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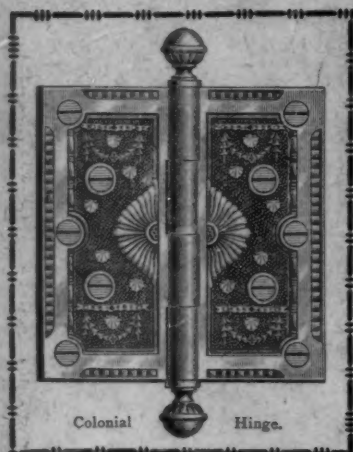
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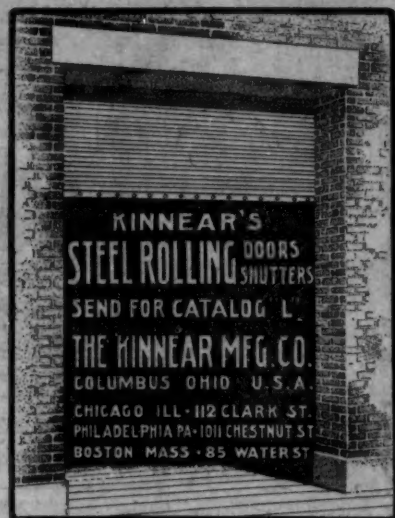
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THE terrible fire in Baltimore should have many lessons for architects. As in Chicago and Boston, such a conflagration was sure to begin, sooner or later, among the wood-constructed buildings which crowded the older part of the city, and it is, perhaps, well that it should have come before they had been more generally replaced by costly modern structures. Of the latter there were very few in the burned district. Only three or four are said to have been of what architects now consider fire-resisting construction. How they stood the test is not yet known, as, of course, the ruins cannot be approached with safety, but the results of later examination will be of great interest to the profession. As for the brick houses, with wooden floors, wooden roofs, wooden framings and wooden trimmings, characteristic of the older portion of Baltimore, it is hardly necessary to say that they vanished like tinder before the overpowering heat of the conflagration. Although the destruction of property is very much to be regretted, there was, fortunately, little loss of life, and Baltimore has, at least, an opportunity, such as it could hardly have had otherwise, to rebuild itself with a solidity and stateliness worthy of its beautiful situation.

INSURANCE ENGINEERING generally has valuable comments on fires of importance, and its observations on the catastrophe at the Iroquois Theatre are peculiarly interesting. According to these, the fire was caused by an open electric arc-light over the stage, from which particles of burning carbon fell on some inflammable draperies hanging near by. It would seem as if the phenomenon of sparks falling from open arc-lights might have been familiar enough to the stage machinist, the deputy inspector of buildings, and the other persons responsible for the fitting-up of the stage to have induced them to use the ordinary precaution of enclosing the light in a proper globe; but we have yet to hear of a single person, entrusted with any care or responsibility for the fitting and management of the theatre, who was not grossly and criminally indifferent to his duties. As every one who knows the history of such cases expected, it has been "discovered" that the persons on whom the coroners' jury placed the blame for the death of six hundred innocent people cannot be legally pursued, or harmed in any way, for their conduct; and we are told that the principal ones among them celebrated their release from any anxiety on this account by a "jollification" at the City Hall. In Paris, or Berlin, or Vienna, they would assuredly have been, before this time, within the walls of a jail. There is a story, a true one, by the way, of a French architect who, although he had retired from practice, was persuaded by some of his friends to make them a sketch for a certain building, which they would have carried into detail by others. He made the sketch, and, according to the story, knew nothing more of the matter until the building which was supposed to embody his idea fell down.

Then the hand of French justice fell upon him, and he ended his days in prison. If this is the way that an inadvertent neglect of the rules of sound construction is punished in France, it may be imagined what the Parisian criminal courts would say to the deliberate and glaring violation of all the most important provisions of a statute law by persons having the lives of thousands of people in their keeping, with the collusion, or, at least, with the silent acquiescence, of all the officials entrusted with the enforcement of the statute.

THE *Deutsche Bauzeitung* makes some severe but deserved comments on the Iroquois Theatre fire. It mentions a circumstance which we have not before heard of, that one of the few exit passages which was not barred or blocked up led to a door which opened on the outside wall of the building, thirty feet above the street! There was no pretence at any ladder, or other means of reaching the ground in safety from this valuable exit door; and the unhappy fugitives, pushed by the crowd behind them, fell by scores to the pavement, until some people contrived to push over a board from the windows of a neighboring building, by means of which a few, who managed to run along the board without being shaken or pushed off by those behind them, were saved. The *Deutsche Bauzeitung* evidently does not know the depth of official and unofficial shiftlessness, stupidity and corruption disclosed by the inquest, but it says, eloquently and truly, that the lives of the six hundred unfortunate women and children, and the inconsolable grief of their families, were the sacrifice that had to be paid because money-making and carelessness together were stronger than duty, common-sense and skill.

AFTER speculating on the reception that plans of a theatre, which showed fire-doors opening thirty feet above the street, would meet with from a German building inspector, it speaks of another American theatre, recently built, in which the side exits consist of mere fire-escape ladders; and congratulates its readers that no one in Germany, even in the oldest theatres, need fear being obliged to save himself by climbing down ladders of that kind, with a panic-stricken crowd behind him. Although it acknowledges that American architects are almost eccentrically requiring and ingenious in the matter of fireproof construction, it seems to think that they need some hints in regard to the planning and building of theatres, and makes a variety of judicious suggestions in regard to exits, curtains, ventilators, fire-drill and so on, which, as it says, might with advantage be incorporated in building statutes or municipal ordinances. Probably it will be surprised to learn that nearly all the suggestions which it proposes, together with many others, equally judicious, are already incorporated in the laws of every large American city, and that the reason why people are slaughtered by wholesale in American buildings is not that there are not enough good laws, but that the laws are shamelessly and deliberately violated every day in the year, with the knowledge, and frequently with the connivance, more or less corrupt, of those whose sworn duty it is to enforce them.

THE Boston *Evening News* has sent a reporter to inquire into office-rents, and has discovered that in the newest and most modern office-buildings the rents now obtainable are lower than those paid for equal floor area in older buildings nearby. The cause of this is, as it thinks, that, in the most recent buildings, it is the ordinary practice to crowd eleven stories into the one hundred and twenty-five feet to which the height of all buildings in Boston is limited. Deducting the thickness of floors and roof, this leaves only about nine feet clear height for the offices, and even the marble floors and wainscots of these buildings cannot prevent offices nine feet high from being ill-ventilated and dark. As the distance to which light from a window extends into a room depends mainly on the height of the top of the window from the floor, it is obvious that a low-studded office is under a great disadvantage in this respect; while, in a steam-heated room, a certain height of ceiling is essential to comfort. For this reason the Boston architects have usually deprecated the attempt to put eleven stories into the height permitted by law; but architects must defer to the wishes of their clients, and the latter seem, of

late, to have insisted upon the maximum practicable number of stories. Some of the best of the recent office-buildings are provided with a system of ventilation, which does much to remove one of the objections to a low-studded room; but the deficiency of light cannot be thus overcome; and the sacrifice of space in courtyards, necessary to obtain adequate illumination for low-studded offices, goes far to counterbalance the advantage of an extra story of rooms. The problem of planning an office-building is one of the most interesting, as well as most difficult, with which architects have to deal, and it is not likely that it has yet been perfectly solved.

EVERY architect knows something of the objectionable tendency of cast iron to expand when heated, and has had experiences with grate-bars broken or bent out of shape, or with furnace-pots cracked, in consequence of this tendency; but it is not until very recently that Mr. A. E. Outerbridge, Jr., has enlightened the community by a most interesting series of experiments, the results of which were communicated this winter to the Franklin Institute. It has been usual for the stove and furnace-men, when confronted with a damaged piece of casting, to explain that all iron expands when heated, and that a stove or furnace cannot be expected to resist the long-continued application of fire; but Mr. Outerbridge shows that, while wrought iron and steel expand when heated, and contract again, in cooling, to about their original dimensions, cast iron has the curious property of expanding without subsequent contraction, and that, by a succession of heatings and coolings, a piece of cast iron increases enormously in size. At the meeting of the Franklin Institute, for example, he showed bars, originally less than fifteen inches long, and one inch square in section, which, by repeated heating and cooling, had grown to a length of sixteen and one-half inches, and a section one and one-eighth inches square, without losing their finish or polished surface. Naturally, this increase of about forty-one per cent in bulk was accompanied by a corresponding change in specific gravity, that of the reheated bars being about six, in place of the normal specific gravity of cast iron of a little over seven. It would be reasonable to suppose that this increase in size might be due to the production of internal fissures; but, as it has shown itself to be practically uniform in about a thousand tests, this explanation cannot be admitted. Microscopic examination, however, shows that the crystals of the metal are less compactly arranged in the expanded specimens than in the fresh ones, so that the change is, apparently, one of internal structure. Apart from the obvious lesson taught by these experiments, that stove and furnace castings must be so designed as to allow of great and unequal increase in bulk without rupture, the principle thus discovered can be most usefully applied in many ways. Mr. Outerbridge speaks of treating the cast-iron piston of a pump, which had become so worn as to be unfit for further service. By enclosing a piston in an iron pipe, to keep it from warping or burning, and heating and cooling it five times, it was increased in diameter about one-twentieth of an inch, and was then easily turned down to the required size. In the same way, some castings which had, by mistake, been made too small, and had been partially finished before the mistake was discovered, were increased to the required dimensions without injury. It is to be noted that steel, by repeated heatings, shrinks instead of swelling, and that the swelling of cast iron appears to be greatest in specimens which, like most cast iron of the present day, contain a comparatively larger proportion of silicon.

PROFESSOR W. O. CROSBY, of the Massachusetts Institute of Technology, is preparing some notes on the building and decorative stones used in Boston and its neighborhood, and would be glad of any information that the architects of the city may be able to give him in regard to new materials of the kind with which they may have had experience, giving such details as they can. Although the Boston architects are more conservative than those of some portions of the country in regard to the use of untried materials at the expense of their clients, they practice in a region which is itself rich in building and ornamental stones; and trials, at least, have probably been made by them of many kinds which are now out of the market, but which would be of great interest to geologists and students. To mention only a few of the varieties which have been brought to the attention of architects within the last ten or fifteen years, some of our readers have perhaps experimented with the green soapstone from Hoosac Mountain; the pink marble from Northern Vermont,

the dark green Lynnfield serpentine; the black granite from Maine; the white marbles of Stoneham and Rhode Island, the milk-white Randolph granite, and the rose-pink Easton variety; and, perhaps, the beautiful amethyst masses of Westerly, and the gray granites, glittering with blue flashes of Labradorite, which are found in and about Sharon. In regard to all these native stones information would be welcomed, and where, as is sometimes the case, unfamiliar stones from a distance have been used by architects, Professor Crosby would be grateful for particulars, or we would with pleasure receive and forward to him any notes that might be sent to us.

MANY people besides architects will be interested to learn that the French pavilion at the St. Louis Exposition is to be, as nearly as practicable, a reproduction of the Grand Trianon at Versailles, and is to be decorated with real Gobelin tapestry, of the epoch to which the building belongs, and furnished with objects of the same period, from the Government collection. As the Grand Trianon and the accompanying furniture date from the time of the French occupation of Louisiana, the exhibition of them at St. Louis is peculiarly appropriate; but, although we should all like to see the beautiful Louis Quatorze furniture, it is impossible not to sympathize to some extent with the French architects, who think that their Government is rather too liberal in lending its priceless pieces of old tapestry and cabinet-makers' work to grace official receptions, or to adorn the houses of ambassadors and other persons whom it is desired to honor. Furniture made of tortoise-shell and gilt brass is not, at best, calculated to resist rough usage, and no one who has visited an American Exposition needs to be told what sort of treatment the objects shown must expect.

