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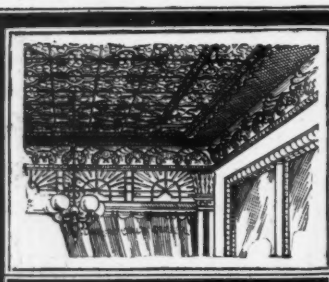

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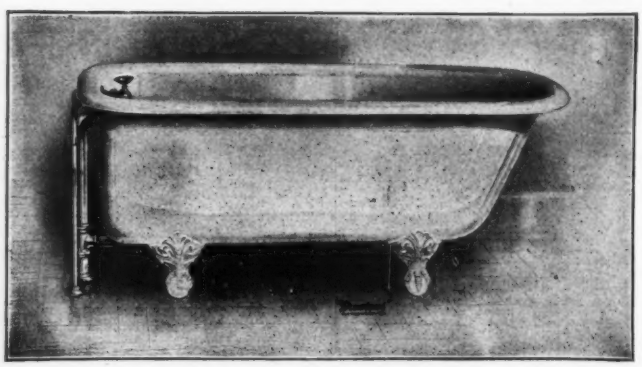

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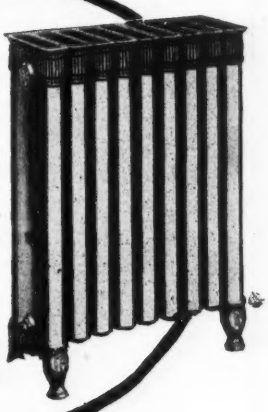

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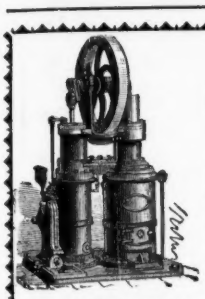

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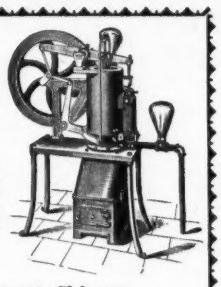

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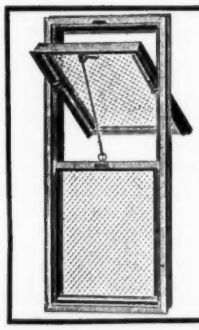

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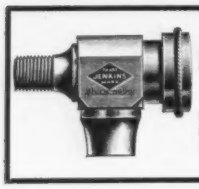

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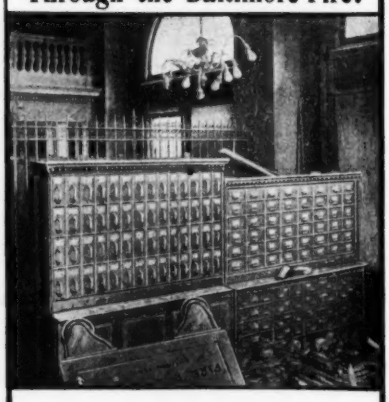

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THE AMERICAN ARCHITECT AND BUILDING NEWS

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A VERY verbose and lengthy bill is now before the Massachusetts Legislature, which, seemingly, the Legislative Committee of the Boston Society of Architects is very desirous should be enacted, and we agree with them in so far as to think the general aim of the measure laudable. The length and verbosity of the proposed act is explicable from the fact that it proposes to enlarge the already great powers of acting under the right of eminent domain already conferred on Commonwealth and municipalities by the State constitution. The bill has an æsthetic and an economic purpose and on both grounds peculiarly interests architects. Roughly speaking, the object of the measure is to bring about the obliteration, or rather to prevent henceforward the creation, of those unsightly gores and remnants of real estate that are to be seen on all sides in every city where land has been taken by the public authorities for park, highway or other public improvements — scars which stand as eyesores, with their ragged brick or plaster work and tattered streamers of wall-paper, often for years, till some one is found willing to put up a five-foot house or an office-building tapering from, say, seven feet at one end to nothing at the other. The bill provides that when, owing to its "takings," the State or a municipality finds that an owner has left of his estate one of these unusable remnants — on which, of course, taxes must be paid although the possibility of deriving income from it is more than remote — it may of its own motion, or on his petition, take also this remnant at an appraised valuation, although it is not needed for the improvement which gave it being. This would give equitable relief to the owner and put the actual loss, if any, where it belongs, — that is, upon the public for whose benefit the improvement was carried out. But it is also provided that any ten taxpayers may protest against the acquisition of these remnants at the public cost, and, as there are always plenty of "watch-dogs of the treasury" in every community, we fancy there will be many such protests, and hence the courts, which must adjudicate such matters, are likely to have such cases constantly on their calendar.

THE bill next provides that the authorities, having taken the remnant they have no use for and so having relieved the original owner, may next relieve themselves by a re-sale, and it is obligatory on them to offer it to the owner of such adjacent estate as it would now most naturally and profitably belong to. If the adjacent owner is willing to buy and, further, if he is also willing to improve the remnant, the object of the bill in its fullest degree will have been attained. But there is nothing in the bill that would compel the adjacent owner to improve the remnant at once, or finally, and so an unsightly scar might still be perpetuated. The final clause of the bill is, if we understand it, strange and even iniquitous. It provides that if the adjacent owner does not care to buy the remnant or cannot afford to buy it, the authorities may, if any of his estate comes within fifty feet of the improvements which are the original cause of the trouble, "take" the whole or any part of his estate, at an appraisal, and by adding it to the remnant have enough land to dispose of to a new purchaser. This would be to exercise the right of eminent domain in its most autocratic and repulsive form. The chances are that the recalcitrant or poverty-stricken "owner of property adjoining" might be one whose very being was rooted in the ground where he and his forebears had always lived, and that rather than be evicted he would manage to raise just enough money to buy the undesired and obnoxious remnant but not enough to improve it, the result being that the unsightly scar would be more certain than ever to endure, while an innocent third party would be forced to pay a tax on property he neither wished nor could use. As we close our forms we learn that the House has passed the bill, but after striking out the "final clause" on which we have commented.

THE War Department has recently signified that it, as the custodian of the country's navigable streams, is willing that the damming and canalization of the Charles River between Boston and Cambridge shall be carried out, and this very interesting undertaking will now be put into final shape for contract and execution. We will take the opportunity to renew the suggestion we made a year or so ago: that land on the north side of Beacon Street, between that thoroughfare, Chestnut Street and the proposed basin, be added to the park system — incidentally affording, on a portion of the land, a good site for a new city-hall — and by thus opening to general public view what is to be one of the city's most attractive features, deprive it of the air of a water-park maintained for the exclusive benefit of the dwellers in the houses on Beacon and Brimmer Streets. The State Legislature, in 1898, authorized the Park Commission to build the dam, if investigation should satisfy the municipal, State and Federal authorities that the impounding of the waters would not work mischief to the inner and outer harbors, and the intervening time has been needed to make the investigations thorough, to work out the best possible solution of the engineering problems involved and to gain the consent of the Federal authorities. When to the millions already spent by the Park Commissioners about the proposed basin, and by Boston and Cambridge in building the great West Boston Bridge, is added the three or four millions that the great dam, causeway and lock are to cost, we believe citizens will feel that too much money has been spent to make it proper to treat the product in a hole-and-corner way for the apparent benefit of a few, and will decide that the basin should be brought into connection with the city's central park system, in some such way as we suggest.

ANOTHER suggestion that we had the pleasure of making some years ago has been revived or, rather, has been essentially duplicated by a correspondent to whose communication the New York *Evening Post* is willing to devote a couple of columns of its space. This correspondent, who signs himself "Terra Firma," has also conceived that, as an engineering problem, it is quite possible to unite into a single island — "deinsulate" as he expresses it — Long Island and Manhattan Island by throwing dams across the East River and converting the space between the dams into made-land, upon which streets could be laid out and buildings erected. The gentleman has brought his suggestion to the attention of Governor Odell, who referred him to the Rapid Transit Commission — just why, it is not easy to see, for that body, very naturally, reported that the matter lay outside of its jurisdiction. We are very much pleased to find that the idea is likely to be revived from time to time by one person or another and so kept before the public mind, as the undertaking, although a gigantic one, we believe to be entirely feasible and that, great as its cost would be, the return in the way of betterments to the joint community would pay the cost over and over again. "Terra Firma's" suggestion, however, does not take, as it seems to us, the best form. He proposes to run one dam from the Battery to Governor's Island and thence to the Brooklyn shore; while the second dam he runs from East Seventeenth

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Street to North Thirteenth Street in Williamsburgh. This seems to us to be the wrong end to start at, but "Terra Firma" seems to be influenced by the thought that it is needful to unite New York and Brooklyn, whereas the real object should be to unite Manhattan and Long Island, so that the present crowded population may spread easily and naturally into an essentially limitless city. By running the first dam where he puts his second one and another across Blackwell's Island, the engineering difficulties would be less, while the harm to the city's water-borne commerce would be as little as possible. Moreover, it would still leave the Brooklyn Navy Yard open to use, and that would be a very important matter when the Federal Government should be asked to act finally on a definite scheme. With the Nile dam as a sample of what can be done in an engineering way, and the proposed new dam across the Thames at Gravesend to show how easy it is to change the face of things that always have been, we feel that the suggestion of closing up the East River is one that deserves careful consideration, and we believe that, sooner or later, ferries, bridges and tunnels between the two islands will no longer exist.

THE Massachusetts Courts continue to give indication that they do not mean that limitations and restrictions attached by deed to real estate shall be a permanent bar to using the realty as freely as unrestricted land in its vicinity, if neither public nor private present interests require the observance of the restriction. The latest case of the nature to be decided by the full bench of the Supreme Court is one in which the American Unitarian Association is interested. The Association's building, which was erected some dozen years ago, conformed with the restrictions of the deed imposed by the Bowdoin estate from which it bought the site, the consequence being that its front wall sets back twenty feet from the curb-line. This building replaced two of a row of six houses, all affected by the same restriction. Later the other four houses gave way to the Hotel Bellevue and a friendly suit was brought to decide whether the restriction of the original deed must still be observed as binding. The Supreme Court holds that the limitations imposed by deed in 1843 were for the equitable and mutual benefit of the six houses then built, but that as none of these six houses still exists, and as the buildings which replace them are not of the dwelling-house class, there is no longer any good reason for the continuance of the restriction and hence it need no longer be observed. The consequence of this decision is that the front walls of these two buildings can be, if their owners desire, rebuilt ten feet nearer the curb-line, and, as the suit would hardly have been argued unless one or both of the owners wished to rebuild, Bostonians must be prepared to see the already too narrow effect of Beacon Street at that point made still more cañon-like.

ON the other hand the Commonwealth gives evidence that there are real-estate restrictions that it means shall be observed as fully as the height-limit law affecting Copley Square. Governor Bates has just vetoed the measure, to which we referred a short time since, granting to the Young Men's Christian Association the right to disregard the restriction imposed by the State upon the site of its building on Boylston Street. The veto message not only points out the injustice done to owners of adjoining property, but satisfactorily makes clear the unwisdom of allowing light and air and aspect to be encroached upon, when it is so absolutely certain that, presently, what is now sought to be done must be undone for the sake of recovering for the public that which had been lost. The Governor points out that although the State recently granted to the Massachusetts Institute of Technology the right to dispose of the land it occupies under a State grant, it was insisted that the present building-line on that side of Boylston Street should be maintained in any deed given by the Institute.

WE do not know whether the architect of the State-house of Kansas is to be congratulated or commiserated because of a rather singular happening. It seems that the regents of the State University wished to build a law building, which was to cost fifty thousand dollars, and wisely decided to employ an architect; but when they found he would charge a five per cent commission they thought it would be well to enquire whether they had authority to pay so much as that. On asking the question, they were told that this work must be done by the State Architect, a functionary they had never heard of, one, moreover, who did not actually exist, although the last legislature attempted to create such an office, but the measure failed to pass. Although these western Solons did not succeed in creating the office, they did, somehow, manage to make an appropriation for the salary of the expected incumbent, and they were equally successful in forgetting to provide a salary for the architect to the State-house. The auditor's office was equal to the emergency, however, and agreed to give the salary intended for State Architect to the actual architect of the State-house, but stipulated that he must do not only his proper work on that building but, in return for the salary not intended for him, must do any State work brought to him. He is probably happy in being able to draw some sort of pay on any excuse whatever, but unhappy at having to do extra work that he never expected would be imposed upon him.

A CASE not altogether unlike that which caused Mr. H. R. Towne to bring suit against the Directors of the Pennsylvania Academy of Fine-Arts last year has just come to light in New York and, like the first, will tend to remind those who manage our public museums that they are no more at liberty to disregard the terms of a contract than the humblest of private individuals. Shown at the Pan-American Exhibition was a bronze group of eight or ten figures, of heroic size, which attracted attention and secured a prize, just as it already had won a grand prix at the Exposition of 1900 in Paris. The group was the "Saturnalia" of Signor Ernesto Biondi, a Roman sculptor of some repute. It is alleged that the Trustees of the Metropolitan Museum of Fine-Arts, hearing that the sculptor was thinking of allowing the group to be exhibited by a private showman through our principal cities before it should return to Italy, notified the sculptor that, if he were willing, they would be glad to exhibit the group in their galleries for the period of a year, and that they thought this method of exhibition would comport better with his dignity as an artist and be quite as profitable in the way of a gain in artistic repute. Upon this representation, a contract to such effect was perfected between the parties, and it is for breach of contract that the sculptor is now thinking of suing the Museum, since he has but recently discovered that the "Saturnalia" is not on exhibition, as he supposed it was. What makes the author particularly indignant is the intimation he has received that the group is not morally decent enough to place before the innocent eyes and minds of New Yorkers who have not yet been educated beyond the stage of the "Bacchante" of Macmonnies. The sculptor's description of the group seems, however, to show that it might be seen by even the most modest "young person," without causing a blush.

THE news that Rio de Janeiro has abolished its old-fashioned quarantine regulations brings back to mind that bright March morning, some thirty years ago, when we were startled by the friendly hail: "Look out for Yellow Jack!" from the English skipper of the tug-boat that took our ship in tow at the entrance to the glorious Bay of Rio de Janeiro up to the quarantine-ground. It was far from a needless warning, as we found when, a day or two later, we were allowed to move up to an anchorage-ground nearer the city and saw there before us a line of vessels, three abreast and about half a mile long, moored stem and stern as close as they could lie, each having on board only a Government keeper, waiting there till their owners could provide new crews and officers to replace those swept away, to a man, by Yellow Jack. It had been a very sickly season, as can be guessed by the fact that thirty-six English sea-captains had succumbed to the fever, and of course officers had better chances for their lives than did their crews. The cause of this change in the quarantine regulations is due to the head of the new Board of Health, Dr. Cruz, who secured an appropriation of a million and a quarter of dollars for a war on mosquitoes, which was so successfully waged that there were only nine cases of fever last year as compared with two hundred and seventy-five in the preceding year. Now, while we have every respect for, and belief in, the mosquito theory of fever causation, we cannot but wonder how it happened that, during the voyage we speak of, we escaped the fever, since for two weeks the ship lay alongside the new sea-wall the landward side of which had not yet been filled in, but was diversified with pools of stagnant and malodorous water and heaps of rotting vegetation. The consequence was that the vessel was infested with mosquitoes of extraordinary size and activity and, supposably, we must have been infected a thousand times by the culex anopheles. If we had then known of the modern theory, the subtile workings of the imagination would probably have made fatal the bite of even a harmless mosquito.

