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SUMMARY:—

Reasons for the Development of High Buildings in Lower New York.—Insurance on Western Department-stores.—The recent Accident in the Paterson, N. J., Court-house.—Re-planting the Pine-forests of Michigan.—The Experts' Report on the Safety of the Brooklyn Bridge.—Rumors relating to the White House.—The Architectural Exhibit at the Louisiana Purchase Exposition.—The Necessity for Time Contracts.—The Rehabilitation of Buckingham Palace.—Deterioration of Brass Steam and Plumbing Fixtures.	9
THE PRESIDENT'S ADDRESS, A. I. A.	11
VENTILATION BY ASPIRATION.—VI.	13
SOCIETIES.	16
ILLUSTRATIONS:—	
Grammar School, Arlington, Mass.—Fig. 6: Illustrative of Ventilation by Aspiration.—The Counting-room: Bowery Savings-Bank, New York, N. Y.	
The Arch of Drusus, Rome, Italy.	
Additional: The Bowery Savings-Bank, New York, N. Y.—Detail of Counting-room: Bowery Savings-bank.—Doorway to House of S. E. Boehm, Esq., No. 5 East 80th St., New York, N. Y.—All Saints' Church.	16
NOTES AND CLIPPINGS.	16

THE *New York Evening Post* makes some interesting observations on the development of apartment-house and office building in New York. Observing that many buildings, erected only a few years ago, are in process of demolition, to make way for modern structures, it infers that the reason for the change is to be found in the rapid growth of New York as a business centre. Of course, it is true that New York has grown rapidly within the last decade, but the *Evening Post* remarks that the signs of growth, so far as building is concerned, are to be found mainly on Broadway and Fifth Avenue, and on certain West Side streets which have become fashionable. Outside of this district the changes are not very marked, and the unfashionable dwellers on Second or Tenth Avenue probably marvel as much over the slowness with which modern progress reaches their dwellings as the *Evening Post* does over the rapid transformation of a few favored streets. To a great extent, the topography of the city, aided by the elevated railways, is undoubtedly responsible for the concentration of office-buildings on lower Broadway, and of the first-class apartment-houses in a small district near the Park. In the days when it took one hour to go by the surface-cars from Forty-second Street to Wall Street, the loss of time was so important that business took a decided turn northward. Canal Street was talked of as the successor of Wall Street, and the more sanguine prophets foretold the invasion of Union Square by the great wholesale dry-goods houses. With the opening of the elevated railway, the time from Forty-second Street to Wall Street was reduced to fifteen minutes; and, as no more complaints were heard of the loss of time involved in getting there, the brokers concluded to let their offices stay where they were. As this state of things became confirmed, the demand for offices on Wall Street increased, and steel frames and elevators made it possible to accommodate within a quarter of a mile of the Stock Exchange an office population which without them would have needed all the available space for three times that distance. At present, even rapid transit seems to be coming to the end of its resources, and a certain office population has already begun to occupy Madison Square. As the Bronx district develops, even Madison Square will seem far away, and it seems quite possible that in New York, as in London, it may, before long, be necessary to establish branches of the great banks and life-insurance offices in the different boroughs.

THE newspapers say that insurance rates are being raised in the West on department-stores, the underwriters having come to the conclusion that the risk is out of proportion to the money received for insuring it. The ordinary comment is that the customers of these stores will simply have to pay more for what they buy, to make up the increased expense of insurance; but there is another side to the matter, which has a certain interest. Until now, the great department-stores have

been able to undersell the smaller establishments, partly by their advantage in the command of money, and in economy of administration, but also, in a considerable degree, by their enjoyment of unfair preferences, among which their advantage in insurance was not the least. So long as a great department-store can keep its goods insured at less than the risk is worth, the insurance-companies making up the deficit by charging the smaller stores more than their risks are worth, it is enabled to undersell the smaller stores to the extent of the difference in insurance expenses. If, now, the insurance rates should really be proportioned to the risk, the department-store, in which the hazard is greatly increased by the multiplication of combustible goods in a single area, would have to pay more, on a given quantity of goods, than its competitors in smaller stores, and the effect would be to remove, in an appreciable degree, the disadvantage against which the latter must now contend. Whether the movement will ever be so radical as to have this result remains to be seen, but the merchants who suffer from the competition of department-stores might do well to keep the subject in mind.

WE think it only fair, in view of our comments on the fall of the ceiling of the Paterson Court-house, to say that, as we are informed, the hangers by which the fireproof ceiling was suspended were made in accordance with drawings, but without the information which would have been desirable as to the weight of the ceiling to be suspended. Apparently, the weight of the ceiling and the resistance of the rods were not suited to one another; and, while it is impossible to say at whose door the misalliance should be laid in this case, it may be well to observe that too much care cannot be exercised in such details.

THERE is something sad in the thought that the great State of Michigan, once famous for what were supposed to be its inexhaustible forests of white-pine, only inferior in quality to that which, a century ago, covered Eastern Massachusetts, should be obliged to use the public money for replanting these very forests, now reduced to wastes of sand, on which no other crop can be grown. If these forests had been treated thirty years ago with reasonable care, they would have produced ever since, and would now be producing, an annual crop of timber worth more than the total assessed valuation of the entire territory, with the certainty that the return would continue indefinitely; while centuries must pass before the timber in the new forest, however carefully managed, will be worth as much as that which our fathers cut and burned away so recklessly. However, a start in the right direction is a great deal better than doing nothing, and the present inhabitants of Michigan may be sure that their descendants will bless them for what they seem about to do. Although a long time must elapse before the trees in a pine-forest, shaded, from the time of germination of their seeds, by lofty trees around them, grow straight up, without a knot, to a height of sixty or seventy feet, producing in this way the clear timber, which is worth from two to three times as much as the ordinary kind, it is a satisfaction to know that the time is not illimitable, and that the production of clear timber can be greatly hastened by judicious planting and care; so that the great-grandchildren of some of the present inhabitants of Michigan may see from their windows forests quite equal in beauty and value to any that have ever grown in the State.

THE newspapers seem to be about equally divided in their information in regard to the probability that, under President Roosevelt, the Executive Mansion, at Washington, will be altered or enlarged. One journal points out that, when the President's family are all at home, he will not have a spare room for a guest; and thinks that Congress should at once provide for enlarging the house; while another says that the President himself is opposed to any change in the building, and that it is unlikely that any enlargement will be attempted while he is in office. If, in addition to this, the President should be reported as being opposed to cutting avenues, or building "boulevards," or anything else, across the White House grounds, we should feel quite reassured in regard to the future of Washington.

THE report of the expert engineers, Messrs. Edwin Duryea, Jr., and Joseph Mayer, on the condition of the Brooklyn Bridge is extremely interesting. It was inevitable that a truthful report on the matter should cast discredit on the official management of the bridge, but the details of the account make the discredit even greater than was anticipated. It seems that the city authorities, even at the beginning, did not think it worth while to preserve the drawings of the bridge, and they have disappeared, and with them the possibility of recalculating the stresses without actual measurement of each member of the structure. This easy attitude of the officials in respect to the plans was followed by an equally easy position in regard to inspection. We do not find it anywhere stated that the inspectors failed to draw their salaries punctually, but some portions of the bridge under their charge do not seem to have been examined for years. In some way, the officials seem, however, to have conceived a vague notion that, with all the load, unprovided for in the design, which had been put upon it, the bridge was unsafe, and they proceeded to remedy the trouble by taking out a portion of the ties from the railroad tracks, and removing the guard-rails. The experts gravely say that the diminution of the strain on the structure secured by this proceeding was "inappreciable," but refrain from mentioning the probable consequences of the derailment of a heavy train in the middle of a suspension bridge, one hundred and twenty-five feet above the river, on account of the insufficiency of the ties, or the absence of a guard-rail.

ANOTHER example of the advantages of official inspection is to be found in the report that, out of the nine suspension-rods which were found to be broken at the time when traffic was cut off from the bridge, two had been broken for a long time, and the fact that they were broken was known to the officials. Whether these gentlemen thought that suspension-rods were merely ornamental features, or whether they were waiting for the rest to break, and drop the roadway into the river, does not appear. It seems, however, that the officials, in any case, place less value than the expert engineers do on the suspension-rods, for such of them as have been mended since the accident have been patched up by welds in rods of steel reported to have a tensile strength of seventy-five thousand pounds to the square inch. Every blacksmith knows that welds in steel as highly carbonized as this are unreliable, and the "repairs" are, apparently, only preparing the way for a more serious catastrophe hereafter.

THE Directors of the St. Louis Exposition of 1903 invite architects to submit, before July 1, 1902, a list of such works as they desire to exhibit, including drawings or photographs of completed buildings, designs and projects for buildings, models, sculpture, paintings in oil or water-color, mural decorations or pyrographic designs. Separate lists must be made for each class, and those who have submitted them will be duly notified when the actual works must be sent for examination by a jury. The jury will begin its labors soon after November 1, 1902, and works accepted must be delivered at the Art Building of the Exposition on or before March 1, 1903.

THE *Metal-Worker* thinks it hard that plumbers and others should be tied to time contracts in cases where, as often occurs at present, they are unable to obtain from the manufacturers the goods which they have agreed to furnish, and it seems to sympathize with those contractors who object to making any sort of time contract, for fear of rendering themselves liable to a forfeiture. As this is a very old topic of discussion among architects and owners, as well as contractors, it may be well to say that the former have long ago come to the conclusion that time contracts are absolutely indispensable in building operations. Even if they are not always kept, the contractors who are willing to enter into them will always be preferred by owners, for the simple reason that the owners have interest and taxes to pay, and, very frequently, have themselves entered into time contracts with tenants or landlords, which they must keep, under heavy penalties. To say that a man who is about to invest a million dollars in a hotel or office-building shall not be permitted to make time contracts for its completion, because the plumber may not get his bath-tubs from the manufacturer at the time that he expects them, is preposterous, and every one

who gets his living through the building-trades should disavow such ideas. Owners are generally reasonable, and architects equally so, and, where real hardship is shown, some means can usually be found for circumventing the difficulty without injury to any one; but to make it possible for a plumber or any other sub-contractor to delay an important building indefinitely, under pretext of being unable to obtain materials from the manufacturers, a difficulty which in several instances within our recollection has arisen solely from the circumstance that the sub-contractor could not find any manufacturer who would trust him for the goods, would be ruinous to building interests.

WHOSE of our readers who are in need of consolation for their misfortune in not having been born of royal rank may, perhaps, find it in the description of the changes now being made in Buckingham Palace, for half a century the official residence of the late Queen. It seems that in this royal structure there is no means of warming the rooms except by open fireplaces, and, as the rooms are of enormous size, this means that the unfortunate inhabitants must have shivered all through the gloomy London winter. The new King, who probably has a vivid recollection of princely chilblains and blue noses, has provided for remedying the trouble by ordering hot-water heating-pipes to be put through the building; and, although Americans can conceive of a much pleasanter mode of warming than direct hot-water radiation, it is, at least, satisfactory to think that our ambassadors will no longer run the risk of freezing to death when they pay their respects to the Sovereign. Another sacrifice to modern ideas is to be found in the construction of three elevators. Queen Victoria, in her latter years, yielded so far to the infirmities of age as to consent to be hoisted upstairs in a chair, suspended to an ordinary tackle, with three men at the end of the rope; but this apparatus is, it seems, insufficient for the luxurious habits of the present day. Although Buckingham Palace is an unattractive building, it is a very large one, and the rooms are of huge proportions. Many of the larger rooms were divided, by order of the late Queen, into smaller ones, by means of partitions, which are now to be taken down, so as to restore the apartments to a size suited to the magnificent entertainments which his subjects expect the new King to give.

SOME student of applied chemistry or metallurgy, or some student of architecture with a taste for chemistry, might do a service to his fellow-citizens by studying the changes which take place in brass, or, at least, in certain kinds of brass, under the influence of water. So far as we know, nothing is said on the subject in any work on the materials of construction; yet, as a matter of practice, observant architects often notice, where plumbers' brass-work has been changed, after some years of use, that a chemical or molecular transformation has taken place, involving, apparently, a crystallization of the metal, the sharp edges of which can be crumbled by the fingers into a crystalline powder. The screw-threads of compression-cocks, particularly where used for hot water, are very frequently affected in this way, so that the screws become loose. That the trouble is not due to wear of the thread is shown by the fact that the screws by which the washers of compression-cocks are attached to the end of the spindle, although they are not touched, as a rule, more than once a year, lose their threads like the others, a crystalline mud under the washer showing what has happened. In the case of plumbers' brass-work, where great durability is not expected, and where accuracy of fit is not essential, the matter is not very serious, unless, indeed, the spontaneous splitting of brass pipes, which often causes great damage, is due to a similar action; but the same transformation of brass is sometimes to be observed in steam-fittings, and in this case it becomes of great importance. We have seen a steam-valve of first-class make, the brass or steam-metal cap of which had separated from the body when the valve was opened, the screw showing a crystalline fracture from the bottom of the thread nearly through the metal. This valve, shortly before, had been resisting a pressure of eighty pounds to the square inch, and, if it had not been necessary to remove it for making alterations in the plant, the first indication of weakness might have been a dangerous explosion. It is hardly likely that this is the only case of the kind, and a comparison of similar instances, for the purpose of determining what varieties of brass are most subject to such deterioration, and, if possible, in what way it can be prevented, would be of great value.