EVERY one will regret the breaking-out of war between the two great nations of Japan and Russia. It would be hard to say to which of the two the world owes the most. From this distance, Japan, in upholding the integrity of the Chinese territory, and the treaties made by its Government, appears to be defending international honor and the interests of civilization; but it certainly is not for us to express an opinion on Oriental questions. As a matter of practical economy, however, it might be observed that the belligerent parties, if they must really slaughter each other, could do so much more cheaply by availing themselves of modern aeronautic science than by resorting to the old-fashioned weapons. The Japanese propose, we are told, in order to maintain, for the benefit of all commercial nations, the "open door" in Manchuria, to spend, probably, a thousand million dollars in battering the Russian forts and armies which defend the approaches by land and water to that province, while, just over their heads, is a door of illimitable capacity, defended neither by forts nor armies, and opening, not only into Manchuria, but into all Asia. For a thousandth part of what a war will cost, in money and human life, Japan could utilize this door to its heart's content, pouring goods into Manchuria without regard to the Russian forts and custom-houses, or demolishing these on its way if they seemed disposed to be troublesome. It is true that the aerial door is open to the Russians, as well as to the Japanese, but the latter, so far as Manchuria and China are concerned, have the immense advantages of proximity, as well as those of a fertile soil, a large population, and a common origin with those whose trade they seek.

IT is reported that the Committee in charge of the annual "Concours de Façades," in Paris, is experiencing some embarrassment, on account of the great number of works entered for competition, and, perhaps, also, on account of the eccentricity of some of the designs. It is easy to judge of architectural works in a style which has been familiar to all the judges from infancy; but a building without a single detail in any known style is likely to appeal very differently to different members of the jury. Even where the detail is skilfully arranged from natural forms, as is the case with much of the new work in Paris, room is still left for discussion as to whether this virtue is strengthened or counteracted by the appearance of windows and doors of strange shapes, decorated with still stranger ornaments. While we believe that the "new art" has in it germs of great promise, it is, at present, in a state in which criticism can hardly be applied to it in the same way as to work in the more familiar style; and juries of Parisian façades are likely to have a difficult task before them for several years to come.

PHOTOGRAPHY FOR ARCHITECTS.¹

IT is the purpose of this paper to put before you facts which will prove that photography for architects possesses a value both in the study and practice of architecture which cannot be overlooked. The subject will be dealt with under two main heads, viz:—

The utility of photography in

1. The study of architecture;
2. The practice of architecture;

and the apparatus and appliances for architectural photography will then be briefly considered.

The usefulness of photography in the study of architecture will be considered with reference to its value in educational work, and also to its value as a record of old work. Photography in its application to the study of architecture is simply a means of delineation, and it is the finished photographic print or lantern-slide which is the valuable aid to study.

Photography should not be considered as antagonistic to sketching. It has a utility in the education of the architect by producing an accurate delineation of old buildings unattainable by a sketch. It must not be forgotten that however valuable a sketch or measured drawing may be to the individual student who prepared it, there is the personal error to bear in mind when this method of delineation is applied for general study.

Photographs in conjunction with measured drawings undoubtedly form the best means for architectural study and research. It may be mentioned that in the Architectural Association Sketch Book there are examples of measured drawings together with a photograph of the work. This method of illustration might be employed with advantage to a much larger extent, not only in the Sketch Book, but in all architectural publications. Whenever any old building of interest is to be pulled down to make way for modern improvements or for other reasons, a set of measured drawings with a series of photographs form the best record of the old work. In record work research should be made as to how the building has fulfilled its purpose and how its environment affected its design. To obtain this knowledge the employment of photography is a valuable assistance.

The method adopted for the training of architects by a system of instruction in classes has its value considerably enhanced by using photography as one of the means of illustration. The use of the lantern-slide in lecture work is a great step in advance of the ordinary lecture diagram. It is essential, in order to make the instruction imparted by lecture work of the greatest value, that the illustrations employed should receive concentrated attention while the various points are being explained. Diagrams specially prepared for lecture work are in the majority of cases of but little avail, and it is impossible for the lecturer to satisfactorily explain from them, even to an average-sized class or meeting, the various points dealt with, simply because they cannot be properly seen from every part of the room, and, besides, in most instances, are badly placed for the lecturer's use. Frequently the walls of the room are smothered with measured drawings, plates from the building papers, and similar illustrations, and an attempt is made to explain some points when only one or two present can see the illustration referred to. One does not object to illustrations of this kind on the walls if they are simply intended for those present at the meeting to see for themselves before or after the lecture, but to use them as lecture diagrams is really the height of absurdity.

But all these difficulties are obviated by employing photographic means. Lantern-slides of the actual work, of measured drawings, of illustrations from books and other publications, in fact, of illustrations from every available source, can be thrown upon the screen, can easily be seen by every one, and enable the lecturer's explanation to be understood by all.

Lantern-slides for architectural lectures should be made with a view to suitability of purpose. Photographs of buildings, both externally and internally, would be useful to illustrate the grouping and general effect, and then should follow photographs of towers and spires, of piers and arches, of caps and bases, of doors and windows, of vaulting, etc., to illustrate the treatment of the parts, and, lastly, of mouldings and ornaments. If a systematic sequence is followed, the slides would be of immense value in promoting the study of architecture.

In illustrating constructive subjects, the same principles should be adhered to, explanatory lantern-slides to illustrate the manufacture and uses of the various materials, and then slides showing the different methods of construction.

Measured drawings, sketches, book illustrations, and, in fact, every process of delineation can be brought within the scope of the optical lantern. The possibilities of the usefulness of lantern-slides in educational work is practically unlimited.

The slides themselves should on no account represent more than is required. Simplicity should be our guide in these matters. All diagrams, book-illustrations, etc., should be represented on the screen as large as possible. The attempt to crowd many illustrations on one slide should be condemned. A lantern-slide for lecture purposes should not consist of a confused jumble of details with meaningless letters or figures. It is bad enough in a text-book, but infinitely

worse in a lantern-slide. The object of all study is to gain knowledge, and not to cause confusion.

The use of telephotography in the study of architecture is one which should receive our careful consideration. In many instances parts of a building well worth studying are inaccessible for measuring, and in those cases an ordinary photograph gives a general idea of the composition and a telephotograph the details.

The utility of photography in the practice of architecture might receive far more attention than it does. In many instances the only use to which photography is put in architectural practice is in the reproduction of drawings by the ferro-gallic process. In this process the reproduced drawings are either on a thin paper, or on a paper similar to Whatman's, and a black or brown line is obtained on a white ground. The advantage of the process is that the reproduced copies can be colored similarly to an original drawing. A great saving of time is effected, because from one complete set of tracings any number of reproductions can be obtained. If the reproductions are to be kept for a considerable time, as in the case of copies for the authorities, care must be taken in the selection of the paper, owing to its tendency to fall to pieces after a time. For this reason the authorities will only accept photographic reproductions on linen. The makers of the paper might consider the best means of surmounting this difficulty. It may be mentioned here that some of the papers used shrink slightly in the process of obtaining the reproduction; this emphasizes the necessity of fully dimensioning all drawings. The ferro-prussiate process with a white line on a blue ground is sometimes used, but as coloring is then out of the question, it is not so suitable for general architectural work. Its use is limited to drawings where coloring is not essential, as, for instance, in details of steel construction.

Besides this special application, the use of photography in architectural practice is generally limited to what may be termed the legal phase of our profession, although a wider application would be a distinct gain. No one will deny that photographs of buildings about to be pulled down are valuable records, and in ancient light, easement, party-structure and such like cases would always be useful on one side or the other. If the building happens to be one of considerable architectural interest, then the value of the record cannot be overrated.

In modern work, photography could be used to increase our knowledge and experience in a way little thought of, and the wonder is that it has not been more generally applied for the purpose.

Photographs of a building at its various stages of erection, with the dates, and in some instances the time, noted thereon, would be a valuable record of the class of work, and, in addition, would be very serviceable in the valuation of certificates. Photographs of special works of construction in buildings of a distinctive type would be most useful for future reference when dealing with similar works.

Photographs of the finished building should in all cases be obtained, and a comparison made by showing the photograph side by side with the perspective drawing. With reference to comparisons, a collection of photographs of similar detail and ornament of old and modern work would prove of use both in the study and practice of architecture.

The practical use of photography in delineating the progress of a structure from time to time is employed by engineers with the best results, and there is no reason why we should not do likewise. In a few isolated cases it is done, but it rests with the profession at large to avail itself of the opportunities within its grasp. This legitimate use of photography in our every-day practice would assist in grappling with many difficulties with an ease at present unknown.

The utility of photography in the study and practice of architecture having been dealt with, it now remains to deal with the technical part of the subject. It is evident that in order to obtain the best results in the application of photography to the study of architecture, the taking of the photographs should be performed by ourselves, otherwise the photographs or lantern-slides will not express the subject in the best way.

It is impossible for a professional photographer to know exactly what is wanted unless he happens to have made a thorough study of architecture, and we know that in the majority of cases he has simply a mere smattering of our requirements. If his specialty is architectural photography, his knowledge of architecture may, in a general way, be said to be peculiar, and not, by any means, extensive. Consequently, if the work is to be done well, the photographs and lantern-slides should not be left in his hands for selection of subject. There may be exceptions, but the exceptions prove the rule. It might, of course, be urged that the professional photographer could do the work under our guidance, but it will be found that this method is expensive, and is, in reality, only applicable in those instances where selection of subject is not required to any great extent.

It is desired to make a thorough record of an old building: Here the best way to proceed is to make measured drawings of the building and a complete series of photographs. Who is most capable of taking the photographs? Unquestionably, he who undertakes the recording of the old work. Again, in detail and ornament, who knows which is best to select for architectural purposes? Certainly not the professional photographer, for he would be in a state of bewilderment, whereas the architect would not have the slightest hesitation about the matter. In the many requirements of architectural practice where the question of architectural selection does not arise, the photographic work can with advantage be delegated to the professional photographer.

¹A paper by Francis R. Taylor, recently read before the Architectural Association.

The architect who decides to use photography as an aid in his study and practice should understand certain technicalities of photography. The questions which present themselves are:—

What is the best camera for architectural work?

What lenses should be used? What photographic plates and papers should be employed?

Dealing with the questions in order: *First*, What is the best camera for architectural work? Before anything can be done, the size of the camera must be decided upon. The ordinary sizes are: $4\frac{1}{4}'' \times 3\frac{1}{4}''$ (quarter-plate); $6\frac{1}{2}'' \times 4\frac{3}{4}''$ (half-plate); $8\frac{1}{2}'' \times 6\frac{3}{4}''$ (whole plate); $10'' \times 8''$; and $12'' \times 10''$. It is generally agreed that the larger sizes are the best for architectural work. But the larger the size, the more expensive it will be. Besides this, the weight of the camera is a serious matter, especially as in the majority of cases the work would be done at a distance from home. For these reasons it may be conceded that the half-plate is the most serviceable. When lantern-slide work is contemplated, the quarter-plate is generally selected, as that is the most suitable size for the purpose.

If a good lens is employed, the quarter-plate size might be used for all work, as the photographs can be enlarged with satisfactory results.

