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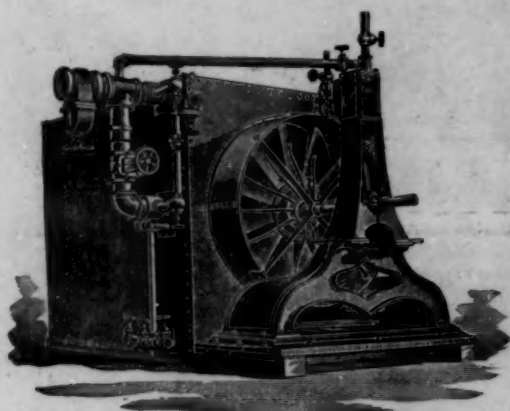
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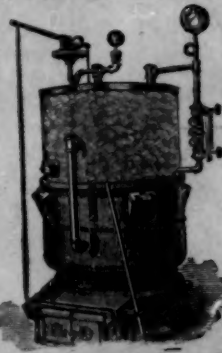
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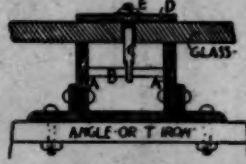
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THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. XLVII.

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FEBRUARY 23, 1895.



SUMMARY:—

The Michigan Board of Health on Ventilation of Buildings.—The Vagaries of Ventilation by Fans.—The New York Stone-cutting Law as it affects Rapid-Transit.—Employment of Mechanics decreasing as their Wages increase.—High Wages and Discontent vs. Low Wages and Happiness.—English Master-builders and Non-Union Labor.—The Mexican International Exhibition.—The Prix de Reconnaissance Americaine.—Artificial Veneers of Infusorial Earth.	81
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DR. JOHN H. KELLOGG, a member of the Michigan State Board of Health, has written, in the form of a Report to the Board, a pamphlet of "Practical Suggestions respecting the Ventilation of Buildings," which contains an unusual amount of common-sense, and may be recommended to persons who wish to have the rudimentary principles of ventilation clearly explained to them. Architects will probably find the rule which he gives for ascertaining the velocity, in feet per second, of the air in a ventilating shaft, by multiplying the square root of the height, in feet, by the square root of the difference in temperature, in Fahrenheit degrees, between the air inside the shaft and the external atmosphere, and dividing the product by four, rather too simple for their use; but it is at least better than nothing; and Dr. Kellogg has probably done well in adapting his rules, by extreme simplicity, to the comprehension of readers to whom the whole idea, that ventilation consists in moving a given amount of air, at a specified rate, through openings of suitable size, by means of certain measurable forces, and not in providing handsome register-fronts, or signing contracts under "guaranties" with the local tinman, will be somewhat startling.

IN regard to the use of fans for ventilation, Dr. Kellogg's experience, and the conclusions which he draws from it, agree exactly with those of most architects. He says, emphatically, "I have visited many large institutions, provided with large ventilating fans, and have never yet found one in which the apparatus was in constant operation. In many cases it had not been in service for years, and was not in running order." He goes on to describe a large hospital, which he once inspected, the entire air-supply of which was brought through a duct in which a fan was placed. The duct, outside of the fan, was eight feet in diameter, which would have been just about large enough to supply the hospital with air at a moderate velocity. On the house side of the fan, the conduit was contracted to about four square feet in sectional area, or about one-twelfth of its size outside. Of course, it had been calculated that the fan, drawing the air at moderate speed from the duct outside, would discharge it into the house-pipes with a velocity great enough to make up for the decrease in section of the current; but, in point of fact, the fan had, on account of the expense of running it, never been in operation since the opening-day, three years before; and the entire air-supply for the hospital, which was filled with patients, had ever since crept, as best it could, through this tiny hole, obstructed, moreover, by the idle and useless fan. In consequence of such observations as this, Dr. Kellogg, while acknowledging the value, and even necessity, of mechanical appliances for pro-

ducing currents of air in ventilation, says that, "it is certainly unwise to so plan the ventilating system of a large building as to make the inmates absolutely dependent upon the efficient working of an apparatus of this sort"; and we are sure that every architect of experience will agree with him.

A CURIOUS effect has been produced by the law of New York which requires that all cut-stone used in public work shall be dressed in the city. It will be remembered that this statute led to serious trouble in the case of certain paving-work, followed by the abandonment of the undertaking by the contractor; and it has come up again in the deliberations of the Rapid-Transit Commission. This Commission would naturally award contracts for an enormous amount of cut-stone work, for its arches and tunnels; but the Engineer to the Board, Mr. Parsons, reported that under, the statute, all such work must be executed in the city, upon rough blocks, brought in from the quarry. The cost of the work, under the condition existing in New York, would be far greater than if done outside. As architects know, the workmen at the quarries, where stone for engineering work is generally cut, learn by experience how their stone can best be handled, and do it far better and more rapidly than men unaccustomed to it; while, by cutting at the quarries, the cost of freight and handling on the extra weight of the rough blocks over the finished work is saved, and the necessity for hiring costly city land for a stone-cutting yard is obviated. For these reasons, Mr. Parsons expressed the opinion that cut-stone for the Rapid-Transit work would, under the present law, cost twice as much as under normal conditions; and that it must be dispensed with, its place being supplied with brick, iron and concrete. By doing so, as he said, "the construction would lose the benefit of an excellent material," and, he added, "the stone-handling workmen in the city would lose the benefit of working upon the construction." The Rapid-Transit Commissioners, upon this presentation of the subject, immediately drew up an earnest request to the Legislature to have the statute in question repealed, and forwarded it to Albany, where it is to be hoped that it may do some good.

THE whole subject of the effects of trade-union schemes, of the sort represented by the New York stone-cutting statute, in destroying the industries in whose interest they are supposed to be concocted, and in depriving of employment the men who seek by such means to gain an unfair advantage over others, is of great importance, and urgently needs to be illustrated by reliable statistics. The union magnates object to the gathering of any information on the matter, and, for some reason, the published reports of State Labor Commissions are generally silent about it, contenting themselves with pointing out the rise, from year to year, of the regular rate of wages in particular trades; but here and there the fact is noted that, under the modern system of combinations to raise wages by force, while the daily pay of a workman in the organized trades is high, and is constantly growing higher, the number of days during the year in which he is sure of obtaining employment is, in this country, comparatively small, and appears to be growing smaller; so that the average yearly income of a man belonging to one of the trades whose union schedule of wages is pointed at with pride by organizers, and socialist philosophers, and other inconsiderate persons, is often less than that of the despised laborers, who have no trade organization, and no union schedule of wages. In Milwaukee, as our readers will remember, the average yearly income of a large number of journeymen carpenters who were intelligent enough to answer clearly the circular of questions distributed by the State Labor Commission was only five hundred dollars, and many of them earned a part of this by doing other work during their leisure time; yet they received, when they were employed in their regular business, the schedule wages, varying from three dollars a day upward. It is hardly necessary to point out that each one of these carpenters, if he wishes to have any work done in his own house by a bricklayer, or a member of some other organized trade, must, although his own income, taking the year through, is only a dollar and sixty cents a day, pay the bricklayer three dollars a day for what he does, although the bricklayer himself, after his work is done, has to spend an equal number of days in idleness. Moreover, while he and the

carpenter are waiting for a new job, both of them are living in houses built at the three-dollars-a-day rate, and are paying rent accordingly; so that the net result of the system is that the people who imagine that they are profiting by it are really paying double price for everything that they have done for them, and for everything that they consume into the making of which organized labor enters, while they receive only single price for their own work.

IN fact, the man who earns, the year through, a dollar and sixty cents a day, and has to pay three dollars a day for all the work that other men, as poor as himself, do for him, would be far better off, in most cases, without the union schedule. There is no doubt that the organized trades have forced the price of labor so high that people cannot afford to buy it. The vast majority of the inhabitants of this country are poor. They manage to make both ends meet at the end of the year, but that is about all, and when the Milwaukee carpenter, who is a very good type of our population, finds that houses built with three-dollar labor cost too much for a dollar and sixty-cent income, and hires rooms in a tenement-house instead, it is safe to say that many thousands of his fellow-citizens have the same experience; with the inevitable consequences that the demand for houses slackens, employment for carpenters falls off, and our friend's annual income is still further diminished. The unions meet this phenomenon with characteristic wisdom. "If there is not work enough for the carpenters to do," they say, "every union man, when employed, must dawdle about his work as long as possible, to make it last, and compel the employment of additional men to get it done at all." This mandate is obeyed, and the labor cost of houses counts up higher than ever. More people find that they cannot afford to have houses of their own, and the demand for them slackens again, throwing more men out of employment. How long this process of increasing wages, so to speak, at the spigot, and reducing employment at the bung, will go on until it culminates in the millennium of the "universal strike," only the socialists can say; but it is safe to predict that, sooner or later, the incomes of workmen will be fixed, not by walking-delegates, nor by considerations of the Living Wage, or the Dignity of Labor, or the Greed of Capital, but by a system in which constancy of employment shall be an important factor. Under such a system, while nominal wages in the building-trades would probably be lower, actual incomes would be larger, and the cost of living less; for a carpenter, finding that he could hire a bricklayer to work a day for him for what he could himself earn in an average day, instead of twice as much, would find many a job of masonry that he would like to have done about his house; and the bricklayer, being in precisely the same case, would indulge himself in having occasional jobs of carpentry done about his own residence; and, as these two represent practically the whole community, the average mechanic's yearly income would rise to something like the normal standard. That it is now far below that is shown by the fact that many thousands of mechanics,—masons, carpenters, glass-workers and others, have left the country within the last few years, and have gone, not only to England and Scotland, where wages are comparatively high, but to France, Belgium and Holland, where they are low, but where employment is so constant, and the cost of living so small, that they find themselves more comfortable, and even more prosperous, than here.