THE PRESIDENT'S ADDRESS, A. I. A.¹

AS we gather here to-day from all parts of this great country our thoughts of necessity return to what has occurred here during the last few weeks. The American people have never been more drawn together than when in the night-watches the solemn tolling of the bells bore from village to village the news of the President's death, or than when throughout the land from Maine to California our people thronged the churches to pay a last tribute of respect to their late Chief Magistrate and to ask a blessing on his successor. Indeed, the civilized world felt united in horror at the wicked deed and in defence against a common danger. This was brought home to us when on the day of President McKinley's death the President of the Royal Institute of British Architects sent us this cable despatch: "Our profoundest sympathy with American Institute. National mourning." This is far from being a formal message from foreign parts or from a stranger. I am very glad it came. It is filled with the cordial spirit of a kinsman who feels with us and like us in times of trouble and stress. May it ever be thus! Let us be grateful that the clouds that have obscured our skies have been broken by this kindly message of fraternal sympathy and friendship.

Our profession has many causes for congratulation at this thirty-fifth Annual Convention. There has been a large addition to our numbers since we last met. None of us can be indifferent to the fact that eager demands are coming from all parts of our land for a high standard of artistic work, and that the pecuniary responsibilities which are committed to our care are constantly growing. As large fortunes and important business combinations increase in number, an ever larger proportion of riches will continue to be spent on the patronage of Art. All men welcome these expenditures by the rich. To our profession they offer opportunities never before presented in this country. For all these reasons we have no cause to complain of our material prosperity.

Therefore, at such a friendly conference as this, it is all the more desirable that we should see clearly whither these favoring gales and currents are speeding us, and make sure that our gear is strong and our compass true. A review of the aspect and tendencies of our professional life is opportune. To what is it leading us? What opportunities does it offer? How shall we train our young men? How can we make this American Institute a more serviceable instrument? In short, I want to discuss with you the ideals to which, to-day, we may reasonably aspire as architects in active practice.

First of all, we note a vital change that has made much progress in the last few years. Once, an architect could make with his own hand every drawing for his building, and give to it throughout his own touch and feeling. I fancy there is no one of us with a true artist's soul who does not dream of this as the ideal life for an architect. Nor is it an impossible life, and if a man is contented to do small things well, and can find clients who will pay him rightly for such artistic work, I commend this life as a happy and useful one. But though such a serene and artistic career is open to a few rare men, it is not offered to most of us; and, generally, where a man is faithful to this ideal life, he finds himself suddenly the steward of a larger trust. Buildings of importance will not await one man's time. Modern building, and especially American building, implies a rapid campaign. Where it used to take ten years to spend a million dollars it now takes as many months, or the financier stands aghast as interest runs to waste. These modern building methods and the passion for costly structures are the exigencies from which have arisen the need of large office forces. As in business trade has massed itself into great consolidations and combinations, so commercialism has brought new problems to our art. It is a surprising fact that in democratic America of all places—a country where individual exertion and independent action is the mainspring of public life—the spirit of coöperation and combination has so largely supplanted in our art the productions of the individual. It is perhaps, a thing to deplore that an architect's office should resemble a department-store or should be open to the derisive charge of being a plan-factory. In contrast, the life of the single-handed artist-architect may well be thought attractive. But it is a fair question, Which is the most valuable to the community? The same men are going to do the work in any event. In the one case they are nerved to comparatively ineffective exertion by personal ambition and self-interest; in the other, they contribute what they can

best produce, and where they are weak they are supported by better men. It is an old story. A farmer in the oil fields may refine his own kerosene and preserve his independence, but the Standard Oil Company can furnish better oil at a cheaper price, not only to him, but to the peasant in Central China.

My intention, however, is not to argue the question nor to discuss whether by these new methods imagination and poetry are stifled. Perhaps we have had enough display of ungoverned imagination. Perhaps imagination that is valuable will make itself felt under any circumstances. I am not arguing. I only state a fact. We all recognize in these days that a man cannot be effectively both architect and builder, as in mediæval days. It is only going one step farther to say that it now takes several men to make a good architect. Thus, the large coöperative office is the most conspicuous feature of our recent professional life, and in many ways it is not an unwelcome one. Instead of individuals striving for public favor, clubs of artists are now engaged in this pursuit, and material success goes to those whose mutual confidence, *esprit de corps* and professional skill are most highly developed. It is not a bad situation. It is not unlike the conditions which prevailed through great periods in the history of our art in other ages and other climes. We go to Florence and reverently tread her narrow streets and people them with the gay, light-hearted artist-folk of that golden period when genius and talent so abounded that he was a dull architect who was not also poet, and sculptor, and painter as well. That community of interests among the artists and students, among the goldsmiths, painters and sculptors of Florence, when Verrochio or Luini worked under Leonardo and Raphael with Perugino—the one the master, the other the helper—was it not somewhat like the life in our own *ateliers*? Truly it seems as if in some of our great cities, where the workers in the allied arts have joined most thoroughly in mutual endeavor, this ideal artistic life is well simulated. Still more complete was the union of master and student during the Middle Ages, when the art of building was so far left to the guilds that the names of the leading spirits have vanished into oblivion, though their work still speaks to us in lofty nave and peaceful cloister and towering spire. This unselfish oblivion is not to the taste of the modern world. It is one of the great objections of the artist to these large offices. But his fears have no very substantial foundation. The organization of a great railroad does not stifle individual talent. It rather gives real genius its opportunity, and possibly it is well that mediocre ability should not obtain leadership. In humbler place it can join to its full power in the production of great works and feel and say "*Magna pars fui.*"

Let us, then, treat the large office as a fact, and when the head of it says "I," let us hope for his sake that he intends it as Admiral Dewey might, and let us not forget the man behind the guns without whom the guns are powerless. And when the young aspirant for fame in a large office talks as if he were the nameless ghost whose spirit pervades all the successful work of the office, let us remember how long the Army of the Potomac vainly struggled and fought before Grant's master-mind turned that same armed machine to victory. Indeed, Grant at the great surrender at Appomattox—a leader because of early discipline in the small things of the Mexican War, successful because of his innate firmness and his judgment of men and things; in victory a generous knightly soldier—may well be an example to the heads of our large offices.

The next change that I note in our professional life is the great advance in architectural education. Most of us agree that the American boys that crowd our offices, alert, intelligent, active-minded, ambitious, are admirable material from which to make artists. They are fast proving themselves to be such, and are making names for themselves in foreign schools and at home. How they shall best be trained is a vital question. How shall these young men, who serve the guns now and are to command the ships later, get the most thorough education? I suppose that question is put to most of you only too frequently.

Clearly, one answer is that they can pick it up in these large offices. If the apprentice system which lasted so long in England had any merit, it has vastly more when applied to life in one of our large offices. Surrounded by able workers, the young man leads in a measure the life that is offered by the French *atelier*, where the most potent influence is that of the "*anciens.*" But, in our American office there is no time to teach the history of art, the theory of design, and to cultivate the powers of imagination and representation. Probably we all agree that the most interesting work which the profession

¹ Annual address of the President, Mr. Robert S. Peabody, read at the Convention of the American Institute of Architects at Buffalo, N. Y., October 3, 1901.

has to offer—its highest refinement—is centred in the act of composition, of gathering and combining under the influence of imagination or, if you please, of inspiration. It is a hopeful sign for the country that now and to-day business comes to those who are masters of this art. An education in an office plainly does not cultivate such powers. Nor do I believe with those who bow to that vague deity, Pure Design, that they are to be gained by the contemplation of Nature and the study of natural products. The art of architecture is necessarily conventional, and is bound up with the history and the life of mankind, and the egoist who tries to play his hand alone makes a mistake. His work will be good, so far as it accords with the principles that civilization has pronounced sound, and will fail when his self-appreciation prevails.

These powers of idealization and of creative composition can be brought to life and nourished and strengthened by no other means than practice, in the same way that an athlete increases his strength; and for my part, I believe that this practice is most conveniently obtained in a school of architecture, just as lawyers have found a law school a fitter place for training than a lawyer's office. The thirst for architecture that pervades this country, and that is shown in crowded architectural exhibitions and attempts at architectural building, is shown quite as markedly in the multiplication of these architectural schools. There are more of them than there are architects fit to teach them. The more modest schools find a field for their endeavors in serving young men who aim at being draughtsmen, and who cannot reach the better-organized institutions. All these schools serve a good purpose in tending to spread a knowledge of architecture among the community at large, and it is to be remembered that a man may well study architecture without expecting to gain a living by it. He can be an important influence in his community in developing the love of the beautiful to which our country is now awakening.

But, as architects, we can take a really live interest only in the best organized schools. Fortunately, these are already doing work in which we may take pride. Indeed, I confidently look forward to their attracting students at an early day from other lands, as young foreigners now come to us to study engineering. The chief duty that the American Institute can have in architectural education must always be to foster this work of the highest grade and to make the best better.

Your Committee on Education, in their valuable report last year, made many suggestions looking to this end, and, lately, the *American Architect* has suggested that candidates for admission to a school of architecture should be required to pass a tolerably severe examination in drawing from the round, such as is required for admission to the great academies of fine-art. This would in some ways place the beginners where graduates are now. This is an admirable suggestion. It would tend to increase, in primary schools, the teaching of drawing, which, so far as it is a means of delineation, I believe to be nearly as fit a subject of general instruction as writing. But though much is to be gained by raising the standard of admission, it is the standard of graduation that finally tests the school, and the need now is for high-class post-graduate work. Some of the schools foster this high-class work. In rare instances they produce work to vie with that done in France, and as they develop the enthusiasm and spirit that is the chief merit of the French School, it becomes less and less necessary to study in a foreign school. We now need scholarships for post-graduate study in the schools themselves. There are scholarships enough to support students in foreign travel. The clever boy can get abroad if he prove himself worth the investment; and besides, desirable as foreign travel is, it becomes less and less necessary as books and photographs are more widely available. Scholarships that would support boys at such study not only benefit the recipient and enable him to study without visiting foreign lands, but the presence of such a class of workers in a school gives it a power and influence that no amount of endowment or museums or teaching can equal. The best instructors that youth can have are companions farther advanced on a good road. Hence, I ardently hope that such scholarships may be founded; and it is certain that those schools of architecture among us will quickly be distinguished as the real architectural universities, which depend, not on the funds or buildings or number of students, but on their advanced graduate instruction and on a body of strong students banded together with *esprit de corps*.

Possibly, the foundation of a prize open to competition between these graduate schools would do something to foster this very desirable advanced education. The American Insti-

tute is now about to enter into relations with these different schools by accepting their diplomas as a standard of admission. It might very properly take the charge of such a Grand Prize.

There is yet another means of education which prevails with us and which deserves our hearty encouragement. I mean the draughtsmen's clubs which join, with good fellowship, all aids to study. The Architectural Club in Boston maintains many classes, and is the instrument of great good in our city. I think the fact that these young men govern themselves and direct their own work is one of the reasons that the Club continues and prospers. Such organizations generally do prosper while those in command are interested. To ensure perpetuity, it is necessary for the active members to know when their turn is over, and to yield willingly to the next generation, as they themselves proceed to the work of older men. Through all my professional life, I have watched, with interest, the relations of the Architectural Association in London with the Royal Institute of British Architects, and have hoped for something of the sort in America. When a member of the Architectural Association comes into the active practice of his profession, he surrenders control in the Association's affairs to his juniors, and takes his part in the quite different work organized by his seniors of the British Institute. I have hoped that the Architectural League of America is to take that relation to our older body. At times, it has assumed a spirit of opposition to us, but I fancy that attitude, together with an endorsement of any passing cult, is but temporary, for fads and special cults pass away, and only basic principles remain, and, surely, we represent nothing worthy of opposition. If the energetic in our profession will take hold and administer affairs better than we have been able to, we shall ask nothing better.

I suggest referring to a committee the question whether an alliance cannot be made either with the Architectural League of America or an association like it which might become the instrument of the draughtsmen and younger architects. I would make it the centre for classes and club life from which the older members, as they recognize that their turn is past, would naturally graduate to the Institute. To their hands, when the proper time comes, we should gladly bequeath the American Institute. If, to-day, our youths are apt to think that in this or that case the duties of the Institute have not been properly performed, it will be their turn then, and I trust that they will do far better than their predecessors, who had no Architectural Leagues in which to prepare themselves for their work.