The requirements for a good camera are:—

1. Lightness, with rigidity.
2. Rising and falling adjustment to the front of the camera.
3. A reversing and swing back.
4. A long extension.
5. Parallel bellows, or only slightly conical.
6. Focussing screen and focussing adjustment.
7. Double dark slides.

The lightness of a camera is necessary for convenience in carrying about, and rigidity is required to prevent movement while the photograph is being taken. The rising and falling adjustment allows the position of the photograph on the plate to be varied. In architectural work a considerable rise is frequently required. The reversing back is essential in order that the photograph can be taken in a horizontal or vertical position. In many cases the camera must be tilted to include the whole of the building, hence a swing-back must be provided, for the plate must be kept vertical, otherwise the vertical lines of the building would converge in the photograph. A long extension provides for the use of a long focus and telephoto lenses.

Parallel bellows prevent the cutting off of the edges in the photograph when a short-focus lens is used.

The focussing screen is the sheet of ground-glass upon which the photograph is depicted. It is adjusted to obtain a clear, sharp image by means of a rack-and-pinion movement. The double dark slides hold the plates for exposure, and at least three, or, better, six, double dark slides should form part of the outfit. The question to decide in the selection of a tripod stand is one of rigidity, compactness and portability.

Second: What lenses should be used? It is best to provide in an outfit for architectural work a set of lenses of different foci and of a good make. The lenses should be of a rectilinear type. For average work, the rapid rectilinear of about 7-inch focus is most serviceable on a half-plate. Long-focus lenses are useful in detail work, and wide-angle lenses are essential in confined positions.

The telephoto lens would be a most valuable acquisition in the equipment. Some of the best examples of detail work are at too great a distance from the position available to give a photograph of a satisfactory size, but a telephoto lens enables you to obtain it to a larger scale with the same extension of camera. As this lens is not of a fixed focal length, the scale of the photograph can be altered at will.

Third: What photographic plates and papers should be employed? Ordinary plates of a good make are the best for architectural work, especially for interiors, although in dark interiors, where very long exposures are requisite, rapid plates may be used with advantage. Isochromatic plates are useful where the lighting of the interior is yellow. In interiors where the light from the windows, etc., would be likely to cause halation it is necessary to use backed plates.

The development of the negatives requires care on the part of the operator. The developer which the majority of workers prefer for negatives is one of the pyro-formulas, either pyro-ammonia or pyro-soda, and there is no doubt that a very wide latitude is given by the use of pyro. Hydrokinone is a cleaner developer, and for that reason is the one generally selected for lantern-slides; it has not the wide latitude of pyro, but in lantern-slide work this is not so important. The method of procedure cannot be discussed now. It may be mentioned, however, that the architect-photographer should do his own development, and not follow the advice expressed in the well-known advertisement phrase of "You press the button, we do the rest."

The chief printing processes can be classified under four heads, viz:—(1) Silver printing-out processes; (2) platinotype; (3) carbon; (4) bromide; and the decision as to what processes should be adopted depends upon circumstances.

A silver printing-out process, such as the well-known P. O. P. of various makes, produces excellent results, but if permanent photographs are required, then platinotype or carbon processes should be used. For enlargements, bromide papers are most satisfactory. The advantages of the various processes can be best judged of by the numerous prints which will be placed before you for inspection.

The chief printing processes can be classified as follows:—

1. Printing-out processes.
2. Processes requiring development.

Printing-out processes include all the processes in which printing-out is resorted to. The albumen silver paper is an example, and at one time was the one generally employed. The gelatino-chloride of silver printing-out paper, commonly called P. O. P., has to a large extent superseded it. The P. O. P. of various makes, with suitable toning and fixing, produces very effective results.

The processes requiring development are best exemplified by platinotype, carbon and bromide. If permanent photographs are required, then platinotype or carbon processes should be decided upon. For enlargements, bromide papers are most satisfactory. The advantages of the various processes can be best judged of by the numerous prints which will be placed before you.

The architect-photographer, being fully equipped, now sets forth to take photographs. He makes a selection of some old building, and, if he be an earnest worker, he does not, as is often thought, make a tremendous rush at it. While long exposures are being given he devotes his time to finding out all he can about the building, and maybe he measures details and obtains full-sizes of the mouldings.

It seems to be a stock argument with the opposers of photography for architects to refer to the inverted image on the focussing screen, as if that were the important part of studying the work. That is only a means of obtaining a good photograph, and as to the inverted image, one gets used to it in precisely the same way as our minds have been able in infancy to correct the impression of the inverted image which is produced on the retina of the eye.

The great question before you is the utility of photography in our study and practice. The question of photography and sketching is not to be considered, and if you are fired to enthusiasm in this matter, there will be ample scope for your eloquence at the meeting on the 6th of next month previously referred to.

The value of combining photography with measured work should receive a large share of your attention, and encouragement is much needed for architectural research, and in giving it every method of delineation should be recognized, together with a clear description of the work and its history. — *The Builder*.

THE DESECRATION OF ST. DENIS.

RECENT and present legislative enactments by the French Chamber of Deputies regarding the expulsion from France of religious orders, the sequestration of the property of the Church and its entire separation from the State vividly recall to mind the famous decree of the Convention on August 1, 1793. On this day the Convention decreed that within eight days the tombs of the kings and queens of France at St. Denis, together with all other funeral monuments of sovereigns and noble personages erected in the various places of worship in Paris and the provinces, should be destroyed, and the remains found in them thrown into a common grave and annihilated with quicklime. In order to preserve whatever there might be of value in the shape of gold and silver ornaments and precious stones found in the coffins, a commission, called "of jewelers," was created to superintend the exhumations and secure for the State whatever might be discovered. The proposed desecration of the tombs of the sovereigns at St. Denis created a deep impression throughout the French metropolis, and, the same as present legislation against the Catholic Church, did not pass without lively protestation, some dozen persons being imprisoned for the open manner in which they had spoken concerning what most people considered a horrible sacrilege,—not, however, without precedent in history; for at the time of the dissolution of the English monasteries under Henry VIII hundreds of glorious and even royal monuments were destroyed and the bones ruthlessly scattered to the winds.

Early on the morning of October 12, 1793, a multitude of people, mostly belonging to the lower orders, hastened from Paris to St. Denis. On their way to this magnificent basilica they stopped to desecrate twelve beautiful Gothic wayside-crosses, erected in the thirteenth century by Philippe le Hardi to commemorate the various places where the body of St. Louis rested on its way from Paris to the royal vault. At Aubervilliers the mob entered the parish church and dragged from its position over the high altar a famous wooden image of Notre Dame des Vertus. They tied a cord round its neck, and, hanging it to one of the desecrated crosses, set fire to it, and while they watched it consuming away danced around, shouting the "ça ira" and the "Carmagnole." After such ventures as these it is easy to imagine that by the time this multitude of roughs arrived in the large square opposite the Abbey of St. Denis they were ready to commit any description of vandalism. They found, however, the splendid bronze gates—given by Charlemagne—closed, and although the great bell tolled at regular intervals, there were no signs that anything unusual was happening inside the church. Possibly the disappointment at finding the doors shut against them infuriated the mob, who presently made a determined and sudden rush forward *en masse*, and, before the soldiers could stop them, tore down the gates and hacked them to pieces. Thus perished one of the most perfect relics of early French art.

The first grave disturbed was that of Pepin, who was buried under the threshold of the central door. His stone coffin was opened, and

a copper plate torn from it, upon which was engraved "Hic jacet Pippinus rex pater Caroli magni." Nothing was found in the coffin excepting a few ashes and a quantity of little bits of gilt metal. Having satisfied their curiosity with regard to the remains of Pepin, the mob proceeded to throw down the statues of the saints and kings, to smash the windows — some of which were filled with stained glass of the greatest beauty — and to desecrate the altars. Presently a number of men in the uniform of the National Guard entered the church and restored some sort of order by officially announcing that the exhumations were about to begin. Curiosity now took the place of riot. Bowls full of burning vinegar and other disinfectants were distributed, and at noon the business opened in earnest. In the meantime a big pit had been dug outside the church, at the entry to the cloisters, and near it were placed a number of barrels filled with quicklime. One of the commissioners having certified that everything was in readiness for the desecration of the royal bones, returned to the church, followed by his assistants. "Gentlemen," he cried, "we are about to empty the rat-hole under the high-altar!" — a statement which was received with great applause.

At 1.30 o'clock the workmen came upon the first coffin. It chanced to be none other than that of Henri IV. They placed it alongside the wall, on the left-hand side of the entrance to the crypt, and immediately proceeded to open it. So great was the curiosity to see the remains of this most popular of French kings that every precaution was taken not to injure the body. It was discovered to be very carefully embalmed, and enveloped in a series of narrow bands of linen steeped in some chemical preparation. These were unrolled with the utmost care down to the waist, when, to the surprise, and almost terror, of the spectators, the corpse of the great king appeared almost as perfect as when first buried. The face was so well preserved that even the fan-shaped beard seemed as if it had only recently been dressed. The eyes were open, and the wounds made by Ravaillac's knife were clearly revealed. The upper part of the brain had been removed, and replaced by a sponge filled with aromatic essences. The interest manifested by the crowd on seeing the body of this once popular idol was such that the remains were unmolested until late at night, thousands of persons going processionally to see them. No other body was exhumed that day. The next day was Sunday, and although the Sabbath was no longer respected in France, strange to relate, the works at St. Denis were suspended, and an enormous multitude of Parisians visited the church, in order to behold what they were pleased to call the "carcass of Henri IV." On the morning of Monday (the 14th) it seemed probable that, after all, a revulsion of popular feeling might occur, and that the bones of the kings might be left in peace.

However, shortly before noon a sinister looking fellow, wearing the usual red cap, suddenly placed himself in front of the coffin of Henri IV and cried out: "Why don't you stuff your Henri IV into a golden shrine, as you did your patroness, Mlle. Ste. Geneviève? Stick him on the altar, do; he'll perform some miracle or other before night. He was such a good man! a sort of apostle and saint, who used to send to the gallows any unfortunate peasant who ventured to kill his rabbits, and who ruined France to give a golden coach to Belle Gabrielle. When Ravaillac killed him he was about to plunge France into the horrors of war, because he wanted to deprive his cousin Condé of his wife, so that she might replace the charming Gabrielle. Come, patriots, look sharp! Let's get the old rascal out of this, and dig up the rest of the crowned brigands." This person's name was Javoques, and he was shot a few years afterward at Grenelles. His harangue produced the desired effect. Henri IV was, therefore, ignominiously consigned to the pit outside and quickly covered up with lime. A few minutes afterward the bodies of Louis XIII and Louis XIV were thrown into the pit. The body of Louis XIII was dried up like a mummy, but the face could easily be recognized on account of its curiously shaped black imperial and mustache. The remains of Louis XIV were treated with the utmost disrespect. On the 14th and the 15th of the month hundreds of bodies of illustrious and also of unknown persons were torn from the vaults and cast into the lime-pit. Among them were those of Marie de Medicis; Henrietta of England, Duchess of Orleans; Maria Theresa, wife of Louis XV; Anne of Austria and of the great Dauphin. Very little jewelry was found in any of the tombs, but the hearts of a son and daughter-in-law of Louis XV were discovered inclosed in large vases of pure gold, inlaid with splendid gems. The "Commissioner of Jewels" sent them to Paris, where they were soon appropriated.

