower, — "Well, yes, you can see the Tower, but who wants to go and see the Tower?" Why, you do, the American, who is going to pull down the State-house. You go abroad on purpose to see the Temple, the Tower and the Abbey and all the antiquities that you can find in London, not looking at anything else.

Then some say this State-house is only a hundred years old. Governor Long found that out last year; only a hundred years old! Well, I have seen the Abbey and I have seen the Temples of Paestum, and Augustus Caesar stood and looked at them and knew no more about who built them than I do; but his feeling of antiquity and association was just the same as mine when looking at the Abbey.

The first visit I made to Plymouth I asked to see Plymouth Rock. I walked around and could not see anything. I asked a maritime man, "Where is Plymouth Rock?" He brought me to the end of Hedge's wharf, I saw a stone, a pebble about as large as a paving-stone. Spitting on it, he said, "Why, that is Plymouth Rock; that is what they tell me." Well, this was Plymouth Rock, sunk in the dirt. Above it was Cole's Hill. There were buried in the graves that were made smooth over the dead lest the Indians should discover their losses, those who perished the first winter, half the shivering band of Pilgrims. Had they preserved them? Not at all. The field was full of burdocks and thistles and dead cats, and other articles of that kind. Had not been preserved, no. They went — two or three miles — out of Plymouth and put up a monument; thought they were doing the right thing. The rock they had blown up — blown up the rock and carried it up to Pilgrim Hall! Why? Well, to have it "more convenient." And that was their sentiment. My sentiment was to leave the rock where it was; and it is so now. They have put it back; they have thought better of it. They have got over Mr. Cook's state of mind and gone back to the old, the more antique. And I suppose they have repented of their far-off monument by this time; — I don't know.

You want a reminder, if you come to the State-house. You don't want a new building to recall that there was the old State-house once, built by Bulfinch, and which had witnessed the first hundred years of the history of the State. It is all the history there is. Governor Long doesn't seem to think there is any history. Now he has been one of the Governors; — there have been thirty-five governors since this building was built, and they have all been good governors, and it is hardly to be supposed that there is no record, that we have had no history all these hundred years. There have been many interesting events. He said there had been no war, excepting the War of the Rebellion. That was rather a mistake: we had the War of 1812, which was a very distressing war, too; it robbed us of most of our property and was one that we were very averse to. We had the victories of 1812. Up through the streets marched Commodore Hull and Captain Dacre. They lived together in the Exchange Coffee-House, and came to the State-house to pay

their respects to the Governor. There was the fight between the "Chesapeake" and "Shannon," — the women were witnessing from the dome with anxious eyes that terrible defeat.

There were many events I remember: the coming of Lafayette in 1824, who was received here as he was the next year when he came to the laying of the corner-stone of the Bunker Hill Monument, that is something of an event; President Munro came here in 1817, that was something of an event; there have been four or five presidents since then.

We come down to the Civil War. Why, he said, Governor Andrew — yes, he believed there was a war — but he thought Governor Andrew was on the steps; it was not in the State-house; he was on the steps, he gave the flags and he took the flags on the steps. Well, if you should be inclined to save your father's house and somebody should say to you, "why, I saw your father bid you good-bye in the stage-coach on the steps." Yes, but I saw my father in the house, too. There was something done in the house in those long, tearful years of agony and weariness, heart-breaking, disappointment and losses; the procession of young men coming to offer themselves for service, saluting the Governor, like the gladiators the Emperor, "We, who are about to die, salute you."

Do you suppose there is no feeling connected with these rooms where the Governor sat for those four years? — a man of peace called upon suddenly to prepare this State for a fearful war, and preparing it in spite of ridicule, in spite of denunciation, and preparing it so promptly that Massachusetts was the first State — the first men who were sent properly equipped and armed for the war were the men of Massachusetts. The whole world wept for Lincoln's death; are there no tears for Andrew, who fell, after the war, as much as Lincoln. He was killed by an assassin, but if he had not been, he would have died in a short time from head and heart weariness. Do you suppose Governor Andrew could have sat here those four years, night and day — for he was here much of the time night and day — working and enduring, and feeling that he had been, more or less, instrumental in bringing about the deaths of all the flower of Massachusetts, without any emotions? Was there no association? You have the Association of Bunker Hill — for what? A battle of four hours. Has a battle of four years no association for this building, the agony of those four years? Men, haggard with anxiety and grief, and the mourners going about the streets from every house: Rachel weeping for her children and would not be comforted because they were not. Is there no association for this building, where the headquarters of the whole government of the time were? It seems to me absurd.