ART AND ENGINEERING.[1]

IT is unfortunate that the progress of the arts and sciences cannot be in a uniformly forward movement. The world of the engineer is rapidly progressive. The world of the architect, excepting for a few slight tremors or weak pulsations, has been dead since the sixteenth century. The art of the architect rests solely upon the traditions of the past. The science of the engineer has no tradition of yesterday which may not be cast into disrepute to-morrow. We have music than which the world knows no greater which is modern. We have a literature of to-day. We have great paintings not yet dry on the easel. Sculpture is modern, but the last new great movement in architecture was in the sixteenth century. The architect and the engineer stand back to back. The architect has the ages for his vista; he sees the fifth century before Christ and the monuments of later epochs, but his vision is blinded and he sees no more after the sixteenth century. The engineer has his face turned the other way. His inspiration is the future. The past does not cloud his brain. May not the architect turn about face and move abreast with the engineer and live the life of his brother artists of the twentieth century rather than that of the earlier centuries which are in no way related to our life and time? The decorative and other artistic movements were never more plainly spread before us than now and never were there greater draughtsmen than now. Nevertheless, the art of the architect has never been more firmly rooted in tradition than during these days.

The modern movement in engineering has been along the line of rational economy. The Egyptian and Grecian structures of early centuries did not take economy into account. Their work was the erection of forms with respect to appearance alone. The definite factor of safety was a quality unknown to the builders of these centuries. The Grecian builder did the artistic thing. He made a column the proper size and form to be beautiful and was not embarrassed by mathematics or the materialistic spirit. The same condition existed with respect to the Roman construction though not to the same extent. The Byzantine work came much nearer being good engineering than anything which preceded it. Columns and arches were used more nearly in an engineering spirit. But late in the tenth century and during the eleventh and twelfth there was another period when form was again the first consideration and the engineer sat in the background. Walls were built heavy enough and thick enough to carry a load throughout their entire length when, in reality, the load was carried only on special points in that length. Columns were constructed with no serious regard for the economical disposition of material. The art element was dominant.

It is probable that during the thirteenth century the science of the engineer and the art of the architect were more nearly abreast than they have ever been since. Certainly the art of the builder was never so exalted as during the period. Certainly the science of the engineer and the art of the builder never joined hands more sincerely. Never in history have emotion and science expressed themselves with greater enthusiasm. There was a great and impelling reason for the sympathetic and hearty relation between the architect and the engineer. They were a people united in a declaration of independence. They were expressing their joy in the individual freedom of man which came as an illumination, as a new life, after the Dark Ages. They were the founders of a new democracy. It is certain that man never expressed himself in higher terms of exaltation than in the structures of that great period of the world's awakening. Through this motive the people were all united. Thus the engineer and the artist worked to a common purpose, and the work was great because the thought was great, because the struggle was great and the motive high. The dominant thought of our own time is materialistic, and hence the problem of uniting the interest of the engineer and the architect or artist is more complicated. The great work which had its origin in the thirteenth century only lasted during the continuance of the emotional impulse which created it. Within a hundred years it was on the wane, and in the fourteenth century had lost all the force of its initiative. During the fifteenth century in Italy and the sixteenth in France, the Renaissance developed — a period of the revival of learning, not the revival of soul; a period with a spirit of research, not one of creation, a spirit of imitation, far removed from that of invention; a spirit of resuscitation, not one of production.

The engineering work of the thirteenth century was controlled by the same spirit of economy in the disposition of material that we seek to attain in our modern utilitarian structures. I have in mind particularly, though not solely and distinctively, the ecclesiastical structures. These, by the way, were not constructed merely for religious uses. They were the great meeting-places for the people and utilitarian as well as spiritual in their functions. As used for religious ceremonies nothing could be more practical. The material part of the construction was arranged and proportioned by great engineers. The disposition of material was controlled by economic considerations and the whole decorated profusely, elaborately, beautifully in the spirit of the times which created it. The engineer, the artist and the craftsman operated from a common high impulse. Here was a condition contributing more successfully and more wonderfully to a union of art and engineering than the world has ever known before or since.

[1] A paper by Mr. Louis H. Gibson, read before the Indianapolis Technical Club, Feb. 13, 1904.

I wish to tarry a few moments longer with the thirteenth-century cathedral by reading the following quotation: "One great fact explaining the magnificence of these structures is that they were the work of a united community. The cathedral in any city belonged to every inhabitant thereof. Not only was there a most fervent religious spirit at the time of their erection but there was but one form of faith. It was not necessary to build a dozen churches to accommodate a dozen different creeds. The cathedral was built large enough for the church-going population of a city or town and the entire community contributed to its erection. Thus, the cathedral of the thirteenth century represented religious faith, political liberty, and the joy of artistic creation, a tremendous message nobly and fittingly and permanently expressed in enduring material."

While it is true that the artist and the engineer do not often get very close together and while this fact is lamentable, it is also true that they are more intimately allied in certain parts of the world than in others and for varying reasons. In France the engineer and the art builder come closer together than with us, for the reason that their architecture along its art side is much more highly developed and on the engineering side much less so. Thus their coming together is through both positive and negative channels. The French engineer has all the mediums and all of the combinations of structural engineering at hand that we know. His craftsmanship is certainly better than ours, but his planning, his mental processes, are much less free, much less inventive and much less ambitious than ours. The only fact contradictory to this proposition occurs in the construction of the Eiffel Tower. Here is one of the world's greatest and most beautiful monuments, an isolated expression in the history of modern civilization. It is essentially an engineering proposition, one involving no great difficulty, yet massive, courageous and successful. This is probably true because form followed function.

From the mere standpoint of craftsmanship the Frenchman is far and away the best builder known to the modern world. No work is done so thoroughly, none so carefully or painstakingly and none is done with the spirit of pride that we find in France. I speak of craftsmanship in its simple and ordinary application as related to fabrication and not as related to planning or engineering. The Frenchman is a much better builder than the American. He is greatly superior as an artist, but he is by no means the equal of the present generation of American engineers. The American has a faculty of uniting his nerve and his arithmetic that is not known to any other nation. The American engineer has his courage and his mathematics within the same skull. Is he not hazardous at times? we may ask. We answer that question by asking another. Is he not successful? We have recently taken up steel-concrete construction. Sure, we are tardy enough about it. Some of the French and German patents embodying general principles and certain details had long since expired before we took it up, but when we did we executed work more complicated, more courageous and more successful than has been accomplished through this medium in any of the European countries. A great Viennese review published a description of the Ingals building in Cincinnati, using the original text and language employed in the *Engineering News*. In commenting thereon it said: "The people of Germany and Austria have been pioneers in steel-concrete construction, but it has remained for the Americans to show us how to use it. They have shown their courage through the medium of their intelligence."

We all know that there were arc-lights on the Avenue de l'Opéra in Paris fully ten years before the arc-light was developed in this country, but we also know that it was so expensive to maintain (ten dollars per light for a few hours each night) that it was cut out and discarded several years before Brush made his light. To-day one will find many beautifully installed lighting-plants, not only in Paris but all over the world, employing American machinery. It is the American engineer who does things.

The cathedral was the characteristic, symbolic expression of the thirteenth century. The tall building, as we know it, is the symbolic expression characteristic of the nineteenth and twentieth centuries. In both examples form follows function. In that sense both are Gothic. It matters not if the tall office-building is clothed with the tattered garments of the sixteenth or the seventeenth century or from fragments and remains of the fifth century. The tall office-building, with its intelligent frame-work of steel, no matter how it may be masked, must be Gothic in spirit, if not in garment.

How can we expect to adequately characterize the great industrial progress of our time and the great engineering skill which has made this progress possible by the form, color and detail of a classic period? How may we expect to symbolize our new life with cold, classic detail? Are we not as much entitled to a language for our architecture as for our painting, sculpture, music and literature? The language of these arts is the language of our time. Not so the language of the art of architecture. Most of what we would call architecture is mere building. The architects are a trained body of conventionalists whose strongest impulse is to resist artistic progress. Inactivity deadens and dwarfs the human mind. These many years of conventional life have had a deadening and depressing effect upon the architectural mind. The architect's ornament, as well as his motives, have been a mere series of quotations, a series of interlineations — scraps and selections from here, there and everywhere, with and without quotation marks, with and without credit, though, for the most part, the architect has never been ashamed to say: "Here

is a quotation from the Erechtheum, or here another from the Colosseum, or yet another from the Mosque of St. Sophia," and so on down to the period of Francis I. Every effort to create, every effort to develop even new ornament, every effort to think in terms of our own time, develops strength, activity and capacity.

When I decry the lack of vitality, the lack of spirit in the architecture of to-day and say that it has no to-morrow, that it has no growth, that its spirit is old, there are those who will say: How about l'art Nouveau? — the new art? What may it not do for architecture? L'Art Nouveau, as a new movement, has spread through France, Germany, Belgium, has invaded Italy and a manifestation of it is to be found in England. As we have not established a quarantine the disease has been felt by us as an infection only. We have developed nothing sporadic. It is, I believe, no more serious than an architectural irritant. L'Art Nouveau is impossible of success with us. Primarily, because it is irrational. It is in no way related to the spirit or substance of our economies. It is entirely opposed to the spirit of modern engineering, and be it known that I believe the basic thought, the strong chord which will hold and control modern architecture will be the logical functional operations of the engineering mind. It is economic, it is materialistic. L'Art Nouveau is none of these. L'Art Nouveau is undisciplined and riotous.

However irritating may be the general form and lack of functional interest which we find in the new architecture there is yet hope in it. Signs of degeneration and decay in the world's architecture have always been first shown in its ornament. The integrity of large forms and general composition is preserved after ornament has shown signs of definite and chronic decay. Signs of life and hopes of a future are shown in the new and exceedingly beautiful ornament of this new art. The general structural and functional forms are bad enough, but the ornament and the color are often so superb that for a time one forgets the ugliness of the mass. Taken by itself, the ornament, pure and simple, which we find in the Art Nouveau movement is rarely and wonderfully beautiful.

Great architecture will come out of good engineering, good composition and beautiful ornament.

Without having my mind brought to the subject by recent events I wish to say, that for a long time I have had it in mind that a new, rational and functional art would be developed by the Japanese. While it is true, that they have been influenced very largely in their art by those great artists, the Chinese, in the use of form and color, they are very highly developed not only as individual artists but as craftsmen. They are yet much more highly developed along these lines than our race. On the other hand, the Jap is a hustler and we like him because he hustles in our way. He comes to our schools, reads our books, studies as we study, is in sympathy with our institutions, wears our clothes, combs his hair as we comb ours, and, most of all, thinks in our way. He does all this, returns home and preserves all of his racial characteristics. Withal he is an artist. May not this race, temperamentally so artistic and yet so expansive in their mental outlook, who are students all over the modern world, be able to unite modern engineering with new spirit? May they not be able to symbolize modern acquirement and material progress with modern engineering and the new art? Hitherto, our race has not been able to do this. Our engineering is modern. We make the pace, but we clothe it in the ancient garment.

I would regard an opportunity as lost, if I did not say here and now, in the strongest terms at my command, that there is no excuse for an ugly structure of any kind, be it a building, a bridge, a machine or any other object in which material and labor are brought together. A bridge nearly always is beautiful. A locomotive is always beautiful, a machine tool is never ugly. This is true largely because form follows function. No one ever thinks of adding material or labor (which is merely another way of expressing expense,) to any of the objects specifically mentioned for the sake of making them expressively beautiful. On the other hand, we never find ugliness among any of them. It is in building and other monumental work that ugliness, clumsiness or lack of interest is so often dominant. In the building or the monument there is no excuse for ugliness. Good proportion costs no more than bad proportion. Harmony of color costs no more than inharmonious color. There is no more expense of time or material in a well-formed moulding than in an ugly one. There is no more expense attached to grace than to clumsiness. Beauty is a condition of mind, a condition of heart, and not one of pocket-book. Clumsiness and crudeness come out of the crude and clumsy mind. It takes no more time or material and no more power to cast a beautiful piece of terra-cotta or brick or metal than one which is clumsy, crude and ugly. It takes no more time, power, material or skill to stick a beautiful moulding through a woodworking machine than an ugly one. This general principle is true of every detail of every structure. Everything made by man might be beautiful without material consideration. The beautiful thing costs no more than the ugly thing. It is a question of mind and heart.

The mechanical engineer has a relation to art that is not appreciated by himself or understood by the public at large.

Some of us decry the use of machinery in the production of things artistic. It is affirmed by some that the artistic thought which is in the mind can only be expressed through the intervention of the tool which is in the hand. Certain grades of sculptural work and certain kinds of carving will always have to be done by hand. Yet it is true that many decorative motives can be produced and reproduced as well through the agency of the machine as through the agency of the hand. The influential factor is the impulse of the artistic mind which conceived the form which the machine produces. The machine is the great art democrat. It produces and reproduces art objects for the masses. It gives us color, printing, weaving, needlework, and many other forms of utilitarian and decorative objects. A form is artistic because it is beautiful and expressive and never because of its cost. We sometimes lose interest in a beautiful form because it is frequently reproduced. The Greek honeysuckle ornament has been used for twenty-five hundred years and its repetition has had no effect upon its beauty or its appreciation by the public. Its reproduction has been through the direct agency of the human hand, a hand often as mechanical and soulless as any device of the machine shop. If there were a thousand casts of Macmonnies's "Bacchante" each would be reproduced by mechanical means. Casting is essentially a mechanical process. Each one of the thousand would be as beautiful as one which exists. It is not necessary that some one's tired back should bend over the loom to produce the beautiful fabric. There should be more joy, more freedom in the wearing of the machine-made garment than one produced by an almost soulless human machine. The "Song of the Shirt" was written before the days of electricity and the sewing-machine. The machine will produce art forms conceived and planned by an artist, and it will produce beautiful objects at the same cost as ugly ones. Herein is the responsibility.

To produce art for everybody, the artist and the scientist, the artist and the engineer must sympathetically join hands. To the engineer belongs function and execution. To the artist belongs beautiful clothing and expression. Art, as engineers and architects know it, must be the decoration of functional form.

ARTIFICIAL STONE.[1]

THE question which modern builders have had to face is, therefore, one turning more on the chemical composition of stones than on any other point; and, as reliable stone for town buildings has become more and more scarce and expensive, attention has, for over half a century, been turned to the study of the chemical composition of natural stone and the manufacture of a good artificial substitute. It also being evident, from centuries of observation, that silicate of lime had proved the best of all known cementing substances, special attempts have been, from 1832 till now, made to manufacture a silicate of lime stone. . . .

The enquiries and experiments made, have, I may here remark in passing, been not only in the direction of artificial stone, but also in that of washes for natural stone. Very few of these latter are, however, very effective and durable, or cheap. The principal one is silicate of soda; and lately Professor Church's from six to twelve applications of barium hydrate — first in the form of spray, and then, after a few days, with a brush. This remedy appears effectual, but it must cost a great deal in labor and in scaffolding.

It not being, however, my intention to go deeply into this collateral subject, I will pass on to an account of the efforts made to provide good and cheap artificial stones.