A RECENT number of the *Builder* contains a letter from a workman, who signs himself "A Member of a non-Federated Union," and speaks with much satisfaction of the recent action of the London master-builders, in giving notice that "no workman shall in future be placed under any disability by reason of either belonging or not belonging to a union." "I am pleased," he says, "that the master-builders have at last taken action against the tyranny of trades-unions. At the present time, a workman goes to work at a shop or job in the building-trade; he is asked for the federation ticket; if he has not got one, he is told he will have to get one, and that if he does not consent to do this, in a few hours every man will strike against him, and the result is he is discharged. The laborers will refuse to wait upon a non-federated workman, and it has often occurred that a laborer has refused to fetch a carpenter a handful of nails unless he showed a federation ticket—in fact, it is almost impossible to get a job without it. It is in this way men are forced into the unions." "It is high time,"

he continues, "that the federation ticket is abolished"; and he says, "I am sure, with a little encouragement, and a firm promise of protection, with good faith, at least fifty per cent of the members will be only too glad to escape from the clutches of their unions." We commend this letter to those who think that the system under which an English or American workman cannot earn a living in any large city without showing a ticket, purchased by the sale of his liberty to a scheming gang of tyrants, is an evidence of social progress; and who imagine that there is something novel and valuable in the floods of drivel about the "Living Wage," the "Organization of Labor against Concentrated Wealth," and so on, which are just now poured out upon the world. There are indications that the deluge is diminishing, and that the "scab," that is, the true-hearted Anglo-Saxon, who wishes to earn a living for himself and his family in such honest way as he pleases, without swearing allegiance to walking-delegates, is about to reappear as a human being entitled to some legal rights. Mayor Schieren, of Brooklyn, has already given official expression to an idea of this sort, and the sadness with which the distinguished Mr. Sovereign spoke the other day of the "greed of capital," and the necessity that workmen should "stand shoulder to shoulder" in the "great contest" which, as he predicted, would occur within twelve months, indicates that the agitators are getting nervous about their grip on their dupes.

MEXICO is to have its first International Exhibition in the year 1896. The plot of ground set apart for the exhibition buildings covers an area of six hundred acres, and is situated in the suburbs of the city of Mexico, and accessible from the city by several lines of street-cars. The Mexican Government will award medals and diplomas, in accordance with the decision of international juries, and will extend the usual privileges, in the way of allowing goods for exhibition to enter in bond, and in reducing, so far as possible, rates of freight. The Exhibition will open April 2, 1896, and continue at least six months. Persons interested may obtain further particulars from A. K. Coney, Consul-General of Mexico, 604 Clay Street, San Francisco, California.

THE American Prize competition at the Paris School of Fine Arts this year attracted, as usual, few competitors. French students considering, not without reason, that the money value of it does not quite compensate the loss of the time devoted to it, in view of the fact that it does not, like the regular prizes, count toward promotion in the School. There were four competitors, and the prize was awarded to M. Perret, pupil of M. Ginain. The programme was a tolerably difficult one, the subject being a circus, with galleries and dependencies.

A VERY peculiar material, under the name of "Kunst-fournier," or Artificial Veneer, is made in Germany, under patents of Herr Karl Koester, of Cologne. This material is composed principally of infusorial earth, which is mixed with various binding and coloring materials, and spread in layers over a wooden core. When the mass is dry, it is cut into sheets or blocks, and, if the layers have been differently colored, their irregular section presents an effect resembling that of figured wood. In the manufactory, where it is important to save time, a machine is arranged, by which two wooden posts, thirteen feet high, and set about five feet apart, are made to revolve about a vertical axis. Each post has twenty-four horizontal branches radiating from it; and the branches, as well as the posts, revolve easily about their own axes. In the process of manufacture, the horizontal branches are first covered with paper, to prevent the composition from sticking to them, and then painted with the mixture of infusorial earth, coloring matter and gum. The branches attached to one of the posts are first painted, with one coat, and the machine is then revolved, so as to bring the other post near the operator. By the time the branches of the second post are coated, those of the first post are dry, and ready to be revolved into position for a second coat. In this way, the painting goes on continuously, until the branches are loaded with a coat of composition nine or ten inches thick. The color of the coats is made alternately dark and light, and the thickness of the stratum is varied, so as to imitate the varying thickness of the annual rings in a tree. When all is thoroughly dry, the cylinders of composition are slipped off their wooden cores, and sawed or cut into veneers, which are said to bear a deceptive resemblance to those of real wood.

HINTS TO ART STUDENTS ON TRAVELLING ABROAD. — II.

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TO get the most good out of a trip, one should be prepared to work in all sorts of ways—to make measured drawings, sketches, color-notes, squeezes, rubbings, sections with the lead; to study from plates and make T-square sketches, scratch-book notes, photographic notes and memory sketches.

Travelling students are apt to place too much value on perspective sketches. Good ones make a nice showing on returning home, but they are of little value to any one but the maker. It is usually possible to find photographs of the things over which one spends so many hours making pretty sketches. But sketches do have a certain value in teaching rendering and encourage the habit of observing closely the effect of light and shade.

Beautiful pencil sketches may be made on English metallic paper by simply drawing the shadows on carving in full sunshine; colored papers are very useful to gain quick effects with the use of Chinese-white. A pad of Whatman water-color paper, imperial size, is much better to work on than a small cramped little book; and it may be used as a drawing-board, thus diminishing the number of articles to carry. The T-square will run along the edge of the block well enough for sketches, but it is better to carry a straight-edge to clamp on the edge of the block with thumb-screws for the square to work on. Have a canvas bag made with a flap in which to carry the block. It will keep out the dirt and dust of travel and be of great service.

Sometimes valuable color notes are to be had in crowded buildings where it is not convenient to sit down and make a large study. For such cases, a small pocket water-color block will be very useful. There is a small vest-pocket water-color box carrying six colors, which may be set over the thumb, a water-bottle attached, and with it one can stand unobserved in a corner and get color notes which otherwise must be passed by. In studying fresco-painting, tempera is very useful. It is mixed up with water and applied to paper, but may be worked over in the manner of oils, a great advantage in making studies.

The *chambre éclairée* is invaluable as an aid to drawing, in blocking out water-colors. It will enable one to make a drawing in an hour which otherwise would require all day. It is an instrument little known outside of Paris, but is much in use there among architects. It consists of a prism mounted on a telescoping leg which may be fastened to the drawing-board. The eye looks through the prism and sees the building reflected on the paper; all that remains to do is to trace this outline. It does not teach one to draw, but it does save time, and produces better drawings than can be made without it. The best place to buy them is of Cevalier, on the Seine, near the Pont Neuf, Paris. Only those with the best prisms are of any use: such a one, with two adjustments only, can be had for sixty-five francs. The table which is necessary for its use costs fifteen francs additional, that is a total cost of sixteen dollars. In buying a table, be sure and get one with sliding-legs which can be taken off the head and packed flat.

One of the very best ways to study, and one which has very direct tangible results is by the aid of printed plates. Take such a book as Letarouilly's "Edifices de Rome Moderne." Go to the buildings themselves and compare the drawing with the building; see what drawings on paper really mean when executed; mark up the plate;

note the proportion of masses, the size of ornament, the relative proportion of openings and wall-spaces, the effect of color and texture and the use of material. Make suggestions for better ornament, proportion, etc., and then go home and make a new design with all the improvements you have noted.

The reverse of this method is, to sit down in front of the building with T-square and triangle and translate the perspective building back onto paper in elevation.

These two methods will aid one to tell from a drawing how the building will actually look when executed. It will give an idea of the scale of ornament. If a cornice looks just the right size on a certain building, the plate will tell you just how high that is. The T-square sketch is very valuable in cultivating the sense of proportion. Draw to scale such parts of the sketch as can be easily measured and put in the remainder in proportion, and make these sketches at the scale at which you are used to working in the office. They will be of immense advantage in giving you a sense of absolute scale.

There is such a thing as "absolute scale" and scale is not simply proportion. A drawing might be made in good proportion and the building look well if executed a thousand feet long, and yet lose all its effectiveness if executed but one hundred feet in length, the relative proportions of the parts remaining the same. It is a fact that certain designs, which look well on paper, will not look well in execution, except at a large scale. Therefore, it is valuable in making a sketch to put on it some of the measurements; and freehand sketches with measurements marked on them have a value in giving absolute scale.

The back of a photograph is a very convenient place on which to make notes of the building itself, in regard to color, material, suggested changes, etc., and will be very useful in recalling the building to memory.

Measuring buildings and drawing them out to scale is solid architectural work and nothing else can take its place. It gives a realization of the actual size and appearance of things, and brings to notice the stone-jointing, sections of mouldings, vaulting, roofing and construction in general. Measured work must be done very accurately, or else the results have no more value than approximate measures on sketches.

The drawing should be made exactly as the building exists, without any change or improvement, or else the drawing will lose a great deal of its value as a basis for study. Many of Letarouilly's are nearly valueless as data for study because he has improved on the original and thus his drawing does not represent the building as it actually exists.

A good method of measuring buildings is to measure first the general dimensions and block-out the building on paper at a small scale, then measure up windows, columns, etc., and set off full-size sections of all the mouldings with a strip of thin lead, such as may be had at any wholesale lead store: only the thinnest sheet-lead will work, as the thicker leads are too stiff to bend. The large final drawings can then be made away from the building. It is important to draw out the building completely at a small scale, however, as it is very annoying when making the final drawing far away from the building to find that some important dimension has been forgotten.

The ordinary tape stretches so much in long dimensions that it is inaccurate. It is best to get a tape with a metallic strip in it, and it should be at least fifty feet long in order to take dimensions over all, which is much more accurate than measuring with a short tape from point to point.

The metric system is very convenient, but it is better for American students to use the English measure that they will have to use in practice, and take the tape over with them, for it is difficult to find them on the Continent. A sliding measuring-rod is nearly indispensable and it will be most convenient to carry if it folds up to the length of the imperial drawing pad. Two large triangles are very useful in getting the projection of mouldings, as they can be held together to form a right angle.

Vertical heights can be obtained with a plumb-line, which will not stretch, by lowering it down and then measuring the line on the tape. The projection of cornices may be obtained by lowering the bob to the ground and measuring from the foot of the building the distance at which it strikes.

Drawings of carving, spacing of egg-and-dart, etc., may be very neatly obtained by attaching a sheet of paper, such as is used for newspapers, over the carving with pellets of shoe-makers' wax and then rubbing the paper with blue chalk or black heel-ball (such as shoe-makers use on the heels of shoes), which thus marks all the high points of the carving on the paper. A large pair of wooden calipers to take diameters, spacing of carving, etc., completes the outfit.

Modelling in wax is one of the very best ways to study carving. It requires close observation, and gives a realization of projection that cannot be obtained from drawings on paper. There is a wax made that does not dry up, and can be used indefinitely. Of course, the value of this method lies in the making of the model and not in the model itself. The value of studying carving with wax is not simply to gain an exact knowledge of certain carving so that it could be exactly reproduced, but to gain a knowledge of line, modelling and relief that will give freedom in design.