I should like to read a small sentence from William Morris, on this subject: "If we are not prepared to put up with a little inconvenience in our lifetime for the sake of preserving a monument of art which will elevate and educate, not only ourselves, but our sons and our sons' sons, it is vain and idle for us to talk about art, or education either. Brutality must be bred out of such brutality."

Now I have only one word more to say. In 1870 the Commune in Paris pulled down the Tuileries. I was there the next year; I saw the destruction. They pulled down the column on the Place Vendôme, of which they had been so proud. Now the whole of France is all alive with admiration for Napoleon. They destroyed the Hôtel de Ville with its peculiar treasures. What was it? The work of brutes. Now we are proposing to destroy not only our Hôtel de Ville, but our State-house, and do it deliberately, in cold blood. If any of you should be hauled up for killing a person, the judge will make a distinction whether you did it in hot blood, whether you did it under provocation, or whether you did it in cold blood. If you did it in cold blood he will hang you; if you did it in hot blood, he will let you off with imprisonment for life. So, we are to be more brutal, more culpable than those brutish Parisians who destroyed their monuments? And shall we do it in cold blood? In this case, there is no excuse; you are doing it in cold blood.

WOOD-PULP FLOOR MOSAICS.



the latest reports of the local Industrial Union, mention is made of a process, claimed to be entirely new, for manufacturing floor mosaics from wood-pulp, an innovation which is expected, by interested business people, to produce important results. It is claimed that this process is distinguished from the known processes of manufacturing sectional or mosaic floors, by reason of the fact that the sections made according to it are not liable to any change of temperature, and are, nevertheless, not like stone, but similar to wood in all essential qualities. The process is as follows:

Small particles of wood, such as sawdust, wood flour, fine shavings, etc., are soaked in a mixture of shellac and alcohol, so that the pores of the wood are penetrated and thoroughly dried. A cement, consisting of fresh cheese whey (curd) and slacked lime, is then prepared. This cement is thinned with water and then mixed thoroughly with the already dry wood particles in such a way that the consistency of the mass is uniform. Particular care is taken to render the cement as thin as possible, so that it will distribute itself easily and uniformly, and inclose each particle of wood as perfectly as the shellac solution. The mixture thus produced is allowed to dry until it is only moist — not thoroughly dry as before, for, in the

latter case, the curd would lose its cohesive power. This moist pulp is then put into heated mosaic moulds, of the desired shape and size, and, in these forms, placed under the press. As a result of the heat, the shellac softens, regaining its adhesive powers, and the curd cement hardens rapidly, so that both of the substances, the shellac as well as the cement, unite under the pressure so perfectly with the wood particles, that the wood mass resulting may, within a few minutes, be taken out of the moulds without losing the form received. After the cooling process and complete hardening, these mosaics, it is claimed, are far less susceptible to any change of temperature or moisture than any natural wood. It is absolutely necessary that the use of every other ingredient, especially if of an oily or fatty character, should be avoided in this process, as otherwise the close union of the shellac with the curd cement would be retarded or even prevented.

Wood pulp for the manufacture of vari-colored mosaics is prepared in the following manner:

1. The particles of different varieties of wood are put through the process separately, so that the natural color of the wood itself is brought into prominence.

2. Dyes, dissolved in alcohol, are mixed with the shellac solution before the wood particles are coated.

3. The wood particles are first colored with dyes, dissolved in water, and allowed to dry well before the coating with the shellac solution.

For simple floors, it suffices to manufacture mosaics of different colors, changing them at pleasure so as to form a variety of patterns.

The manufacture of pattern or fancy wood mosaics is proceeded with as follows: Pattern moulds, of the required design (divided into fields and figures), are fitted into the plain mould; each section of the design is filled with the wood pulp, dyed as before described, and the pattern mould removed, after which the whole, thus freely outlined, is subjected to heat and pressure, as before mentioned, the result being perfect vari-colored fancy mosaic.

This wood mosaic, in spite of its hardness and resisting qualities, still retains all the essential properties of wood, being thus particularly well adapted for use as floor covers in living-rooms and for similar purposes. The inventor of this process (patented in Germany) is W. Gutwasser, of Königsberg, Prussia.

LOUIS STERN, U. S. Commercial Agent.

BAMBERG, April 21, 1894.