If our young men get their highest training in the schools, and if club-life and voluntary classes are left to our youngsters to govern in their own way, with the active help and sympathy of their elders, what partly performed duties or what opportunities lie before us which may justify the existence of this Institute and the labors of its members?

We can only measure the amount of good the Institute has done by its output. Many a man who cares little for it benefits because others have cared. Many a man outside of our numbers is more respected in his community and has a more certain livelihood because the Institute has proved itself a reasonable public body. Certainly, through its influence, the perils and hardships of competitions have been greatly mitigated. But all these are small and selfish ends. The real value of the Institute lies in its opportunities, in its openings for useful work and mutual high endeavor. Thanks to the wisdom of its founders, I think it has been a potent means of good. Thanks to them, it has none of the features of a selfish trade union. In a trade union a man's powers and skill are handicapped for the general good; but with us a member has entered into no engagements of any kind except that he will honorably practise his profession. Our compact is rather that of the ancient guilds, into which no one could enter who was not a master-workman. We seek to make membership a sign of established character. We are trying to make it impossible for anybody to be an Associate who has not thus established a name for honorable professional conduct, and for no one to be a Fellow who has not done really distinguished work. With the coming year, entrance to the Institute will be possible only through examination arranged by the Institute, or on presentation of a degree from an accredited School of Architecture. I believe that the new tests will cause large additions to our numbers, because Associate membership, henceforth, is to mean that a definite and valuable standard of skill has been reached, and that from among this membership their comrades are to choose by honorable election the Fellows of the American Institute of Architects. To many young men these will, I doubt not, seem valuable inducements.

In its various Chapters, the Institute has been, and may be, a power for good in scattered localities. Laying-out cities, broadening avenues, arranging vistas, improving tenement-districts, encouraging public art leagues and commissions — all are subjects which more and more engage the attention of our local Chapters, and in which they may readily prove themselves useful to their several communities, and now that American ambition turns towards the embellishment and beautifying of cities on grand lines, the Chapters can guide public taste and awaken public interest to schemes of artistic local improvement.

But, better than all this, a man, through the Institute, may have the good fortune to do something towards the raising of the standard of work and character in the country at large. During this year we have had unusual opportunities of this sort. We lent sufficient aid to prevent unstudied and undesirable alterations in the White House which would have completely changed the character of that public monument.

That was an unselfish and useful undertaking. Your members have been repeatedly called upon by Secretary Gage to serve as jurors for competitions under the Tarsney Act, and have rendered willing service. Your officers have had consultations with several of the Government departments relative to architectural work, and I think the immense improvement of Government architecture under the Tarsney Act may fairly be attributed, in part, to earlier action by the Institute. Our Chapters protested against permission being given to the Pennsylvania R. R. to cross the Mall in Washington. It seemed as if this protest were vain, as those who were most influential had given this up as a lost cause; but the Commission to consider the subject of the laying-out of the City of Washington have not held this cause to be lost, and our action may yet prove to have been useful. We vigorously urged the appointment of this Commission on the plan of the City of Washington, and our anticipations as to the results of its labors are great. When our Committee was urging the formation of the Commission before the Senate Committee, we were told that they had to grant it, as no man urging it was asking anything for himself. In such disinterested public service we are able to render good service to the State, and thus perform the highest duty that can come to us.

Perhaps you will agree with me in thinking that this year we might set before ourselves the task of urging the Government to appoint a permanent Art Commission. I commend this to you as an action well worthy the attention of a special committee.

Before I close, let me give one moment more to consider what effect this life of study and of active contact with a busy world has on the individual, for that is what finally interests us. An architect receives his training at college or in an office. He lives a busy life in the American business-world. What does such a life bring to him, or what influence should it have on him? His occupations deal with art in its most conventional form; with hue and group, and texture and color; with the history of art and with drawing, and all the while he is rigidly bound to scientific construction, to business methods, and to commercial honor. There can be no great place among us for even an honest builder, unless he be moved by artistic impulses and can turn his building into architecture. There should be, on the other hand, no chance for any position among architects for the man who shields improper professional conduct under the excuse of artistic temperament. He is not only a thief, but a weak and feeble one, without even the courage to call things by their right names. The world sometimes excuses that attitude in shiftless men of genius, who are responsible for their conduct to nobody but themselves; but an architect is trusted with the property of others, and owes a strict account, like other business men. In return, it is his happy fortune to direct the use of the money of others towards the higher products of man's imagination and skill. The world of poetry and romance lies behind all human occupations, but with us artists it is especially near the surface of our daily work. It is our chief function to cherish and increase the love of the beautiful in the daily life surrounding us. While doing this, business and routine often seem to repress the artistic impulses we most cherish. But it is, doubtless, our great blessing that, as we grope upwards towards the higher life of poetry and imagination, our feet must remain of necessity firm-set on the bed-rock of common-sense and business integrity. Flowers blossom more freely when the plants are nipped back. Sir Walter Scott and Robert Stevenson might never have produced as they did but for pressure. Fortunate indeed are we that our daily work constantly awakens and draws from our

imagination, but, at the same time, recalls us from dreamy dilettantism to hard work and active life and plain, honest, straightforward dealing. Our art makes the life of our community comfortable, beautiful and stately. It keeps us in touch with higher things while holding us to earth. It forms good citizens. It trains useful men. We may envy no man's opportunities in life. Let us all be glad that we are architects! Let us all exult in the position that our art holds in our country to-day.

Sometimes at the seaside come days of ugly weather. The ocean is leaden and oily. The distant shores show hard and gray, or the fog sets in and all is enveloped in gloom. From far and near the coasters, heavy-laden and storm-beaten, crowd into the gloomy port. Then comes a morning when the fresh northwest wind sweeps clean the sea and sky. The dark clouds vanish and leave a world in its true colors, bright and clean and sparkling in the sunshine, and down the shore in a long procession go the white-winged vessels speeding on their several errands to the ends of the sea.

Sometimes troublesome clients and difficult contractors envelop our professional life in gloomy weather, and the worries and anxieties of business befog our mental vision. Then, haply, comes a time like this of meeting together, when it is given to us to see things in their true proportions and in a favoring light. The fogs lift, and with the clearing weather the fractious clients and the office cares vanish into thin air. With cheerful courage our barques make for the open main: great ships with flaunting colors, solid coasters built for heavy work, the large and the small, with divers cargoes and bound to many a port, but sailing this morning in happy company, their canvases swelling to the breezes of hope, and enthusiasm, and confidence.

VENTILATION BY ASPIRATION.¹ — VI.

Erratum. — In No. 1344, page 100, Fig. 4, the letter *v'* is missing from the valve on the air-pipe, and all references to *v* in the text, except the first, are references to *v'*.

IT may be well to anticipate here one or two questions. What should be done when the temperature falls below zero, the starting-point of this system? It is clear that if the heater is exactly proportioned it will not heat the same volume of air from a lower temperature than zero to 70°. In any liberal scheme there would be a small surplus, of course, but suppose we have to warm air from — 20° to 70°. At a lower degree of cold, like this, there will be an acceleration of the aspiration, due to a greater difference between the densities of the air inside and outside; this acceleration should be checked until the volume is at the standard. But even then, the heater will not impart sufficient heat. Now, let the main damper in the shaft be closed still more, until by reduction of volume below the normal, the quantity is brought within the warming capacity of the heater. The effect is, of course, simply to restrict the amount of air supplied during extremely cold weather, when, if ever, parsimony in ventilation is defensible. Moreover, the problem introduces no complication; the air-flow is to be simply cut down until the heater is able to bring it up to 70°, or, vice versa, increased when starting up by gradually opening the damper, till it falls to 70°. At 20° below zero the volume would be reduced to about 80 per cent of the normal; an impairment easily borne for a short time.

What should be done when the air-supply should be constant even at points far below zero? We do not need more than 70° difference to operate the system. To allow the air to escape at 70°, the necessary temperature of the inclosure, when — 20° is the starting-point, is to impart to the air 20° more heat than is demanded to sustain the movement. This surplus, indispensable to comfort, but useless to the movement of air, can be recovered and utilized for warming the fresh air by the principle of the "economizer." The principle can be applied here by causing the warm foul air at 70° to traverse a chamber filled with thin metal pipes through which the cold air is flowing. The temperature difference between the inside and outside of the pipes at this extreme case would be 90°, about the same as between a hot-water radiator and the circumambient air. But the heating efficiency would be very much less: about one-half. Nevertheless, we could, without difficulty, by this operation raise the outer air to zero as fast as it entered, and depress the escaping air to 50°, which is all that is required. Thus, we should sustain the ventilating movement, warm the building comfortably, and yet expend no more fuel than if the weather were 20° warmer. This apparatus could be always in use, the greatest economy being obtained at the lowest temperatures, the efficiency gradually becoming less, until, at the top of the scale, it would be nothing. It would not be necessary to enlarge the heaters; the extra duty of maintaining the normal air-volume and warmth at the lowest temperatures would be borne wholly by the "economizer." The fact that at somewhat higher temperatures, the foul air would be cooled in the economizer only to be partially warmed again in the shaft has no significance; it is balanced by the fact that the cold air is warmed in the inlet heater by just so much less as it is warmed in the shaft. That is, the live

¹ Continued from No. 1344, page 100.

could not be backed up so as to escape from the air-valves or flood the coils, because the total lift of water corresponding to a pressure of two pounds is only 4 feet 6 inches, while the air-valves are automatic, but have auxiliary lock-valves controlled by a key, so that they may be shut either to exclude air or to retain it. The air-valves are set on a fitting specially designed to permit the air to free itself from entrained water.

The temperature is controlled as follows: The supply-valve is opened and air vented from the supply-pipe until it is hot throughout; if this pipe gives sufficient heat, the air-valve on the return is left closed; if not, the latter is opened and part of the air expelled, thus a portion of the trombone-surface comes into play, the amount being proportional to the quantity of air escaping. Should it be necessary to reduce the effective heating-surface, as is usually the case when the sun gets higher and the outside temperature rises in the forenoon, the supply-valve may be closed and air readmitted while the pipes cool off, then opened again after the latter have become partially filled with air; or, more simply still, the supply-valves may be throttled, admitting only a vapor to the pipe insufficient to fill them. It will be readily understood that the heating-surface thus brought into use may be easily regulated and changed in quantity from time to time, each room demanding different treatment according to its exposure, the time of day and state of the sky as regards cloudiness.

The method of heat-control above described is based upon new principles in the theory of discharge of steam through orifices and its condensation in a receptacle designed to transmit the heat thus set free. It is but little known in this country, where I brought it out in 1883. About 1890 the system was imported into Europe, where it became immediately popular, and is now the only recognized system of low-pressure steam-heating in use on the Continent, and is so regarded by all the technical books. The theory of this system has been completely set forth in the *Engineering Review* of New York, beginning with the January number, current year, by Mr. G. Debesson, engineer, of Paris, France. If my "fractional valve" is used (and, since the patents have expired, there can be no objection to my speaking of it here) no air-valves are necessary, and the regulation of the local temperature of each room is accomplished by means of a single valve bearing a dial and index showing proportional quantities of heat.

In order to allow the supply-valves to be throttled, besides sealing the return-pipe it is necessary to provide a drip just above the valve, if there is an upright extension of the supply-pipe above the valve. This is required because the condensation in the upright falls back to the valve, but cannot pass it owing to the higher pressure below the valve, and the accumulation of this water will finally balance the pressure and effectively bar the flow of steam. If the valve is placed on the horizontal supply in the class-room, the drip is not necessary. This scheme, however, places the entire care of the apparatus and adjustment of temperature upon the janitor, and the valves are in the basement, it being, of course, easy for the teachers to judge whether he attends to or neglects his duties by the condition of their rooms. So far as the apparatus is concerned, every facility for effective control is provided, and the means are simple, direct, and readily understood. The trombone coils are made longer, shorter, higher or lower, to suit the exposure of the several rooms and their relative cooling-surfaces, north and west rooms having as much as 50 per cent more than south sunny rooms (ratio = 100 to 67). This correction at times is far from accurate, but it provides the proper distribution for periods of maximum cold in this climate. The error in distribution which is manifest on cloudy but less cold, still days is of much less importance, for then it is simply a case of reducing the surplus heat on the north side. It has been a sort of tradition in the heating-trade that to warm a room quickly the source of heat should be on the warm side. The theory of this rule is that the arrangement promotes, rather than antagonizes, the natural circulation of the contained air in an enclosure of which one or more walls are exposed to cooling. This is correct as a proposition. But, as a principle of warming for comfort, it is vicious. There is no sense in promoting these cold currents from walls and windows; that is not the object of the process of warming. One of the objects is to prevent them. It is probable that the rule was originally favored by the heating-men because, whether it was a question of furnace hot-air pipes or steam-pipes to radiators, it permitted the shortest circuits from the source of heat. Anyhow, whatever may have been its origin, the theory is put forward as a rule of practice by many writers who pose as authorities. These persons will condemn my plan of placing the warming-surfaces where they will do the most good, claiming that if the natural circulation is helped, the fresh air will be more effectually distributed.