Squeezes can be made of carving in low relief with ordinary blank newspaper paper. The paper is first soaked, the surface of the

carving wetted, and the paper then pressed into the carving with a very soft brush, such as house-painters use. The paper is allowed to dry on the stone and will then retain its shape. If the carving is in high relief, it tears the paper.

Very handsome rubbings of incised carvings, such as Roman lettering and some of the mediæval metal designs let into the stone, can be made on thick tissue paper, or newspaper, with a ball of cotton dipped in ordinary powdered graphite; some very handsome work of this kind can be seen in the Trocadéro Museum, Paris.

Competition memory-sketches are good fun and teach accurate observation: Several students go to a building and study it for, say, ten minutes. On returning to the "atelier," each one sketches out the building from memory, and then the sketches are compared. It is a very good exercise for the memory and adds to one's familiarity with good buildings.

Always carry in your jacket a rough sketch-book, not for pretty sketches, nor for things that would make nice sketches, but for ideas, suggestions, notes, hasty scratches. These little books will be a memorandum of many ideas that would otherwise have been forgotten, and will prove to be a mine of suggestions.

The camera is not so valuable as students are apt to imagine. It is usually possible to obtain photographs of all the best things, and very cheaply in Italy, where they cost but one dollar a dozen for the best. The camera adds a great deal to the size of one's outfit, and the photographs are not apt to be so good as those of a professional who has the opportunity to choose his time for photographing.

As a criterion of work abroad, a model for draughtsmen and a suggestion as to what kind of drawings are valuable on returning home, study Kinross's "*Italian Details*," and Mr. Prentice's "*Renaissance Architecture in Spain*."

But remember that it is possible to do too much work. One's mind should not always be on the drawing-board. Go, live in the shadow of some great building. Make familiar acquaintance with it. See it in the early morning when the sun first gilds its highest pinnacles, in the heat of the day when it glares back at the sun, at evening when its long shadows creep across the green, and in the gloom of night when it stands a mysterious block against the sky. Drink in its inspiration, learn its lesson, and open your heart to nobler things than feet and inches, and drawing-paper and pencils.

J. W. CASE.

(To be continued.)

THE INFLUENCES AGAINST THE MCKAIG BILL.¹

MR. PRESIDENT AND GENTLEMEN:—

I feel very much embarrassed at being called upon to speak to you to-night; I could not do it at all, were it not that I have a fairly good excuse.

Circumstances have enabled me to learn much about prevailing conditions in matters regarding our Federal architecture, which may be of interest to you. As artists, we all feel and know that our public buildings are a disgrace, and we are especially interested in improving and raising the artistic standard of this work and, from our standpoint, this seems a perfectly simple matter. We have the architects with the required ability; we have the opportunity staring us in the face—and what we desire is to bring the two together.

We all know how easy it would be to select—as Mr. Burnham did in the case of the World's Fair—an artist for each building; and we also know what the result would be: we have had this object-lesson; but, as artists, we should want and do want even more than this. With these new opportunities, we want to create new incentives. We want to improve the opportunity, and we want the opportunity to improve us. Those men, whose ability is known, want these opportunities of studying; those men whose ability has not yet been recognized want the opportunity of displaying their ability; and it is undoubtedly true that if the architects are ever called upon to do this work, it will be essential for ultimate success, that the greatest possible number of artists be called upon to compete. The result must be an absolute test, of merit, in which honor and distinction can be gained by many an earnest student.

No architect can have a higher ambition, than to successfully design and execute a public monument, and it is my belief that nothing could be more educational or more improving to the profession at large in this country, than this opportunity to study monumental architecture. Twenty-two-story buildings are expensive and quite elevated, but not at all elevating.

This side of the issue we architects, I believe, fully appreciate, and I also believe that the public understand it. The appreciation of the masses of our people for the true merit of a work of art is not yet fully developed—but though our citizens have given the matter little or no thought, they are invariably aroused to a full sense of our misfortune as soon as the matter is called to their attention and understood by them; and it seems to me, therefore, with such experience as I have had with this question, that we are all agreed as to this side of the issue.

The bill known as the McKaig Bill, in which the architects are interested, provides, with this end in view, for the appointing by the President, with the approval of the Senate, of a Commission of three architects to prepare programmes, conduct competitions, and select an architect. This is the principle involved in the bill, the rest of

which refers to the details and the conditions under which this Commission will hold office and fulfil its duties.

What then prevents the maturing of our schemes? To this I will say that it is the other side of the question—for this, like all other questions, has two sides—namely: the present methods, which must be abolished, destroyed, buried, before we can have our way. The present system is beyond description, and beneath contempt. The position of Supervising Architect has nothing in it to attract a decent man. The smallness of the salary is looked upon as the main obstacle; were it possible for a man to take the position, and to acquire distinction and honor thereby, the salary would count for nothing—but the Supervising Architect is a mere clerk, appointed by the Secretary of the Treasury, and discharged by him at will. He takes the office for a short period; he cannot, in designing, anticipate the completion of any portion of his work under his own administration. The task which is given him is beyond the physical ability of any one man. The assistants, with whom he is furnished, are selected through political influence or under Civil Service rules, and so far as the technical work, at least, is concerned, I fail to see how a competent assistant can be obtained under Civil Service rules. You can pick out the best man amongst a lot of candidates, but the whole lot of candidates, in this case, are unfit for the positions, because the men with ability are not attracted to this kind of work, and will not submit to this kind of test. Intrenched in the office under Civil Service rules and by political backing, these employés are absolutely beyond the control of any one. When discharged for inefficiency or misbehavior, they find their way back to the Department—not once, but as often as they choose.

The work itself is scattered over the entire United States, and is absolutely beyond the control of any one man. The superintendents and clerks-of-the-works who direct the work, are political heelers, not even under Civil Service rules. The Supervising Architect does not select them, never sees them and has no control over them. A few inspectors, also of the same general stripe, travel round and inspect one building after another.

Now, supposing that the Supervising Architect had his own way, had absolute authority, could select his own men, and could, in every particular, conduct the business of the Government as he would his own private business—no man can sit in Washington and successfully design 115 buildings scattered all over the United States, without ever seeing the spot upon which a building is to be erected, without coming in contact with the conditions which the building must meet, and with the people for whom it is built. He cannot administer and direct this business and design at the same time. If some one else were to administer it for him, even then it would be impossible for him to do justice to the artistic requirements of the work.

Mr. Vest claims that no position is too big for one man; if he refers to a man's executive ability, he is probably right, but in this case, it is a matter of creative ability, work which has its limitations, and which cannot be delegated.

To summarize therefore: You have conditions which no man could approve sufficiently to make it worth attempting, or to satisfy any of us. This is, therefore, briefly, the other side of the question. It would seem to you and to me, and to most people, just as easily disposed of as the former side; but in this conclusion, you lose sight of the fact that 150 employés, with their political backing, and a hundred more superintendents, with their political backing, are fighting as hard as we are—with a whole horde of politicians throughout the country back of them—to maintain the present system, which is their bread and butter. When we look at it from this standpoint, we can hardly blame them for doing so; but we must blame the politician for making it possible for them to do so, and the politician, therefore, is the man we want to get at.

Have you ever met a politician? Have you ever spent three weeks in Washington lobbying amongst the politicians? They are the nicest, pleasantest, most affable, most interested, most public-spirited lot of men that you ever met. They will promise you anything and everything. But did you ever get anything out of them?

When I was in Washington in the interests of the McKaig Bill, a whole delegation—not of architects, but of politicians—was also in Washington working the Chicago Post-office racket. The Postmaster, Mr. Hessing, headed this delegation. Some of us asked Mr. Hessing, one evening, what hope he had for his bill, and here is a politician's opinion of politicians: he replied that he could not tell, but that he still believed, after his Washington experiences, that all men were not liars.

Now, gentlemen, our work brought us together, and our success depended on the same people. Our bills were before the same Committees—Public Buildings and Grounds—with Mr. Bankhead in the House, and Mr. Vest in the Senate, as chairmen. We wanted the "McKaig Bill," a purely common-sense, administrative measure which asked for no money or appropriation of any kind. Mr. Hessing wanted \$4,000,000 to build a new post-office. We were riding a hobby, Mr. Hessing, a "merry-go-round." We had to ride our hobby alone; he had room for everybody; he won and we lost.

As you know, we have never had the opportunity of testing the sincerity of the almost universal promises that were made to us by every man who had a vote. We are living under the impression that if Mr. Bankhead and Mr. Vest had not opposed us, our bill would have passed by a unanimous vote. Now, some of these politicians have come to us frankly and in all sincerity, and said,

¹ A paper, by Mr. John M. Carrère, read at the last meeting of the New York Architectural League.

"We want to help you, but Mr. X—who is opposed to your bill, makes a good many objections." In this way we hear of some of the weapons with which the present employes are fighting us—through the politicians.

Most of the objections are easily answered, and are really either absurd, or the result of ignorance of the subject—as, for instance, the fact that under such an arrangement the Government loses control of the work. It is absolutely within the power of the Government to make arrangements to suit itself—the only thing which our bill makes compulsory being the employment of the successful architect at the usual terms in private practice. Other such objections are made. The principal objections, however, are more serious—they touch our motives.

They claim, for instance, that it is a big "job" for the architects, and so it is, but it will be an honest job. The man from the Far West never heard of 5% being paid to an architect. Why, in his part of the country, they tumble over each other to do the work for nothing. Mr. Vest thinks that the way he would build a house would be to advertise the fact in the papers, and hire an architect just as he hires a cook.

An architect friend once told me that a client had objected to paying him 5% on the ground that no end of men were willing to do the work for half that amount: my friend told him that if he would allow him to do the work in the same way, he would pay him 2½% for the job.

The truth is, and I am not committing a breach of confidence nor disclosing a State secret, when I state that the work completed and paid for in the course of one year, under the present system, amounts in round numbers to a little over \$3,000,000, and that it costs from \$200,000 to \$220,000 to run the Supervising Architect's office; and mind you, this includes no rent or other incidentals, but practically only clerk hire. Of this \$200,000, \$4,500 only is paid to the Supervising Architect. Under the bill which we propose, it is admitted, even by our opponents, that the buildings would cost from 25% to 30% less, so that the same work, which is now costing over \$3,000,000, would only cost about \$2,000,000 per annum.