BOOKS AND PAPERS

AN interesting and valuable monograph of the new German Parliament-house is published by Wilhelm Ernst & Sohn, of Berlin, in an inexpensive form, which adapts it particularly to the working-libraries of architects, who will find the careful study of Wallot's various plans extremely useful. It will be remembered that, after the competition in which Wallot was victorious, an immense amount of study was devoted not only by the architect, but by Parliamentary Committees, to the details of the building. In order to be sure of the acoustic quality of the great legislative hall, a full-size model of it was built, with all the proportions of the chosen design, and thoroughly tested by actual speaking. Such minute care is characteristically German, but the rest of the civilized world has been for a long time accustomed to profit by the painstaking study of the Germans, and in this case, as in many others, there is much to learn from what they have done for us. In the matter of legislative buildings, many of our architects, particularly, seem to have no conception of the requirements to be met, or of what has been done hitherto to satisfy them. We often see competitive designs for State-houses, or City-halls, or buildings of the kind, with the deliberative rooms arranged with windows opening on a busy street, the noise from which would make deliberation impossible. Such architects would find Professor Wallot's plans of great value.

Of Wallot himself, the book gives an interesting account. He is, it seems, a native of Oppenheim, in Hesse-Darmstadt, an old town which still possesses many fine buildings of the early German type. Removing to Frankfort, after the great wars, he became noted as a leader in the revival of the German Renaissance architecture, the most characteristic, perhaps, of all the German styles of building. In 1882, the second competition for the Parliament-house led him, as it did so many other brilliant artists, to try his fortune in the most ambitious project of the time, and his success, both in the competition, and in the subsequent carrying-out of his design, have made him, perhaps, the most conspicuous figure on the Continent in his profession.

SOCIETIES.

THE ENGINEERS' CLUB OF PHILADELPHIA.

At the meeting held February 16, 1895, fifty-nine members and visitors were present.

WIND-PRESSURES.

Mr. E. F. Miller exhibited and described a table showing maximum velocities and corresponding pressures in pounds per square

foot of the wind in this neighborhood, for each of the twelve months, from observations made by the United States Weather Bureau during the years 1873 to 1893. The pressures were much lower than was generally supposed, the highest value being about 13½ pounds per square foot.

DISCUSSION.

Mr. W. C. Furber: Most buildings, in view of these results, must be figured for an unnecessarily high pressure, which probably explains why some old structures remain standing.

Prof. Edgar Marburg: It has been proved by experiments, notably those made at the Firth of Forth Bridge, that high wind-pressure is generally exerted over only a small area at the same time, but of course as it is uncertain where this area will be located, the whole structure must be made correspondingly strong.

Mr. F. Schumann: This question of wind-pressure must certainly be considered by any engineer who wishes to design a structure with maximum strength and minimum quantity of materials. When the Firth of Forth Bridge blew down, the pressure was 56 pounds per square foot, and I do not think it would be safe to calculate on less than 50 pounds. [Mr. Schumann described two instances that had come under his notice, in one of which an 8-inch yellow-pine pole was snapped off, and in the other a 22-inch oak tree twisted across the trunk by the pressure of the wind.]

Mr. Clayton W. Pike: It has been found by Crosby, I believe, that the pressure of the wind does not vary as the square of the velocity, as was generally supposed.

L. F. RONDINELLA, Secretary.



[Contributors of drawings are requested to send also plans and a full and adequate description of the buildings, including a statement of cost.]

THE PORTE ST. NICOLAS, PARIS, FRANCE.

[Issued with the International and Imperial Editions only.]

LOOKING across the Seine from the landing-place of the Porte Saint-Nicolas, which lies near the Louvre, we see the huge mass of the Palais de l'Institut rear itself on the farther shore, while the towers of Notre Dame appear beyond the bridges.

Lapostolle (1824-1890) was an able landscape painter, many of whose subjects portrayed some aspect of the shore, either in its natural state, as at Trouville, or when banked and fortified by the hand of man as here on this little Paris quay, or at greater ports like Dunkirk or Rouen. This painting, which was first shown at the Salon of 1876, represented the artist at the Universal Exposition two years later. The Luxembourg holds his "View of the Canal St. Martin, at Paris, in winter."

Mdlle. Leonie Valmon, the clever Parisienne, who etched this picture of Lapostolle's, here reproduced from *l'Art*, has like him been the recipient of two medals in recompense of her talent.