On the 16th of October the exhumation continued with unabated vigor, but a most extraordinary coincidence occurred which has been rarely noticed by historians. At precisely the moment when the head of Marie Antoinette fell on the scaffold the body of her eldest son, the first Dauphin, was thrown into the lime-pit at St. Denis. At 4 o'clock of the same afternoon the bodies of the kings and queens of the earlier dynasty were disturbed, among them being those of Charles V and Jeanne de Bourbon, his wife. In the coffin of this king were his crown and sceptre, and in that of Queen Jeanne a ring and a distaff. The body of King Charles VII was covered with a quantity of little specks of quicksilver, which had evidently been used in the process of embalment. The tombs of these earlier kings, it was discovered, had been previously violated in the sixteenth century. The crypt of the Valois was nearly empty, a fact which created much sensation among the mob, who were particularly anxious, it seems, to secure the body of Louis XI. Somebody, how-

ever, remembered that this wily monarch was not buried at St. Denis at all, but at Notre Dame de Cléry.

The mob next turned its attention to the remains of the greatest warrior that France had hitherto produced — Turenne. His monument was broken into, and his body discovered to be in a state of almost perfect preservation. A representative of the medical faculty of France stepped forward and demanded the body of the great soldier "as a magnificent specimen of how a mummy should be prepared." Turenne's body was transported to the Jardin des Plantes, where it remained in a granary for nine years, stretched out on the ground between the skeletons of a monkey and a camel. This scandal in the course of time being reported to Napoleon Bonaparte, he ordered that the body be honorably buried at the Invalides. The remains of Du Guesclin, Arnaud de Barbazan, and of Suger, the founder, after Charlemagne, of the splendid basilica, of Mathieu de Vendôme, and of other great personages, were now cast out of their resting-places and flung into the lime-pit. The last king, Jean, was exhumed on October 25. These scenes of profanation occupied exactly twelve full days. However, all was not over yet. On the 31st some one spread the report that the body of Mme. Louise, who died in 1787, at the convent of the Carmelites, of which she had been abbess, had not yet been desecrated. It was discovered and thrown into the common grave. In 1800 the church which for so many centuries had been one of the greatest glories of France, was visited by Chateaubriand, who describes it as being in a hopeless state of ruin. So little chance did there then seem of its ever being restored that it was actually proposed to level it to the ground and convert its site into a market-place. Napoleon I, however, decreed that, cost what it might, the Basilica of St. Denis was to be restored as speedily as possible to its former condition. The restoration thus begun cost not less than 7,000,000 francs, but was not very satisfactory; so that it was not until 1860 that M. Viollet-le-Duc obtained permission from the government of Napoleon III to complete the restoration on a scale of unprecedented magnificence. Each tomb was carefully restored and placed once more in the position it occupied before 1793. The ashes of the kings, mingled with the quicklime, were gathered together and buried under the high altar in the crypt. — *N. Y. Tribune.*

TWO FAMOUS BRITISH ARCHITECTS.¹

FROM the end of the sixteenth to the beginning of the seventeenth century the art of masonry was in a transition stage. The builders were rapidly losing their medieval spirit, and the trade guilds were decaying, but the master-builder had not yet blossomed out into the latter-day architect, nor had the employers and employed been divided into two distinct social classes as they are to-day. The specialization of building was begun, however, and if, perforce, the artisan became less of an artist and more of a mere hewer of stones, this division of labor was not without its compensations, synchronizing as it did with the most brilliant days of the Renaissance architecture in Britain. To trace fully the development of Renaissance architecture as seen in the great works of Inigo Jones and Christopher Wren is, however, somewhat beyond our present theme. Such subjects belong rather to the history of architecture than to the history of masonry. Nor indeed is it necessary to deal at length with such a subject. Volume after volume has been written discussing from every point-of-view the period of the Renaissance. Our purpose has rather been to trace the development of masonry as distinct from architecture, bringing into prominence those aspects of its history that are apt to be overlooked by writers on architecture.

From this point-of-view the life's work of the great Renaissance architects may be wisely compressed into a smaller space than the importance of the subject would otherwise warrant.

Inigo Jones was born in the parish of St. Bartholomew's, Smithfield, in the summer of 1573. How he spent his earlier years it is difficult now to determine. Tradition has it that he was apprenticed to a joiner, but there is little reason to believe that he spent much time at that calling. It was as a draughtsman that the coming architect of the Renaissance first distinguished himself. Both the Earls of Pembroke and Arundel early interested themselves in his career, and before the sixteenth century had drawn to a close, that is to say, before he had reached his thirtieth year, he was able to pay a long visit to Italy, there to study the arts in which he took so keen an interest. For several years he resided at Venice. Already, however, his fame was rumored abroad, and King Christian of Denmark invited him to enter the service of the Danish Court. It was probably but in a minor capacity that he served, although it has been said that even then he assisted in designing more than one important building.

In 1604 he returned to England, having by that time acquired the reputation of one who had travelled much and studied closely all the finer arts. By that time the English and Scottish crowns were united, and King James was ruler of the united realm. It is on the occasion of that monarch's first visit to Oxford University that Inigo Jones is first mentioned as having taken part in designing work. King James was a warm patron of the playhouse, and the University decided to entertain him with three plays in the hall of Christ's Church. In addition to the King's master-carpenter and others, they also "hired one Mr. Jones, a great traveller, who undertook to

¹ A paper by William Diack in *The Stone Trades Journal*.

further them much and to furnish them with rare Devices, but performed very little of that which was expected. He had for his pains, as I have heard it constantly reported, £50."

Mr. Jones soon established for himself a position at Court, although for five or six years it is evident that his duties consisted simply in designing the scenery at the Royal playhouse, and occasionally, perhaps, acting as King's messenger. It was not until 1610 that he was appointed Surveyor-General to Prince Henry, in which capacity he superintended certain alterations at various Royal residences. He continued, however, to design the scenery for the masques at Court until the death of his royal master in 1612. Freed by that event from continuous duty at Court, he paid a second visit to Italy, where, enjoying as he did the personal friendship of the most famous architects then living, he made an exhaustive study of the Classical buildings of that country.

In 1615, Simon Basil, Surveyor-General of the Works, died, and Inigo Jones was appointed to fill the vacant office. Then, indeed, it was that he entered on his famous career as the first of the great English architects. The oldest architectural drawing by Jones in existence is dated 1616, the year following his appointment. The new chapel at Lincoln's Inn, the church of St. Alban's, Wood Street, the Queen's House at Greenwich, are all generally attributed to him. In January, 1619, fire broke out in the buildings at Whitehall, and the old Banqueting House was burned to the ground. Jones was commanded to furnish a complete scheme of new buildings, and prepared two separate sets of plans for that purpose. In these designs the sumptuous Banqueting House formed but one of the features of a vast façade which the two first Stuart Kings of England intended to carry out on a colossal scale. Lack of money prevented the carrying out of the design supplied by Jones. Only the still famous Banqueting House was ever built. Nevertheless, the whole plan was a magnificent architectural conception, bold and original in its appearance, and characterized by its admirable proportions and the orderly distribution of its parts. "There was, in fact," says Mr. Reginald Blomfield, the well-known writer on architecture, "no precedent whatever in England for such a building as Inigo Jones designed for Whitehall. The force of his genius is shown in the fact that almost at one effort, and without previous failures, he was able to create a finished masterpiece of design in a manner that was as yet unfamiliar in England. The Banqueting House, mere fragment though it is of a stupendous design, is to this day the most accomplished piece of proportion in England, and not inferior to the finest work of Palladio and the great Italian masters."

This famous hall, the foundation-stone of which was laid on June 1, 1619, was completed on March 31, 1622, at a cost of £15,653 3s. 3d. From that time onward until the dawn of the Commonwealth era Jones continued in the service of the King as Master of the Royal Buildings.

His next great undertaking was in connection with the rebuilding of St. Paul's Cathedral, a task, however, which he was not destined to see completed. The ancient building was in a state of complete dilapidation, and time after time efforts were made to secure its restoration. It was not, however, until 1631 that definite steps were taken in the matter, and instructions were given to Jones to proceed with the work. The design he supplied, although greatly admired at the time, is generally regarded as inferior to that of Wren's. The work went slowly on until the outbreak of the Civil War brought matters to a crisis. Cromwell and his Ironsides triumphed throughout the country. The doughty republican stalked into the halls of Parliament and brusquely dismissed the Royalist government. Jones, among others, was deprived of his office, for his Royalist sentiments were but little admired by the new rulers of the land. The great architectural scheme on which he was engaged was promptly stopped. Jones himself, so tradition has it, buried his money in Lambeth Marshes and fled to Basing House in Hampshire, which after a two years' siege was taken by Cromwell in 1645. He was prosecuted by Parliament for having, in obedience to an order of Council, pulled down certain houses to make room for St. Paul's Cathedral. For this and similar offences he was fined over £1,000. Although deprived thus of his official position Mr. Jones was by no means idle. His fame as an architect had spread throughout the country, and during the remaining seven years of his life, — he died on June 21, 1652, — he designed many important buildings in various parts of the country, buildings which to a lesser man would have brought no small measure of fame and honor.

"Inigo Jones," says the writer already referred to, "was on the whole the greatest architect and one of the most accomplished artists that this country has produced. . . . His extraordinary capacity is shown by the success with which he freed English architecture from the imbecilities of the German designers, and started it on a line of fresh development, borrowed it is true from Italy, yet so successfully adapted to English traditions, that it was at once accepted and followed by the best intelligence of the country for the next hundred and fifty years. . . . His own theory of architecture was that, in his own words, it should be 'solid, proportional according to the rules, masculine and unaffected.' No man has ever more completely realized his own ideal of his art."

With the buildings of John Webb, Marsh and Gerbier it is scarcely necessary to deal here. The works of Christopher Wren mark the next important milestone in the advance of British masonry. When they buried Inigo Jones in the Church of St. Bennet in 1652 his scarcely less famous successor was a youth of twenty summers and

a student of Wadham College, Oxford. The following year he was elected to a fellowship at All Souls', and although in 1657 he was appointed to a professorship of astronomy, star-gazing does not seem to have monopolized his attention, and four years later he was appointed Assistant Surveyor-General of Works. He had previously won considerable distinction in mathematics, chemistry, and even anatomy. In 1663, he was invited by the Dean and Chapter of St. Paul's to survey the Cathedral, which was fast falling into decay.

Inigo Jones's scheme of reconstruction had, as will be remembered, been stopped by the Civil War. Not only was it stopped, but the revenues of the Cathedral and the accumulated funds that had been gathered from many different sources for its repair were confiscated by the Parliamentary party. Even the unused building materials were appropriated, and on Colonel Jephson's regiment becoming clamorous for arrears of pay the scaffolding on the Cathedral walls was handed over to them as their share of the booty. One part of the church was converted into a barracks for dragoons and a stable for their horses. The western side, where Inigo Jones had reared a portico of great beauty, with fourteen stately columns, 46 feet in height, supporting an entablature crowned with statues, underwent a remarkable change. The statues were thrown down and broken in pieces, and within the portico a number of shops were fitted up where commodities of all kinds were sold. This state of things lasted until the Restoration, when once again the rebuilding of St. Paul's began to occupy the attention of the people. The ravages of time, aided at one time by the ruthless hands of the Parliamentary soldiers, had begun to deal harshly with the ancient church.

Then it was that Christopher Wren was invited to report upon the building. Subscriptions for its restoration flowed in with wonderful rapidity. The rising young architect drew up an elaborate account of the state of the building, and prepared plans and drawings for its projected restoration. In these plans, which can scarcely be said to have won the approval of those who can speak with authority on masonry, Wren seems to have been slowly feeling his way toward his later architectural achievements. Had the design been carried out, however, it might, in its completed form, have differed very materially from that which he sketched on paper. Both Inigo Jones and Christopher Wren watched very closely their works as they slowly grew into shape under their hands, and both made important improvements as the buildings gradually advanced. Be that as it may, Christopher Wren's plans were submitted to the King for approval, and meanwhile scaffolding was erected round the Cathedral, and efforts made to strengthen its more dangerous parts. Before further steps could be taken, however, the remarkable fire of 1666 broke out, and more than half of London was transformed into "a heap of smoking ashes." The flames spreading westward seized on the scaffolding that surrounded St. Paul's, and after a fierce conflagration the famous old cathedral was again a tottering ruin.