The commission of the architects on the \$2,000,000 would be \$100,000. The cost of the clerks-of-the-works, and the superintendents would add to this amount; but the net saving to the Government in the cost of the buildings proper would warrant the paying of a commission of 10% to the architects. The result to the Government in the character of the work would warrant the paying of almost the entire difference to the architects, instead of which, the commissions paid to the architects will not only be much less, but they expect to make a profit out of it. So that, instead of paying 100% for elbow-grease, the Government will be paying at least 50% for brains, as against nothing now. The buildings will be built so much more rapidly, that the saving will also include interest on the cost of land and building, rent for temporary quarters, salary of superintendents, and so much, in fact, that it is absurd to talk about it. The time that it takes to complete a building under the present system has no relation to the work to be accomplished, but is established by the length of time that the superintendents wish to remain unemployed and to draw salaries.

Another quibble is the fact that the architects will receive some of the political prestige and patronage. Why not, if it will result in the employing of competent men, and the use of a greater variety of materials? Local dealers and local materials, which can then be investigated by local architects, will be given an opportunity, and this will remove the power from Washington where it is centralized, and where a few greedy selfish material-men, with a political pull and influence, have it in their power to control the situation.

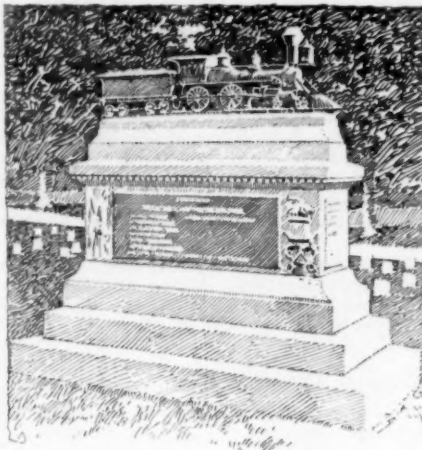
The man who sits in Washington is practically in the position of Government physician who would prescribe the same medicine for every sick Government employé throughout the country. We want our own doctors, and a greater variety of medicine.

In the case of the Chicago Post-office—to show how the evil begins at the very root—Mr. Hessing handed me a document, which he told me had been prepared by his "topographer"; I was somewhat puzzled until I read the document, and what do you suppose it was? It was the programme for the future \$4,000,000 Chicago Post-office, conceived and elaborated by the postmaster and his employes; the result of the experience which they had acquired during a few months of office-holding—and this programme states that the building shall cover the entire lot; no approaches—no art outside the building; that it shall have an interior court; that the building shall be 70 feet wide—50 feet for the Post-office; twenty feet for a fringe all around for the public; it establishes the number and height of the stories—practically the character of the building. It is on this programme that the Committees of the House and of the Senate make the appropriation of \$4,000,000 and practically fix the result. The Supervising Architect can hardly touch the programme without raising the ire of the entire political horde.

I cannot elaborate on this subject, or I would enter into the question of selection of sites and other points of importance, but I merely wish to point out to you that the opposition which we must overcome is of a purely practical kind, and that we want to turn the tables on these people. Against the influence of two or three hundred employes and a few selfish contractors and manufacturers, we must arouse the interest of two or three hundred thousand material-men, builders, manufacturers and citizens, and bring their political influence into line on our side of the fight, and make them

realize that, with our bill, each locality will have its own opportunity, that what we want is that each and every building shall be the outgrowth of the locality, and that it is to every citizen's interest to help us, not only to elevate our art, but to promote their own business interests, and eventually elevate civic pride which, at the present date, is at the lowest ebb throughout almost the entire country.

THE LOCOMOTIVE "GENERAL" AND THE ANDREWS RAID.



THE war locomotive "General" is truly an historical locomotive, though not of very early time, being an ordinary "American" type wood-burning engine of 1855-60. But it became famous during the war of Rebellion; so famous, indeed, that to millions of Americans it is a sacred relic connected with one of the many thrilling incidents of the bitter and long-sustained struggle. The story of which this locomotive was the central figure is told as follows:

The "Andrews Raiders" consisted of twenty-one Federal scouts selected from the 21st and 33d Ohio Regiments, and sent in disguise within the Confederate lines, under the leadership of J. J. Andrews, of Kentucky.

The object was to capture a train on the Western & Atlantic Railroad, the State Railroad of Georgia, and burn the bridges between Atlanta and Chattanooga, thereby severing communication between the source of reinforcements and supplies, and the actual seat of war in the State of Tennessee. Atlanta was the heart and Chattanooga was the castle of the Confederacy. No railroad, save the Western & Atlantic, connected the two. This was the main artery of intercommunication between the Gulf States and the armies of Beauregard at Corinth, and Stonewall Jackson in Virginia. To cripple, even temporarily, this line of road, would practically cut the Confederacy in two. Mitchell's forces, acting in concert with the Andrews Raiders, would, the moment the bridges south of Chattanooga were destroyed, move upon that point, and at one stroke hold possession of the military key of the campaign.

"It was all the deepest laid scheme, and on the grandest scale," says a subsequent editorial in the *Atlanta Southern Confederacy*, "that ever emanated from the brains of any number of Yankees combined." "Despite its tragic termination," says the *Comte de Paris*, "it shows what a handful of brave men can undertake in America." The fact is, its inception in point of strategy was worthy of Napoleon, and its execution, in point of patriotism and self-sacrifice, was equal to the spirit of Nathan Hale, whose only regret was that he had but one life to give for his country.

The little band of men, disguised in citizen's clothes, left the Federal encampment at Shelbyville, near the Nashville, Chattanooga & St. Louis Railroad, on the evening of Monday, April 7, 1862. Proceeding in detachments of two and three across the Cumberland Mountains and the Tennessee River, they arrived on Friday evening following at Chattanooga in time for the south-bound train to Marietta. They allayed suspicion en route by representing themselves as ardent Secessionists from Fleming County, Kentucky, going to espouse the Confederate cause.

They spent Friday night at Marietta, and took the early Saturday morning train, April 12, north-bound to Chattanooga.

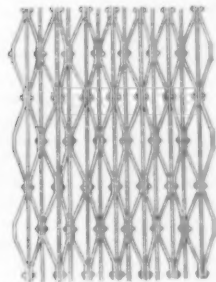
Just before boarding the train an informal "council of war" was held in Andrews's room at the hotel. A few argued that as they had been delayed by the recent rains, and were a day later than had been pre-arranged with General Mitchell, the attempt was now too hazardous, and should be given up. Andrews replied in a low voice, "Boys, I tried this once before and failed; now I will succeed, or leave my bones in Dixie." The whistle of the approaching train was now heard, and purchasing their tickets to various points, the Raiders were soon passing around the foot of Kenesaw Mountain, and heard Conductor Fuller cry out at the next station, "Big Shanty! Twenty minutes for breakfast." A Confederate camp was close to the depot, and armed sentries paced to and fro. But Andrews did not hesitate. No sooner were Conductor Fuller, his engineer and passengers seated in the station at breakfast, than two box-cars connected with the train were uncoupled, the throttle of the engine "General" pulled, and as the uncut bell-rope gave a loud "clang" the Raiders flew northward at full speed with their captured prize.

Then followed "The Great Locomotive Chase" of history.

Conductor Fuller ran after the fugitives on foot, amid the jeers and laughter of the bystanders. But he carried the schedule of the road in his head, and knew how far they could go before encountering the down trains. With indomitable pluck, and with the aid of a hand-car, he reached the "Yonah," an engine at Etowah River, and immediately pressed on in pursuit. The Raiders were delayed at Kingston Junction by extra south-bound trains, the road being blocked by confusion resulting from Mitchell's advance on Huntsville, and his near approach by armed train from the west toward Chattanooga. Had the Raiders captured their train the day previous, Friday, as pre-arranged, they would, doubtless, have succeeded. But the delays at Kingston and elsewhere were fatal. Fuller and the pursuers obtained the powerful engine "Texas" from the Rome train, and followed at the rate of a mile a minute. The race to Resaca, where the first bridge should have been burned, was the most thrilling locomotive chase on record. But owing to the rains and the closeness of pursuit, all efforts to destroy the bridges and impede the tracks were futile. Near Ringgold the Raiders were forced reluctantly to abandon their engine, the "General," for lack of water and fuel. Pursued through the woods by armed men and bloodhounds, they were all captured. Seven of them were court-martialed at Knoxville and executed, June 18, 1862, at Atlanta. Eight others overpowered their jailers and escaped, October 16. The remaining six were exchanged, March 18, 1863. Andrews, their leader, was executed alone at Atlanta, June 7, 1862.

The locomotive "General" crowns a monument erected to Andrews in the Chattanooga Cemetery.—*Engineering.*

CONCRETE-IRON ARCHES AND SLABS.



2630 A Fig. 1.

to have originated in France, where a market-gardener formed large flower-pots of concrete with iron netting embedded in them. Pipes were afterwards formed in the same way, and finally arches and beams. Since then, the matter has been taken up by various experimenters in Belgium and elsewhere, who have developed different plans for the iron stiffening. Particulars of tests of concrete joists stiffened by $\frac{1}{4}$ -in. iron rods were given in our issue of May 1, 1891, and showed a remarkable resistance when the newness of the concrete is taken into account. Through the courtesy of Mr. Sebastian Gruber, of Munich, we are now enabled to publish particulars of somewhat similar tests made at the Munich Mechanisch-Technische Laboratorium, of a concrete arch and a concrete plate, in which the stiffening-bars were riveted together into a sort of lattice-work, as shown in Fig. 1. This lattice-work is made of hoop-iron from .06 in. to .1 in. thick, and from 1 in. to $1\frac{1}{2}$ in. wide. The report states that the presence of this ironwork almost quadrupled the strength of the concrete. The first test was made on an arch (Fig. 2) of 13 ft. 3 in. span, 17.72 in. rise, and 24.7 in. wide by 7.67 in. thick. The concrete used consisted of 1 part of cement, $3\frac{1}{2}$ parts of sand, and 9 parts of river gravel. Some of the pebbles used were 2 in. to $2\frac{1}{2}$ in. in diameter. The hoop iron was uniformly .06 in. thick by 1.18 in. wide. It was imbedded in the concrete slab 3 in. from the bottom surface, as indicated in Fig. 3. At the time of



2630 B Fig. 2.

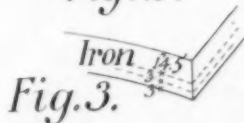
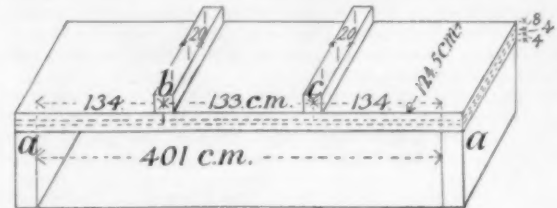


Fig. 3.

the test, the slab was six months old. It was mounted on iron angles and rails, as shown, and loaded with rails. These rails were 18 ft. long, and projected, therefore, several feet on each side of the arch. Each rail-length weighed about 485 lbs., and these were

loaded direct on to the plate, commencing at the left-hand side, and gradually covering the arch up to the right-hand abutment. The first layer consisted of 30 such rail-lengths, the total weight being about 6.65 tons. A second layer of 34 rails was then added, starting at the right-hand side, which, when completed, gave a pretty uniformly distributed load of about 15 tons. A third layer was then commenced, but when the fourteenth rail was put on, i. e., before the middle of the arch had been reached, the slab showed signs of cracking. Adding a fifteenth rail caused this crack to spread, and at the same time, the abutments showed signs of yielding. When the eighteenth of the third layer was added, the whole arch collapsed, apparently from crushing at the abutments. An examination made afterwards showed that the slab was cracked all over.