The currency that this fallacy has attained makes it worth while to devote a little space to its refutation. Where no warmth is derived from sources under the windows and along the cold walls, it is requisite to supply its place by a greater quantity of heat in the air supplied for ventilation. Instead of the temperature of this air being at about 70°, it has to be nearer 90°, otherwise the rooms would not be warm enough. But the temperature of the air in the rooms being at 70°, this relatively very hot air at once rises to the highest point, where it floats above the tainted air below it, until, by partial cooling, it is able to descend. Now, air cannot be cooled by radiation; it is necessary to have contact with a colder body. It is a poor conductor, consequently it cannot be appreciably cooled by the cooler air below it, and is only cooled by contact with the walls and windows. On

the warm, or inner, sides of the room there is no tendency to cause any cooling or movement; hence, on these sides there is complete stagnation. On the cold sides, the fresh air, as it is cooled, falls downwards along the cold surfaces, acquiring greater density until it reaches the floor, along which it flows until it reaches the outlet. A portion is warmed on the way by the bodies of the occupants, and, rising and mingling with the already contaminated air, at last reaches their lungs.

When, however, the descending currents from cold walls and windows are prevented by a moderate, but sufficient, warmth, locally applied, the fresh air can be admitted at a neutral temperature, that is to say, the temperature of the enclosure, or 70°. Entering at a comparatively low level, 7 feet above the floor, as first introduced by me in 1878, it has no tendency to either rise or fall. It is, however, much nearer the breathing-line than if it were at the top of a room 13 feet high, and its distribution is assured by the fact of its motion. If it be considered that to introduce 1,500 cubic feet or more into an ordinary class-room every minute the entire air of the enclosure is changed in six or seven minutes, it will be appreciated that there must be a continual and extensive disturbance sufficient to bring about a thorough distribution. At all events, such are the results shown by the tests of air taken for analysis from different parts of a room ventilated in this way.

It appearing that no difficulty would be introduced by it, I have included the economizer, having space for it in the air-heating chamber, nothing more being required in addition to the thing itself but some lengthening of the ducts. The saving of fuel by its use is not very important, however. I have computed that the device as drawn, i. e., with 4-inch tubes 6 feet long, will recover about one degree of heat in the cold air for every four degrees carried away in the waste air, the volumes being equal. This computation is within the probability, being based on an actual test. The original cost of the attachment will be about \$200, on which the charges for interest and depreciation will be, say, 7½ per cent per annum, or \$15. Where coal is \$6 a ton, this sum will pay for 5,000 pounds. When the average temperature for the day is —12°, the economizer will save about 120 pounds a day; at which rate, 42 days will be required to save enough to equal the annual charges. It would be, therefore, of no special advantage in the way of economy, except in regions where the cold is intense and prolonged, and good fuel is very dear. The true reason for its use, is not, however, economy in the direction explained, but the means which it affords of steadying the air-movement, especially of preventing the waste of air when it can least be afforded. If the preceding exposition of the principles of this system has been followed, it will be remembered that at no time is any special attention to be given to the question of the right amount of heat in the chimney; the mere regulation of the warmth of the air admitted to the rooms takes care of the chimney *ipso facto*. But at very cold periods, the natural draught alone would cause needless waste; it is to check this waste that the economizer is introduced. In that way it actually would produce a saving that should be added to that derived from the recovery of part of the heat in the spent air. The total saving would be double that figured out above. Longer and smaller tubes would increase this; but more space would be taken and new complications would be introduced for which there would be no sufficiently compensating advantage.

The observation may be made that all this seems superfluous when the dreaded acceleration of draught may be cut down by simply closing a damper. Now, I decidedly object to this simple expedient. The rule must be established that all dampers (except current equalizers) must be always wide open when the building is occupied. If the fireman or janitor, who has entire charge of the dampers, once discovers how much labor he can save himself by keeping them closed up to the point of causing complaint and remonstrance, he will contrive to have them usually very near that mark, reducing the fresh-air supply to almost nothing. I have several times visited the basements of public school-houses in the City of Boston, and found this state of things; the cold-air inlets closed, the heater-boxes open and the entire air-supply being taken from the cellar. It has happened in several cases that the heater-boxes were located just over old-fashioned privy flush-vaults, perfectly harmless in themselves, but not always free from most unpleasant smells. Under the conditions established by the janitors for their personal convenience, these smells were transferred as directly as possible to the rooms. Thereupon, or, rather, as soon as the public attention was turned to this subject, a great outcry was made that the children of the citizens were being poisoned by bad drainage, and nothing would do but to replace the privies with costly modern plumbing. It is not true that any harm was done by these privies, and it is not possible to produce any evidence that any child ever suffered on account of them; the remedy applied was not the right one, nor was it expedient in view of the deplorable state of many of the school-houses in respect of ventilation, and of so-called modern plumbing in some of them really badly out of repair. What is required in these cases is ventilation of the vaults first; and some regular inspection of the janitors to prevent them from such grievous neglect of their duties as I have pointed out. The teachers do what they can; but they do not dare to antagonize the janitors, who are an organized political power, and run the whole school-department to suit their ideas. It is probably safe to say that the Mayor himself is as much afraid of them as anybody. They and their friends throw a large number of votes.

I never witnessed nor heard of a test of an aspiration-system where the very first step was not for opening the dampers, several

members of the party being detailed for the purpose. The designers, themselves, in their published accounts of such tests, always allude to this preliminary act as proof of the thoroughness of the test. But why should the dampers have to be opened in the case of a building actually in use? How does it happen that they are closed? Because they are closed the first time that the weather is cold, and, to make it easy for the fireman, the cold air is shut off, at least in part. So they are left, and nobody touches them again. I never have designed or fathered any system of that kind, except under protest, and disclaiming all responsibility for the ventilation. One of the chief, if not the supreme, merit of the proposed system is its freedom from regulating-dampers, under the principles which secure to it this freedom.

FREDERIC TUDOR.

[To be concluded.]



BROOKLYN CHAPTER, AMERICAN INSTITUTE OF ARCHITECTS.

THE following is a list of Officers and Committees of the Brooklyn Chapter of the A. I. A., elected at the annual meeting, held at the Clarendon Hotel, Brooklyn, N. Y., September 6, 1901, for the year 1901-1902.

President, R. L. Daus; *Vice-President*, A. G. Thomson; *Surveyor*, Frank H. Quinby; *Treasurer*, H. Hobart Weekes; *Secretary*, Axel S. Hedman.

Board of Directors.—Messrs. Louis de Coppet Berg, I. E. Ditmars, J. M. Hewlett, W. Hull, Charles T. Mott, A. V. Porter, and W. A. Strout, J. Pettit (Juniors).

Exhibition Committee.—Messrs. Hedman, Hull and Mott.

Current Work Committee.—Messrs. Quinby, Thomson and Porter.

Membership Committee.—Messrs. Hull, Ditmars and Mott.

Professional Practice Committee.—Messrs. Berg, Ditmars and Hewlett.

Social Intercourse Committee.—Messrs. Dahlander, Werner and Thomson.

Surveyor's Committee.—Messrs. Quinby, Hedman and Porter.

Delegates to Convention.—Messrs. Berg, Daus and Thomson.

AXEL S. HEDMAN, *Secretary*.



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

GRAMMAR SCHOOL, ARLINGTON, MASS. MESSRS. GAY & PROCTOR, ARCHITECTS, BOSTON, MASS.

The cost of this structure, in brick and limestone, is \$90,000.

FIG. 6: ILLUSTRATIVE OF VENTILATION BY ASPIRATION.

SEE article on "Ventilation by Aspiration" elsewhere in this issue.

THE COUNTING-ROOM: BOWERY SAVINGS-BANK, NEW YORK, N. Y. MESSRS. MCKIM, MEAD & WHITE, ARCHITECTS, NEW YORK, N. Y.

[The following named illustration may be found by reference to our advertising pages.]

THE ARCH OF DRUSUS, ROME, ITALY. DRAWN BY MR. CHARLES J. CUMMISKEY.

[Additional illustrations in the International Edition.]

THE BOWERY SAVINGS-BANK, NEW YORK, N. Y. MESSRS. MCKIM, MEAD & WHITE, ARCHITECTS, NEW YORK, N. Y.

DETAIL OF COUNTING-ROOM: BOWERY SAVINGS-BANK.

DOORWAY TO HOUSE OF S. E. BOEHM, ESQ., NO. 5 EAST 80TH ST., NEW YORK, N. Y.

ALL SAINTS' CHURCH. MR. J. A. SCHWEINFURTH, ARCHITECT, BOSTON, MASS.



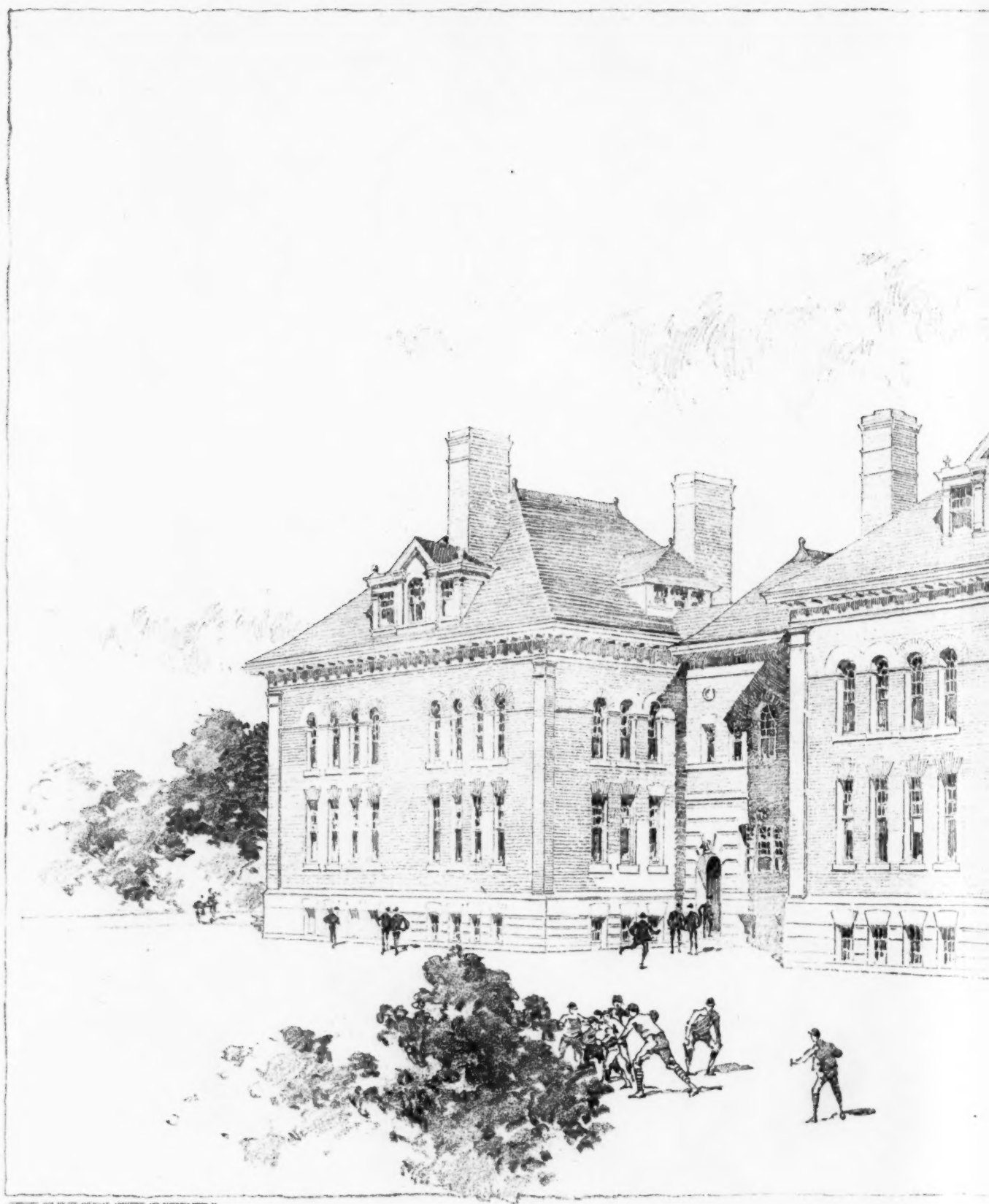
ARTIFICIAL ELECTRIC-FOUNTAINS.—An Italian contemporary describes at some length the artificial electric-fountains which M. G. Trouve has lately erected. He uses glass beads, rice, small celluloid balls or other round or variously-shaped small solid bodies and a jet of air, blown by a centrifugal pump, as a means for keeping them in motion. When these objects are projected through a jet in the usual way by a stream of air and then illuminated, magnificent effects, comparable to those of the electric-fountain, are produced. As the apparatus required is small and the material is used over and over again some use may be found for it in luxurious interiors and for stage or other spectacular decorations. The color and illumination as well as the shape and arrangement of jets can, of course, be varied as easily with fountains of rice or glass beads as with fountains of water.—*Boston Transcript*.