Ranger's patents, dating as far back as 1832, mark the first step in the manufacture of artificial stone. His method was to mix sand or silicious material with caustic lime, slaking with hot water and ramming the plastic mass into mould boxes. Later, he used the aggregate hot, securing better combination by that means. There are, I understand, several large buildings now existing which were constructed with stone manufactured under Ranger's patents. His theory, and that of many who have followed him, was that the lime would combine chemically with the silica and form silicate of lime. Chemical authorities have, however, always been antagonistic to this view, and it is generally conceded now that caustic lime and sand merely mixed together with hot water, or even subjected to immersion in hot water for considerable time, do not combine chemically.

The Frear artificial stone, used for a time in the United States, was a mixture of hydraulic lime and sand, together with a certain portion of gum shellac. This latter ingredient was added for the purpose of hardening the block. Hydraulic pressure of fifteen to twenty-five tons was applied to the wet mixture when it had been deposited in the moulds. In what manner the pressure was utilized, and what was the exact intensity per square foot, I have not been able to discover. The smaller blocks were ready for use in from three to four weeks. In this case, the hydraulic lime would contain a certain percentage of durable silicates, which would doubtless give to the stone considerable strength. The addition of the gum shellac, which accelerated the induration in the first instance, was probably the cause of the deterioration which ensued afterwards; at any rate, the stone soon became decomposed, some authorities attributing it to the shellac, and some surmising that imperfect lime was the cause. Reid, already quoted, is very dubious as to the value of gum shellac, used with any matrix. Two other American processes may here be mentioned — Forster's and Van Deburgh's. In both instances, moist sand was used, but Forster used slaked, and Van Deburgh unslaked lime as the matrix. The sand was employed moist, the inventors being under the impression that every particle of moist sand would become evenly coated with lime paste, and no void spaces left. As a matter of fact, lime does not mix well with

[1] Extracts from a paper by Mr. L. P. Ford, read before the Society of Arts and published in the *Journal* of that Society.

sand, under such circumstances, the moisture tends to make the lime "ball," and adhere in small lumps. To secure a perfect mixture, both sand and lime must be very dry. Van Deburgh further used steam to assist the slaking, and also agitated the mass for some time. Afterwards the blocks were subjected to percussive pressure. Van Deburgh describes, also, various other methods of making stone. He mentions the use, as a matrix, of an alkaline silicate, and also proposes keeping the mixture in vacuo, during the formative period, to prevent the creation of carbonate of lime by combination between the carbonic acid of the air and the caustic lime; which action (he supposed) would interfere with the production of silicate of lime. Ordinary "water glass," silicate of soda or potash mixed with a suitable quantity of lime, should, under suitable conditions, form a silicate of lime, the soda or potash being rejected. The difficulty has always been to get rid of the rejected alkali, because so long as it remains in the stone, moisture will be attracted and induration retarded — 60 or 70 days are required for the induration of stones made with alkaline silicates; and, unless the blocks have been carefully and frequently washed with clean water during that period, they will still effloresce, whenever they come in contact with moisture. It may be concluded that the difficulties and expense attending the manipulation of such mixtures were too great, as, apparently, none of those alternative processes were ever carried out on a practical scale.

A similar process was that of M. Sorel, a French chemist. The matrix in this case was calcined magnesian limestone, which was used in a manner substantially similar to that which Ranger adopted with ordinary lime. There is, however, great difficulty in calcining this class of stone, because a much higher temperature is required (1,700 degrees Fahr.) to drive off the carbonic acid of the carbonate of lime (which usually forms from 15 to 65 per cent of the bulk), than is necessary in the case of the carbonate of magnesia (700 degrees Fahr.). Consequently, if the magnesia is properly calcined, the carbonate of lime has to remain unaltered, and forms an inert proportion of the whole and a source of unreliability in the ultimate product. This difficulty alone would probably account for the permanent want of success which attended M. Sorel's efforts. Apart from this, however, it has been discovered that compounds of magnesium are not always to be relied on to withstand the action of either foul air or moist atmospheres or immersion in sea waters. All these inventors relied, to a great extent, in their practical operations, on the theory that silicate of lime or magnesia could be formed by merely mixing the materials together and treating them in the various ways described. The failure of their products discredited this theory for a time, and a number of so-called chemical (as contrasted with the above rather mechanical) processes were subsequently developed and attained a fair measure of success.

We now come to one of the ablest investigators of the subject, Frederick Ransome, whose earliest patent is dated 1855, and his latest 1875. Ransome's stone and slight modifications of it have been made until quite recently, and there are buildings in London and the country which testify to its enduring qualities. Ransome's method was to create a silicate of lime in a mass of sand or pulverized chalk, by first mixing the material with a soluble silicate, usually silicate of potash or soda, and then immersing the mass repeatedly in chloride of calcium or any other solution capable of decomposing the silicate. By this process silicate of lime is formed, and chloride of potassium or sodium is thrown off, giving rise for some time to an objectionable efflorescence, which must be washed off and will cease when the chemical interaction ends. Various improvements in this process have been patented, chiefly with the object of saving labor and securing better saturation of the blocks with the chloride solution. The blocks have been placed under vacuum and the solution introduced, either with or without pressure, and sometimes hot. Various forms of chambers have been devised in which to manipulate the mass economically, but apparently, although this product is excellent, these processes involved so much care in the preparation of materials that they failed commercially.

Sir H. Bessemer's and E. L. Ransome's patents in the United States of America describe the use of a vacuum-chamber to assist in drawing the cementing solution into the mass. And further modifications of the system known as silicating may be illustrated by a reference to another United States patent taken out by the same Mr. Ransome. In this case an attempt is made to avoid the expense involved in the direct use of the silicate of soda or potash as matrices, and also to improve the uniformity of the product. Silica, lime, chalk, hydraulic cement, and other lime substances, in a finely divided state, are saturated with a solution of caustic soda or potash, or of carbonate of soda or potash; the object being to create the silicates in the mass, instead of having to introduce them afterwards.

Rudolph Zuber, in his German patent, describes an apparatus designed to extract the air from the component parts of the stone before mixing. He points out the difficulty of otherwise obtaining an absolutely solid mixture. Water, he says, contains a certain amount of air, and to drive this off he boiled it. The presence of air in artificial stone before consolidation is most detrimental to its strength and durability. "Hair cracks" are formed, and moisture, laden with elements of corrosion is introduced into the body of the stone. In winter the moisture freezes and the block is split into fragments. These hair cracks also reduce the mechanical strength, by lessening the cohesion of the mass.

Up to about 1885 little advantage seems to have been taken of the property of caustic lime to expand considerably when slaked. Fat limes expand from 2 to 3½ times in bulk, and hydraulic limes from 1 to 2 times. Dr. Zernikow, in his German patent of 1885, describes the use of this property of lime, and he is really the pioneer of all the modern methods of making artificial stone. The lime and sand were mixed together dry and rammed into a strong mould box. They were then subjected to the action of steam or hot water for a considerable period. The first result of the contact with moisture was of course the slaking of the lime, and its efforts to expand being checked by the mould, they resulted in considerable consolidation of the mass. After the slaking was completed, the steam or hot water, it was claimed, slowly created silicate of lime in the block. A pressure of steam of only about three atmospheres or 45 pounds per square inch was used. The time occupied for the complete process was from four to seven days.

Owen, in 1894 and 1896, describes modifications of this procedure. He specified hydraulic lime, evidently because the fat limes were found unsuitable for a process which involves continuous immersion in water. Distilled water is also used to avoid the introduction of any air into the moulds during the slaking period. The pressure (60 pounds per square inch) is kept up by means of a pump, instead of by steam (as in Zernikow's patent), and through a coil. In the earlier specification a claim is made that the hydraulic pressure external to the mould box will counterbalance the expansive force of the lime within. Since, however, the moulds necessarily permit the water to enter for the purpose of slaking the lime, it is difficult to see how this can be the case. This process occupied about from 60 to 70 hours. Hydraulic lime, if of good quality, only expands to about twice its bulk when slaked. Consequently, the consolidation of the block will be less than in a case where a fat lime is used.

It was found that large blocks of artificial stone are liable to crack if dried and cooled too suddenly after manufacture, by the process just described. Drying and cooling devices were, therefore, protected by Bush in 1895, and by Owen, in the United States, in 1897. In another English specification in 1896, Professor Thompson describes a process in which steam only is used as an amalgamating agent. He claims the formation of silicate of lime by simply subjecting the mixture of sand and caustic lime to the action of steam at a pressure of three to five atmospheres, but chemical authorities have decided that silicate of lime is not formed under such circumstances, and the extended experiments made by me have demonstrated that steam alone will not properly hydrate lime, and that the product is weak and unreliable. Further, to obtain the maximum slaking effect, it is essential that the lime be hydrated as quickly as possible. The water and plastic processes do not secure this perfectly, and the steam process occupies hours. I find that if the slaking takes place slowly, there is a tendency to solidification on the surface of the blocks before the centres have become hydrated.

Christian Heinzerling, in the German patent of 1897, improves on the method of Zernikow and Owen. The dry mixture of sand and lime is placed in a mould, and then the air is exhausted previous to the operation of slaking. He also specifies the use of carbonic-acid gas as an auxiliary amalgamating agent — presumably to create carbonate of lime as a matrix. This gas is introduced after the slaking has been completed, and is immediately preceded by the creation of a second vacuum around the mass. If the block is as solid as it should be, there will be little use in attempting to exhaust air from it, and the carbonic-acid gas will only be able to attack the skin.

Here ends my review of previous efforts to make large blocks of stone, but before I pass to my own work in that direction, I must add something about artificial stone bricks, otherwise called sand-lime bricks, for, when the Germans failed to make large stones, they gradually came down to producing these bricks, which have now become a most extensive industry all over the Continent, whence it is spreading to America and other places, and it is being inquired about even here. The English are generally slow to take up new things, but when we do, I think we soon outstrip the others. At any rate, in this case I, as an Englishman, am pleased to say that, not only have I mastered the long unsolved stone problem, but, also, that my son has produced a far finer sand-lime or stone-brick than any I have yet seen. How this came about constitutes, as some one writes, the "Romance of the silicate-of-lime stone industry."

In 1894 I lent a sum of money on the silica mine in Wales, where my parent works now are; and, in 1897, I was asked to take the mine over in the settlement of my mortgage. I did so. Then, believing I had got a very valuable material, I looked about for some use for it; tried, through experts, making Dinas fire-bricks, and failed; and then, hearing of Owen, who was making a silicate-of-lime stone at Woking, I sent an engineer and my son to see into it, found it was just the thing, as we thought, that would utilize my silica and lime quarries, and at once started experimentally. Succeeding very well on a small scale, I consented to my engineer erecting a large factory; but, when it was up, not one single stone could be produced of any size without cracks all over it. Being disgusted, I dismissed the engineer, went to Owen's, and found he had shut up from the same cause. I also travelled on the Continent, and found there, too, the same results. I then saw that if I went on, and overcame the difficulties, I should have something really needed all the world over, and I thought a couple of thousand pounds more would easily cover the cost. But instead of spending only that amount, I went on and on for nearly four years and spent

altogether about £34,000. To do this I kept on realizing always at a loss, until I had to resort to mortgaging, and it was only when I was at the very end of my resources and did not know how to continue that I discovered the solution of the problem. After fully satisfying myself that I was right, I opened an exhibition here in London last year, and with some difficulty formed a syndicate, by the aid of which I have taken out patents in the principal countries of the world and followed up my discovery with great interest, for its reception all over the world has been most pleasing, and I trust now that I shall be able to depart this life some day leaving behind me an example of what can be done if one has a firm reliance on a loving and wise Creator, and does not mind enduring loss and hard work for the sake of serving one's fellow creatures.

The great value of the industry lies in the following points: —

1. The stone itself is a production of a true silicate-of-lime stone — the old Roman mortar which has stood so many centuries.
2. It is not a concrete made with Portland cement, and is absolutely homogeneous throughout, and can, therefore, be cut up and used like — nay, better than — natural stone, which has layers, vents, flaws, etc.
3. It is better than natural stone; because few natural building-stones now used will resist the acids in the atmosphere, and this stone does.
4. Silica sand exists on over three-fourths of the earth's surface, and is, therefore, obtainable near building-sites, and thus an immense saving will ensue in carriage alone.
5. There are immense tracts of land where no natural building-stone is obtainable; and, therefore, where this is the case, the chance of obtaining stone by my process is a fact of immense importance.
6. In addition, the stone may be produced at about 3*d.* per cubic foot, a price at which natural stone cannot be quarried.
7. The carving qualities of the stone are splendid.
8. The crushing strength is three times greater than Portland stone, or less if desired.

The undoubted value of the stone is already being proved by the hearty testimony of architects and builders throughout this country and abroad, and by the many orders which are coming in.

As is usual, and I may say essential, for great success, my discovery is of the simplest possible, so that any ordinary mechanic, with a fair amount of brains, can learn and carry out the process, which is, shortly, this: —

We use nothing else but ordinary silica sand (as most sands are) and common fat lime. The purer the sand, the purer and better the stone will be, and ordinarily we prefer not to have more than about 3 per cent of iron and 3 per cent of alumina and no other foreign matter. But I may say here that stone can be made by us out of almost any sand and quarry refuse, but it would not always be a pure silicate-of-lime stone. In some places that would not matter, but in large cities the purer the stone the longer it will endure.

The sand we grind and grade so as to get several grades, and the lime is reduced to a very fine powder. The two ingredients, in the proportion of about 92 per cent of sand to 8 per cent of lime, are mixed dry, and then run into a cylindrical mould, made in a special way, and this is the key to the process. The mould is closed, and placed in a boiler, from which the air is then exhausted, and into which water is immediately afterwards allowed to enter and cover the mould. The temperature is gradually raised to about 350 degrees Fahr., and kept up for eight hours, when the process is complete. The boiler is allowed to cool, then opened, and the mould removed. When cool enough the mould is relieved of its contents, which can at once be used. I call the process absurdly simple; and yet it has cost, if we reckon the thousands each attempting inventor has spent since 1832, here and abroad, a couple of hundred thousand pounds, I suppose. The process is a close imitation of nature's methods, for in the bowels of the earth we find silica sand, alkalies, and a high temperature, with an enormous superincumbent pressure.

In conclusion, I will repeat a favorite assertion of mine, already made, namely, that when civilization creates artificial conditions, simple natural things have to be replaced by artificial products.

DISCUSSION.

Mr. H. Bridgewater stated that he recently went over the author's factory, and saw stones weighing ten tons made. That was a very great advantage. The essential difference between the stone, as manufactured by the author, and under various German processes, was that Mr. Ford's were made in a cylindrically shaped vessel, and this was the key to the success obtained; the pressure exerted was not even unless the vessel was cylindrical. He had seen some chemical tests made, with the result that while the ordinary stones effervesced, the action of the acid on the author's stone was scarcely perceptible. Mechanical tests which had been made also proved its wonderful durability.