Y. M. C. A. BUILDING, FITCHBURG, MASS. MR. H. M. FRANCIS, ARCHITECT, FITCHBURG, MASS.

This building is 70' x 90' and 72' high to roof. The exterior is mottled brick and Longmeadow sandstone. The finish is quartered oak and birch. The entrance hallway has mosaic floor, marble wainscot and iron stairs with slate treads. At left of stairs is ticket-office and stairs to bowling-alley. First floor also contains two large stores. Basement contains bowling-alleys, boiler-room and store-cellars. The reception-room is on the second floor with reading-room, two members' parlors, ladies' parlor, boys' room, secretary's general and private office, book-room, coat and toilet rooms, recreation and lecture room. The third floor contains the hall, seating 600, ante-rooms, four bed-rooms, shower and locker rooms. Circular stairs lead from shower room to gymnasium above, which is 36' x 67', with running-track above of 32½ laps to the mile. The fourth story contains the galleries of hall and gymnasium. In the fifth story are the visitors' gallery, two bed-rooms, three class-rooms and a camera-room. Cost complete, exclusive of land, will be about \$80,000.

HOUSE FOR ALEXANDER GRAHAM BELL, ESQ., BADDECK, C. B. MESSRS. CABOT, EVERETT & MEAD, ARCHITECTS, BOSTON, MASS.

The front view of this house was published in the *American Architect* for Oct. 27, 1894.

Y. M. C. A. BUILDING, MALDEN, MASS. MR. TRISTRAM GRIFFIN, ARCHITECT, BOSTON, MASS.

DESIGN FOR A HIGH OFFICE-BUILDING BY MR. THOMAS OSBORNE.

[Additional Illustrations in the International Edition.]

HÔTEL ON THE QUAI DE BILLY, PARIS, FRANCE. M. LOUIS PARENT, ARCHITECT.

[Copper-plate Photogravure.]

MONUMENTS TO DR. VILLEMEN, M. MONGENOT, ARCHITECT, AND
TO ADMIRAL MOUCHEZ, M. MALGRAS, ARCHITECT.

This plate is copied from *La Construction Moderne*.

ST. CECILIA: A DECORATIVE PANEL BY MR. L. FAIRFAX-MUCKLEY.

This plate is copied from the *Building News*.

THE NEW PARLIAMENT HOUSE, BERLIN, PRUSSIA. DR. PAUL
WALLOT, ARCHITECT.

This plate is copied from *Architektonische Rundschau*.

THE SUN ASSURANCE OFFICES, GLASGOW, SCOTLAND. MR. WM.
LEIPER, ARCHITECT.

DRAWING-ROOM, THURLAND CASTLE, KIRKBY-LONSDALE, ENG.
MESSRS. PALEY & AUSTIN, ARCHITECTS.

INTERIOR OF THE REDEMPTORIST CHURCH, PERTH, SCOTLAND.
THE LATE ANDREW HEATON, ARCHITECT.



BALTIMORE, MD.—The Walters Art Gallery will be open to the public
on all Wednesdays in March.

BOSTON, MASS.—*Winter Exhibition, including Pictures loaned by Quincy
A. Shaw; Paintings by Puvion de Chavannes; Line Engravings, Mezzo-
tints, and Etchings by Rembrandt: at the Museum of Fine Arts.*

*Pictures of Japan by Theodore Wores: at Chase's Gallery, 7 Hamil-
ton Place, until March 16.*

*Loan Collection of Portraits of Women: at Copley Hall, 194 Claren-
don St., March 12 to 30.*

*Photographic Work by R. S. Redfield and G. M. Morgan: at the
Boston Camera Club, 50 Bromfield St., March 6 to 16.*

*Paintings by John Leslie Breck: at the St. Botolph Club, February
25 to March 9.*

*Landscapes by Charles H. Davis: at Doll & Richards' Gallery, 2
Park St., opened March 8.*

BUFFALO, N. Y.—*Second Annual Architectural Exhibition of Buffalo
Chapter, A. I. A. and Exhibition of Buffalo Society of Artists: at the
Art Gallery, March 18 to 30.*

CHICAGO, ILL.—*Pictures by George Inness and Claude Monet; also, an
Exhibition of Bookbindings: at the Art Institute, February 26 to
March 24.*

*Black and White Exhibition of the Chicago Society of Artists: opens
March 12.*

NEW YORK, N. Y.—*Loan Exhibition: at the Metropolitan Museum of
Art, New North Wing, opened November 5.*

*Tenth Annual Exhibition of the Architectural League: at the Galleries
of the American Fine Arts Society, 215 West 57th St., February 15
to March 9.*

*Theobald Chartran's Portrait of Madame Calvé as "Carmen": at
Knickerbocker's Gallery, 170 Fifth Ave.*

*Exhibition of the Dutch Water-color Society: at Boussood, Valadon &
Co.'s Galleries, 303 Fifth Avenue, opened February 15.*

*Drawings by J. Alden Weir: at Wunderlich & Co.'s Galleries, 808
Broadway, February 18 to March 9.*

*Water-colors by William T. Smedley: at the Avery Galleries, 368
Fifth Ave., March 4 to 16.*

*Exhibition of Hamerton's Favorite Etchings: at F. Keppel & Co.'s,
20 East 16th St., March 2 to 16.*

*Water-colors and Pastels by John J. Redmond and Frieda Voelter
Redmond: at the Klackner Gallery, 7 West 28th St., February 27 to
March 9.*

*Works by J. F. Raffaelli and Edwin A. Abbey: at the American
Art Galleries, 6 East 23d St., opened February 28.*

Engraved Portraits of Women Writers: at the Grolier Club.