The second test was made on a flat plate, 13 ft. 3 in. long by 4 ft. 1 in. wide by 6.3 in. thick, which was supported on two brick walls,



2630 C Fig. 4.

as indicated on Fig. 4. The concrete was the same as in the previous case, but the hoop iron was wider, viz., 1.58 in., and its thickness varied in different parts from .06 in. to .1 in. It was imbedded 1.6 in. from the bottom of the plate. Two balks of timber 7.9 in. square were laid across the plate, as shown in the figure; on this, the rails were laid. This was not, however, done quite uniformly, so that the left-hand balk actually took about .6 of the load in place of one-half. The first layer consisted of eleven rails, and weighed 2.42 tons. The central deflection was found to be .28 in. The second layer consisted of 10 rails, and under it the deflection was increased to .73 in., the total load being 4.62 tons. Four more rails increased the deflection to 1.05 in., and the load to 5.5 tons. A fifth rail, added after waiting some time, at first made the total deflection 1.45 in., but later on the slab broke. The plate was most cracked in the neighborhood of the balk taking most of the load. The arrangement of iron lattice-work described has been patented by Mr. Sebastian Gruber.—*Engineering.*



ARCHITECTURAL LEAGUE OF NEW YORK.

A MEETING had been called by Warren R. Briggs, at 215 West 57th Street, New York, as Chairman of the licensing committee of the Architectural League of New York, for February 14, 1895, at 4 P. M. Invitations had been sent to different Chapters of the A. I. A., and to all other allied societies to have representatives at this meeting for the purpose of discussing the propriety of introducing a bill in the present Legislature for the licensing of applicants to practise architecture.

At this meeting there were present the following named gentlemen: George B. Post, George Martin Huss, Charles I. Berg and Warren R. Briggs, representing the Architectural League; C. A. Fullerton, representing the Sketch-Club of New York; Edward P. Casey, Chairman, E. A. Josselyn and Joseph H. McGuire, representing the Beaux-Arts Society; John Coxhead, representing the Buffalo Chapter A. I. A.; J. H. Pierce, representing the Western New York Chapter A. I. A.

Mr. Briggs, Chairman of the licensing committee of the Architectural League, made a short and concise statement of the purpose of the meeting, the work which had formerly been done in this line, and the general invitation that had been extended to the architectural and allied societies to participate in this meeting.

Mr. George B. Post, of New York, was elected Chairman by unanimous vote, and Mr. J. H. Pierce, of Elmira, N. Y., elected Secretary.

The Secretary was requested to read the Licensing Bill which had passed both Houses of the Legislature, in April, 1892, but had failed to receive Governor Flower's approval. Bill was read through in full, after which different sections of the same were discussed, and the result of the discussion was embodied in the following resolutions:

It was moved by Mr. Huss, that the bill, as passed by both Houses of the Legislature in 1892, should be introduced in the present Legislature as early as practicable. This resolution was unanimously carried.

Moved by Mr. Briggs, that Mr. Pierce be appointed committee of one charged with the responsibility of introducing the bill, which resolution was unanimously carried.

Resolution also prevailed that the Secretary have two hundred

copies of the bill in proof-form printed, and that he shall mail to the different architectural bodies represented at this meeting a number of copies of the same, after which the meeting adjourned.

J. H. PIERCE, 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 DINING-ROOM: CENTURY CLUB-HOUSE, WEST 43D STREET, NEW YORK, N. Y. MESSRS. MCKIM, MEAD & WHITE, ARCHITECTS, NEW YORK, N. Y.

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COMPETITIVE DESIGN FOR THE STATE-HOUSE AT OLYMPIA, WASH. MESSRS. LORING & PHIPPS, ARCHITECTS, BOSTON, MASS.

The authors of this design had to endure the chagrin of having their drawings, after their long journey, arrive too late to secure entry to the competition.

THE WEST HARTFORD SCHOOL-HOUSE, WEST HARTFORD, CONN. MESSRS. HAPGOOD & HAPGOOD, ARCHITECTS, HARTFORD, CONN.

SKETCH FOR A SCHOOL-HOUSE, NEWTONVILLE, MASS. MR. A. C. FERNALD, ARCHITECT, BOSTON, MASS.

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THE READING-ROOM OF THE SAME.

[Gelatin Print.]

THE SMOKING-ROOM OF THE SAME.

[Gelatin Print.]



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

A QUESTION OF COMMISSION.

NEW YORK, N. Y., February 12, 1895.

TO THE EDITORS OF THE AMERICAN ARCHITECT:—

Dear Sirs,—Will you kindly give me your opinion in regard to the following:

I was engaged to make plans and specifications for a country-house at 2½%, the owner stating that he would like it to cost about \$5,000. I submitted a sketch based on his ideas with a ground-area of about 1,756 square feet, and he and his wife immediately enlarged it to about 2,687 square feet ground-area.

As they added more room, I warned Mrs. H. that it was getting to be a large house, but was firmly told that other people built them. The drawings were submitted as they went along for approval and closely explained in the specifications, all to the satisfaction of the owner and his wife, using the cheapest suitable fixtures, etc., that were in the market. When the drawings (four sets complete) were delivered, he had me add or deduct about a dozen slight changes and then accepted the plans as complete. I also made preliminary sketches, ¼" scale, for a stable. He immediately had estimates for house and stable as follows: A—house, \$7,910; barn, \$1,300. B—house, \$7,624; barn, \$721. C—house, \$6,635; barn, \$1,400.

D—house, \$5,315; barn, \$1,000. Not including heating, range, hardware, bath-room fixtures, wash-tubs, range-boiler and mantels.

He would not consider D's estimate (house, \$5,315; barn, \$1,000), and sent me down to his country-place to try and reduce B's and C's estimates by leaving out several features. I succeeded in reducing B's estimate \$1,071, and C's about \$468, and submitted the list of features and prices for same. He then said he had concluded to postpone the erection of the building. Two months later, sent him a bill as follows:

For preliminary sketch of stable, \$1,400 at 1½% ..	\$21.00
Two visits to country-place, at \$8.....	16.00
House \$6,635.22 at 2½%.....	165.88
Total.....	\$202.88

I used C's estimate, as that was the lowest of the three he would consider. In the meantime he began the erection of the stable from my preliminary sketches for \$646 (using B's estimate) without tower and sent the house-plans to other men for sub-bids, and now he says that B, whose bid was \$7,624, will build the house for \$5,200 including all fixtures. When I ask him where the \$2,424 or more is, taken off, he intimates in the discounts that he is able to get on hardware, plumbing, etc.

I find that he is permitting the plumber to use what fixtures and pipe he sees fit and the other men the same way right through.

Now the question is, after making and delivering the plans and specifications all satisfactory, am I wrong in computing my percentage on C's estimate, or should I compute it on the estimate he gives me after all the different sub-bidders have said what they will or will not furnish, irrespective of original drawings? Will you kindly give me your opinion by mail, as I intend to do what is right?

The amount involved is so small, that I should not care to have my name published in connection with it.

Very truly yours, SUBSCRIBER.

[ALTHOUGH "Subscriber" seems to us to be justified in basing his percentage on the lowest bid from such a contractor as the owner is willing to have build his house, we think it would be the best policy to reckon his percentage on the intended cost. The disappointment which an owner feels on finding that the house that he wants will cost more than he can afford to spend is not usually allayed by finding that the architect expects to utilize the circumstances to increase his fees; and, in this case, the fact that the owner has succeeded in contracting for the building at very nearly the sum which he originally fixed will seem to him to prove that the price on which the architect bases his bill was unnecessarily inflated, probably through the inexperience of the architect, who could hardly expect extra pay from his client on that account. As to what the contractors whom the owner has chosen may be doing, we do not understand that the architect has assumed any responsibility whatever for them. Nevertheless, if he has reason to believe that they are not doing what the owner expects from them, he ought, for his own protection, as well as in the interest of his client, to whom he still stands in the relation of an expert friend and adviser, to say what he thinks. The owner cannot but be grateful for such friendly solicitude, especially if the architect's suspicions turn out to be well founded; and the architect, by calling the owner's attention to bad work, before it is covered up, will protect himself against the claims, which are sure to be made, later, when the work of the tricky contractors begins to reveal its defects, that these are all due to the imperfection and obscurity of the architect's plans and specifications.—Eds. AMERICAN ARCHITECT.]



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

BOSTON, MASS.—Winter Exhibition, including Pictures loaned by Quincy A. Shaw; Paintings by Puvis de Chavannes; Ancient Chinese Buddhist Paintings; Line Engravings, Mezzotints, and Etchings by Rembrandt; at the Museum of Fine Arts.

Paintings and Water-colors of Holland by Mr. and Mrs. Charles Herbert Woodbury: February 12 to 23.

CHICAGO, ILL.—Exhibition of Bookbindings: at the Art Institute, February 26 to March 24.

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

Twenty-eighth Annual Exhibition of the American Water-color Society, also, New York Etching Club Exhibition: at the Academy of Design, February 4 to March 2.

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.

Paintings of the English and French Schools: at the Durand-Ruel Galleries, 389 Fifth Ave.

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

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

Paintings by P. Marcini-Simons: at the Avery Galleries, 368 Fifth Ave., February 18 to March 2.