Mr. E. C. Thrupp said he had been instructed to make an independent investigation of the author's stone from an engineer's point-of-view. Having carefully gone into the question, he could state positively that the manufacture of the stone did not involve a very great capital outlay in relation to the output, and there was no doubt that the material could be turned out and sold at an excellent profit for considerably less than any other stone which was available on the market in London at the present time. The same remarks applied to its manufacture in Paris. He did not think the author did himself justice in the description of his process. The cylindrical mould was the essential point of the success of the stone, manufactured in large pieces as compared with the older processes. Every metallic mould was necessarily, to some extent, elastic, and when pressure was put upon it by the expansion of the material inside, some portion of it would give way if it was not cylindrical. The slackening off of the pressure in certain directions led to the failures of the square and other shaped moulds, but the cylindrical mould gave a uniform pressure in all directions, the elasticity of the metal exerted its pressure evenly all round, and, therefore, the tendency was to produce a uniform product. The Chairman mentioned the temperature and the pressure at which the material was produced. The temperature was 350 degrees Fahr., but they could not tell what the actual pressure was, because it depended on the actual steam pressure, or water pressure, contained in the vessel where the operation was carried out; and a pressure was obtained acting upon the material and the pressure in the boiler, plus the pressure due to the expansion of the material. He did not think the author had yet arrived at the precise value of the extra pressure due to the expansion of the material; that would be arrived at later on by careful measurements of the expansion of the metal and the sectional area of the metal, and calculating the exact pressure from the known elasticity of the metal. Chemists would then be able to draw their own conclusions as to whether a silicate of lime ought to be produced, and give some further information as to what pressure and temperature should be arrived at in order to get the best result. The author had to produce a material which could be worked; it was not his object to produce something so hard that it could not be cut. The present demand for stone was not so much for building pyramids and cathedrals as for commercial structures, and something must be produced which suited the majority of users.

Mr. Ford, in reply, illustrated by means of diagrams how the cracks and other defects due to the use of the square form of box had been overcome by the use of the cylindrical shape. Another difficulty was the temperature. None of the preceding makers had used more than 60 degrees. He first went up to 90 degrees, and, finding there was no improvement, he used higher temperatures, with distinct improvement, and by means of the increased temperature and the absolute evenness of pressure the desired result was obtained. There was an absolute combination of the silica with the lime. The Chairman had said he did not believe he obtained a conversion of all the lime and silica. He did not; if he did, such a hard stone would be produced that it could not be used. Analysis showed that out of 95 per cent of sand, 78 per cent was left; 15 per cent was converted into soluble silica and lime compound, whereas only 5 per cent had been put in, so that 3 per cent of the lime had been converted, and some of the silica. For all practical purposes they were combined sufficiently to make a matrix, so as to combine all the articles well together, with the result that an absolutely homogeneous mass had been obtained. When the experiments were first commenced, if a section of the stone was examined one could see where the silicate ended and the lime began; now one could not, they were actually fused together. His first licensee, Mr. Brand, of Perth, took a piece of stone made of his own sand off his own land, and gave it to a gentleman who had it frozen sixteen times. After each freezing he put it on the stove and made it red hot; and the stone is now on exhibition in Glasgow, as a monument of the durability, so far as freezing was concerned. In his journey through Germany, he visited Andorf, on the Kiel Canal, which was built entirely of badly-made bricks composed of local sand, and that city was a monument of how such material would stand the severe frosts prevalent in that part of the country. With regard to bricks, his son had, within the last three months, produced a strong and absolutely crystallized brick by a variation of the stone process; it cost next to nothing extra, and it would be of immense value. The full sized brick averaged 8 pounds in weight. The stone he had produced was practically 2½ times as hard as Portland stone, crushing at 690 pounds compared with 270 pounds for the very best averaged Portland stone. He did not claim exactly that the stone was a Roman mortar, but Dobson claimed that the strength of Roman mortar was due to the presence of silicate of lime; and if his stone, by analysis, was shown to be silicate of lime, he thought he had a good claim for saying that he had successfully approached to the Roman mortar. Terra-cotta was a durable article, but it was expensive and some people did not care for it. With regard to durability, his argument was that silica was indestructible; the only thing that would touch it was hydrofluoric acid; lime also was in universal use, and if these two could be chemically combined, the result must be better still. He had exposed in London, stones made in the original boxes in 1898, and they did not show the slightest signs of decay. Many experts had subjected the stone to strong acid atmospheres in their laboratories, without any result, whereas other stone had shown signs of decay. Its porosity was as low as that of any natural stone, being about 8 per cent compared with about 17 per cent for Portland stone. It was less porous than most sandstones, and being absolutely homogeneous right through, there were no flaws and cracks in which vegetation or acids from the atmosphere could be deposited.

SIMPLE FIRE PRECAUTIONS.

MR. CHRISTOPHER CLARKE, a member of the Massachusetts State Firemen's Association, recently addressed the following communication to the Boston *Herald*: —

"In a late article in your paper suggestions made in Prof. C. L. Norton's lecture as to the use of incombustible roofs and fireproof constructions are all in the line of the early extinguishment of fires and prevention of conflagrations. There are, however, several other up-to-date and positive protections, that must be used, to successfully prevent a conflagration, and can be adopted in the construction of new, and reconstruction or alteration of dangerous old buildings.

"What are these methods? I answer: —

"*First.*—That after the safe area has been decided upon, every division, or subdivision of a building, shall be separated from all others by fireproof division walls and fire-stops, so that the fire can certainly be confined by the sprinklers and all other fire protections, to that portion of the building in which the fire originates.

"*Second.* — That every elevator, without exception, shall be put into a fireproof well (brick construction preferred) which shall reach above the roof where safe ventilation can be had, and no smoke or fire reach the space under the roof, all the doors entering the same to be self-closing, and fireproof at entrance.

"*Third.* — That there should be fire-stop doors or vestibules at the landing of each story above the cellar, to the top of the building, so that no flames or smoke could, as now is the case, instantly reach the top of the building and cut off escape of the inmates, which is the main cause of the loss of life in many fires.

"*Fourth.* — Fireproof outside shutters of the underwriters' pattern, made of wood covered with metal, which are always reliable, or windows of fireproof, or wired glass with iron frames and sash, should be used to prevent the fire from entering from adjoining buildings, or spreading from one portion of a building to another.

"*Fifth.* — Metal roofs should always be provided, as slate roofs, though a fair protection from fire, on the outside, are dangerous for firemen, and easily destroyed when fire reaches them on the under side.

"*Sixth.* — There should be at least one tower or compartment stairway separated from all other stairways and connecting with each story, running to the ground, so that there will be a certain means of escape, and furnish an instant and safe means for the firemen to reach every story, and furnish a reliable protection for stand-pipes and sprinklers, which can thus be protected from freezing.

"*Seventh.* One of the cheapest and most effective means of stopping the upward spread of flames and smoke, and one which should be used in all dwelling-houses and all other buildings where ordinary lath and plaster partitions are to be used, is to put into the space between the mop or base boards, at each floor, a few inches of some incombustible material, such as ordinary plaster, cement, terra-cotta, or bricks, as this fire-stop prevents the fire and smoke from instantly going up to the top of the building, inside the partitions and where no amount of water can reach the fire from hose or sprinklers. Probably ninety-nine out of a hundred buildings in this country cannot be saved from destruction, when once on fire, for the want of this simple protection. All new laws or ordinances should enforce the use of this fire-stop where ordinary lath-and-plaster partitions are to be used. The use of the above-named protections will save many million dollars yearly, and the expense of adopting them will reduce the cost of insurance enough to pay for the additional outlay in either new or old buildings."

ILLUSTRATIONS

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

SCHOOL OF THE CHURCH OF THE HOLY NAME, NEW YORK, N. Y. MR. ELLIOTT LYNCH, ARCHITECT, NEW YORK, N. Y.

ELECTRIC POWER-STATION OF THE METROPOLITAN RAILROAD, PARIS, FRANCE. MR. P. FRIÉSÉ, ARCHITECT.

OFFICE-BUILDING OF THE SAME.

THIS and the preceding plate are copied from *l'Architecture*.

WESLEYAN SCHOOL CHURCH, FELL-BIRCH, NORWICH, LANCASHIRE, ENG.; WESLEYAN CHURCH, BOLTON, ENG. MESSRS. POTTS SON & HENNINGS, ARCHITECTS.

THESE subjects are copied from *Building News*.

HOUSE ON THE DIANASEE IN THE GRUNEWALD, GERMANY. HERREN SOLF & WICHARD, ARCHITECTS.

THIS plate is copied from *Zeitschrift für Bauwesen*.

Additional Illustrations in the International Edition.

PAVILION AND EAST WING OF TERRACE OF STATES: LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, MO. MR. E. L. MASQUERAY, ARCHITECT.

WEST WING OF TERRACE OF STATES AND PAVILION: LOUISIANA PURCHASE EXPOSITION, ST. LOUIS, MO.

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COMMUNICATIONS

[*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.*]

THE SUGGESTED HARVARD-TECHNOLOGY MERGER.

BOSTON, May 20, 1904.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Bold is always the man who would question the infallibility of an editorial, and yet one in the *American Architect* of May 14 shows such misunderstanding of the position of the alumni of the Institute of Technology, that it should not stand unqualified. Certain economies which might be gained by the union of two small bodies cease to hold when the bodies to be joined have, each, become too bulky to be administered in the old fashions. In the case under discussion, the smaller body will shortly number two thousand students. The greater part of the expenses of such a college is in proportion to the numbers, and this is most true of technical instruction. An output of students cannot be increased as you would yards of cotton cloth by the machinery; and beyond a certain point an increased number of students means a proportional increase of instructors and equipment, especially in an art where the personality of the instructor counts for much. The plea for union based on economy, when carefully weighed means hardly more than the absurd proposition that the school should sacrifice independence to save the salary of one president! The opposition to union by the alumni is very different from what you understand it. Their training has given them peculiarly, perhaps above other men, that habit of mind which most values economy in means to obtain results. Perhaps, therefore, they might wisely be trusted to discriminate between economies, the real and the fallacious, in a matter wherein they are so nearly unanimous.

Harvard College, as a name, is venerable. Harvard University, to speak accurately, is the creature of a few years, which we have seen in the making. A man may take his A. B., now, after a course which in the seventies he could only have found at Technology. President Eliot has made the university and remade the college on lines which, in some ways, he found at the Institute. Therefore, dear Harvard men, with your characteristic liberality and broadmindedness, reverse the situation in some respects, be modern and merge into a greater University of Technology wherein you shall have a due minority on the Board of Government, and should any narrow sentimentalism intervene to prevent this consummation, then at least you will understand better the present attitude of the alumni of the Massachusetts Institute of Technology.

Further, it may well be questioned whether such union is certain to obtain for the Department of Architecture all the benefits we have so often heard confidently predicted. Let me present to your consideration two phenomena which might lead the impartial observer to a judicious diffidence before reaching certainty.

At present, in greater Boston, are two schools of architecture, the older in an environment which we all confess might be improved, when we recall the emulation of sister arts in certain little cloisters and long galleries on the other side the sea, in the atmosphere of noble works of architecture, sculpture and painting which have there grown and flourished, but the younger school is by not many years the junior, has its ample body of instructors whom all delight to honor, and is housed luxuriously in the midst of that Harvard influence which is so highly esteemed. The question is pertinent, what are the students of the two schools doing? Please remember, my dear editor, that you and not I have suggested comparison. How does the work accomplished by the best students of one school compare with that in the other? How does the work of the average man in one school compare with that in the other? I refer to the work in design where "atmosphere" is expected to most show its influence. I confess myself to prejudice. But let the comparison be left to any jury approved as competent and impartial by the Boston Chapter, and I am confident the older school will not suffer. So much fo one of the two phenomena open to the consideration of all.

You have many Technology men among your readers and I would commend to their reading the article by Professor Norton in the

March number of the Harvard Graduates' Magazine. We may assume that they of the broader minds have already read and pondered its words of truth. Here is the mature opinion of that very perfect gentleman, the very flower in fullest perfection of culture in its happiest fields, he who of all our countrymen is farthest removed from that illiberality and narrow-mindedness some have found characteristic of the Technology man. Surely he depicts a condition of things at Harvard uncongenial to good architecture, conditions which have prevailed for two generations and still prevail and prevent satisfactory results from the simplest architectural problems in the concrete.

Both he and President Eliot agree that the authorities of the college have striven for a generation to put their new buildings into the hands of the most competent architects to be found. Probably it would be generally conceded that their choice has been judicious. Therefore how pregnant is the unchallenged fact that of all these architects, they of the élite, most of them Harvard men who must naturally find special inspiration in the adornment of their alma mater, yet of them all not one has done his best work there. May not the conclusion be fairly drawn, that those who so highly extol to us that particular architectural atmosphere, have, before becoming very didactic, something to ponder?

For thirty years we have listened, sometimes with awe, always respectfully, to your view of such a merger. Suffer me a few more words. We have seen in authors of the last century, how those familiar to a degree with the work of artists in words, when they would discuss the finer arts, of which they were nearly ignorant, failed to appreciate wherein the methods and purpose of literary art and the fine arts differed. The American man of letters now knows more of such arts than he did seventy years ago. But how much does the average college man care for fine architecture or know of it? How much does four years of Harvard influence increase his appreciation of any fine arts? Does he who can see neither beauty nor impressiveness within or without Robinson Hall, or the architect of that building, stand nearer the point-of-view of the rude fellows with gentle souls who long ago somehow found poems in the repulsive stone? The scientist, as such, has no sympathy for the finest ideals of the architect, and yet is it so certain that the man of letters, strong in the assurance of his own partial understandings and misconceptions, even if more sympathetic, is a less dangerous neighbor to youths who aspire to be creative artists in the language of stone and wood? Will you not go within the bounds of Harvard and look about you? Here have been years, treasure and opportunity. Your own prophet has clearly told us how architecture has flourished within that environment.

Yours truly, HENRY A. PHILLIPS.

[WE are sorry to have wounded the susceptibilities of any graduate of the Institute of Technology by saying we would like to see the Architectural Departments at Harvard and the Technology "erected into a separate college of art within the control of Harvard University alone." If it had been Harvard that was considering a change of *milieu* and had made approaches to the Technology, we might, very probably, have changed the phraseology and hoped for "a college of art under the control of the Technology alone." The results springing from the combination of effort and resources alone occupied our mind. And in speaking of the "atmosphere" of such a place, we were not thinking of next year, nor of any year within our correspondent's span of life, but were venturing to dream of what might be when such a college of art had collected about it such traditions and atmosphere as now pervade the Ecole des Beaux-Arts. It seems that we were mistaken in thinking that, having pursued education (although *de loin*) at all three institutions mentioned, we had justification for expressing an opinion on the matter. Our correspondent apparently differs, though how the matter is affected by Professor Norton's amusing diatribes against some of the modern buildings at Harvard, and their designers — who surely have not had the benefit of that atmosphere that might surround the imagined "college of art" of fifty or a hundred years hence — we quite fail to see. As for "tone," our correspondent's communication gives a very excellent example of the quality we had in mind: it seems to lack breadth and the desirable perspective. — EDS. AM. ARCHITECT.]

A CORRECTION.

BOSTON, May 24, 1904.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — I must disclaim the credit you so kindly give me for the new Federation for Town and Village Betterment — an excellent idea. I came to the conclusion that the federation method was too cumbersome for our project for metropolitan improvement and, with others, have been working to effect the desired end along simpler lines. It looks as if it might soon be realized — perhaps as the "Bulfinch Society," ultimately.

Sincerely yours, SYLVESTER BAXTER.

[WE regret the error into which we were drawn through finding our correspondent's name mentioned in connection with the Association to which we referred. — EDS. AM. ARCHITECT.]