PHILADELPHIA, PA.—*Fifth Annual Exhibition of Water-colors and
Pastels: at the Art Club, March 18 to April 14.*

PROVIDENCE, R. I.—*Loan Exhibition of Paintings: at the R. I. School
of Design.*

SPRINGFIELD, MASS.—*Eighteenth Annual Exhibition of Paintings: at
James D. Gill's Gallery, February 1 to March 9.*



NATURAL GAS.—Of the seventy-nine works which use natural gas
in whole or in part, forty-two are in Allegheny County, Pa., fifteen in
other counties of Western Pennsylvania, five in Ohio, and seventeen
in Indiana. One now being rebuilt in West Virginia and two in course
of erection in Indiana will also use natural gas. In 1892 only seventy-
four works used natural gas, but their consumption of this fuel was

much larger than that of the seventy-nine works which now use it. It
is only in Indiana that the consumption of natural gas has increased
during the last two years. In January, 1892, it was used by only six
works in that State. — *Exchange*.

THE BLACKPOOL TOWER.—The usual fortnightly meeting of the
Owens College Union Engineering Society was held on Tuesday last,
Mr. J. B. Millar, M. E., in the chair, when Mr. James Maxwell, F. S. I.,
read his paper on "The Blackpool Tower." The shape adopted for the
tower was square in plan, and generally like the Eiffel Tower, except
that the taper of the sides is about the same all the way up. Each of
the four legs of the tower is founded on and bolted to a block of con-
crete, which is interlaced with rolled-steel joists, and rests upon a bed
of sand. Each leg consists of four columns which form its corners,
and the bracings which bind the columns together. The elevators
work in the centre of the tower, and are supported and guided by a
separate arrangement of girders. The total height of the tower to the
top of the flagstaff is 517 feet, and the width at the base is 96 feet.
The whole of the structure is made of mild steel, of which 2,400 tons
were used, an electric crane being used in building the upper portion.
The greatest stresses allowed for in designing were 5 and 5½ tons for
compression and tension respectively; the wind-pressure was taken at
60 pounds per square foot acting along the diagonal of the tower on
three times the area of the framework, and the greatest pressure at
any leg due to dead-load and wind-pressure combined was calculated at
2,200 tons. Arches are placed under the first and second floors in order
to prevent the legs spreading under the action of the wind. The two
main elevators have the longest travel and the quickest speed of any in
this country. They carry 50 passengers at a time from the 55-foot floor
to the 380-foot floor, and make no less than 12 trips per hour. To work
these two self-starting 50 horse-power and one 6 horse-power "Otto"
gas engines, drive three triple-throw hydraulic-pressure pumps, which
deliver 115 gallons per minute to three accumulators of 17-foot stroke
and 24½-inch rams, each loaded with 84 tons of pig-iron. This power is
communicated to the lift-cables in one of the legs of the tower. The
cars, each of which is suspended by four ropes, are provided with brake-
blocks, which are arranged so as to grip the guide-rails, and so stop the
car when the tension in one pair of the lifting-ropes exceeds that in
the other pair. The circus, which seats 2,000 people, is situated under-
neath the tower on a level with the street, and the floor can be instantly
sunk by means of an hydraulic ram displaying 6 feet 6 inches of water,
which is brought up to any required temperature by being run through
the cooling-jackets of the gas-engines, the gas to supply which is all
manufactured on the premises. Besides the plant already named, there
are dynamos, worked by separate gas-engines, which supply 2,500
incandescent, 100 arc and one large Admiralty search-light on the top
of the tower. Connected with the tower there is a large dining-hall to
seat 700 people, also an aquarium and a menagerie, and the whole site
is surrounded with 28 shops, besides the entrances. — *Engineering*.

CHECKMATE TO THE BISHOP.—The Bishop of London, so runs the
story, not long after he was appointed to his see, became dissatisfied
with certain arrangements in his Palace of Fulham, and called in an
architect of eminence to advise him as to the alterations that could be
made.