That great disaster opened up a wide field for Wren's genius. He was appointed Surveyor-General in 1668, and drew up a plan for the entire rebuilding of the metropolis, embracing wide, magnificent streets in every direction, with spacious quays along the banks of the river. The plan was accepted by the King, but, owing to want of money, these elaborate proposals were never carried out. It was the building of the city churches rather than that constituted his real life's work, and which for nearly forty years engaged so much of his energies. Besides St. Paul's Cathedral and fifty-three city churches he designed three palaces, two hospitals, and a host of minor buildings.

If genius consists, as has been said, of an "infinite capacity for taking pains," Wren was indeed an architect of genius. Hard and strenuous labor, combined with minute supervision and personal attention to every detail of the work, as it progressed, was the keynote of his success.

An effort to patch up the ruins of St. Paul's left by the fire resulted in failure, and in 1675 the first stone of the new cathedral, designed by Wren, was laid by the Bishop of London. Thirty-five years later, in 1710, the last stone of the lantern was placed in position by the son of the master architect. For his work Wren received but £200 a year, and to the discredit of the Commissioners, be it said, he had latterly considerable difficulty in obtaining his salary. As the building approached completion, they even retained in their own hands one-half of his annual remuneration until the work was finished, under the pretence of thereby securing greater diligence and expedition on the part of the architect!

The expense of rebuilding the cathedral, exclusive of the costly decorative work, was £747,954 2s. 9d., a sum which was raised almost entirely by a small tax on coals. Among the sacred edifices of Christendom, St. Paul's ranks next to the still more famous church of St. Peter's at Rome. The latter, a work certainly of greater dimensions, took 145 years to build, was the work of twelve successive architects, and "exhausted the revenue of nineteen successive Popes." On the other hand, St. Paul's was begun and finished while one bishop presided over the diocese, was the work of a single architect and one master-mason, Mr. Thomas Strong.

While the Stuart race sat on the British throne, Wren enjoyed considerable favor in royal and influential circles. Whatever their political errors may have been, the Stuarts were at least cultured and intelligent patrons of art and literature. With the accession to the throne of George I, the "wee bit German lairdie" of Scottish song, a change came over the fortunes of Sir Christopher Wren. Like "boetry and bainting," architecture and the finer arts were

jeered at by King George I, as well as by George II. When one remembers the corrupt state of the English Court in those days, however, one cannot help thinking that it is to the eternal credit of the then aged architect of the Renaissance that he won no favor in such a quarter. At a time when, as the Jacobite song has it, "the very dogs in England's Court, did bark and howl in German," the man who represented the noblest traditions of English art had naturally but few friends in "high quarters."

Charges of mismanagement were trumped up against him, and in 1718 he was dismissed from the post of Surveyor-General, after having filled it with honor and credit for the space of fifty years. He protested that the charges were groundless, and on learning of his dismissal, he wrote with touching pathos: "As I am dismissed, having worn out by God's mercy a long life in the Royal service, and having made some figure in the world, I hope it will be allowed me to die in peace." Five years later, in the spring of 1723, he died in his house at Hampton Court at the ripe old age of ninety-one.

Under the circumstances, it was fitting perhaps that his successor as Surveyor-General was an unscrupulous adventurer, altogether incompetent as an architect, and who, but for the fact that he succeeded one whose works will be famous in the annals of masonry long after the great cathedral which he conceived has crumbled into ruins, would have never been heard of in the history of architecture.

By this time the companion arts of architecture and masonry were drifting farther apart. The change had undoubtedly both advantages and disadvantages. It was not wholly a gain. Save in sequestered rural districts the mason was no longer the architect of his own buildings. He became more and more dependent on the architect for his ideas and instructions, and his work was consequently more mechanical, and less artistic and creative. The architect, separated from the actual work in which he was interested, thinking on paper rather than in materials, became more and more of an imitator, whose work is only occasionally redeemed from mediocrity (the worst of all failures) by following the noble traditions established for British masonry by the first great architects of the Renaissance.

THE WEATHERING OF COAL.

THE loss by fire often recorded, originating in the spontaneous combustion of bituminous coal, has developed a hazard that has not and perhaps could not have been foreseen; namely, the accumulation of gas in the heart of a pile of coal under pressure enough to cause what may be called an explosion as soon as the protecting mass of partially or fully coked coal outside the centre of combustion had been pierced or broken by pick or shovel. This explosion, spreading immediately under the shed roof, causes a fire which though handled with great skill and energy generally results in considerable loss.

It may, therefore, be observed that the covering of bituminous coal with a roof or shed may be inexpedient. From the experiments made by Messrs. R. S. Hale and Henry J. Williams, on behalf of the Mutual Boiler Insurance Company, it would appear that bituminous coal without shelter loses fractionally in some of its elements, but that it also gains in others, the balance of proof being that there is an increase in the thermal value of about one per cent if the coal is not roofed in or protected by a shed.

It should also be remembered that the igniting point of wood, varying somewhat with the kind of wood, is considerably lower than that of coal. Therefore, there should never be wooden posts within the pile of coal, nor should the pile of coal rest against wood at any point. The coal may heat enough to set fire to the wood, the wood then igniting the coal, when under other conditions the coal itself might not reach the igniting point.

DETECTING THE HEATING OF COAL.

The following valuable suggestion has been submitted to me by Mr. F. E. Cabot, of the Boston Board of Underwriters:—

"In consideration of the spontaneous combustion of coal in piles and the measures which may be taken to prevent loss therefrom, I beg to call to your attention a method which was brought to my notice some years ago, of placing in the coal-pile iron pipes approximately 10 feet apart in each direction, these pipes to stand vertically in the pile. The pipes should be placed so that the wires can be run along on their tops above the coal, and assuming that the extreme width of the pile did not exceed 50 feet, this would call for four rows of pipes. The wires running along each row would be attached to a suitable gong and annunciator and the thermostats would be placed inside each pipe in physical connection with the metal so as to be heated whenever the pipe became warm.

"In this way, whenever the coal rose in temperature sufficiently to heat any one of the thermostats, the bell would ring and the annunciator spot for this line would show. Having located the line in which the heating occurred, it is a very simple matter to locate the exact pipe heated, by starting at one end and disconnecting the thermostats until the circuit is again opened and the bell stops ringing. This will enable the manager or superintendent to locate heating in the coal-pile before any considerable amount of coal has got on fire, and to place the source of heat within a radius of 10 feet, without the necessity of digging down into the pile."

EDWARD ATKINSON.

BOOKS AND PAPERS

IF it were not for the ornamented title-page¹ most people would never guess what is the real purpose of the portfolio of plates illustrating plant forms prepared by Mr. G. Woolliscroft Rhead. This real purpose is to put within the reach of decorative artists of one class or another accurate delineations of natural plant forms that they may be availed of as the base for naturalistic or conventional decorative designs, and, perhaps, they may serve that purpose—but no better than a spray of the plant itself which may be picked in the garden any day, since the drawings are mere transcripts of sprays, flowers and leaves as the growing forces, the weight and the atmospheric currents, chanced to leave them at the moment the drawings were made. The consequence is that it is not very obvious—since the subjects are generally fragmentary—how these natural forms can be adopted or conventionalized. Fortunately, in the decorative treatment of his title-page Mr. Rhead gives an example of his method of conventionalizing natural forms, and with this as an aid the plates that follow are likely to be of use. As botanical drawings, boldly and as a rule accurately drawn, they have an interest of their own as samples of draughtsmanship; moreover, as most of the plants are shown full size it is not over hard to disentangle the actual forms of leaf and flower even when, as he sometimes does, the author forgets to include in his plate the diagrammatic plane form of such flower or leaf.

ILLUSTRATIONS

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

CHURCH OF CHRIST, SCIENTIST, CONCORD, N. H. MESSRS. FRANCIS R. ALLEN & CHARLES COLLINS, ARCHITECTS, BOSTON, MASS.: TWO PLATES.

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CHURCH OF ST. AGNES, ROCKVILLE CENTRE, LONG ISLAND, N. Y. MR. ELLIOTT LYNCH, ARCHITECT, NEW YORK, N. Y.

STUDIES IN PLANT FORM.

SEE notice under "Books and Papers," elsewhere in this issue.

HOUSE AT EAST GRINSTEAD, ENG. MR. T. E. COLLCUTT, ARCHITECT.

This plate is copied from the *Builder*.

Additional Illustrations in the International Edition.

EAST BROADWAY BRANCH OF THE PUBLIC LIBRARY, NEW YORK, N. Y. MESSRS. MCKIM, MEAD & WHITE, ARCHITECTS, NEW YORK, N. Y.

DETAILS FROM THE HOTEL GRESHAM, BRUSSELS, BELGIUM. M. LEON GOOVAERTS, ARCHITECT.

THESE illustrations are copied from *l'Emulation*.

HIGH-SCHOOL BUILDING, GOSHEN, IND. MESSRS. PATTON & MILLER, ARCHITECTS, CHICAGO, ILL.

DETAILS FROM THE "DREI MALERISCHE HOFFE," NUREMBERG, BAVARIA.

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HOUSE AT OXFORD, MASS. MESSRS. FRANCES R. ALLEN & CHARLES COLLINS, ARCHITECTS, BOSTON, MASS.

DETAILS FROM THE SALLE DES PAS PERDUS: PALAIS DE JUSTICE, LOUVAIN, BELGIUM. M. VALÈRE DUMORTIER, ARCHITECT.

THESE views also are copied from *l'Emulation*.

NOTES AND CLIPPINGS

ARGON IN THE AIR.—An interesting communication was made recently to the Paris Academy of Science on the subject of argon in atmospheric air. M. Moissan reported that he had followed up the researches of M. Schloesing, who had already determined the proportion of argon existing in certain specimens of air. By utilizing the property which calcium possesses of absorbing at one and the same

¹"Studies in Plant Form." By G. Woolliscroft Rhead. Twenty-five plates in Portfolio. London: B. T. Batsford. 1903. Imported by Charles Scribner's Sons. Price \$7.50.

time the oxygen, the nitrogen and all the impurities which are found in atmospheric air, and by the use of a special apparatus, of which he had already given a description to the Academy, M. Maisson had been able to estimate the amount of argon found in the air of Paris, of London, of Berlin, of Vienna, of St. Petersburg and of Athens. In all these towns the amount was identical. The same proportion of argon was also found in samples of air taken in the Channel, in the Ionian Sea, in the Gulf of Naples, in the valley of Chamounix, at the Grands Mulets and at the top of Mont Blanc. Air collected in the middle of the Atlantic appeared to be slightly richer in argon than that from other places. This illustrates the remarkable uniformity of the composition of the air. The observation that the air collected in the middle of the Atlantic appeared to contain a slightly greater proportion of argon than that from other places is probably in some way connected with its solubility in water and the great and frequent variations of atmospheric pressure to which the Atlantic Ocean is liable. — *The Lancet*.