NOTES & CLIPPINGS

THE ICE-BORN RAILROAD ACROSS LAKE BAIKAL. — The Russian Minister of Ways of Communication, Prince Khilkoff, has recently submitted to the Czar an interesting report concerning the construction of the military railroad across the frozen surface of Lake Baikal. He and his assistants had to contend against peculiar difficulties. Owing, as it seems, to volcanic disturbances in the bed of the lake, fissures and hummocks were constantly forming on the ice, and the problem was how to construct the railway that it should not be liable to destruction at any moment by the sudden formation of a fissure. The method adopted was to lay a number of planks crosswise over the places where fissures were likely to occur and to place the sleepers and rails on top of them. In this way the likelihood of total collapse was avoided. After the railway had been laid and the work of drawing wagons across had been begun another serious obstacle presented itself in the fact that the fissures which had hitherto formed without exception in a direction at right angles to the line, now began to run parallel with the rails. By this sudden change in the direction of the fissures the line was endangered for a distance of many miles, so that it became necessary to transport a large part of it to a considerable distance. On March 19, when the security of the line was finally established, the work of transporting locomotives for the line beyond Lake Baikal was begun, and sixty-five locomotives were taken over in four days. At one time there was difficulty with the laborers who rebelled against the amount of work exacted from them, but this trouble was solved by the employment of soldiers from the Irkutsk garrison. — *N. Y. Evening Post.*

PENNSYLVANIA RAILROAD'S LOCUST TIE RESERVE. — The Pennsylvania Railroad Company is engaged in planting locust trees with a view of supplying cross-ties in the future. Last fall 50,000 trees were planted at Conewago, Penn., and now as many more are being planted. Next fall, it is said, the company will plant 200,000, and in the following spring 650,000. The forest will cover three square miles, and, it is estimated, will furnish 5,000,000 ties within twenty-five years. This is an excellent work, and is evidence of a wise and far-sighted policy. Tree-planting is neglected by individuals because forest trees are of slow growth and the benefit or profit is too remote to tempt one to set out forests. But in the case of such a corporation as the Pennsylvania Railroad Company the case is different. Such a corporation is supposed to be immortal, and the management, if it is prudent, is always looking to the future. Iron and steel have been tested as substitutes for wooden cross-ties, but without success. Wood is manifestly the best material for this use, and there is scarcely any use which has caused a more general and deplorable devastation of the forests of the United States than the demand of the railroads. The time is rapidly approaching when the natural supply must fail or become too expensive. Some of the Western railroad companies have for some years back been planting trees along their right of way. On the fertile lands of the prairies trees make rapid growth, and, while a sufficient supply cannot be produced this way, enough can be grown to make it worth while. The Pennsylvania company is going about the work in the right way. Large areas of rough land, suitable for the purpose of a forest, can be obtained at a slight cost, and a forest once grown will continue, under proper management, to yield ties and perpetuate itself indefinitely. Careful trimming from the time the young trees begin to grow will train them into the proper shape, and thus a single tree will yield more ties than those which have no pruning. The Pennsylvania company has also selected the very best tree for the purpose. The locust is one of the most rapid growing of the hardwood trees, and one locust tie will probably outlast a half dozen of oak or chestnut. In fact, the locust is regarded as the most durable of all our native woods, and a railroad track laid on locust ties would be almost as permanent as if the ties were of iron. By planting large and numerous forests the railroad companies would not only be providing for their own future, but would be conferring a lasting benefit upon the country. These forests would utilize a great deal of waste lands; they would furnish a vast amount of fuel for the people within reach of them; they might have a good effect on the climate, and, besides, might be utilized as places of refuge, where our birds and wild animals could be saved from extinction. — *Baltimore Sun.*

A MODERN ANTIQUE. — A story which Mr. Davenport told of Pistrucci has its point for collectors. Pistrucci was an Italian, and chief engraver at the Mint. It is, by the way, to him that we are indebted for the fine group of St. George and the Dragon on the reverse of our sovereign. He insisted that modern work in cameo could be quite as fine as ancient work. A "pot-boiler" head of Flora which he engraved and sold to a dealer for £5 was afterwards sold as an antique to Richard Payne Knight for £500. Knight took the cameo in triumph to Pistrucci. "Where can you get modern work like that?" he asked. Pistrucci smiled, and claimed the antique for his own. Knight would not believe him. "Examine the roses," said the artist, "and you will see that they are modern flowers." The point was admitted by others, but never by Knight, who bequeathed the gem and the rest of his collection to the nation. Mr. Davenport said that but for the roses an expert would undoubtedly pronounce Pistrucci's cameo a fine antique. — *Manchester Guardian.*

PETTENKOFER AND HIS UMBRELLA. — In a magazine article on Max von Pettenkofer, who has been called the founder of scientific hygiene and, next to Humboldt, the most popular of all German naturalists, Max Gruber tells a good story of the professor's absent-mindedness. He lost a fortune in umbrellas, seldom bringing back what he had taken away. Once, however, he made a trip as far as England, and was very proud of having actually succeeded in bringing back his umbrella to Germany. At Augsburg he stopped on business, but sent a telegram reading: "At six o'clock I return with my umbrella." He did return at six o'clock, but as he entered his house in Munich he saw to his dismay that he had no umbrella. He had left it at the telegraph station! — *N. Y. Evening Post.*

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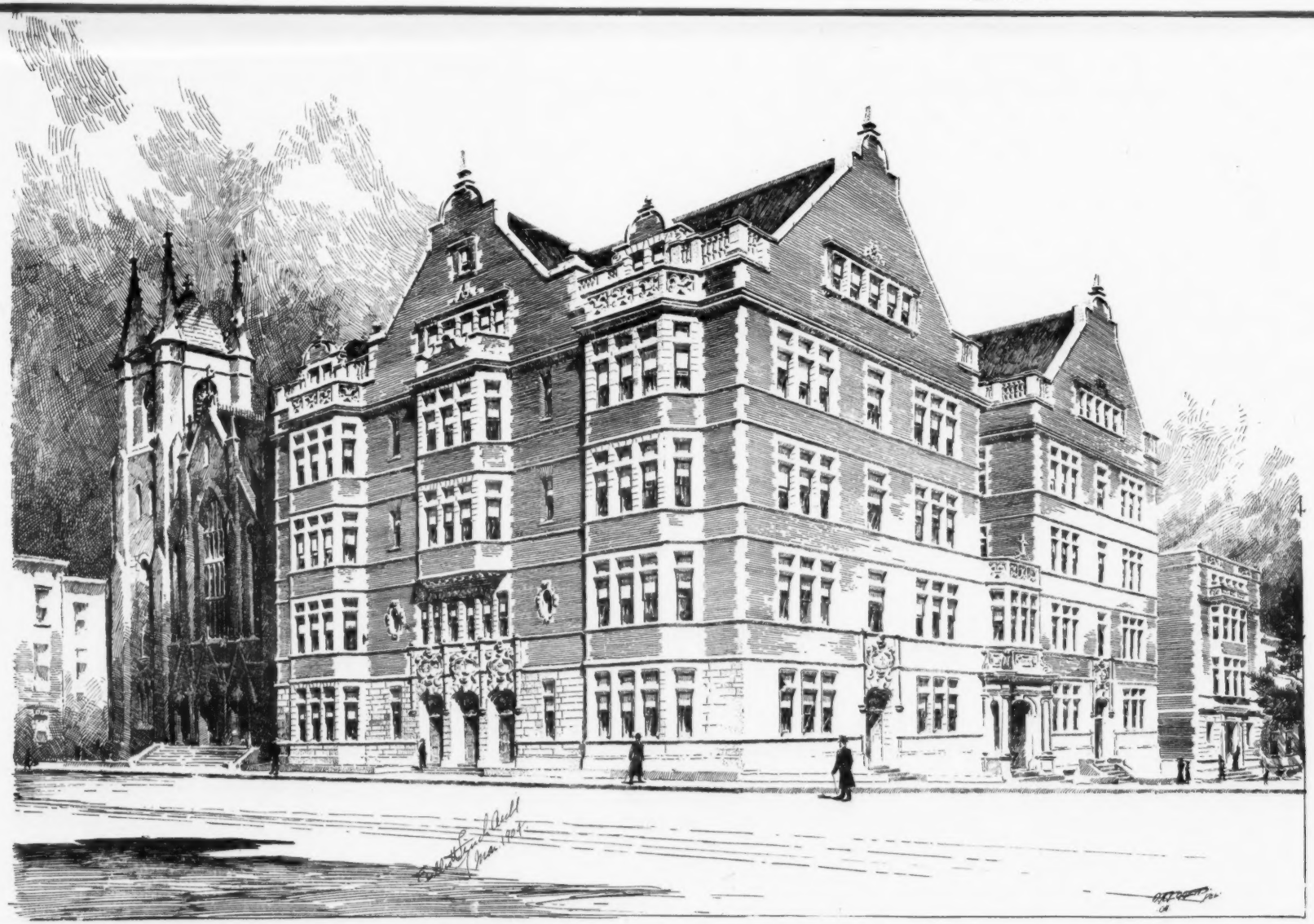

School of the Church of the Holy Name, New York, N. Y.

Elliott Lynch, Architect.

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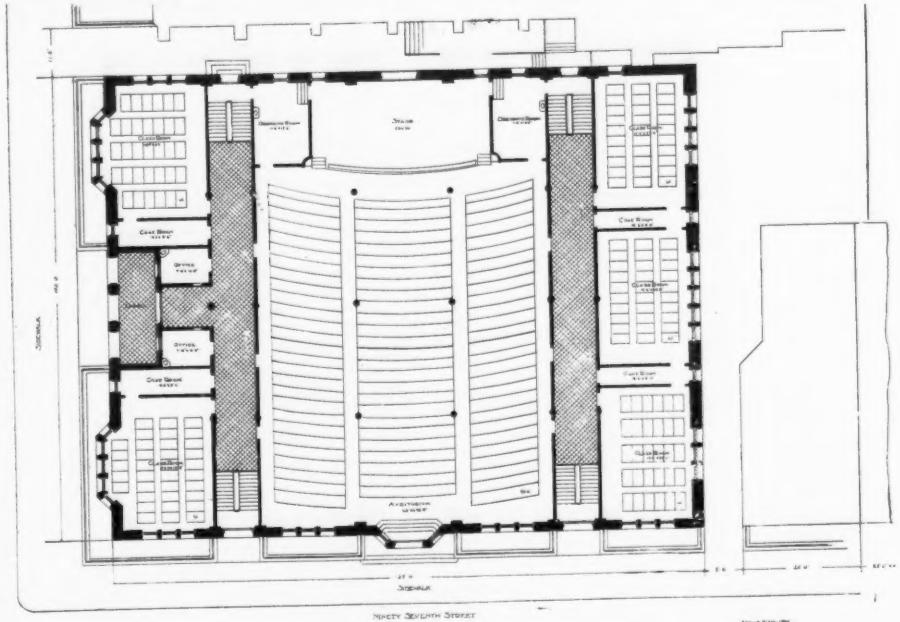

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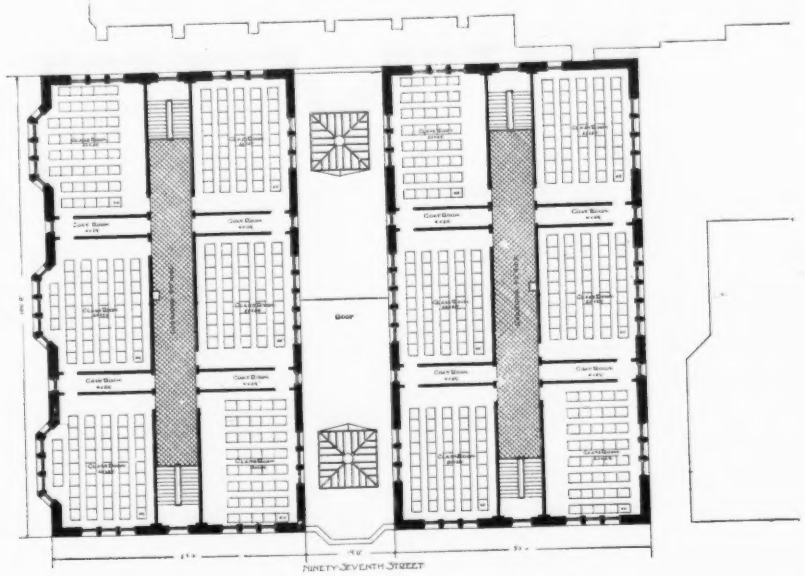
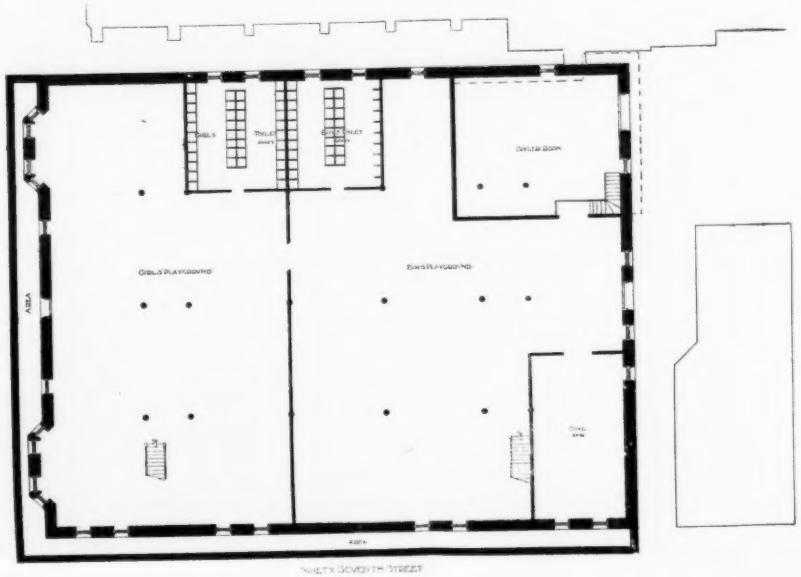
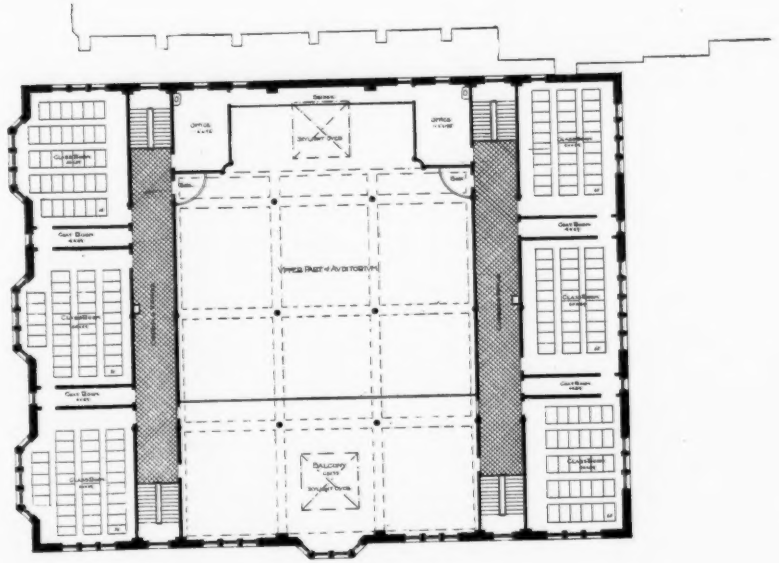