The architect heard what was needed to be done, inspected the build-
ing throughout, and then drew up a report of the expense that would be
entailed by the required work. On receiving the statement of the ex-
penditure which would inevitably be involved, the Bishop decided to
allow things to remain as they were.

But before the architect left, his lordship said, "I shall be glad if you
will tell me now for how much I shall draw a check on account of the
trouble you have taken."

"I thank your lordship—a hundred guineas," was the disconcerting
reply.

"A hundred guineas?"

"Yes, my lord, that is my fee."

"But, sir, many of my curates do not receive so much for a whole
year's services."

"That may be true, my lord; but you will remember that I happen
to be a bishop in my profession."

It is, perhaps, superfluous to add that the check was paid over in
silence.

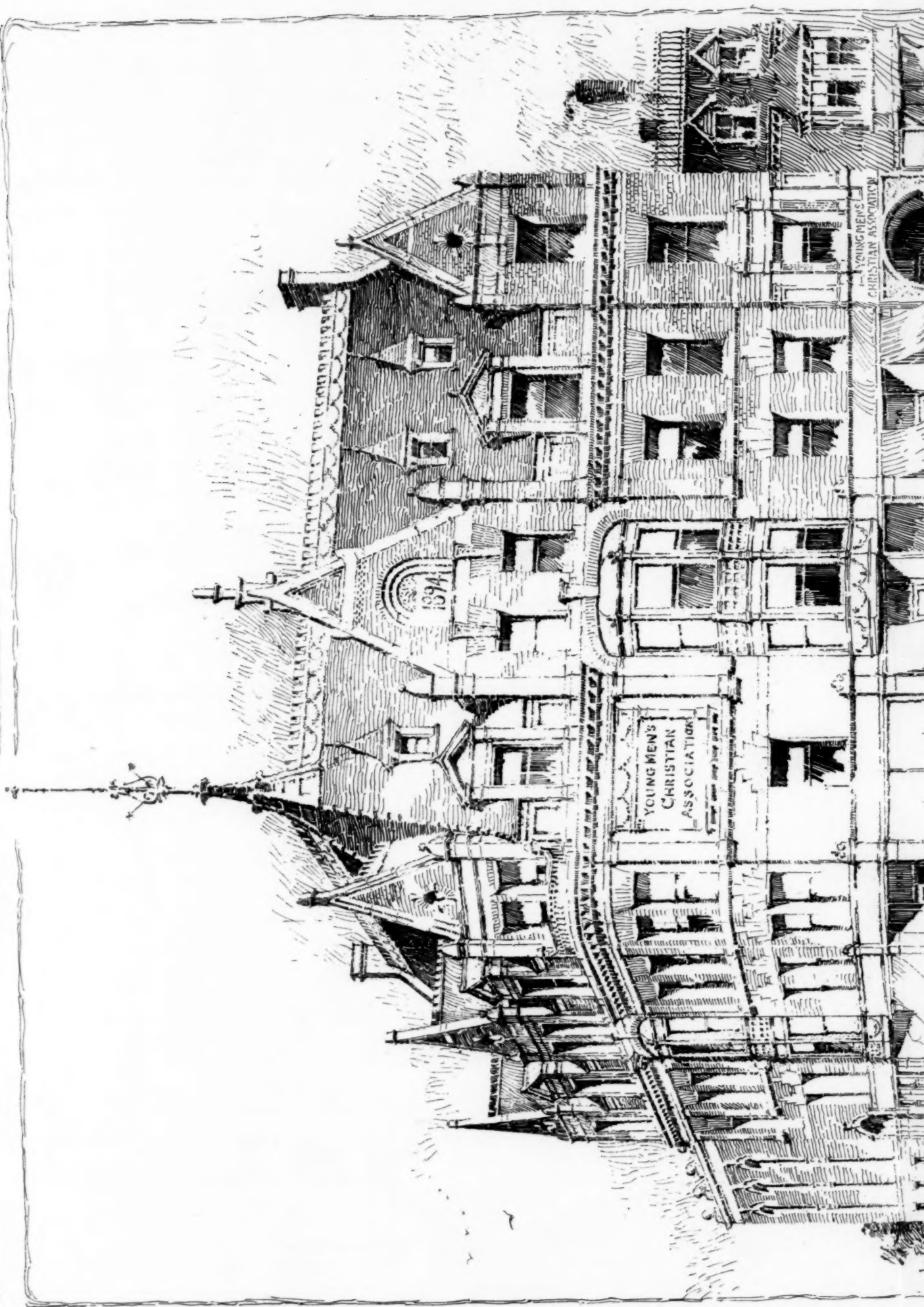
— *Illustrated Carpenter and Builder*.