Exhibition of the Woman's Art Club: at the Klackner Art Gallery.

Historical Bookbindings: at the Grolier Club.

PHILADELPHIA, PA. — Sixty-fourth Annual Exhibition of the Pennsylvania Academy of Fine Arts: opened December 17, closes February 23.

Works by James B. Sword and F. De B. Richards: at the Art Club, February 11 to 25.

PROVIDENCE, R. I. — Paintings in Oil and Water-color, and Sculpture: at the Art Club.

SPRINGFIELD, MASS. — Eighteenth Annual Exhibition of Paintings: at James D. Gill's Gallery, February 1 to March 2.

NOTES AND CLIPPINGS

DISCOVERY OF A TRI-APSIDAL FOUNDATION AT DURHAM. — A remarkable discovery was made in digging about the foundations of Durham Cathedral of the remains of walls which, upon further investigation, show that the original building had a triple apsidal east-end termination. This is not uncommon on the Continent, but it is unique in England. All the existing books on Durham, from the very earliest, assume that the cathedral originally had an ambulatory, like others in that country, but that is shown now to be a mistake. — *N. Y. Times*.

SOMETHING NEW IN HOUSE-MOVING. — A two-storied house was moved from the eastern side of Muscongus to Damariscotta Mills, Me., by way of the pond. The house was put on two heavy shoes, and twenty powerful oxen hitched thereto. The building was hauled to a lofty hill overlooking the lake, the oxen detached and the building given a slide down the hill, a distance of about a quarter of a mile. It went down the declivity with considerable rapidity, and out onto the ice of the lake, making the trip in safety. The oxen were then again attached and the rest of the journey triumphantly made down the lake. It was toted from eight to ten miles in one day. — *Exchange*.

A BIG TRIP-HAMMER. — Within a few weeks there will be a new trip-hammer, at the Watertown arsenal, capable of striking a blow equal to a weight of 125 tons. It will be the largest trip-hammer in New England. Its height is 19 feet 3½ inches. It will be supported by two legs, the distance between which will be 8 feet. The stroke will be 4 feet and 6 inches. The machine weighs 10 tons and the hammer 3 tons. When this hammer is in position, the Watertown arsenal will be able to forge any piece of steel which will be required by the United States Ordnance Department, and as all articles of ordnance, with the exception of guns, are now made at Watertown, it is probable that the hammer will be in constant use. The foundation for the machine is now being laid. A hole 9 feet deep has been dug, and in it will be laid a number of pieces of timber 16 feet long and 24 inches square. — *Boston Transcript*.

THE 'PRENTICE PILLAR AND ITS PROTOTYPES. — The question as to whether myths were carried from one place to another in the past, or were the result of separate evolutions, has long been a trouble to archaeologists, and seems, up to the present, to be about as far away from a solution as ever. The story of Cinderella, as an example, is found widely extended, and some one lately collected over two hundred versions of that popular myth, which were brought from almost every known part of the globe. Such being the state of doubt and difficulty, it is something to be able to relate an instance of the migration of a myth, which occurred during the last tourist season, and where the details appear to be fully authenticated. Visitors to the chapel at Roslin are shown the "Prentice Pillar," and are told the legend belonging to it. How the master was troubled with the task of producing that very beautiful work of art; and how, in his absence, the 'prentice executed the work. The master, on his return, in a fit of jealousy at the success of his pupil, took up a hammer, and killed the 'prentice. Two heads among the sculptures of the chapel are shown the visitors as representing the master and 'prentice, which are assumed to confirm the truth of the legend. Variants of this story may be found connected with noted architectural buildings in many parts of Europe; and an example can be pointed to as far away as Egypt. In this case, it was a peculiar minaret that the master could not finish, and the 'prentice, having accomplished it, he took his master to the summit to inspect the work, from which the 'prentice was thrown down and killed. Last summer, a gentleman familiar with this legend, visited Gloucester Cathedral, and on the east wall of the south transept there is a peculiar bracket which projects, apparently to serve no particular purpose. On asking the vergers about it, he was answered that it was only known as the "Prentice Bracket." It is a very fine bit of work, and two figures are sculptured upon it. One is that of a young man without a beard — what one would expect to represent the "prentice"; the other is older, indicated by a full beard — and might be the "master." The visitor pressed the vergers with the question of a legend, but was repeatedly informed that there was none. With the hope that the memory might be stimulated, the gentleman related the tale of the pillar at Roslin, but it produced no echo. The vergers maintained that no such story had ever belonged to the bracket. Some weeks afterwards, the gentleman met a friend, who asked if he had ever visited Gloucester Cathedral. — Yes. Did you see the 'Prentice Bracket? — Yes, was the answer. Did you hear the legend? — No. The friend then related it, and it was a simple repetition of the Roslin Chapel story. The myth had migrated. The vergers had, no doubt, seen that there was money in the bracket when such a tale could be related. A "buck-shesee" theory of the migration of myths, symbols, etc., may yet turn out to be the true one. Waiving that for the present, the above ought to be chronicled by publication, for the sake of accuracy in archaeology. — *Illustrated Carpenter and Builder*.

THE STRENGTH OF CLINKER-CONCRETE. — The utilization of clinkers as building material is the subject of a long memoir by M. Louvier, an architect of Lyons. It is stated in the *Journal of Gas-lighting* that the extensive use of clinkers for foundation-work was begun in the neighborhood of Lyons by small contractors who leased from the municipality frontages on new roads, where the subsoil was bad. Originally, these clinkers accumulated in the vicinity of works, where they formed an eyesore, and were given freely to any one who would remove them; the cost of the material delivered on building sites being not more than 1s. per cubic yard. The contractors found them so useful, however, that clinkers are now marketable in Lyons, and cost, delivered, as much as 10s. 6d. per cubic yard. A small quantity of common, or hydraulic, lime is mixed with the clinkers before use, and the mixture is then wetted and rammed in layers. When arches or vaults are formed of this kind of clinker-concrete, care is taken not to place the layers of material parallel to the surface of the ground or the curve of the centring, but to ram the layers in such a way as to consolidate them vertically to the curve of the intrados. In this way, all risk of shaking out any of the material is avoided. Originally used by cheap constructors, this method of construction has been adopted by architects for important works; and M. Louvier has recently depended upon it for the basement of the new hotel of the Lyons Prefecture. He had previously constructed an experimental vault of the required dimensions, 6.30 metres span, 1.24 metres rise, the concrete being 0.45 metre thick at the crown, and the abutment 0.80 metre wide and 0.90 metre deep. Three weeks after it was built, this arch was loaded with a weight of 2,500 kilos. per superficial metre; and the load was kept on it for fifteen days without causing the slightest settlement or fissure. The load being then removed, a block of stone, weighing 600 kilos., was allowed to drop on the crown of the vault from the height of one metre, without injuring the structure. Fears having been expressed lest this mixture of clinker and ashes and lime would burn, a portable forge was placed under it, and a fierce fire kept up for half an hour without affecting its substance or strength. It is further stated that at a nitro-benzene factory near Lyons, the walls of which were constructed of this material, a fire occurred of such a destructive character that the machinery was partly melted. The only effect of this intense heat on the clinker-concrete was to vitrify its inner surface, but not to destroy the stability of the walls.

MEMORIAL TO THE HONOR OF ROGER WILLIAMS. — The placing of a colossal figure of William Penn on the Philadelphia City-hall has inspired a proposal to perpetuate the memory of Roger Williams in the same way on the dome of Rhode Island's new State-house. It is now recalled that the Roger Williams Monument Association started a fund thirty-four years ago to erect a memorial column 230 feet high on Prospect Hill. Zachariah Allen, in his diary of that time, says with amusing ignorance of the problem presented by the convexity of the earth: "A statue on the top of this column would stand nearly 450 feet above tide-water. It would be conspicuous from Newport and Block Island, and, I think, from the State-house at Boston." Thus, it was suggested, would the capitol of the colony which disgraced its intelligence by the banishment of Williams be forever doomed to find his figure still within sight. The Association failed to raise enough money to put up the column, but the sum was deposited in a bank, and has now increased to a considerable sum. There seems to be an impression that the top of the State-house would be the appropriate place for Roger Williams, and the Association is advised to transfer its fund to the State if the Government will agree to thus honor him and will also bind itself to erect a statue elsewhere to another great Rhode Islander, who has been neglected, General Greene, of Revolutionary fame. — *N. Y. Evening Post*.

THE EXPORTATION OF WORKS OF ART. — Wenzel Jamnitzer's golden centrepiece, the most exquisite piece of German goldsmith's work ever produced, is about to be lost to Germany. It is three feet high, the upper portion, held up by a female figure, representing the earth, and was made for the Nuremberger Town Council, in 1546. The material is silver, gilded and enamelled; the artist was paid 1,325 gulden for his work. At the beginning of the century, it was bought by a merchant named Merkel, in whose family it remained till sold in 1880 to the Frankfurt Rothschilds, and was known to sightseers as the Merkel centrepiece. The late Emperor Frederick III, when Crown Prince, saw the work and obtained a promise from the owner that if it was ever sold, he should have the first refusal, but he was unwilling to pay the \$200,000 which the Rothschilds gave for it. By the will of Meyer Karl von Rothschild's widow, the art treasures of the Frankfurt house, including the Jamnitzer piece, are bequeathed to the Paris and London families. Some German papers, in consequence, ask for a law, like that of Italy, prohibiting the exportation of works of art without the permission of the Government. — *Philadelphia Evening Telegraph*.