Third and Fourth Floor Plan



Basement Plan



Second Floor Plan

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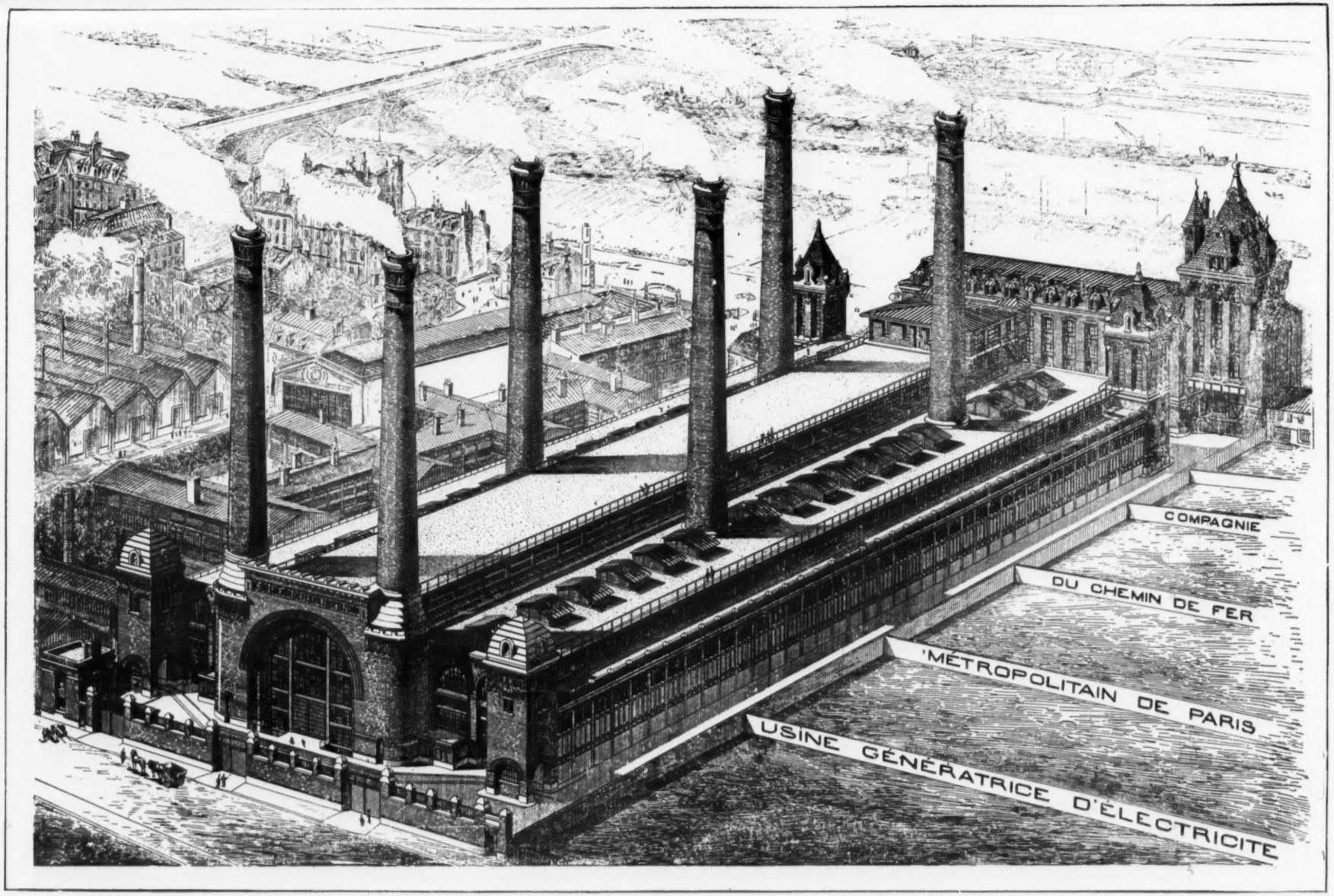

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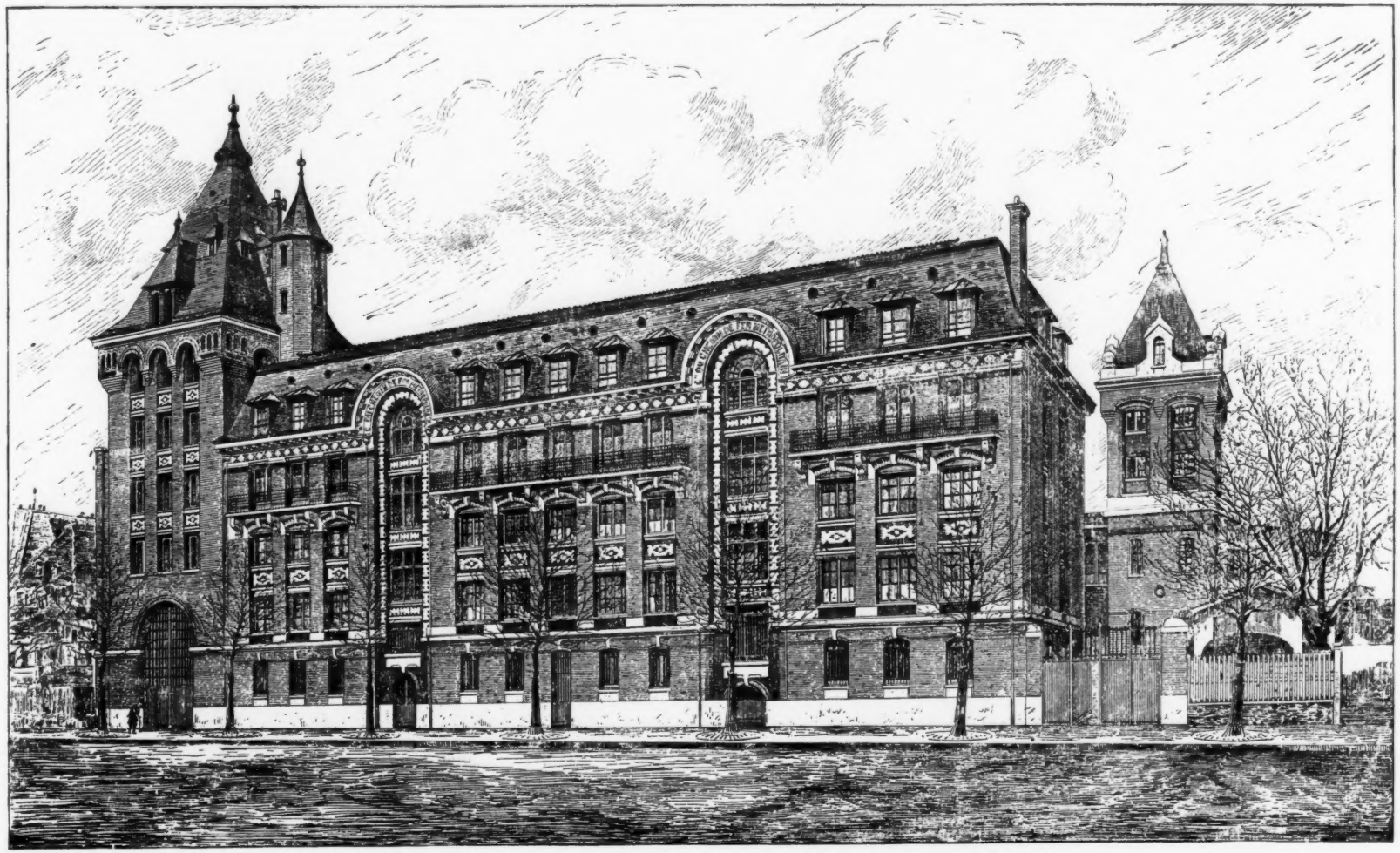
Electric Power-Station of the Metropolitan Railroad, Paris, France.

P. Friese, Architect.

The American Architect
May 28, 1904
No. 1483



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P. Friese, Architect.

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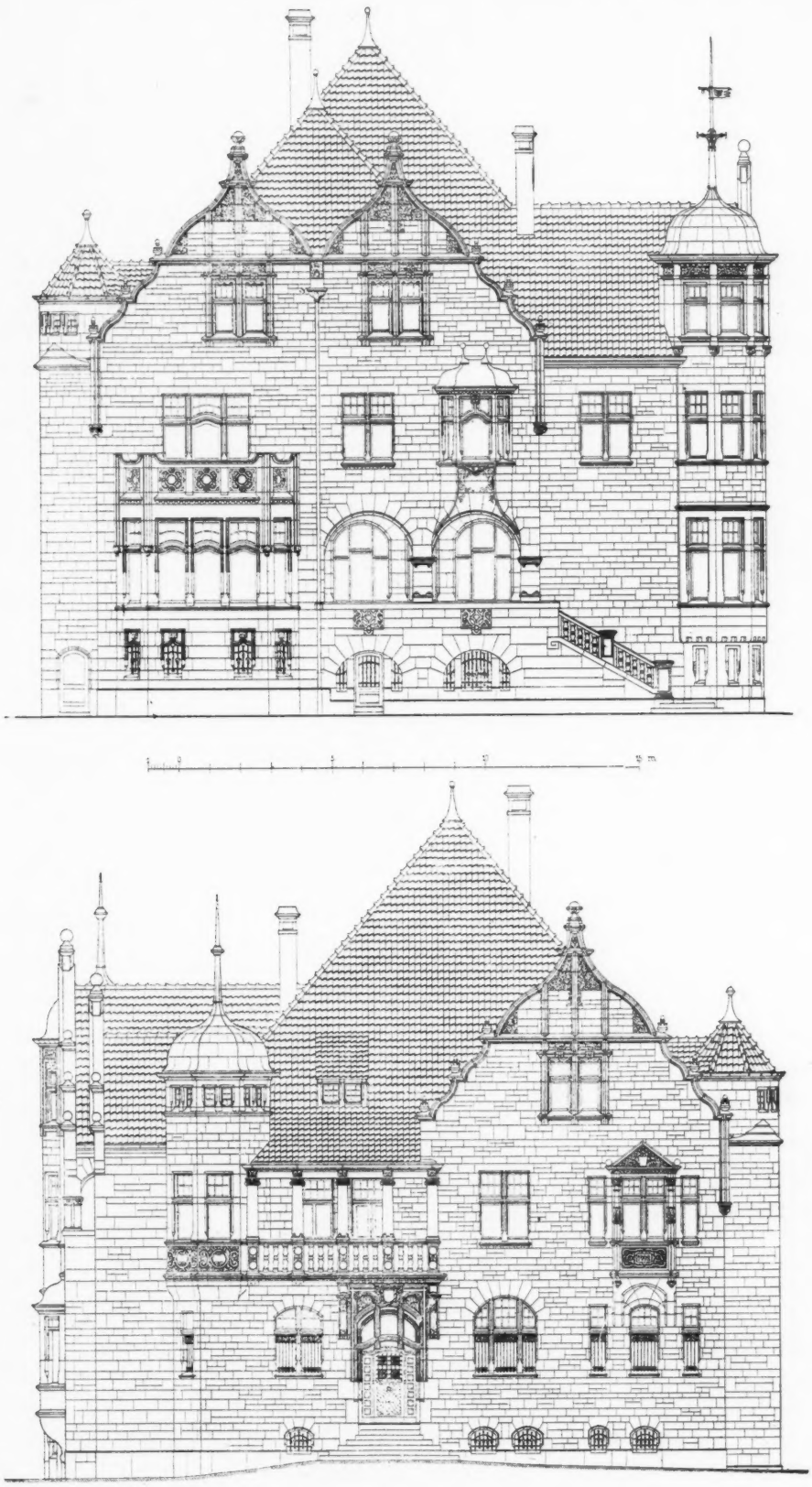

From *Zeitschrift fur Bauwesen.*

House on the Dianasee in the Grunewald, Germany.

Solf & Wichards, Architects.

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West Wing of Terrace of States and Pavilion: Louisiana Purchase Exposition, St. Louis, Mo.

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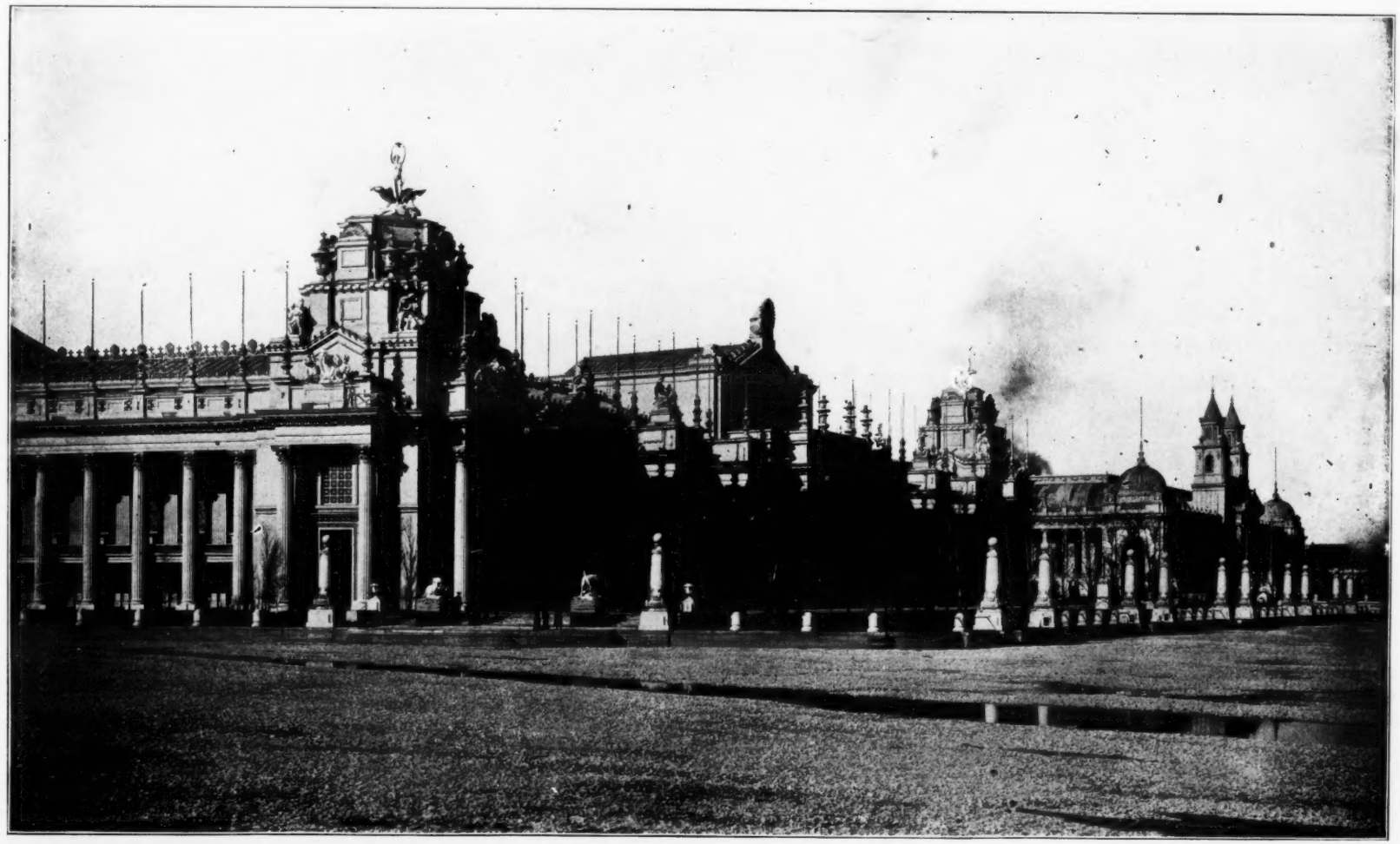

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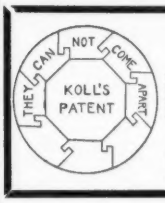

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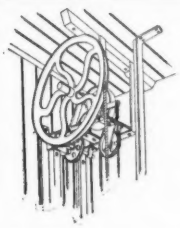

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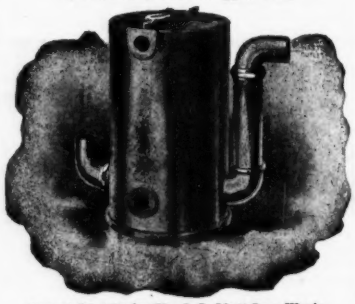

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BUILDING INTELLIGENCE.