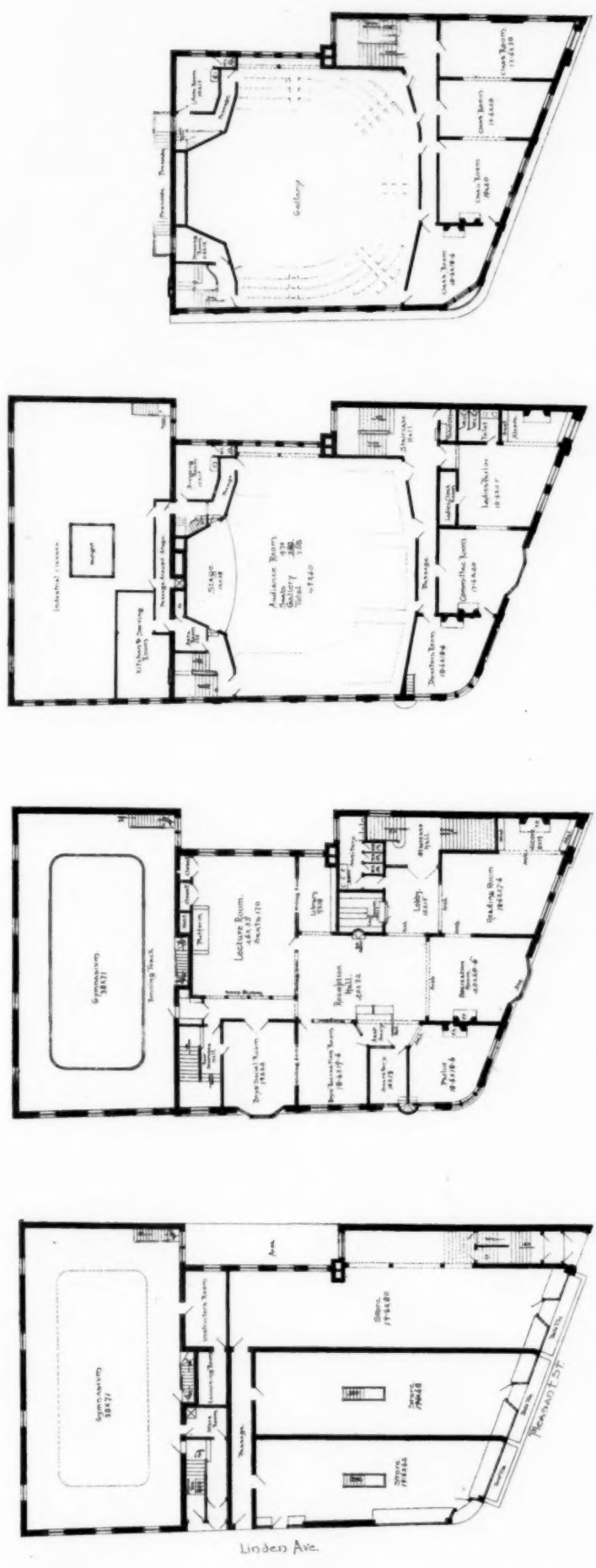
THE SECRET OF THE ROMAN ORACLES.—On August 8 of that year,
the masons Antonio Cancedova and Luigi Andreani discovered in that
portion of Pompey's Theatre now occupied by the Palazzo Pio (Rig-
hetti, Piazza del Biscione, 95) a sort of huge coffin, built of stones and
covered with slabs of marble, at the bottom of which was lying the
colossal gilt-bronze statue of Hercules, which the discoverer presented
to Pope Pius IX. It has since been given a place of honor in the
rotunda of the Vatican. Since this Hercules was the protecting god of
riders and charioteers, his temples are always found close to Roman
circuses. The one connected with the Circus Flaminius was placed
under the protection of *Hercules Magnus*; the one connected with the
Circus Maximus was dedicated to *Hercules Victor*. It was natural that
riders and charioteers, with their backers and book-makers, should be
anxious to know what their chances were on the coming of great race-
days. The oracle was close by, and the priest only too ready to cater
to their demands. The responses were given in the following clumsy
way: In the back of the head of the statue there was a hole, thirty-
eight centimetres in diameter, through which a full-grown youth could
easily make his way into the body of the colossus. The experiment
was actually tried by a boy named Pietro Roega, in November, 1864,
in the presence of Commendatore Tenerani, Visconti, Grifi, and other
personages, and the sound of the boy's voice, in answer to the questions
addressed to him, was very impressive, and almost supernatural in its
suggestion. — *Prof. Lanciani in Atlantic Monthly*.