Moscow. — No one, so far as we know, has presented to the mind of the distant reader a more vivid picture of the barbaric splendors of Moscow, than Arthur Symonds gives in this passage from his book about European cities: "Colors shriek and flame; the Muscovite eye sees only by emphasis and by contrast; red is completed either by another red or by bright blue. There are no shades, no reticences, no modulations. The restaurants are filled with the din of vast mechanical organs, with drums and cymbals; a great bell clashes against a chain on all the trams, to clear the road; the music which one hears is a ferocity of brass. The masons who build the houses build in top-boots, red shirts and pink trousers; the houses are painted red or green or blue; the churches are like the temples of savage idols, tortured into every unnatural shape and colored every glaring color." — *Exchange*.

PRECIOUS STONES IN THE UNITED STATES. — The most interesting feature of George F. Kunz's preliminary review for the United States Geological Survey of the precious stones industry for 1903 is the emphasis laid on the hopefulness of California as a field for gem discoveries. Pala, in San Diego County, is the recognized locality for the remarkable new variety called kunzite. It is a beautiful lilac-colored spodumene. Crystals of great size, beauty and perfection have been obtained. It has been cut into very beautiful gems for jewelry, and bids fair to become a popular stone. New discoveries and developments of very fine rubellite and other tourmalines have also been made at Pala and likewise near Coahuila, in Riverside County. Topaz, both white and pale blue, has been identified for the first time in the State of California. It was found at Coahuila in distinct and beautiful crystals, the dimensions of the largest of them being three-quarters of an inch by one inch. Magnificent spessartite garnets were obtained near Ramona, in San Diego County. Chrysoprase was also extensively mined during the early part of the year in the Tulare County locality. The massive green vesuvianite from Si-kiyou County, which so resembles jade that it was first mistaken for that stone, has been further analyzed and examined and the name californite bestowed upon it. A second locality for it was found in Tulare County. Outside of California, both prospecting and development work have been carried on in a few scattered districts. Turquoise has been mined at several places in New Mexico, Arizona, Nevada and in California, and many gems of great beauty have been obtained. The sapphire mines of Montana were worked by three different companies, two developing the fine blue gems at Yogo, in Fergus County, and the other the multi-colored or variegated stones at Rock Creek in Granite County. Much of the material from all three localities, when not fine enough for gems, found a ready sale for watch jewels, principally among European manufacturers. — *N. Y. Evening Post*.

ELECTRICITY FOR THE GARDEN. — If results prove as gratifying to gardeners in the next three years as they have in the last three, it will be only a matter of time when electric gardening will be in vogue throughout the country. By electric gardening is meant the enlivening of plants by means of electric currents coming from wires running underground. W. W. Rawson, a prominent Boston horticulturist, says that electrical gardening is as yet only in its infancy. The system of giving life to plants through electricity, in other words, is now in the experimental state, and is being tried out at the centres of agricultural study in the various States. Experiments are tried daily at Amherst along these lines with good results. Other stations throughout New England have run wires under their hothouses, and then charged them with electricity, watching the effect carefully. The electricity acts as an invigorator to the plant, but not as a sterilizer. On the contrary, the use of steam, which gardeners have practised for five years or more, sterilizes the soil, eliminating vermin, fungus and all foreign matter, at the same time baking the soil. Steam cooks out and purifies the soil, while electricity simply acts as a bracing tonic to the plant, leaving all other conditions the same as before. Electricity has the same effect upon plants as it has on an individual when he takes an electric shock. It acts neither negatively nor positively, but simply refreshes. Mr. Rawson feels that when electric gardening comes into every-day practical use, the system will be of inestimable value not only to the horticulturists and gardeners, but to the general public. The gardeners by the electric system will get quicker and even better results than nature can give, and the public in turn will benefit by choicer flowers. But electric gardening, as it will be conducted a decade hence, will not be complete without the artificial lighting arrangement. As a matter of fact, arc lights have been employed as a valuable accessory to raising plants for four years, although not at the present time in general use. The arc lights are introduced solely for lighting purposes, and not, as many people think, to aid in heating. Mr. Rawson pointed out the fact that very little heat emanates from an

electric light, hence the gardeners cannot rely for warmth from this source. The arc light is utilized rather as a substitute for the sun if it is not considered an insult to old Sol. With the advent of heating and enlivening plants by electricity, is also bound to come, possibly a little later, according to Mr. Rawson, the introduction of the electric plough, electric harvesters, electric hay rakes, and other farming implements now worked by the horse. As yet, there are absolutely no electrical ploughs in existence, not even for experimental purposes, as far as can be ascertained. And it is not known that any are in contemplation of manufacture at the present time. Mr. Rawson simply spoke as an expert gardener, viewing the signs of the times, predicting a big future for electricity in the horticultural and agricultural spheres of industrial activity. — *Boston Advertiser*.

ADVANTAGES OF SUPERHEATED STEAM. — The theoretical advantages of superheated steam have been fully realized for some time, but practical difficulties connected with its use in engines of the piston and cylinder type have so far debarred its general use. Notwithstanding all the efforts made to insure high steam economy during fully fifty years, there is at the present time no vessel of importance fitted with superheaters. A series of interesting trials upon a turbine of the De Laval type has recently been conducted at Dresden, and the results are embodied in a contribution to a German technical paper. The tests have continued during the past two years upon a 30-horsepower De Laval turbine in the laboratory with steam of 500° C. superheat. The consumption of steam was accurately determined by condensing all the steam which passed through the turbine. Heat losses were provided against as fully as practicable by jacketing the apparatus. The turbine was arranged to be run at a speed of 20,000 revolutions per minute, reducing by gearing to 2,000 revolutions of the shaft upon which the brake was placed. The machine was operated by steam of a pressure of 6 kilograms per square centimeter (85.33 pounds per square inch), and when exhausting against the pressure of the atmosphere was rated to develop 30-horsepower. An interesting feature of the tests is the use of various nozzles, experiments having been made with diverging and converging nozzles, using bronze and steel as materials. Broadly speaking, the results show a notable economy in steam consumption. The diverging nozzle gives better results than the converging type, and steel was found more advantageous material than bronze. — *Scientific American Supplement*.

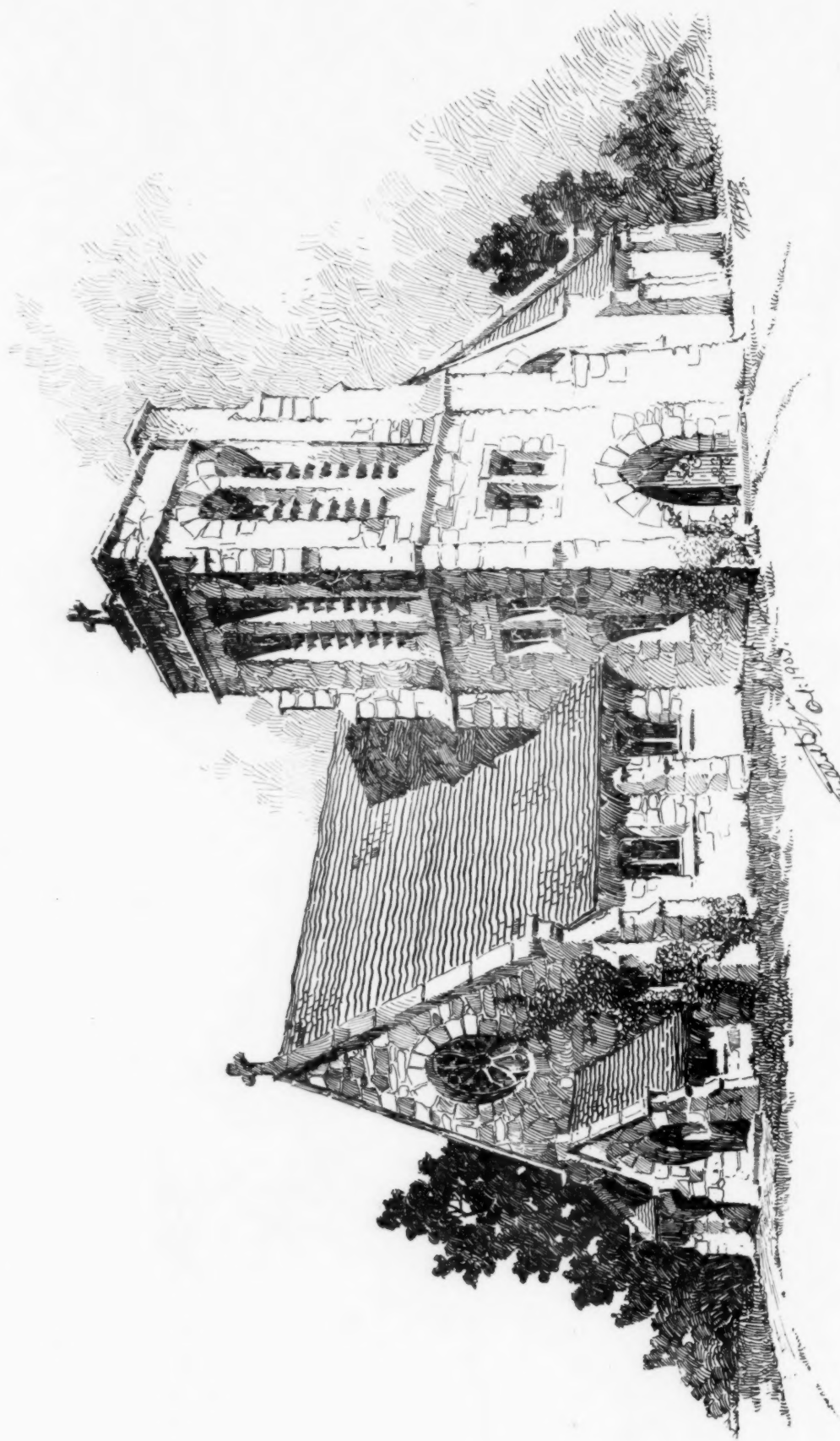
ALUMINUM FOR ELECTRICAL CONDUCTORS. — In an instructive article in the *Engineering Magazine*, Alton D. Adams, who is well-known to the readers of this journal as a contributor, shows to what extent aluminum is used in place of copper for the transmission of electricity. Besides being used for the line between Niagara and Buffalo, some twenty miles in length, aluminum has also been adopted for several other transmission lines, among which may be mentioned two in California, which are respectively five and seven times as long as the one at the Falls. It seems that about 1,000 tons of aluminum have been thus employed. Although in conductivity, aluminum is somewhat inferior to copper, and although an increase of 66 per cent in the size of the wire is therefore needed to do the same work, still the extreme lightness of the metal in the end triumphs. Only half as many pounds of aluminum are required as copper. Consequently, when the price of copper was over 17 cents a pound, aluminum at 35 cents was found just as cheap. Mr. Adams points out several advantages which result from the lower weight of aluminum. The poles can be placed further apart, or lighter arms and pins can be used. The result is greater cheapness in the actual work of constructing the line. It happens that aluminum wires do not so readily work loose on the insulators, on account of the larger sag allowed. The leakage of current from wire to wire through the air with a given voltage or volume is smaller with a large conductor than with a small one. On the other hand, the wire of large cross-section has the disadvantage of giving the wind a good hold when blowing at right angles.