(Reported for the American Architect and Building News.)

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

ADVANCE RUMORS.

Alliance, O. — It is stated that Searles & Hirsh, Electric Building, Cleveland, have completed plans for a country home for Col. W. H. Morgan, to be erected near this city. Cost, $200,000.

Appleton, Wis. — Plans for the new Central High School building which were prepared by Architect Herman Wildhagen, of this city, have been adopted. Estimated cost, $70,000.

Astoria, Ore. — St. Mary's Hospital Trustees in this city are contemplating the erection of a new hospital on the site of the present one in the near future. Estimated cost, from $75,000 to $100,000.

Attleboro, Mass. — The public library trustees have accepted the plans of McNeal & Wright, architects, of Boston, for a library to cost, complete, $50,000. It will be located on N. Main St., upon the lot donated to the town by Joseph L. Sweet.

Baltimore, Md. — A permit has been issued for a six-story and basement store for J. W. Putts & Co., to be erected at the corner of Lexington St. and Park Ave. The plans for the building, as prepared by Architects Frank E. and Henry R. Davis, 220 St. Paul St., call for a building similar in design to the one which the firm formerly occupied on the southwest corner of Charles and Fayette Sts. The new structure will cost $50,000.

Baraboo, Wis. — Plans have been received in Milwaukee for the $50,000 post-office and government building to be erected here this summer.

Beverly, Mass. — The Estes estate on Cabot St., comprising a two-tenement house and considerable land, has been sold to S. H. Dow. He will make improvements and build a small factory in the rear of the premises.

Birmingham, Ala. — It is reported that a $20,000 depot is to be erected at 53d St. and 2d Ave. South, by the Central of Georgia, the Southern and the Alabama Great Southern Railways.

Bluffton, Ind. — J. F. Adamson, of Hartford City, is stated to have received the contract to erect the Bliss Hotel at $23,038.

Brighton, Mass. — A lot of vacant land on Mapleton St., near the corner of Murdock St., has been purchased by Wilbur P. Forbush, who will improve with houses for investment.

Brookline, Mass. — Charles Chase has purchased a valuable lot of land on Washington St., near the transfer station, containing 8,130 square feet. The purchaser will build at once a fine brick stable on the lot in which to carry on his extensive business.

Brooklyn, N. Y. — Plans have been filed for the erection of a new St. Vincent's Home for Boys at the southwest corner of Boerum Pl. and State St. The architect, F. J. Berlenback, has drawn plans calling for a five and six-story brick and stone structure, with gravel roof, 77′ 6″ x 100′, equipped with all modern improvements. Cost, about $125,000.

The Germania Club of Brooklyn have acquired land on Union St., near Prospect Park, and will erect a new $50,000 club-house immediately. Work will begin in July.

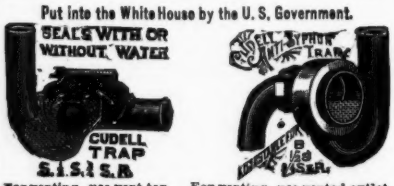
Buffalo, N. Y. — The Larkin Soap Co. will erect an office-building on Seneca and Swan Sts. It will be six stories high. Cost, $300,000.

Cadillac, Mich. — The Osgoods are receiving bids on the new Presbyterian Church. The building will be of brick and stone, and will consist of basement, auditorium and gallery, with a seating capacity of 600. The estimated cost is $20,000.

Cambridge, Mass. — It is rumored that the Cambridge Y. W. C. A. will erect a new building on the site of the present headquarters in Temple St. The main building will be after the design of an old Colonial mansion. It will cost $30,000.

The trustees of the Arlington Chambers Trust have purchased the tract of land situated at the

Put into the White House by the U. S. Government.



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BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

southerly corner of Arlington St. and Massachusetts Ave., the purchase price being $30,000, or thereabouts. The buildings upon the land are to be torn down and replaced by two apartment-houses of handsome exterior, model construction and modern conveniences, under the name "Arlington Chambers."

Charlestown, Mass. — A large building on Main St., near City Sq., has been purchased. It is the intention to improve the site with a handsome brick and stone mercantile building with stores on the lower floor.

Chattanooga, Tenn. — C. E. James has purchased from the Stone Fort Land Co. a lot on the site of the old stone fort for the sum of $12,000. Mr. James will erect a five-story brick business structure on the lot at a cost of $40,000.

Chelsea, Mass. — The McGee estate on Franklin Ave., between Warren and Spruce Sts., has been sold to George T. Horan, the new owner buying for investment and improvement. The property is located on Powder Hill, and has a fine view. It is the intention of the purchaser to transform the house into a large apartment hotel.

Chicago, Ill. — A deal involving the construction of a ten-story fireproof building at the southeast corner of Madison St. and the river has been closed. The lot was purchased by William F Grower at $125,000, and the building, which will be used for commercial purposes, is to cost $250,000.

"Chicago's leading fraternities are considering the building of a large fraternal home in the loop district. The plan is to have each member of a fraternal order subscribe to one $10 share at par and to borrow the rest of the money needed for construction by mortgaging the property. The estimated cost is $900,000."

Cincinnati, O. — W. F. Doepke has filed plans for a six-story and basement factory, to be erected at 14th and Plum Sts. Cost, $30,000.

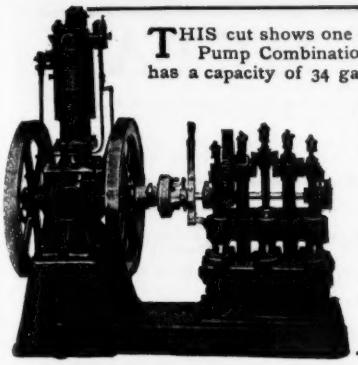
Cleveland, O. — The new public library building will be located on the corner of Lorain and Hartnell Sts. It will be of brick, with stone trimmings. Cost, $40,000. Architects, Knox & Elliott.

A two-story building, to be used for the repair and storage of automobiles, is to be erected by the Euclid Ave. Automobile Co., on Euclid Ave., between Doan and Fairmount Sts., at a cost of $25,000.

It is reported that John D. Rockefeller has given to the Case School of Applied Science $200,000, and it is the intention of the Trus. to erect a physics laboratory and a mining engineering building.

Clinton, Ia. — A new Masonic Temple is to be erected here. The plans have not yet been made public, but it is understood the structure will cost $50,000.

Concordia, Mo. — J. M. E. Riedel, Schmitz Block, Fort Wayne, Ind., has prepared plans for a $20,000 church to be erected here.



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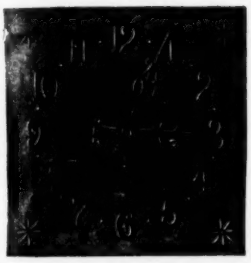

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Corning, N. Y. — The Corning Hospital Association will erect a hospital on the site of present building at a cost of $45,000.

Dayton, O. — It is said that the Brothers of St. Mary's Institute are considering the erection of a three-story building, to cost $50,000.

Decatur, Ala. — Cowell & Love, of Huntsville, are preparing plans for a $25,000 opera-house to be erected here.

Defiance, O. — The Masons of this city are contemplating the erection of a new $50,000 temple.

Denver, Col. — Plans for a modern five-story apartment-house have been drawn by M. A. McLaughlin. The building will be located on three lots on Broadway, between 13th and 14th Aves. The ground floor will be used for store rooms and the upper floors for family apartments. It is planned to begin the construction of the building before the end of the early summer. The cost is estimated at $50,000.

Dorchester, Mass. — A lot of vacant land situated on Teanean St., near Pine Neck Creek, owned by George R. Archibald, has been conveyed to Patrick Kelliher, who is now the owner of the entire tract. It is the intention of the new owner to improve the land with a number of houses for investment.

It is reported that 200,000 square feet of land, in the vicinity of Harvard St., has been purchased, upon which will be erected a number of houses.

Elmira, N. Y. — Plans have been prepared by Otis Dockstader, Robinson Building, for a new edifice which the congregation of the First Church of Christ, Disciples, will erect at S. Main and Partridge Sts. Cost, $20,000.

Eureka, Cal. — Plans prepared by Jos. W. Rowell, Hayward Building, San Francisco, have been accepted for the city-hall, which is to cost $75,000.

Fort Smith, Ark.—M. Duff, of this place, and J. B. Nunneley, of Temple, Tex., will erect a $250,000 hotel.

Gambier, O. — Architect Riebel, of St. Louis, is preparing plans for an 8-room school-building to be erected here, to cost $30,000.

Greenville, Mich. — Plans have been completed for a town-hall for Greenville which will be built in Colonial style. It will be 45′ x 70′ and two stories in height. Red brick will be the material used in construction.

Hannibal, N. Y. — Wellington W. Taber, Syracuse, has prepared plans for an addition to the high school. Probable cost, $14,000.

Hastings, Mich. — Sketches have been made for a Masonic Temple, 42′ x 100′, two stories and basement. The estimated cost is $10,000.

Hazleton, Pa. — The building fund for the new Trinity Lutheran Church now amounts to $12,600 with pledges for $10,000 more. The new structure, completed and furnished, will cost $40,000. Contract will be awarded at once.

Hebron, Me. — The Maine Sanitarium Association will give out contracts in the near future for constructing hospital buildings here. The plan is to have the main building up in four or five months and ready to receive patients in the early fall. John Calvin Stevens is the architect.

Indianapolis, Ind.—Jos. Schaf contemplates erecting a 25 room hotel on W. Market St., to cost $35,000.

Ithaca, N. Y. — Governor Odell has signed the bill appropriating $250,000 for the erection of a State Hall of Agriculture at Cornell.

Lake City, Mich. — Plans are being drawn for a union public and high school here. The building will be Colonial in design, of brick and stone. The estimated cost is $13,000. It is the intention to finish the building in time for school next fall.

Little Rock, Ark. — J. M. Whitehead, of Owensboro, Ky., has prepared plans for a $25,000 two-story and basement edifice to be erected by the Christian Church, at 10th and Louisiana Sts.

Louisville, Ky. — Jas P. Camp, City-hall, is interested in the erection of a theatre here, to cost $50,000.

Marblehead, Mass. — Mr. Samuel Shuman, of A. Shuman & Co., has purchased the summer residence originally built by the late Mr. A. Stowell, of A. Stowell & Co., on Atlantic Ave. Mr. Shuman will at once make extensive alterations.

Marion, O. — Architects Richards, McCarty & Bulford, St. Louis, are preparing plans for a shoe factory for the Marion Shoe Co. composed principally of Columbus capitalists. The structure will be 40′ x 140′, three stories and basement.

Memphis, Tenn. — The Godwin Institute trustees are awaiting the termination of the legal complications that have involved the Godwin bequest before taking further action in the construction of the very handsome building that they will erect on the corner of 3d and Madison.

Mexico City, Mex. — The Department of Public Works of the Mexican Government has approved the plans and specifications submitted by Adama Boari, architect and engineer, for the construction of the new National Theatre. The contract for the work, which will mean the expenditure of fully $5,000,000, will be awarded shortly.

Milford, Ill. — The Chicago Tire and Rubber Co. will erect a new plant here, at a cost of $25,000.

Milton, Mass.—Harry K. White, of Lee, Higginson & Co., has purchased land on Brush Hill Road, comprising 420,000 feet and lying between the property lately sold to Mrs. George E. Burgess and the estate of Charles B. Amory. Mr. White will begin directly the erection of a handsome private residence.

Milwaukee, Wis.—H. C. Koch & Co. have prepared plans for a $5,000 residence for Dr. William Mackie, to be erected at Fox Point, and a $5,000 cottage for Herbert N. Laflin, to be built at 35th and Sycamore Sts.

J. Menge, Jr., is receiving bids for a $5,000 residence to be built on Island Ave., between Lee and Wright Sts., for A. Roede.

H. J. Rotier has prepared plans for the following: English cottage for John A. Smith, brick and stone, to be erected at Newberry Boulevard and Shepard Ave., $15,000. Colonial residence, Benj. Painter, Marietta Ave., near Folsom Pl., $7,000. Brick addition to the District No. 5 school, town of Lake, four class-rooms, $7,000.

Minneapolis, Minn. — A brick building will be erected by T. A. Jamieson and E. A. Smith at the corner of 5th Ave. S. and 5th St. It will measure 75′ x 132′, and cost $35,000. The Monasch Lithographing Co. and the Sterling Manufacturing Co. will occupy the building.

Moline, Ill.—C. W. North has received the contract to erect a three-story brick block on 15th St., between 4th and 5th Aves., at a cost of $20,000.

Nashua, N. H.—Mrs. Daniel Hussey, dying in Kentucky, leaves to this city, under the terms of a will made in 1871, $50,000 for a public library building. A puzzling question is how the city can receive this money, as already there is a memorial public library here, given by the Hunt heirs.

Nashville, Tenn. — Appropriate and impressive ceremonies accompanied the laying of the cornerstone of the Russell St. Cumberland Presbyterian Church on Russell and 10th Sts. recently. The edifice will probably be finished by next fall, and will cost in the neighborhood of $30,000.

Newark, N. J. — Plans for the new ten-story building, which is to be erected for the firm of S. Scheuer & Sons, on the site now occupied by the concern, at the southeast corner of Broad and Commerce Sts., Newark, are nearly completed. It is expected that they will be in shape to enable the architect to ask for bids by the middle of the month, so that the construction work can be gotten under way. The plans were prepared by Cass Gilbert, of New York, who designed the new courthouse, and they provide for a structure which will cost about $175,000. The building will be constructed of limestone and brick, the first two stories of stone and the remaining eight of brick, with terra-cotta trimmings.

New Haven, Conn.—John Lyman Faxon and Jas. Hayden Wright, of Boston, have been selected to draw the plans for a building to be erected here for the National Council of the Knights of Columbus. The structure will be reared in Chapel St. in the Italian Renaissance style, will be 62′ x 96′ in dimensions, four stories high and built of steel, terra-cotta and brick.

New York, N. Y. — A new firehouse is to be built at 100 to 104 Duane St. to replace the quarters of Engine 7 and Hook and Ladder 1 in City-hall Park. The new building is to be three stories high, 75.8½ feet front and 78 feet deep, with a façade of ornamental brick and trimmings of Indiana limestone. The building is estimated to cost $85,000. The architects are Trowbridge & Livingston.

Ground has been broken recently for the chapel of the Irving Square Presbyterian Church at Weirfield St. and Hamburg Ave. The church society has been organized about one year. The plot on which the chapel is to be erected, later to be followed by an edifice on the Weirfield Street side, to cost approximately $50,000, is 100′ x 190′ in circumference. The chapel, to be built of brick, will cost in the neighborhood of $11,000. Five thousand dollars of this was contributed by the Central Presbyterian Church.