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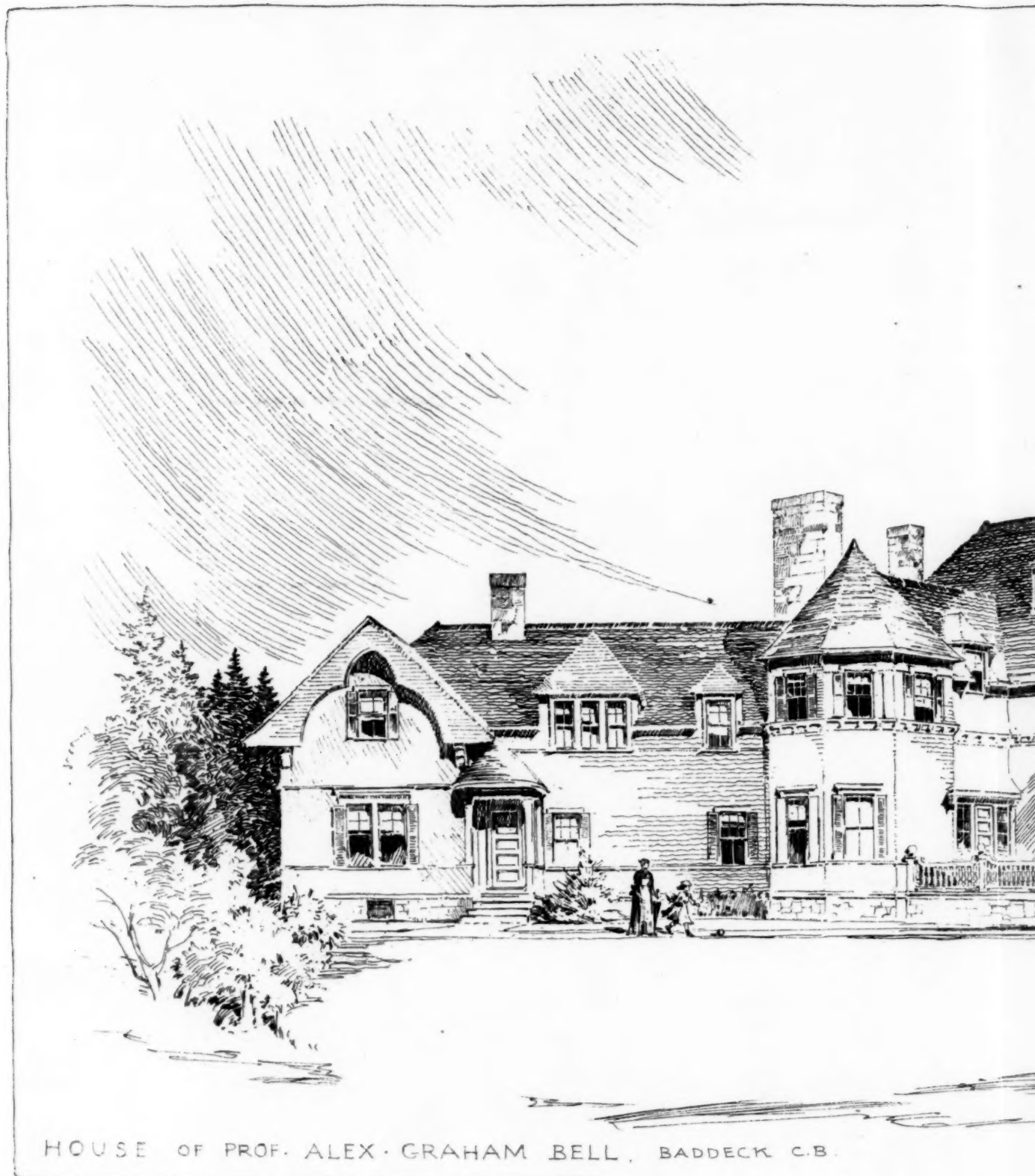
AMERICAN ARCHITECT AND BUILDING NEWS, MAR. 9, 1895.

DESIGNED BY THE ARCHITECT & BUILDING NEWS CO.





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HOUSE OF PROF. ALEX. GRAHAM BELL, BADDECK C.B.



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HELIOTYPE PRINTING CO. BOSTON

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DESIGN FOR A HIGH OFFICE BUILDING BY THOMAS OSBORNE.

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