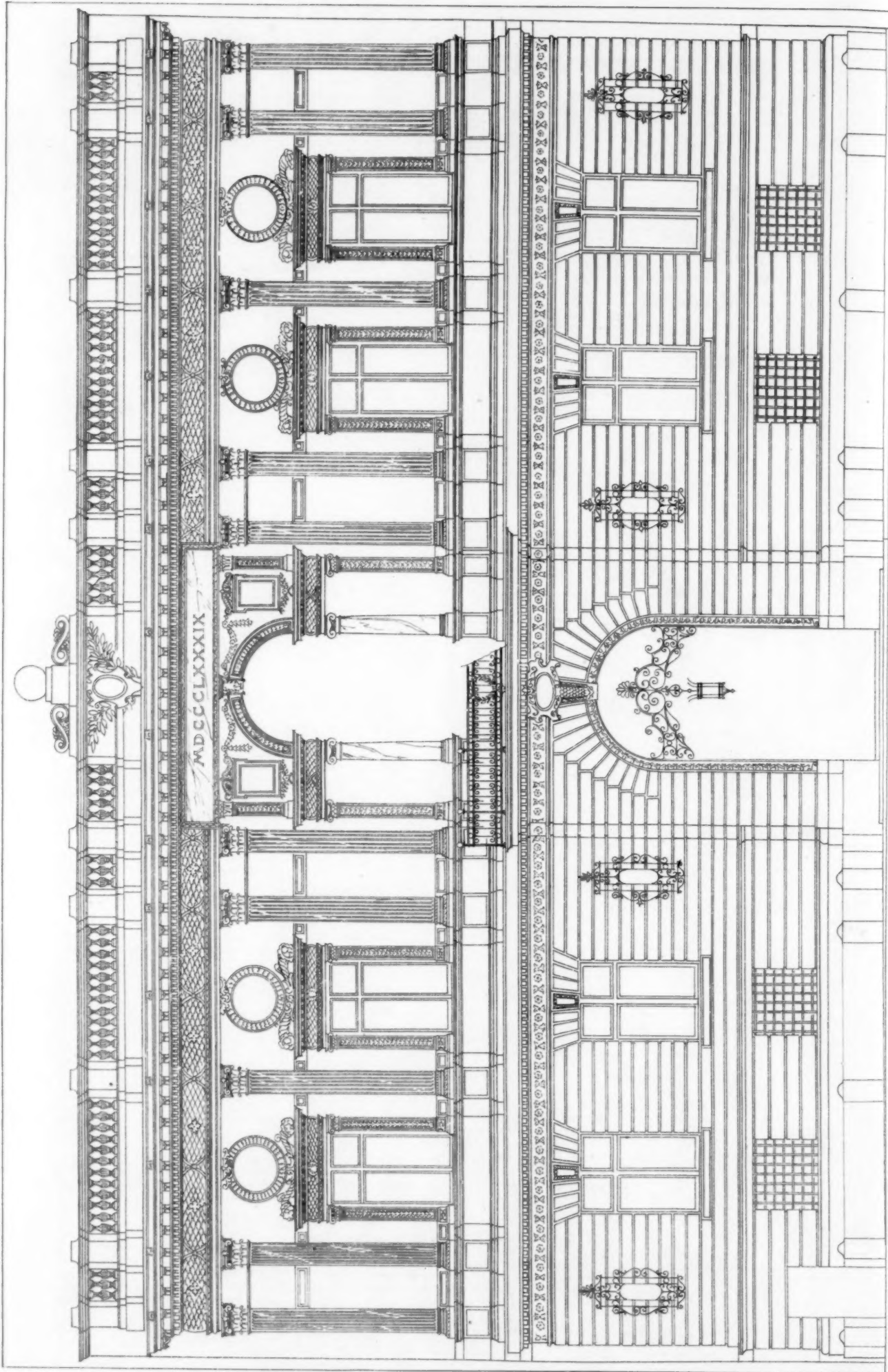
A LARGE CROSS. — The *Evangelist* says that the largest cross in the world now stands in Drake's Bay, North America. Three hundred and fourteen years ago, the celebrated Sir Francis Drake landed in this bay, and his chaplain, Francis Fletcher by name, preached the very first English sermon ever heard in that region. To commemorate this event, Bishop Nichols, of California, and the late George W. Childs caused a large stone cross to be erected on the spot, a cliff standing 300 feet above the sea. The cross is 57 feet high, of blue sandstone; several of the stones in it are larger than the largest stone in the pyramid of Cheops. This splendid monument can be seen far and wide, and is literally a sermon in stone.

AN ARCHITECTURAL CHILD OF GOD. — In the advertisement columns of a North-of-England paper appears the following: "A Child of God, seeking employment, would like to take charge of property and collect rents; has a slight knowledge of architecture and sanitary; can give unexceptionable references; age, 31; married. — Address, J-167, at the printer's."

No. 1000.

AMERICAN ARCHITECT AND BUILDING NEWS, FEB. 23. 1895.

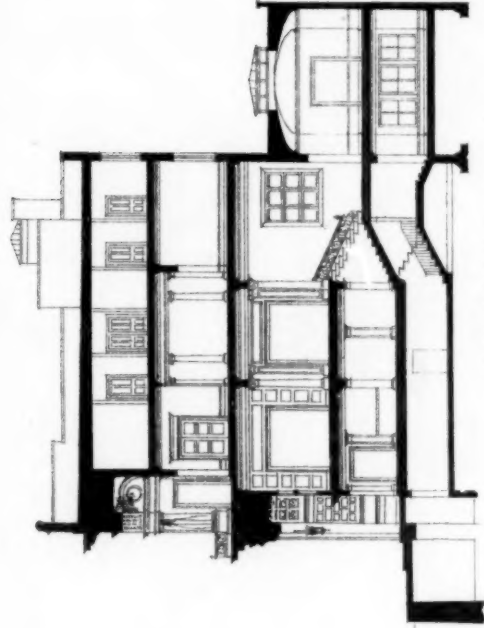
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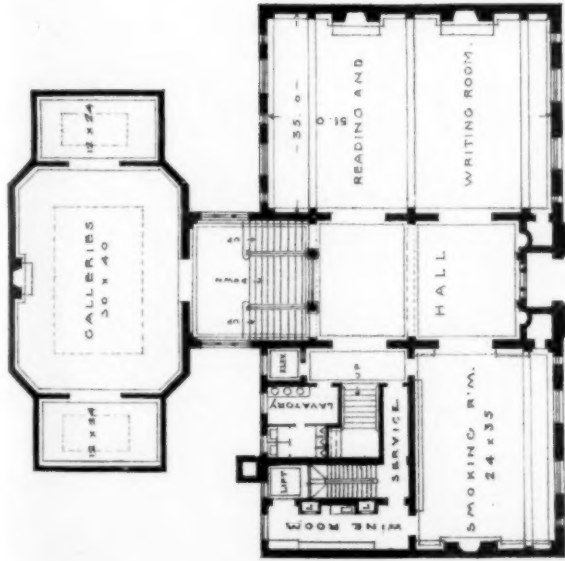
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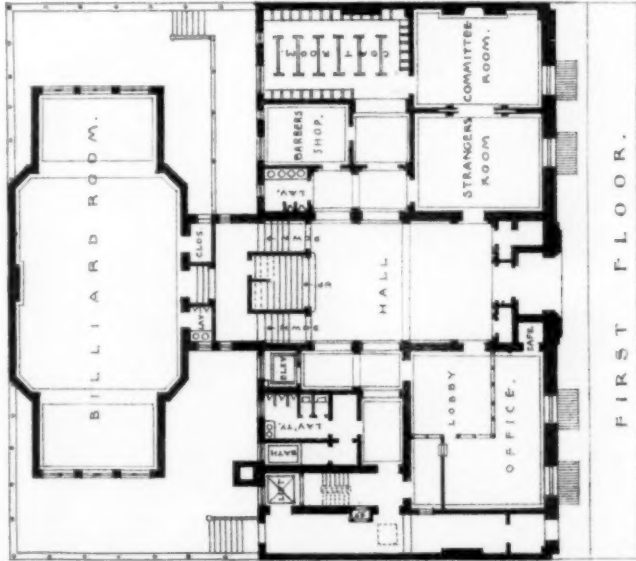
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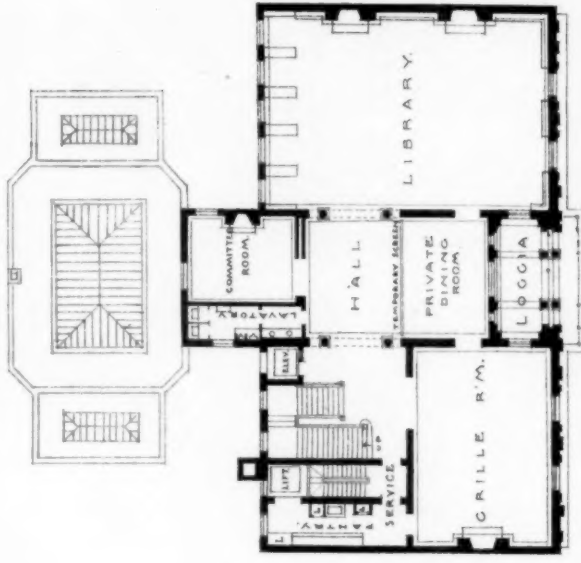
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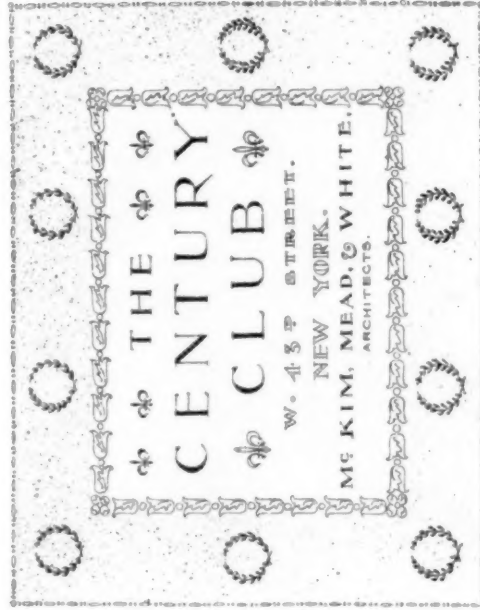
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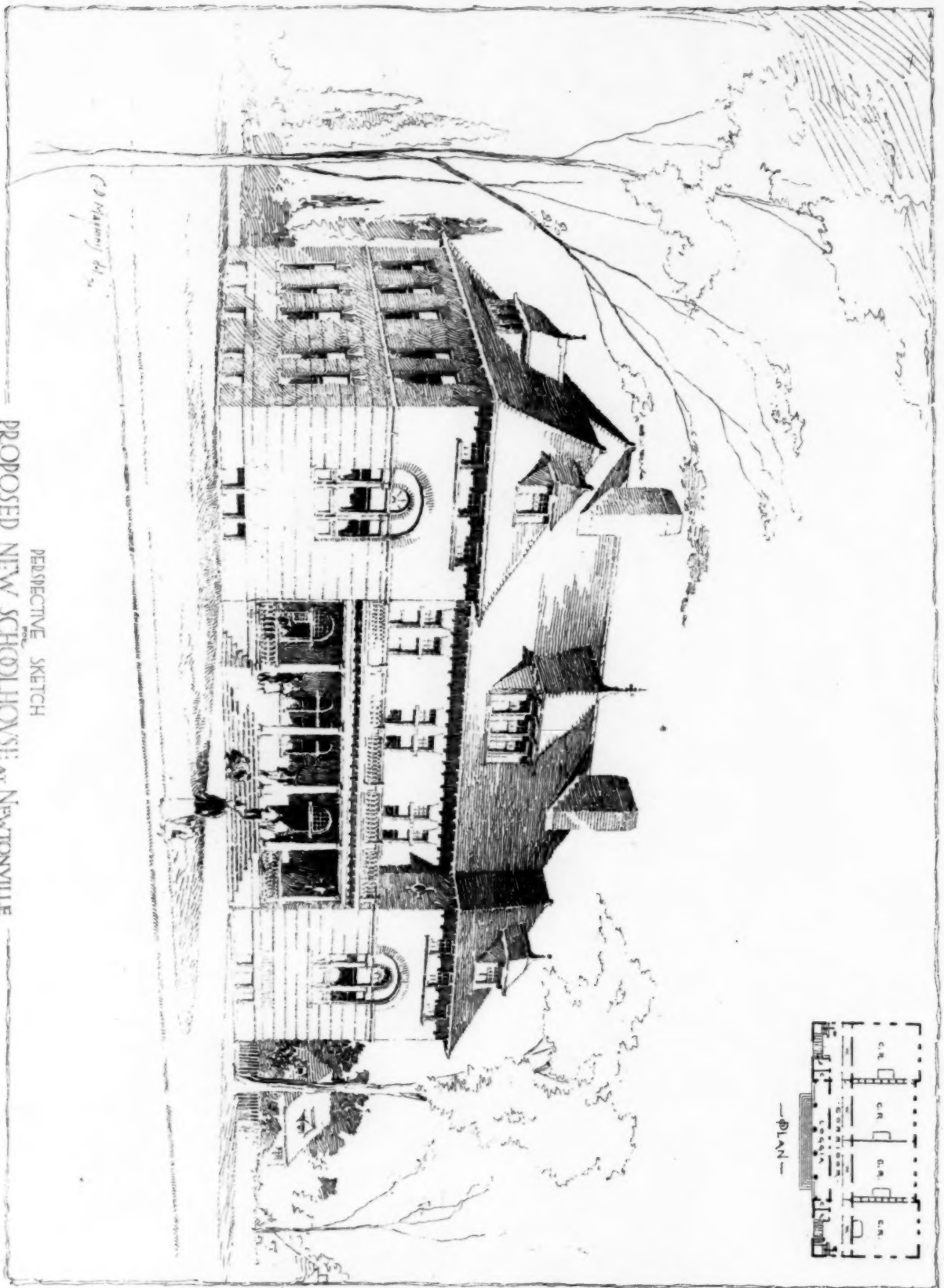