Mary Bell will erect an eleven-story store and office building at the northwest corner of 5th Ave. and 32d St., costing $700,000, which has been leased for 21 years to Henry Corn.

A new theatre, to be devoted to the production of Yiddish plays, is to be erected in 116th St., just west of 5th Ave. Plans for the new structure will be filed at the Building Department, and the actual work will probably be begun soon. The cost of the building, exclusive of that of the ground, is estimated at between $350,000 and $400,000.

Plans have been filed for remodelling the two-story private stable at 27 E. 35th St. into a residence and studio for Mrs. Almira Flower Torrey. Two stories are to be added and a Colonial façade of brick and marble. The remodelled building will contain a library and a gallery and a salon on the first floor and a two-story studio above, with living quarters adjoining. The cost of the improvements is estimated at $12,000. Architect, Chas. E. Birge.

Pittsburgh, Pa.—The Heart of Mary Polish Church congregation has taken out a permit to build a brick, iron and stone church on Brereton Ave., 13th Ward, to cost $117,510. It will have a frontage of 165 feet and a depth of 109 feet. The architect is W. P. Ginther, of Dayton, O.

Providence, R. I. — Mrs. John Carter Brown will build and present to St. John's Episcopal Church a new chancel in memory of her two sons. The design is by Messrs. Cram, Goodhue & Ferguson.

Racine, Wis. — Many plans and specifications have been made for office-buildings, flats, a few churches and some dwellings. No doubt the largest structure to go up will be the new offices of the J. I. Case T. M. Co., to cost between $125,000 and $130,000.

Red Wing, Minn. — Elliott Bros., of Minneapolis, have received the contract to erect for the Goodhue Co. Bank Co.'s building at $30,950, not including heating, plumbing and elevator.

Roxbury, Mass. — A. C. Chisholm is to erect this summer on lots numbered 548 to 570 Warren St. a block of apartment-houses, to cost $120,000 above the land.

Salem, Mass. — Mrs. Emma S. Marcell has purchased the estate 23 Oakland St. The property comprises a two-family frame dwelling and about 3,600 feet of land. The purchaser will make extensive improvements.

San Francisco, Cal. — A. Aronson is to erect a three-story and basement office-building on the corner of 3d and Jessie Sts. Cost, $35,000.

Plans have finally been accepted by the German Hospital Association as prepared by Hermann Barth. The building will cost $400,000 and will be erected on the present site of the German Hospital on the block bounded by Noe, Castro, 13th and 14th Sts. It will be six months probably before work will be commenced.

A four-story and basement frame building is to be erected by Samuel Bissinger on the south side of Sutter St., 125 feet west of Larkin. It will contain two stories and 64 rooms above. Sylvain Schnaittacher, architect. Cost, $40,000.

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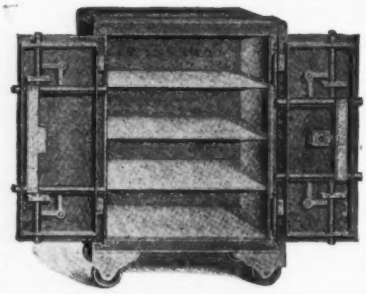

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

William Deming will build a four-story apartment-house on the north side of Ellis St., between Larkin and Polk. It is to contain 56 rooms and cost $27,500.

San Luis Obispo, Cal. — Construction will soon commence on the new public library building. San Luis Obispo was favored with a liberal donation by Andrew Carnegie, and the citizens, by private subscription, raised the money for the purchase of a lot. The structure will be Romanesque in style, built of brick and stone. Plans by W. H. Weeks, of Watsonville.

Savannah, Ga. — It is expected that work on the U. S. Marine Hospital, at York and Abercorn Sts., will begin within the next few weeks. Only the main building will be erected at present. It will be 75′ x 140′, consisting of a four-story central pavilion with end wings of three stories.

Sheridan, Wyo. — The county commissioners are stated to have selected Link & McAllister, of Sheridan, to prepare plans for a new court-house to cost $45,000. It will be two stories and basement, and have pressed brick front.

Sioux City, Ia. — Wm. Gordon has had plans prepared for a three-story business block to be erected at 5th and Nebraska Sts., at a cost of $20,000.

Springfield, Mass. — Plans have been drawn for a corporation house to be built on land which will be bought by the Carpenters' Building Association. The location has not yet been decided upon.

St. Louis, Mo. — Benjamin Monett has purchased from Jane A. Converse and others 25 lots of land located in the John W. Andrews addition. Monett also purchased from Gwynne Andrews 24 lots in the same addition. The two tracts are located in what was formerly known as Andrews grove. Mr. Monett in turn has sold 5 lots in the tracts. The purchasers will erect homes in almost every case.

W. V. Zartman has bought a tract of land, 40′ x 147′ on Neil Ave., near King Ave. He will erect a brick residence upon the ground the coming summer.

Plans are being prepared by Architects Stribling & Lum for the remodelling of the Y. M. C. A. building of this city.

Architect Linthwaite is preparing plans for a residence for Mrs. Nathan Lovejoy, corner Capital St. and Monroe Ave. The contract will be let soon. He is also preparing plans for a residence for E. J. Goodman to be built on Bryden Road.

Plans have been drawn by Architect Mills for a business block with flats above and also for a residence for Henry Zimmerman, of Lancaster.

Architect Mills is receiving bids for the construction of the Citizens Telephone Building near the corner of Long and 3d Sts. It will be 90′ x 100′, four stories high.

Bids are being received for the erection of a dwelling by Dr. Sherman Leach on 2d Ave., near High St. It will be of pressed brick and will have eight rooms.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

J. W. Kauffman has taken out a building permit to erect a $6,000 residence on Bryden Road, between Champion Ave. and Hankins Ave.

Maynard Bros. have taken out building permits to erect 5 two-story dwellings on Fair Ave., between Rose Ave. and Morison St., to cost $5,000 each. The houses will be built in the form of flats and will be adjacent to each other

St. Paul, Minn. — Plans for a new church to cost $50,000 for St. Casimir's parish have been filed with the building inspector. The new edifice will be erected on the site of the present church, Jessamine St., near Forest.

The contract for erecting the Criterion Theatre at 9th and Roberts Sts. has been awarded to Frank P. McClure, of Chicago, Ill. The theatre is to have a seating capacity of 1,800 and is to cost $150,000.

Tilton, N. H. — Plans are being draughted for the new gymnasium at Tilton Seminary and the contract to erect the structure is expected to be let in due season to get the work under way at an early date in the summer. The new building is to cost about $50,000.

Union Hill, N. J. — The Board of Trustees of the Free Public Library are considering a site near the town-hall on which to erect the Carnegie Library, for which $25,000 has been donated.

Washington, D. C. — Ground will be broken at once for the new Y. M. C. A. building, to cost when completed $300,000, or thereabouts. Mr. Frank L. Harvey has been awarded the contract for construction. Additional contracts will be let for electrical work, plumbing, heating plant and elevators. The arranging for these is to be left in the hands of the building committee.

Norcross Bros., Boston, Mass., secured the contract to erect the American Security & Trust Co.'s Building, in this city, at about $200,000.

Washington, Pa. — Plans have been selected for the new $50,000 school-building to be built in the 5th Ward. The plans of McCollum & Dowler, of Pittsburgh, were accepted. The new building will contain 10 rooms and will be 90′ x 98′. Bids will be received now for the construction of the building.

Waterbury, Conn. — Plans have been drawn for a two and one-half story residence, 36′ x 50′, to be built on Pine St. for David C. Griggs. The first story will be brick, the upper stories being wood with shingled roof.

Plans are ready for a two and one-half story brick factory building, 56′ x 65′, to be built on the Watertown Road for A. H. Wells. It is to be used for the manufacture of brass and copper tubing.

Waukegan, Ill. — Frank P. McClure, of Chicago, has prepared plans for a four-story brick and stone theatre and hotel to be erected here at a cost of $40,000.

Wellston, O. — Architect Elliott, St. Louis, is preparing plans for a theatre to be erected here. It will be 60′ x 120′.

Williamsburg, N. Y. — The corner-stone of the new synagogue of the Congregation Oher Sholon, at 19 and 21 Varet St. was laid recently. The congregation was organized fifteen years ago, and worshipped for many years in a small frame building on the site where the new structure is to stand. The new building will cost about $50,000 and will be completed by the Jewish holidays in September.

Wilmington, Pa. — The alumni and friends of Westminster College will be asked to subscribe to a fund

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

of about $50,000 to provide new college buildings. It is stated that it is essential to the continuance of the prosperity of the college that a new gymnasium, heating plant and Young Men's Christian Association building be erected this summer. Hundreds of alumni of the college are living in Pittsburgh, and it is thought that there will be little difficulty raising the $50,000, which the buildings are estimated to cost.

Woodbury, N. J. — For $11,000 the Board of Education has purchased what is known as the "Manly lot" at the foot of W. Center St., on which will be erected a $60,000 high school. The tract contains a little over six acres.

Yankton, S. D. — The contract for constructing the U. S. Post-office here, not including heating apparatus (bids opened April 5) has been awarded to Newman & Hoy, of St. Paul, Minn., for $68,954; if approaches are omitted, $64,954.

COMPETITIONS.

AUDITORIUM. [At St. Joseph, Mo.]
Plans and specifications will be received until July 2 for an auditorium. Cost, $200,000. HARRY BLOCK, Chmn. Bldg. Com. 1485

PROPOSALS.

RECONSTRUCTION. [At Fort Greble, R. I.]
Office Constructing Quartermaster, 209 Thames St., Newport, R. I., May 17, 1904. Sealed proposals will be received here until June 6, 1904, for converting frame hospital building, Fort Greble, R. I., into Post Exchange Building. Information furnished on application. CAPT. H. C. HODGES, Jr., Q. M. 1483

SCHOOL. [At Sioux City, Ia.]
Bids will be received June 6 by H. W. Chase, Secretary Board of Education, 610 Iowa Building, for erecting a ten-room building to be known as Hunt School. Bids will also be received on same date for steam heating and plumbing in said school. 1483

SCHOOL. [At Cooperstown, N. Y.]
Bids are wanted June 6 for furnishing material and erecting a brick school. OSCAR D. PURINTON, Clk. School Bd. 1483

COURTHOUSE. [At Rushville, Neb.]
Bids will be received by the Co. Comrs. until June 2 for furnishing material and erecting a courthouse. D. F. VAN VLECK, Co. Clk. W. T. Misener, architect, 539 Range Building, Omaha. 1483

SEWAGE SYSTEM. [In District of Columbia.]
Office of the Commissioners, D. C., Washington. Sealed proposals will be received at this office until June 4, 1904, for constructing a portion of the sewage disposal system outfall sewer in the District of Columbia. Forms, specifications and necessary information may be obtained at this office. HENRY B. F. MACFARLAND, HENRY L. WEST, JOHN BIDDLE, Commissioners, D. C. 1483

PROPOSALS.

MUNICIPAL BUILDING. [At Washington, D. C.]
Office of the Commission, Washington, D. C. Sealed proposals will be received at this office **until June 8, 1904**, and then opened, for foundations and other work for the Municipal Building. Information on application to Captain Chester Harding, Corps of Engineers, U. S. A., Supervisor of Construction, Municipal Building, Washington, D. C. Leslie M. Shaw, Secretary of the Treasury. HENRY B. F. MACFARLAND, HENRY L. WEST, JOHN BIDDLE, Commissioners of the District of Columbia, Municipal Building Commission. 1483

SCHOOL. [At Bucyrus, O.]
Bids will be received **June 10** by the Bd. Educ. for erecting a brick school in Sub-dist. No. 2 in Auburn Township. CHAS. McCONNELL, Clk. Bd. Educ. 1484

BUILDINGS. [At Fort Sheridan, Ill.]
Bids will be received **until June 15** by Wm. Weigel, Constructing Quartermaster, for the construction of 14 brick buildings and 1 frame building, including heating, plumbing and lighting at this post. 1484

DORMITORY. [At Oxford, O.]
Bids will be received **June 13** by the Bd. Trus. of Miami Univ. for erecting and equipping a woman's dormitory, work to include masonry, cement floors, cut stone, structural ironwork, sewer, plumbing, gas fitting, ventilating, heating, electric light wiring and fixtures, etc. Probable cost, $40,000. REV. GUY P. BENTON, Pres. 1484

QUARTERS. [At Fort H. G. Wright, N. Y.]
Bids are wanted **June 15** by the Constructing Quartermaster, New London, Conn., for constructing, plumbing and electric wiring 1 double set N. C. O. quarters and 1 fire apparatus house at this post. 1484

BUILDING. [At Fort Myer, Va.]
Sealed proposals for a brick addition to band barracks and for a frame wagon shed will be received **until June 14, 1904**. Information furnished upon application. CAPT. G. C. BARNHART, Quartermaster. 1484

SCHOOL. [At Royal Centre, Ind.]
Bids will be received **June 15** by the School Bd. for erecting a $12,000 school. 1484

Treasury Department, Office of the Supervising Architect, Washington, D. C., May 21, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 21st day of June, 1904, and then opened, for the low pressure steam heating apparatus, complete in place, for the U. S. Custom-house and Post-office and extension at Nashville, Tenn., in accordance with drawings and specification, copies of which may be had at this office or at the office of the Superintendent at Nashville, Tenn., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1484

Treasury Department, Office of the Supervising Architect, Washington, D. C., May 23, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 30th day of June, 1904, and then opened, for the construction (including plumbing, heating apparatus, electric wiring and conduits) of the U. S. Post-office at Gainesville, Tex., in accordance with drawings and specification, copies of which may be had at this office, or at the office of the Postmaster at Gainesville, Tex., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1484

Treasury Department, Office of the Supervising Architect, Washington, D. C., May 24, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 5th day of July, 1904, and then opened, for the construction (except heating apparatus) of the U. S. Post-office and Court-house at Evanston, Wyo., in accordance with the drawings and specification, copies of which may be had at this office or the office of the Postmaster at Evanston, Wyo., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1484

Treasury Department, Office of the Supervising Architect, Washington, D. C., May 23, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 21st day of June, 1904, and then opened, for the plumbing, heating and ventilating apparatus and electric wiring and conduits in work rooms under terrace at the U. S. Mint at Philadelphia, in accordance with drawing and specification, copies of which may be had at this office or at the office of the Custodian at Philadelphia, Pa., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1484

Treasury Department, Office of the Supervising Architect, Washington, D. C., May 14, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 16th day of June, 1904, and then opened, for the low-pressure steam-heating apparatus, complete in place, for the U. S. Court-house, Post-office, etc., at Montgomery, Ala., in accordance with drawings and specification, copies of which may be had at this office or at the office of the Superintendent at Montgomery, Ala., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1483

HEADSTONES. [At Boston, Mass.]
Depot Quartermaster's Office, 170 Summer St., Boston, Mass. Sealed proposals will be received here **until June 13, 1904**, for supplying 11,500 (subject to an increase or decrease of from 10 to 50 per cent) American white marble headstones, or slabs. Firms that may be unable to supply the entire quantity may submit bids for such number that they can furnish, and all bidders must state the average number of headstones, complete, which they propose to deliver weekly. Preference given to articles of domestic production or manufacture, conditions of quality and price (including in the price of foreign productions and manufactures the duty thereon) being equal. Deliveries to begin within 30 days after award of contract. Information furnished on application. CAPTAIN IRA L. FREDENDALL, Depot Quartermaster, Boston, Mass. 1484

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