IMPORTANT STATUARY DECISION. — The Board of United States General Appraisers recently announced a decision bearing upon the question of what constitutes statuary under paragraph No. 454 of the Tariff Act, which has heretofore occasioned a great deal of trouble to importers of works of art. The merchandise in the present case consisted of two statues, imported from Italy, said to be at least 150 years old. One was "A Faun," and the other "Flora." Each was 8 feet in height, and in three pieces. Paragraph No. 454 describes statuary as being cut, carved or otherwise wrought by hand from a solid block or mass of marble, etc. In the present case the statues being each in three pieces, the collector at this port assessed a duty of 50 per cent, under paragraph No. 115, which covers manufactures of marble. The importers, Perry Ryer & Co., claimed that they should come in as statuary, the duty on which would be 20 per cent, or under the reciprocity agreement with Italy, 15 per cent. The board sustains this claim. Judge Waite says that the words "solid block or mass" in the act were evidently used to distinguish such statues from those made of composition stone or similar material. He says that many of the best statues, especially those of heroic size, are made from more than one block of marble, and it would be inequitable to refuse to allow the lower rate of duty for such work. — *Exchange*.

THE NORTH RIVER TUNNEL. — William G. McAdoo, President of the New York and New Jersey Railroad Company, said yesterday that only 200 feet more of the tunnel remained to be dug before the men emerge into Marion St. "By March 1," he said, "we expect to be able to let daylight into the hole which was begun in 1872. By March 1, 1905, I hope the second tunnel will be completed and a tunnel trolley system working between New York and New Jersey." The New York terminal of the second tunnel will be in Cortlandt St. — *N. Y. Tribune*.

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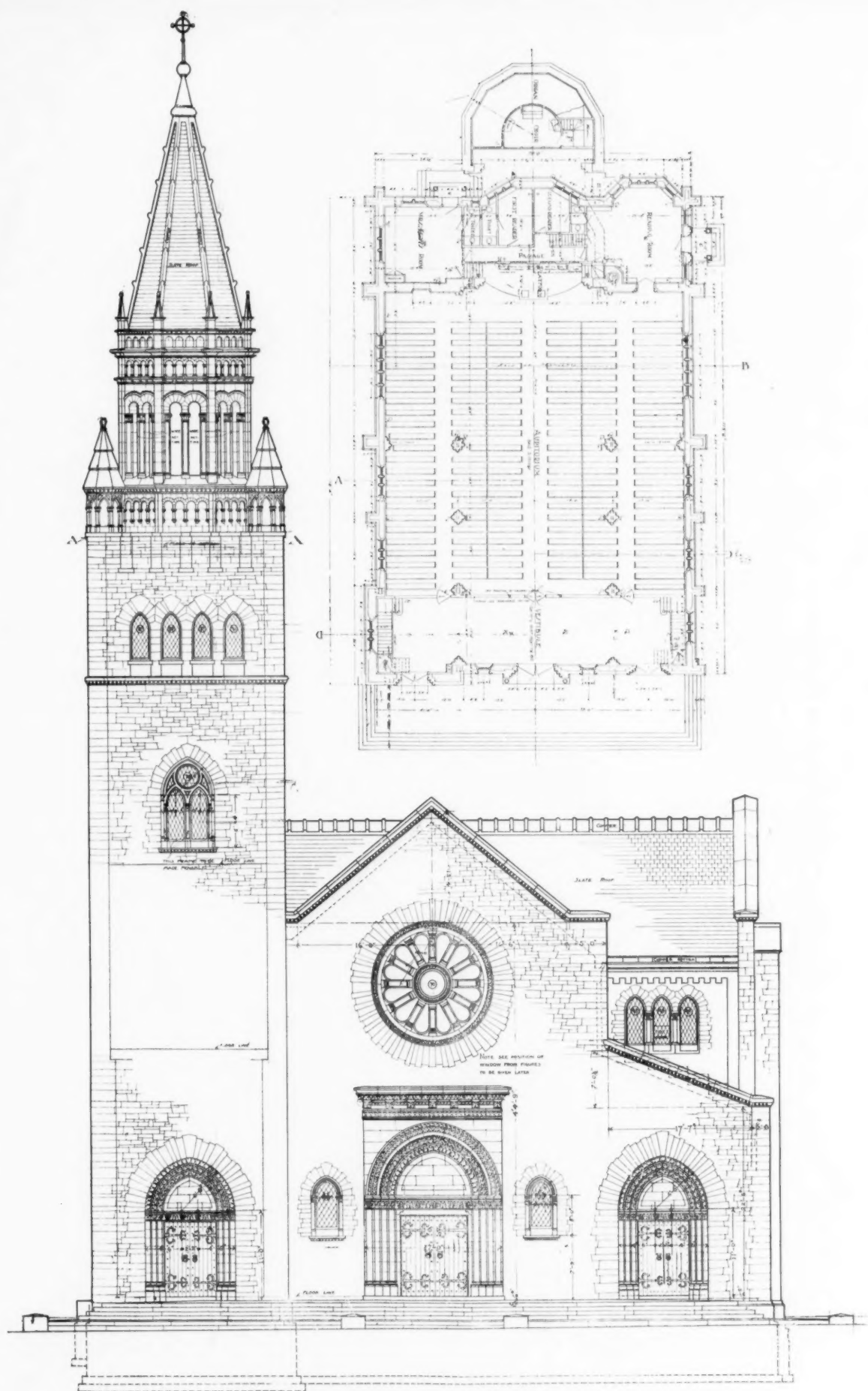


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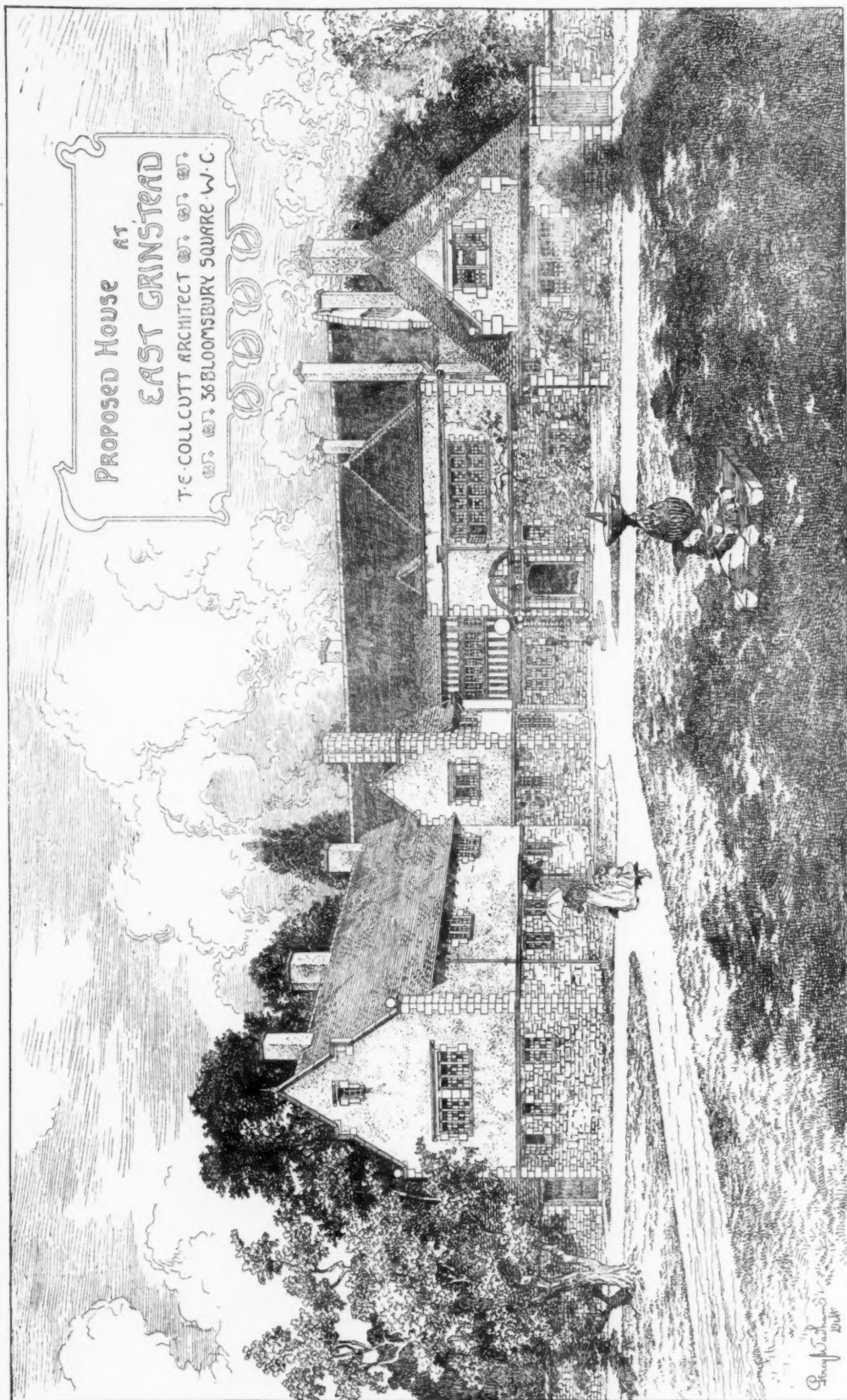