UNSUCCESSFUL MUNICIPAL OWNERSHIP IN TOLEDO.—The municipal-ownership idea has been hit hard in Toledo, the city of "Golden Rule" Jones. After ten years of experience, the city has leased its municipal natural-gas plant to a private corporation. This plant has cost the people of Toledo over a million dollars in bonds and half a million more in interest, while it is found now that the rental will be much less than the city will need to keep up the annual interest on the debt incurred when the experiment was undertaken. The Council leased what was left of the plant to the Toledo Gas-light and Coke Company for a term of twenty years at \$6,500 a year. The annual interest account on natural-gas bonds outstanding is \$47,250. And the city will keep on paying that for many years to come. The cause of the failure is fairly well outlined in this remark by the *Toledo Bee*: "Incidentally, many of the men who shouted loudest for the gas-plant got their start in life out of their connection with it, and having become taxpayers, managed to bob up and help urge the Council to lease the plant to a private corporation — so as to save them taxes."—*N. Y. Evening Post*.

CALIFORNIA OILED ROADS.—An investigation of oiled roads in Southern California has recently been made by a committee of the Board of Supervisors of Sacramento County. In one district they found the work done by contract at the rate of one dollar per barrel of oil. The plant used included two storage-tanks, together holding 550 barrels, two smaller heating-tanks, an oil-burning boiler, and pump for forcing heated oil into a sprinkling-wagon, and small accessories. One man runs the plant exclusive of sprinkler. The oil is heated to 180 degrees Fahr. for the first application, and to 230 degrees or more for the second, and may be transported for 10 miles in the steel tank of the sprinkling-wagon without detrimental loss of heat. In other districts, where the oil is applied cold, the cost is about two-thirds as much, but the result is not so good. In one county a public heating-plant has been built, which supplies three districts, and another is under construction. The use of oil is widespread in Southern California, both in towns and in the country, and evokes little opposition. Particular mention is made of the good condition of a dirt road over which three to seven ton loads are hauled to a beet-sugar plant. This road was graded last spring, and sprinkled twice with about 200 barrels of oil per mile at each application. This is about twice the quantity generally used. The committee recommends oiling existing macadam roads and then covering them with sand or decomposed granite.—*Building News*.

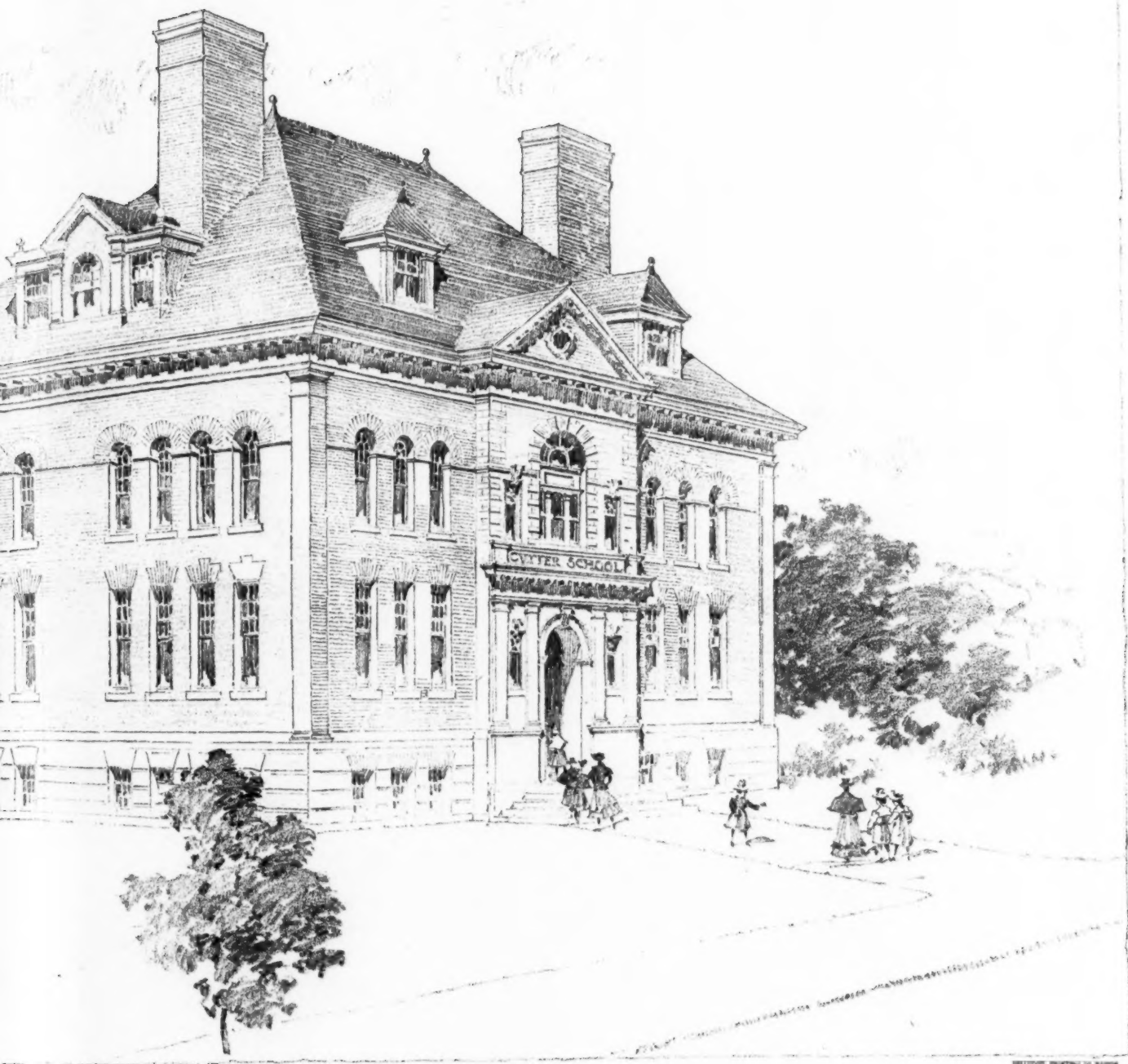
THE ELECTRIC CORROSION OF GAS-PIPES.—The paper which Dr. Leybold, of Hamburg, read at the Glasgow International Engineering Congress, on the "Destruction of Gas-pipes by Means of Electricity," treats of a subject of the greatest importance at the present time. In this country electric traction on the overhead system is being rapidly extended in all directions, and it is well known that large leakage-currents from the rails often come back to the station by the gas and water mains. We have very little practical knowledge as to the amount of damage which is being done by these currents, and hence a paper on this point full of practical data will be welcomed by both electrical and gas engineers. An escape of gas in a street of Hamburg was traced to holes eaten away in a wrought-iron gas-pipe which crossed the street at right angles to the tram-rails. When the pipe was taken out it was found that there was a hole eaten away directly underneath each of the four tram-rails, and nearly all the pipes in the street were similarly damaged. These holes were obviously due to electrolysis. In the cast-iron water-pipes which were laid deeper down no corrosion was detected. The tramway authorities at Hamburg had been in the habit in winter-time of melting the snow on the rails with salt or with waste nitrate of soda. When the ground was soft it got saturated with a saline solution, and any pipes imbedded in it got rapidly corroded by electrolysis. To protect some 1-inch gas-pipes they were covered in canvas soaked in boiled tar. On removing lengths of the pipes, however, and unwrapping the covering, it was found that they were corroded, the corrosion taking a spiral form coinciding with the wrapping of the canvas. The author stated that it was highly probable that leakage electric-currents in private houses sometimes destroyed pipes embedded in the walls. A clear example of this had recently come to his notice. Knowing as we do the large leakage-currents taking place from some of the mains of direct-current supply systems, it is of the greatest importance to watch for signs of electrolytic action. In the subsequent discussion Mr. Gisbert Kapp, the eminent German electrician, stated that the Board of Trade "seven volt" rule for preventing damage being done by leakage-currents was altogether inadequate. There is no scientific reason for selecting seven volts as the maximum permissible pressure between the rails and the water-pipes. At Hamburg the electricians have reduced the maximum pressure of the rails to much less than this.—*The Builder*.

1346



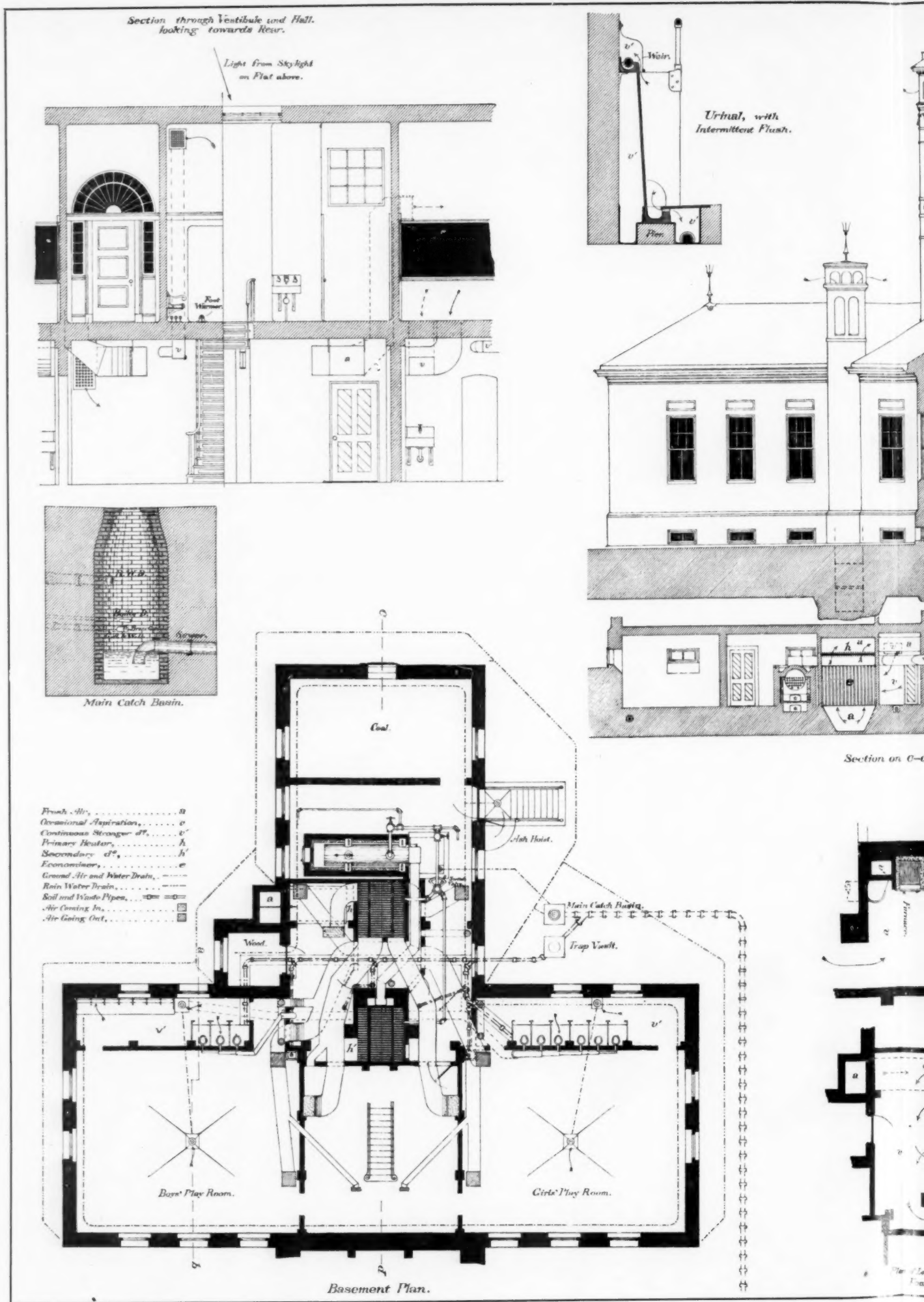
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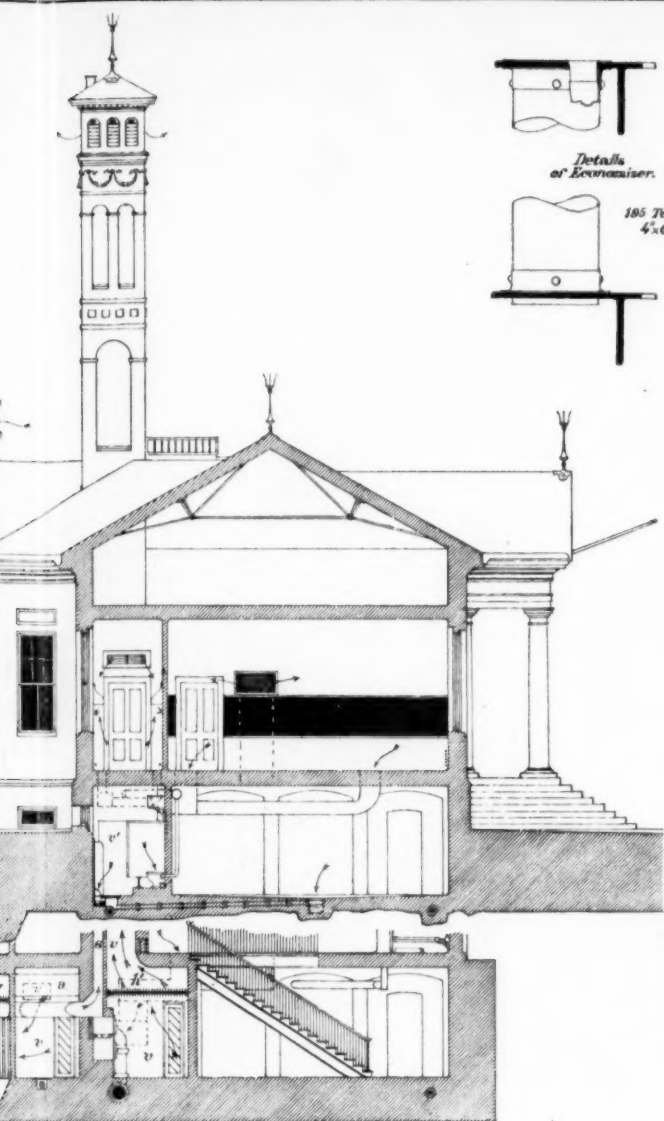
GRAMMAR SCHOOL FOR
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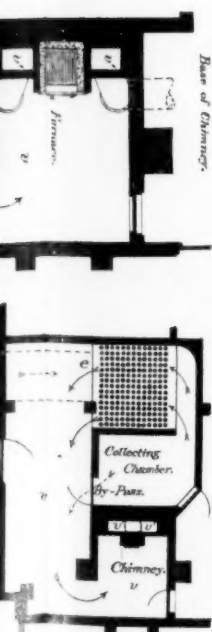
SCHOOL FOR ARLINGTON, MASS.
PROCTOR, ARCHITECTS.