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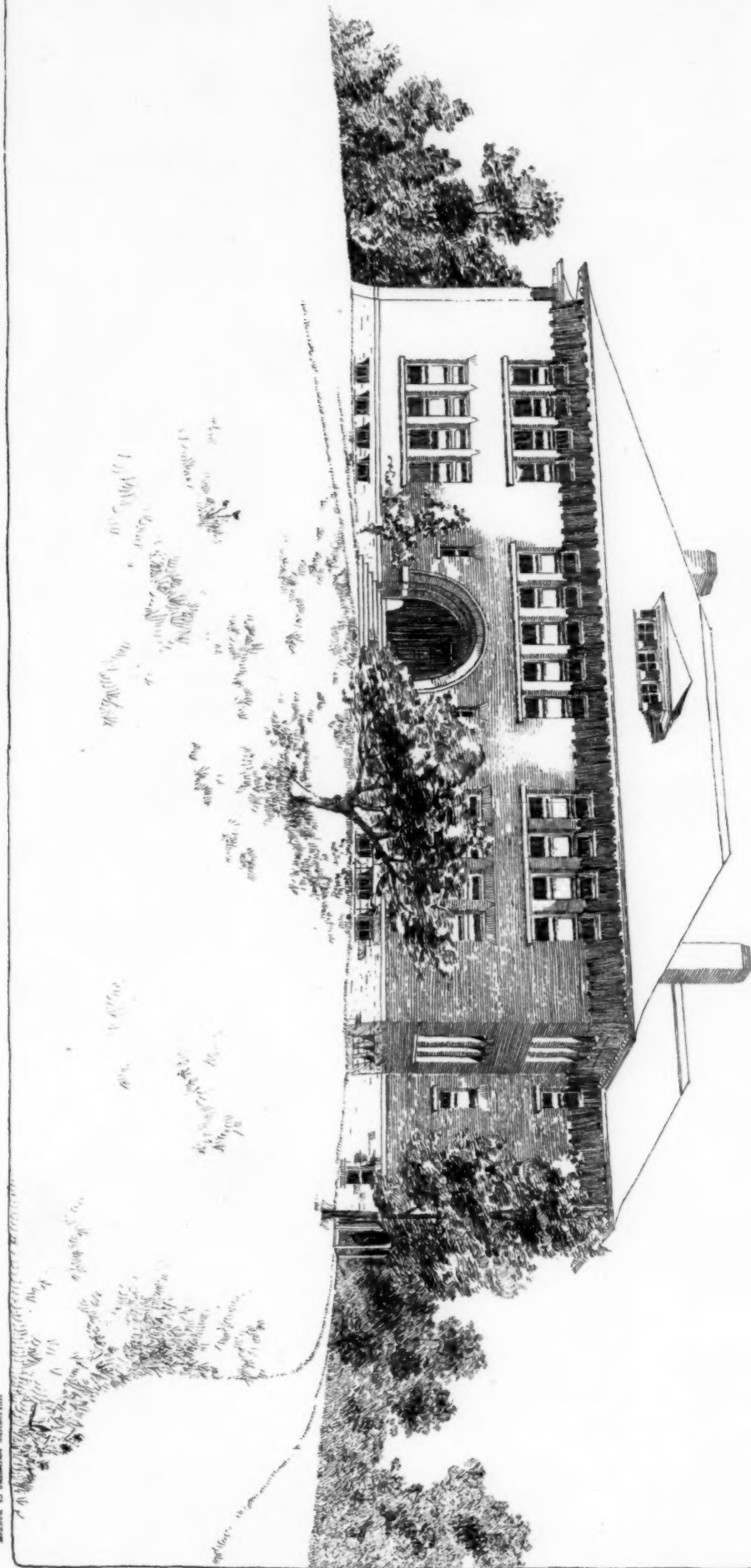


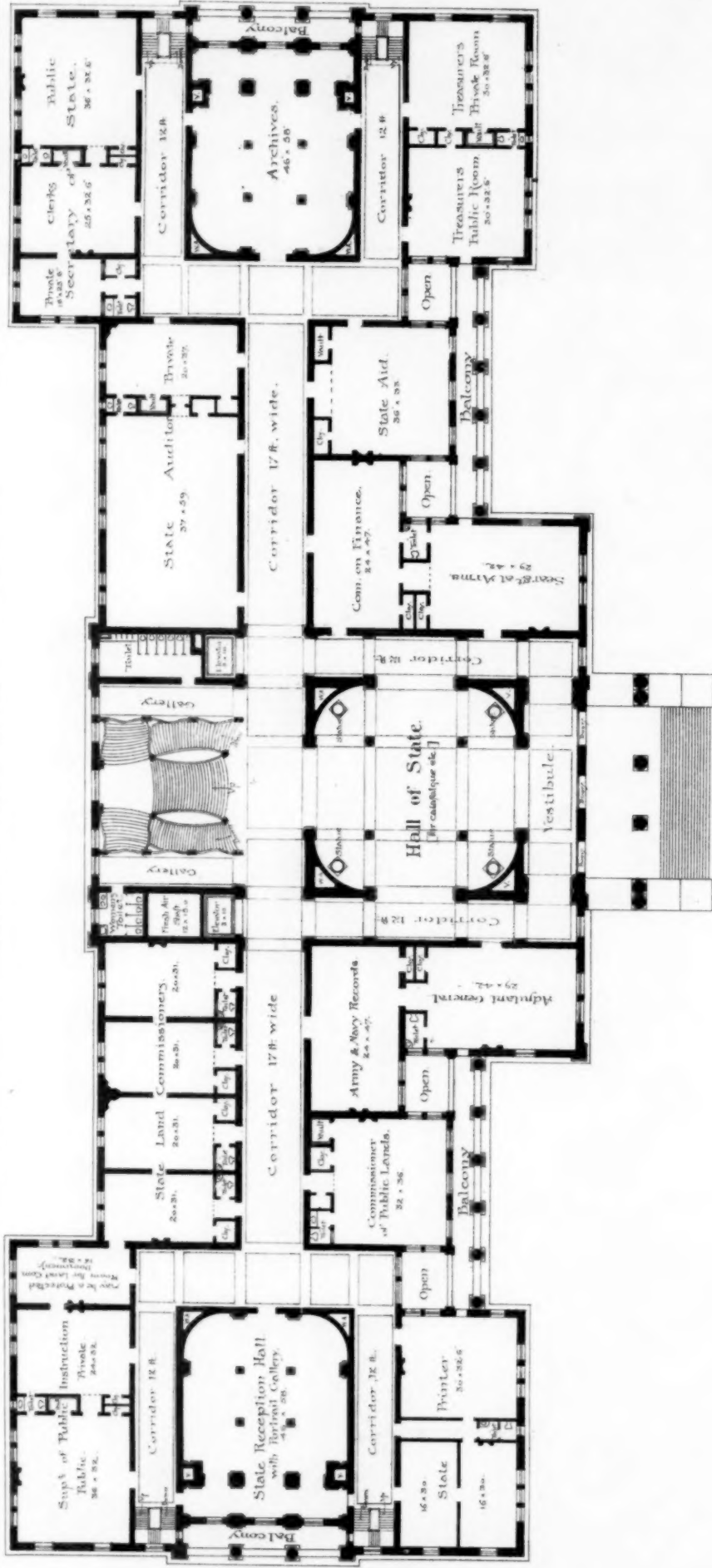


PROPOSED NEW SCHOOLHOUSE AT NEWTONVILLE
CITY OF NEWTON
A. C. FERNALD ARCHT. BOSTON MASS.

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