The American Architect
Oct. 12, 1901.
No. 1346.

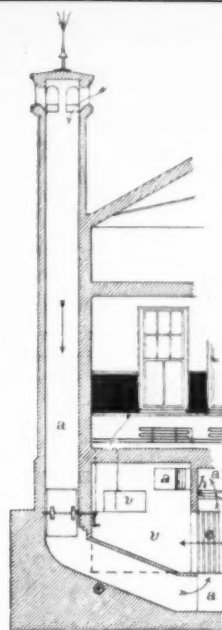
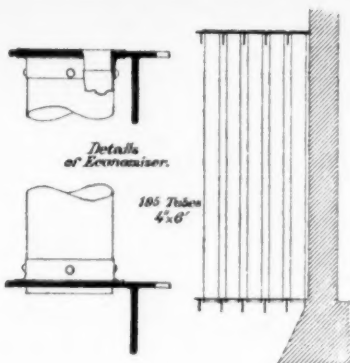




Section on v-d.

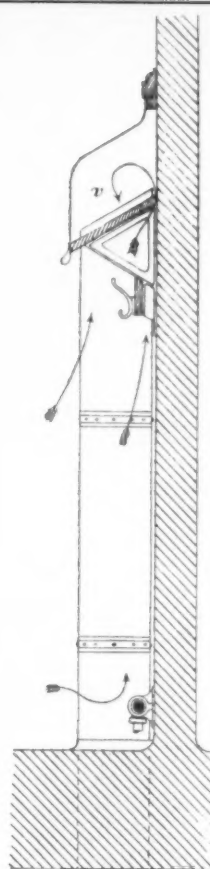


Plan of Lower Part of
Cool Air Chamber.

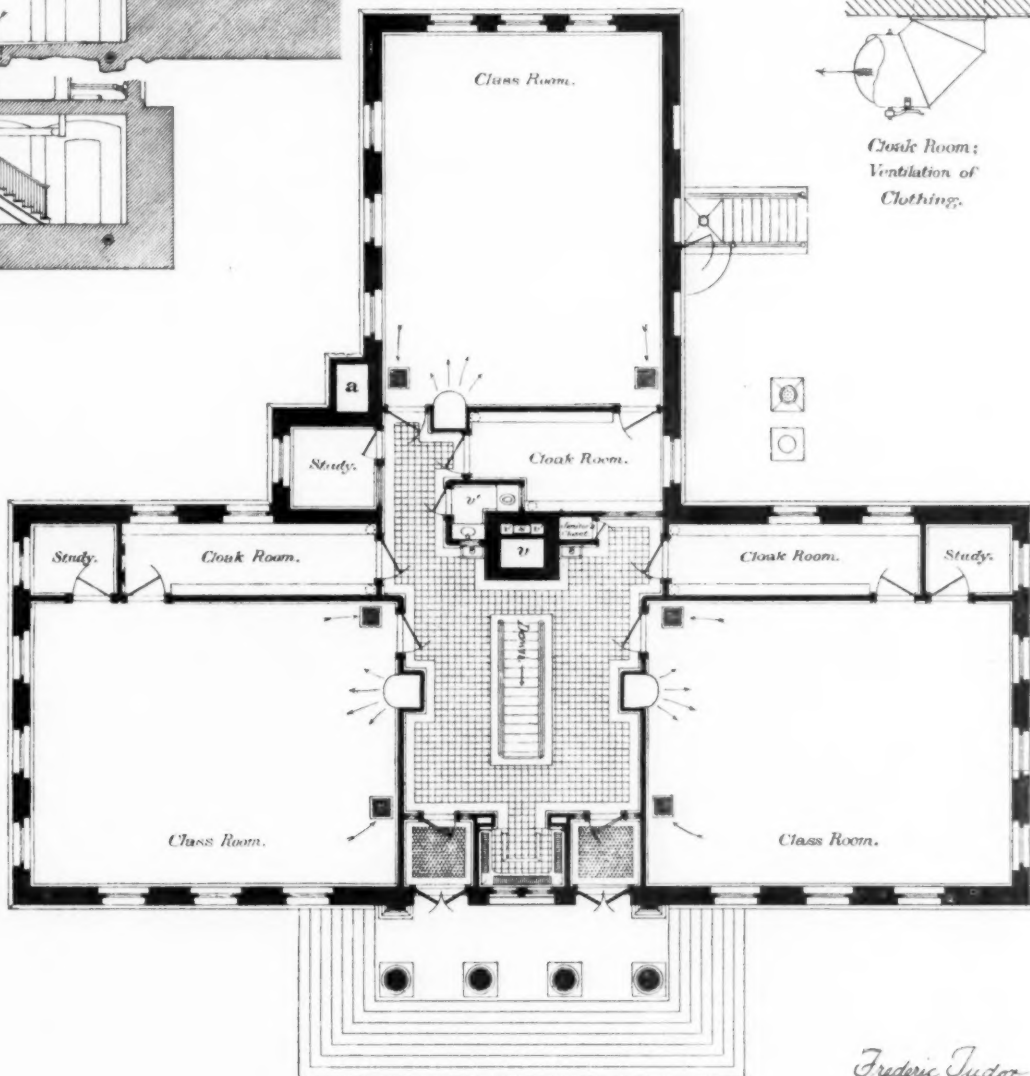


Inlet Shaft.
Transverse Section

Note.
If the soil is wet, the ground
water drain must be laid so as
to keep the water $\frac{1}{2}$ ft. be-
low the cold air duct.

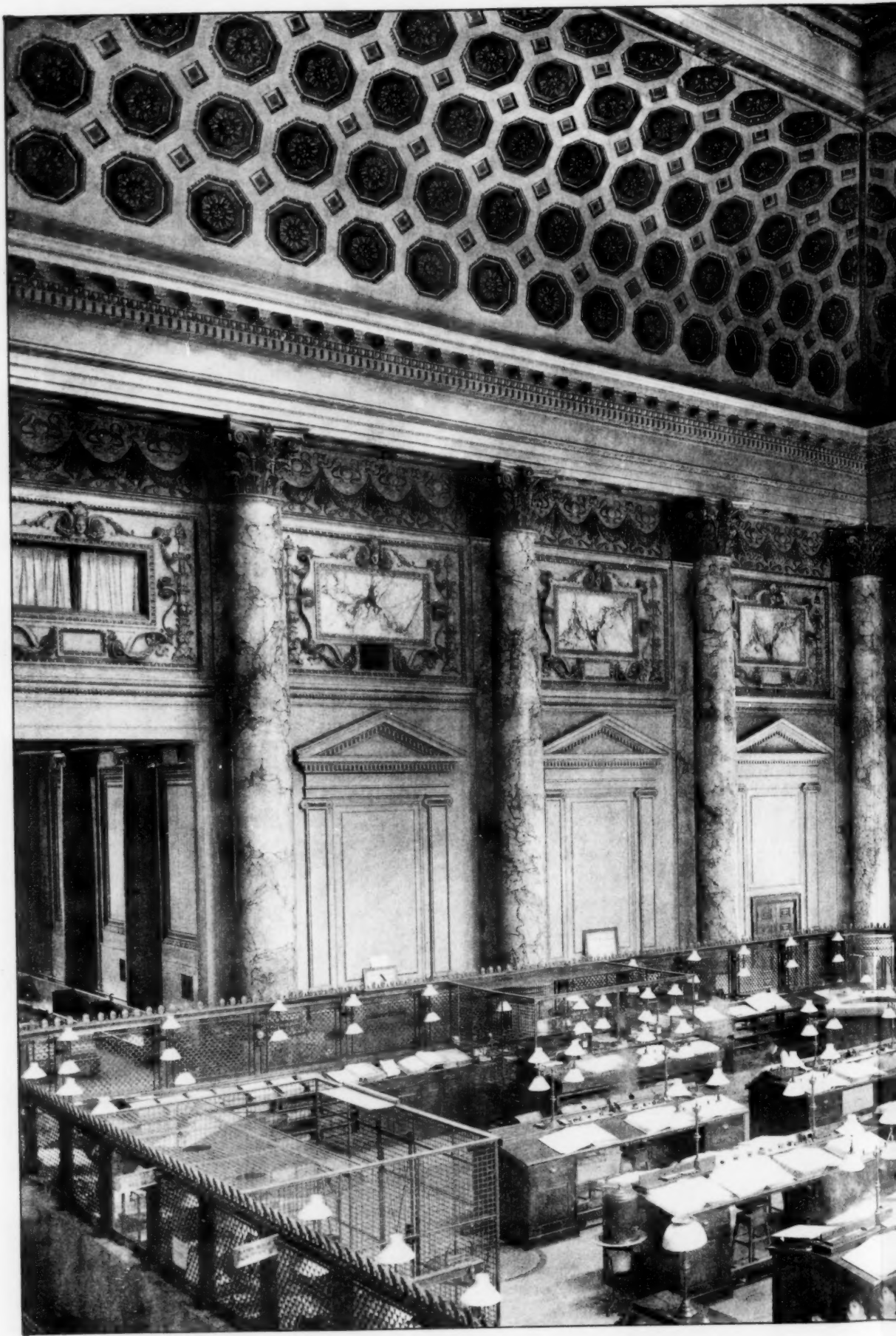


Cloak Room;
Ventilation of
Clothing.



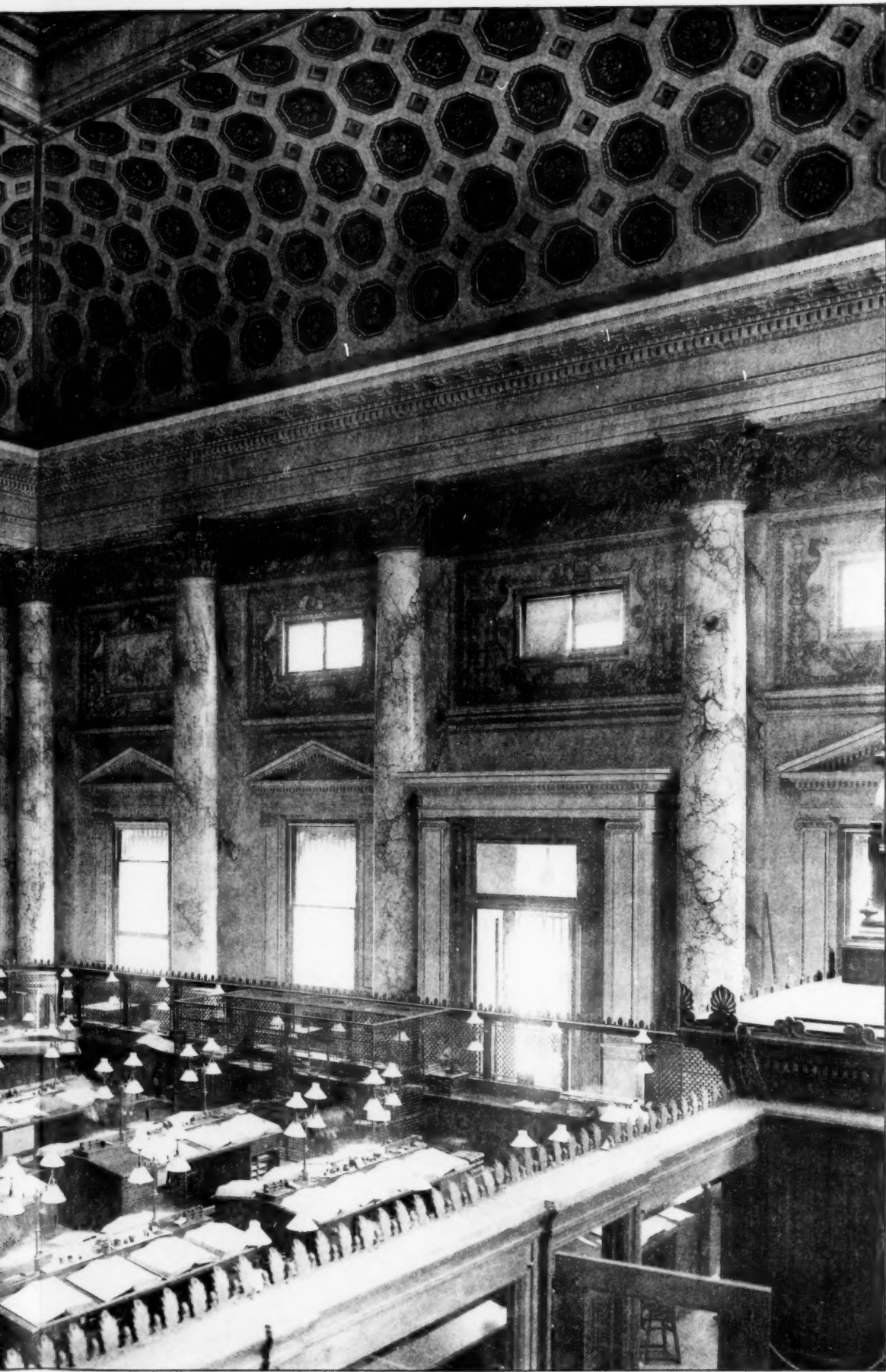
Floor Plan.

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Inv. et Del.



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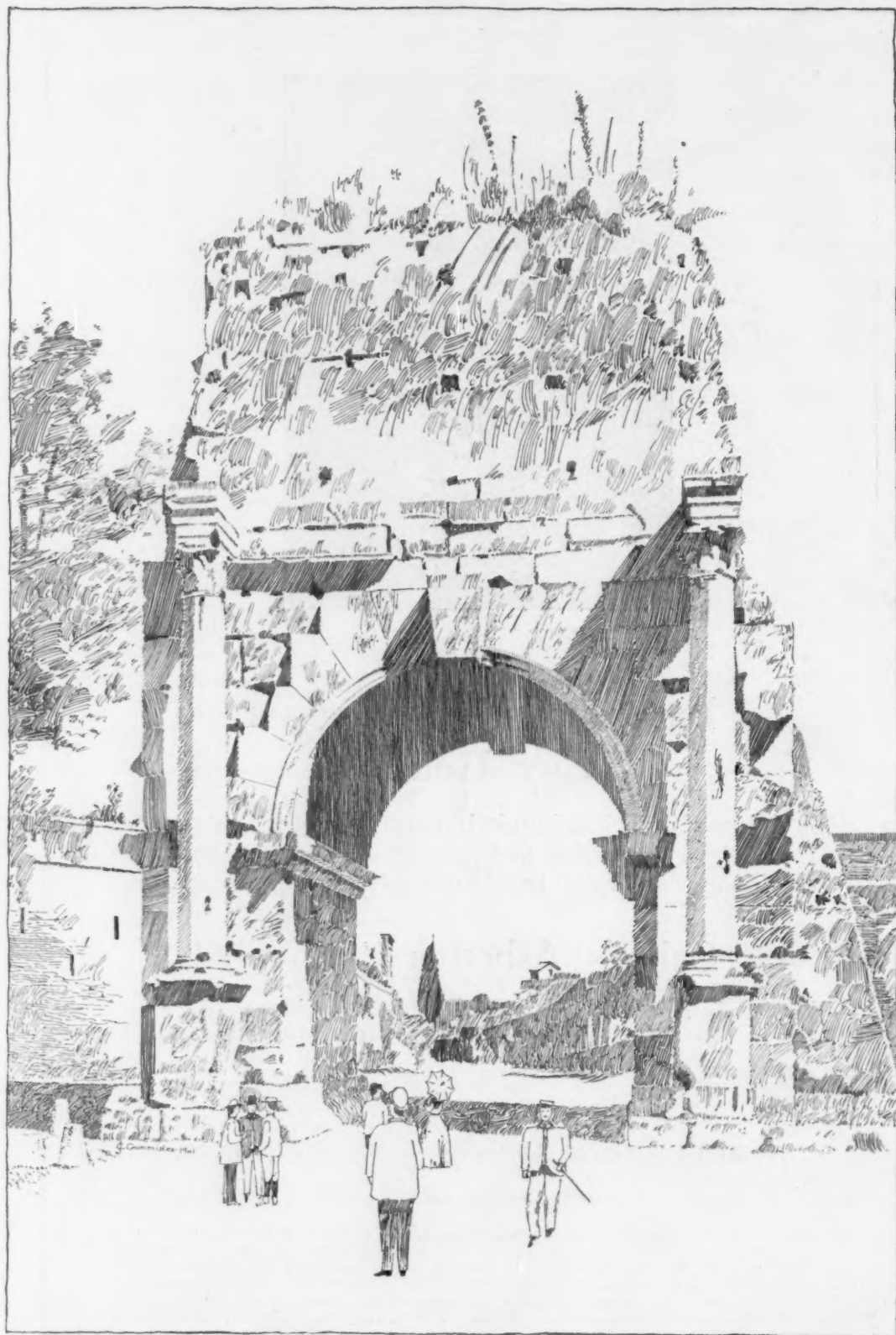
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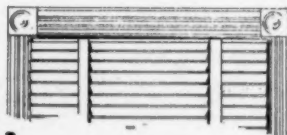
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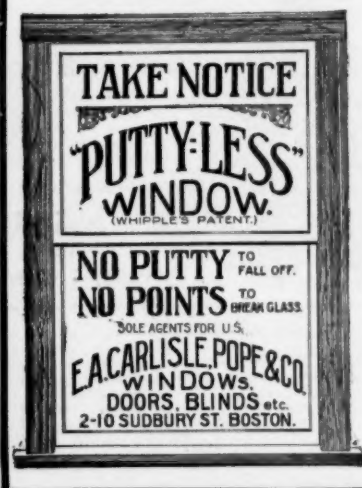
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I have looked over the plates of "Topical Architecture" and think the idea excellent.

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Columbus, Mo.—The Curtland Manufacturing Co. will soon be incorporated with a capital of \$300,000. It is proposed to construct tin and malleable iron works here. James Curtland, New York City, promoter.

Dayton, O.—It is stated that H. Rechsteiner and Steve Gosman are members of the committee for building a \$20,000 Catholic church in the South Park and Oakwood districts.

Des Moines, Ia.—The Des Moines Clay Mfg. Co. has awarded the contract to the Capital City Brick & Pipe Co. for the erection of a brick factory building, 100' x 200', at Murphy St. and the Des Moines Union tracks; cost, \$20,000.

Duluth, Minn.—The Superior Library Board has taken out a permit for the erection of the Library building at 12th St. and Hammond Ave.; cost, \$45,000.

Fall River, Mass.—Contracts have been awarded and work will begin on the three and one-half story brick addition to the American Print Works. New building will be used for a dye-house and will cost \$50,000.

The cornerstone of the Y. M. C. A. building has been laid; cost, \$85,000.

Iowa City, Ia.—The regents of the State University will ask the coming Legislature for an appropriation of \$200,000 for the erection of a college of medicine, and probably \$40,000 for the civil engineering department, for a building and apparatus.

Kansas City, Mo.—W. W. Sylvester and A. E. Stillwell contemplate erecting a sixteen-story fireproof office-building; cost, \$500,000.

Lexington, Mass.—Plans have been drawn by Cooper & Bailey, Equitable Building, for a three-story brick and granite school-house; cost, \$75,000.

Longwood, Mass.—It is stated that elaborate plans have been drawn for a \$100,000 hospital to be erected by the New England Deaconess Association, a wealthy corporation of men and women of Boston and vicinity, on a lot recently purchased at the corner of Bellevue and Park Sts. The structure

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

will consist of a main building with three wings; but only one of the wings, in addition to the main building, will be put up at present. \$24,000 has already been subscribed and a fair will be given in Copley Hall the first week in November to increase the fund.

Lufkin, Tex.—Plans have been made by O. H. P. Rudesill & Son, Houston, for a fireproof court-house for Angelina County. It will have steam heat, slate roof, marble work, etc., and cost \$40,000.

Milwaukee, Wis.—A measure is pending to appropriate \$400,000 for new permanent school-buildings next year.

Gimbel Bros. have submitted plans for their new eight-story brick and stone building to be located at W. Water St. and Grand Ave.; cost, \$400,000.

Minneapolis, Minn.—Architects F. B. and L. L. Long have drawn plans for a fire-station to be erected at 19 N. 4th St. It will be of pressed brick, 40' x 60', two stories, equipped in first-class style throughout, with sleeping rooms, bath, steam heating and plumbing; cost, \$20,000.

New York, N. Y.—It is said that plans of the City Club for a club-house up town have progressed so far that a company, known as the City Club Co., has been incorporated for the purpose of acquiring property and making the necessary building contracts, and an option has been obtained on what the House Committee considers a desirable site, in the neighborhood of 44th St. and 5th Ave. The new plans call for about \$350,000, more than a quarter of which is already "in sight." The club has about 600 members.

Work has started on the 4 1/2-story brick and stone tenements on 140th St., near Willis Ave. Contracts for material and equipment not yet let. Plans by Neville & Bagge, 217 W. 125th St. Cost, \$120,000.

The Directors of St. Luke's Hospital have under consideration the erection of a pavilion on the northwest corner of 113th St. and Morningside Ave., to cost \$300,000.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Ortonville, Minn.—O. H. Olson, of Stillwater, was awarded contract for erecting the \$40,000 two-story court-house, 60' x 86', for Big Stone County, after plans by F. D. Orff, Lumber Exchange, Minneapolis.

Pittsburgh, Pa.—Mrs. Mary Schenley will erect 8 warehouses, seven stories high, and to cost \$400,000. W. A. Herron & Sons, 4th Ave., agents.

Sadler, Martin & Evans, 6001 Penn Ave., have started the erection of 42 brick veneered dwellings at Flowers Ave. and Marsden St.; cost, \$100,000.

R. C. Hall, 301 Bank for Savings Building, will erect 75 houses, at a cost of \$225,000.

F. E. Alsen, 314 Fourth Ave., has completed plans for extensive alterations to be made to the Carnegie Library and institute, the cost of which will be \$3,000,000.

The Security Investment Co. is having plans drawn for 12 Colonial residences, to be erected at a cost of \$100,000.

Plans are being prepared for the \$50,000 six-story brick and stone warehouse, 50' x 160', to be built on 3d St. by Haugh & Keenan.

Syracuse, N. Y.—Chancellor James R. Day, of Syracuse University, announces that it has received the gift of a new building to be called the Hall of Natural History. The giver wishes his name kept secret.

HOUSES.

Clinton, Mass.—Main St., 2 1/2-st'y fr. dwell., furnace; \$5,000; o., Margaret F. Loury; a., J. S. Allen. Walnut Ave., cor. Leighton Ave., 2 1/2-st'y fr. dwell., furnace; \$6,000; o., F. G. Evans; a., J. S. Allen; b., E. W. Weeks.

Nashua, N. H.—Two-st'y fr. dwell., shingle roof, hot water; \$12,000; o., L. Frank Stevens; a., Perkins & Bancroft, Haverhill, Mass.

Somerville, Mass.—Fenwick St., cor. Heath St., 2 1/2-st'y fr. dwell., 25' x 41', shingle roof, furnaces; \$5,200; o., a. & b., John E. McCathern & Co.

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(Office-buildings Continued.)

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Haverhill, Mass.—Three-st'y bk. & st. office-building, 30' x 60', steam; \$20,000; o., Simonds & Adams; a., Perkins & Baucoff.

STABLES.

Brooklyn, N. Y.—Rockaway Ave., nr. Pitkin Ave., two-st'y bk. stable, 24' x 40'; \$1,000; o., Sarah Meyer, on premises; a., L. Dananher, 74 Watkins St.

New York, N. Y.—Fifty-fifth St., nr. 5th Ave., three & four-st'y & base, bk. stable, 25' x 91'; \$25,000; o., Col. Daniel S. Lamont, 2 W. 53d St.; a., Little & O'Connor, 20 W. 34th St.

TENEMENT-HOUSES.

New York, N. Y.—One Hundred and Twenty-ninth St., nr. 8th Ave., six-st'y bk. tenement, 50' x 80'; \$25,000; o., Leon A. Liebeskind, 36 W. 115th St.; a., Geo. F. Peilham, 503 Fifth Ave.

PROPOSALS.

Treasury Department, Office Supervising Architect, Washington, D. C., October 9, 1901. Sealed proposals will be received at this office until 2 o'clock P. M. on the 23d day of October, 1901, and then opened, for the installation of a conduit and wiring system for the U. S. Court-house and Post-office building at Altoona, Pa., in accordance with the drawings and specifications, copies of which may be obtained at this office or at the office of the Superintendent of Construction at Altoona, Pa., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1347

SCHOOL.

[At Milwaukee, Wis.]
Buemming & Dick, Pabst Building, will receive bids until October 20 for a school-building to be erected on 7th and Prairie for the Second Ward; cost, \$55,000. 1346

MUSIC HALL.

[At Akron, O.]
Bids will be received by the German-American Co. until October 21 for erecting a music hall at Exchange and High Sts. F. E. WERNER, pres.; Fugman & Uhlrich, archts., 89 Euclid Ave., Cleveland. 1346

BUILDING.

[At Columbia, Mo.]
Bids are wanted October 23 for erecting building on the grounds of the University at Columbia. J. G. BABB, Sec'y Bd. Curators; Cope & Stewardson, archts., 809 Security Building, St. Louis. 1346

LIBRARY.

[At Jacksonville, Ill.]
Bids are wanted October 21 for erecting a library. W. E. VEITCH, Pres. Bd. Dir. Pub. Library. 1346

STEAM-HEATING PLANT.

[At Governor's Island, N. Y.]
Sealed proposals will be received here until October 24, 1901, for installing steam-heating plant in quartermaster's storehouse, Governor's Island. Information furnished on application. S. R. JONES, Q. M. 1347

PROPOSALS.

Treasury Department, Office Supervising Architect, Washington, D. C., October 3, 1901. Sealed proposals will be received at this office until 2 o'clock P. M. on the 24th day of October, 1901, and then opened, for the installation of a conduit and wiring system for the Extension of the U. S. Post-office and Custom-house at Newport, R. I., in accordance with the drawing and specification, copies of which may be obtained at this office or at the office of the Custodian at Newport, R. I., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1347

Treasury Department, Office Supervising Architect, Washington, D. C., October 1, 1901. Sealed proposals will be received at this office until 2 o'clock P. M. on the 23d day of October, 1901, and then opened, for furnishing the heating apparatus complete in place for the U. S. Custom-house and Post-office and extension thereof at Newport, R. I., in accordance with drawings and specification, copies of which may be had at this office or at the office of the Custodian at Newport, R. I., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1347

CONSTRUCTION.

[At Ft. Leavenworth, Kan.]
Office Constructing Quartermaster, Fort Leavenworth, Kan. Sealed proposals will be received here until October 26, 1901, for constructing the following buildings, including plumbing, heating and electric wiring: six infantry barracks, 1 band barracks, 1 artillery barracks, 1 artillery stable, 1 artillery gunshed, 1 artillery guard-house, shop, etc., 1 bachelor officers' quarters (24 sets), 14 double sets lieutenants' quarters, additions to and alteration in 1 barrack building 45, and repairs to porches of barracks 46, 47, 48, 49 and 50, at Fort Leavenworth, Kan. Full information and blank forms of proposal furnished on application to this office. Plans and specifications may be seen here; also in office of depot quartermaster at Chicago, St. Louis and Omaha. CAPTAIN D. E. MCCARTHY, quartermaster. 1347

CONSTRUCTION.

[At Providence, R. I.]
Washington, D. C. Sealed proposals will be received at the office of the commissioners, D. C., until October 26, 1901, for constructing a power-house and nurses' home, with stack and equipment on square 764 (on north side of E St., southeast between 2d and 3d Sts.), Providence Hospital grounds. Specifications and plans may be obtained through the architect, W. B. Wood, or the hospital authorities. H. B. F. MACFARLAND, et al., commissioners, D. C. 1347

GATE-HOUSE.

[At Boston, Mass.]
Sealed proposals will be received at the bureau of yards and docks, Navy Department, Washington, until October 26, 1901, for constructing a fireproof store and brick entrance building at the navy yard, Boston. Appropriation, \$23,500. Plans and specifications can be seen at that navy yard or at the bureau. MORDECAI T. ENDICOTT, chief of bureau. 1347

BUILDING.

[At Springfield, O.]
Bids will be received until November 1 for the Administration Building at the Ohio Pythian Home at Springfield, O.; the work include the following: Excavating, foundation, cut stone, concrete, brick-work, plastering, roofing, iron and steel, painting

PROPOSALS.

and glazing, tile, fireproofing, woodwork, gas, plumbing, sewer, heating and ventilating, electrical-work, pump-bath. Plans will be on file with Wm. C. Kercher, Dayton, O.; Building Exchange, Cincinnati; Robt Love, Steubenville, O.; R. M. LeFevre, Springfield, O., and at this office. FRANK L. PACKARD, archt. 1348

SCHOOL-BUILDINGS.

[At Leavenworth, Kan.]
Sealed proposals will be received until November 4, 1901, at the office of Wm. P. Feth, architect, for the erection of three school-buildings for the City of Leavenworth, Kan. Plans and specifications may be seen at the office of Architect JNO. M. GABLE, clerk of board of education. 1348

SHOP AND OFFICE-BUILDING.

[At Boston, Mass.]
Sealed proposals will be received at the bureau of yards and docks, Navy Department, Washington, until November 3, 1901, for constructing two brick and steel buildings at the navy yard, Boston. Estimated cost, \$121,000. Plans and specifications can be seen at the navy yard named or at the bureau. MORDECAI T. ENDICOTT, chief of bureau. 1348

STOREHOUSE.

[At Ft. Terry, N. Y.]
Sealed proposals for constructing, plumbing and electric wiring double, frame noncommissioned officers' quarters and ordnance storehouse at Fort Terry, N. Y., and ordnance storehouse at Fort Michie, N. Y., will be received here until October 31, 1901. GEORGE A. NUGENT, Q. M. 1348

HOSPITAL BUILDINGS FOR THE MOUNTAIN BRANCH, N. H. D. V. S.

[Near Johnson City, Tenn.]
Office of the National Home for Disabled Volunteer Soldiers, Rooms 932-4 New York Life Building, 346 Broadway, New York City, October 10th, 1901. Sealed proposals will be received at this office until 12 M. Monday, the 11th day of November, 1901, for furnishing materials, labor, etc., for the construction of hospital buildings at the Mountain Branch of the National Home for D. V. S., near Johnson City, Tenn. Plans and specifications can be seen, necessary information obtained and blank forms for proposals procured on application to this office or to the architect, J. H. Freedlander, 244 Fifth Ave., New York City, or at the office of the Superintendent of Construction near the site of the work. The Home reserves the right to reject any or all bids and to waive defects. Moses Harris, General Treasurer, N. H. D. V. S. Approved: M. T. McMAHON, President Board of Managers, N. H. D. V. S. 1350

Treasury Department, Office of the Supervising Architect, Washington, D. C., September 30th, 1901,

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CASS GILBERT.

PROPOSALS.

Sealed proposals will be received at this office until 2 o'clock P. M. on the 6th day of November, 1901, and then opened, for the construction, including heating and electric wiring of the U. S. Post-office at Fitchburg, Mass., in accordance with drawings and specification, copies of which may be had at this office or at the office of the Postmaster at Fitchburg, Mass., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect.

1346

HOSPITAL.

[At Morris, Minn.]

Department of the Interior, Office of Indian Affairs, Washington, D. C. Sealed proposals addressed to the Commissioner of Indian Affairs, Washington, D. C., will be received at the Indian Office until October 22, 1901, for furnishing the necessary materials and labor required to construct and complete at the Morris School, Minn., a brick hospital building, with plumbing, electric lights and steam heat, in strict accordance with plans, specifications and instructions to bidders, which may be examined at this office, the offices of the *Pioneer Press*, St. Paul, Minn.; the *Improvement Bulletin*, Minneapolis,

PROPOSALS.

Minn., the Builders & Traders' Exchanges at Omaha and Milwaukee, the Northwestern Manufacturers' Association, St. Paul; the U. S. Indian warehouses at 815 Howard St., Omaha, Neb., 235 Johnson St., Chicago, and 77 Wooster St., New York City, and at the school. For further information apply to Edwin L. Chalcraft, supervisor in charge, Morris, Minn. A. C. TONNER, acting commissioner.

1346

SEWER PIPE, ETC.

[At Xenia, O.]

Bids are wanted until October 17 for furnishing the necessary sewer-pipe, catch-basins, flush-tanks and other accessories for constructing lateral sanitary sewers in sewer district No. 1. HENRY J. FARRELL, secretary board sewer commissioners.

1346

SEWERS.

[At Santiago, Cuba.]

Office of Engineer Officer, Santiago, Cuba. Sealed proposals for construction of sewers in the City of Santiago, Cuba, will be received at above office until October 21st, 1901. Plans can be seen and specifications obtained at the following offices: Office

PROPOSALS.

of Engineer Officer, Santiago de Cuba; Office of Chief Engineer, Havana, Cuba; The *Engineering Record*, New York; *Engineering News*, New York. S. D. ROCKENBACH, Captain 12th U. S. Cavalry, Engineer Officer.

1346

COURT-HOUSE.

[At Lake City, Fla.]

Bids will be received by the County Commissioners until October 24 for erecting a court-house. R. T. BOOZER, chmn.

1346

COURT-HOUSE.

[At Carrollton, Mo.]

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[At Havana, Cuba.]

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[At Washington, D. C.] Office of Bureau of Yards and Docks, Navy Dept., Washington. Sealed proposals will be received here until October 26, 1901, for constructing a plant

PROPOSALS.

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[At Corvallis, Ore.]

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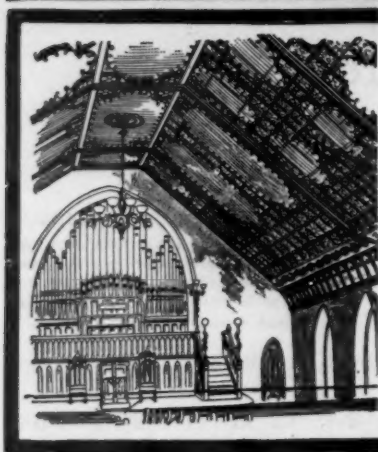
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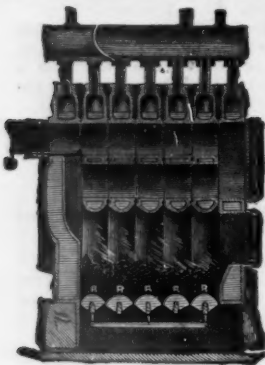
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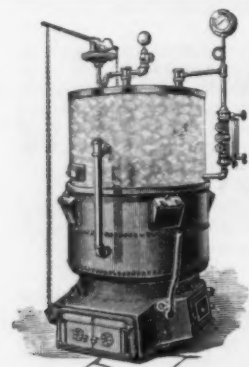
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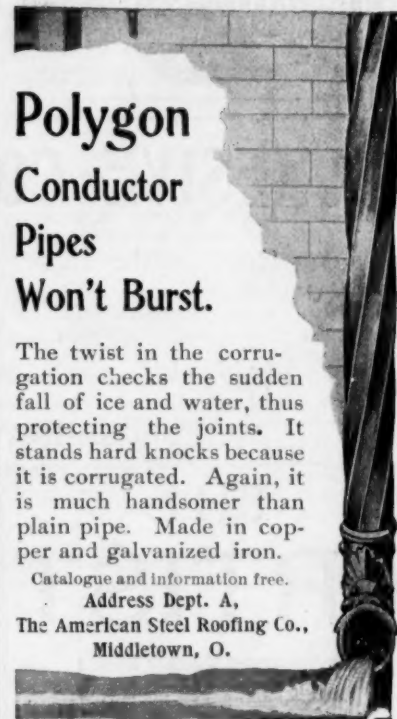
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