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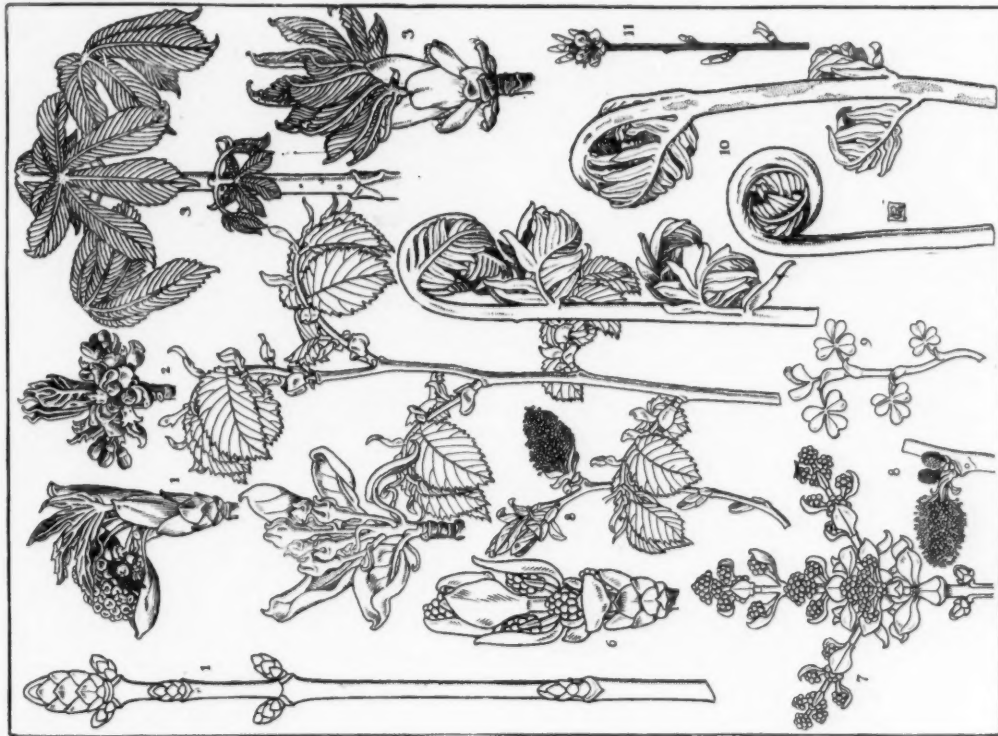
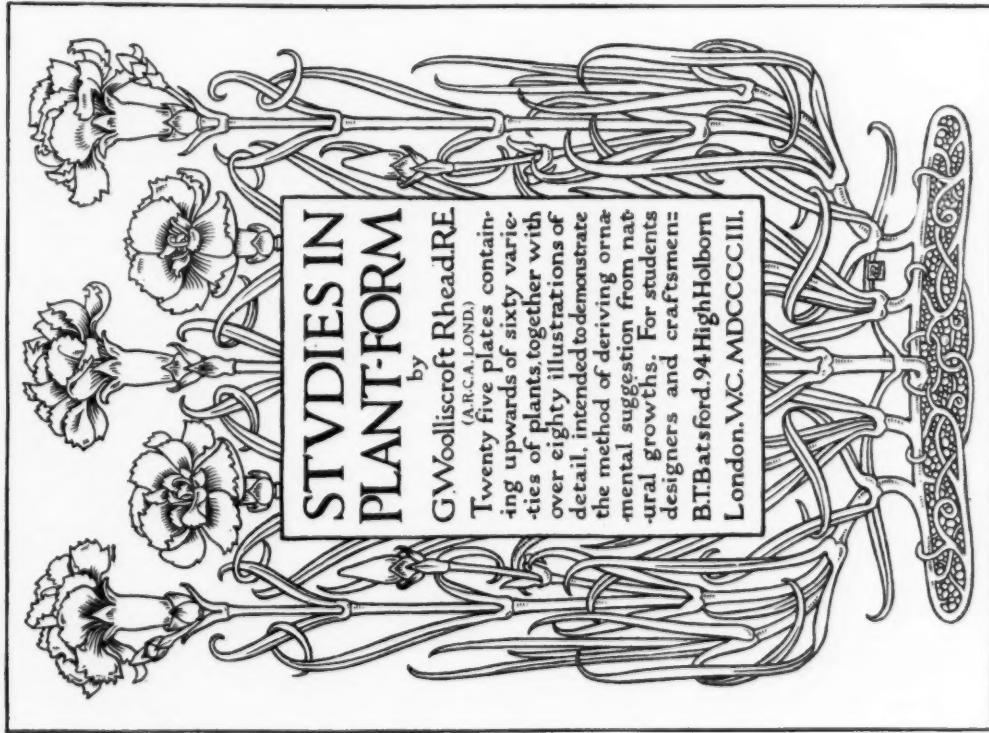
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Feb. 13, 1904
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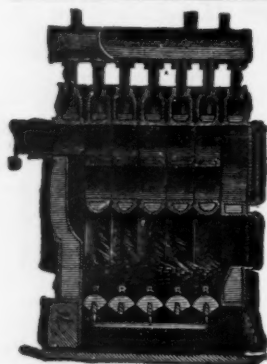
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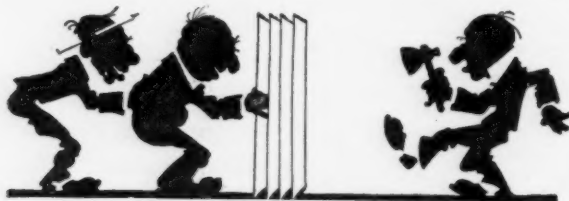
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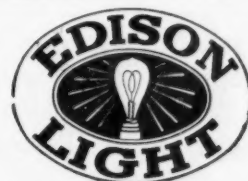
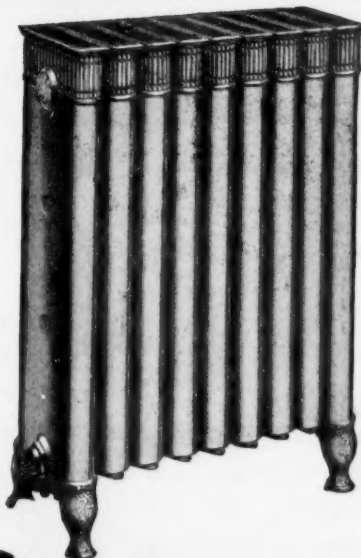
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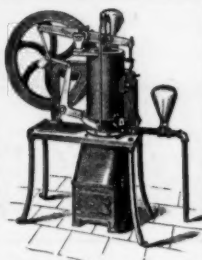
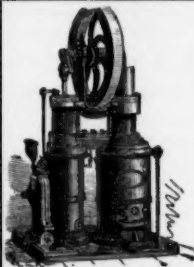
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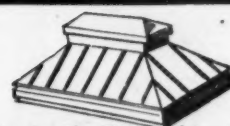
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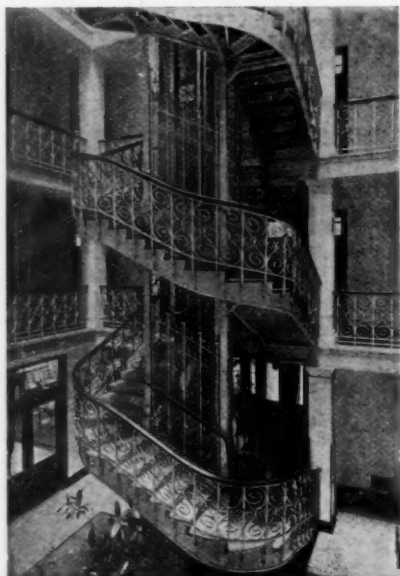
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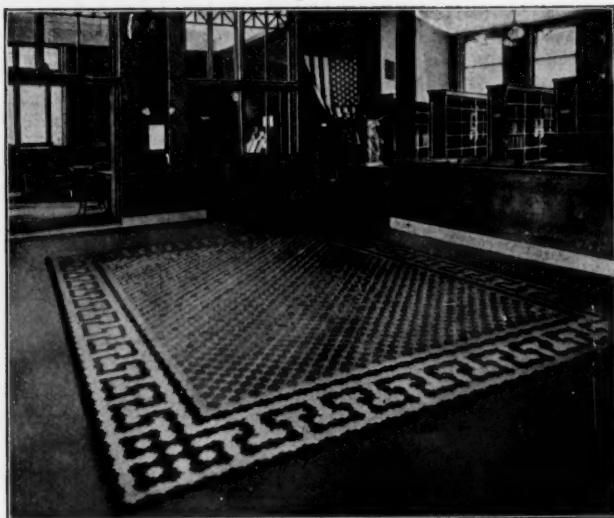
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ARCHITECTS' REMOVALS, Etc.

BECAUSE of the destruction of our offices in the Sunday's fire our offices are now located at 2 E. Lexington St., which we will ask you to insert in your next issue with a request for catalogues and circulars of standard building materials, etc. Wyatt & Nolting.

THE undersigned have removed their office from No. 8 Beacon St., to the Old South Building, Rooms 507-509, No. 294 Washington St. E. H. Bacon & Co., Publishers, Literary Review. Richard G. Badger & Co.

LOUIS C. SPIERING, architect, has opened an office for the practice of architecture, 1323 Chemical Building, St. Louis, Mo.

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POSITION.—A competent all-round detail draughtsman and building superintendent capable of taking charge of office wishes position. Twenty years' experience. Address "Careful," care of American Architect. 1468

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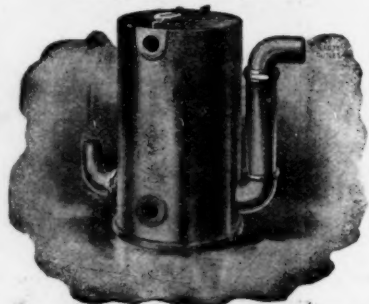
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BUILDING INTELLIGENCE.

(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.

Amherst, Mass.—A new library building is greatly needed here, situated in a central location, and endowed with a sufficient sum to provide for its maintenance. In the same building rooms might be provided for the Amherst Historical Society, the Daughters of the American Revolution, and the Woman's Club. A gift of \$25,000 for the erection of such a building and of another \$25,000 to provide an annual income of \$1,000 to maintain it, would prove a boon to Amherst of lasting value.

Baltimore, Md.—Plans have been completed and approved for the erection of a new pavilion and roof garden at Electric Park to take the place of the club-house, deck and grove that were destroyed by fire early on the morning of January 6. The new structure will be 62 feet wide by 300 feet long and one-story high. It will be built of frame steel and concrete. The new structure will cost \$35,000 and is to be finished by May 1.

Bellefontaine, O.—The First Presbyterian congregation of this city has decided to erect a \$50,000 edifice.

Binghamton, N. Y.—The skyscraper which the Security Mutual Life Insurance Co. has been planning to build for some time, will soon be under way. The company has advertised for contractors to bid for tearing down the Hagaman and Pope blocks that stand on the site. This work must be completed by March 30, and the new work started by April 1. The new building will be a modern fireproof, steel-frame structure, the exterior being of brick. It will be ten stories high.

Boston, Mass.—The property numbered 74-78 Hanover St., at the corner of Hanover and Portland Sts. has been purchased by Simon Vorenberg. Mr. Vorenberg will soon improve the corner by razing the low building now occupying it, and erecting a modern business block.

Bridgeport, Conn.—Melo & Beekwith have started work on plans for a new building for Thomas P. Taylor, to be located on Cannon St., just west of his present building. It will have a frontage of 86 feet and will be 92 feet deep, and seven stories high. The front will be of light brick, with terra-cotta cornice and trimmings, with gravel or composition roof, and steel cage construction. The first floor will be arranged for stores and will be fitted up to suit the tenant. The second floor will probably be used for club-rooms and an assembly hall. The third, fourth and fifth floors will be fitted up for offices. On the sixth floor will be a large lodge-room, with paraphernalia-room, ante-rooms, etc., and banquet hall on the seventh floor. The plans will be ready for estimates about the first of March.

Brookline, Mass.—The "Emerson estate," so-called, on Davis Ave., the home of Mrs. George Arnold, is under consideration, it is said, for the site of a proposed new library.

Brooklyn, N. Y.—The corner-stone of the first Carnegie Library was laid early in December by Mayor Low. This branch library, which is in the Williamsburg district, will be the largest Carnegie Library to be put up in Brooklyn, and for that reason it

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

was selected for public exercises, which would call attention to the scope of Mr. Carnegie's beneficent and far-reaching work. The Williamsburg branch will cost \$100,000 and will cover the entire triangle formed by Division and Marey Aves. and Redney St.

The new building to be erected for the Long Island College Hospital will cost more than a million dollars. Plans for the structure have been prepared, and work upon the excavation begun. The building will be known as the Maxwell Memorial, and will be erected at the expense of J. Rogers Maxwell in memory of his brother, Henry W. Maxwell, who died a few years ago. It will be built in four sections. The two central sections will face Henry St. on the site of the present hospital building. Wings will be built on Amity and Pacific Sts., each to be devoted to the treatment of patients of both sexes. The Pacific St. wing will cost \$150,000, that on Amity St., \$200,000. It will contain an operating-room. It is expected the new building will be completed in about three years.

The D. M. Chaucey Co. has purchased the old Academy of Music site for \$617,000. An office-building will be erected on the site and there is a possibility that some of the old stockholders will combine with other interests and build a new academy in some other part of the borough.

Cambridge, Mass.—It is reported that Arthur A. Carey has bought 30,000 square feet of land of the estate of Edward W. Hooper on Fayerweather St. He has plans in preparation for a dwelling-house to be erected next spring for his own occupancy.

Chicago, Ill.—Plans have been drawn by Jas. G. Rogers, Clark and Randolph Sts., for a three-story fireproof building to be erected on Michigan Boulevard and 13th St., at a cost of \$80,000 for Mrs. Julia F. Heyworth.

S. M. Seater, 97 Clark St., has made plans for a three-story apartment-house which Hood & Tullgren will erect at 50th St. and Madison Ave., at a cost of \$70,000.

L. G. Hallberg has prepared plans for a four-story brick and steel plant to be erected at W. Van Buren and Peoria Sts. for the Addressograph Co. Cost, \$75,000.

Rob't S. Smith, 187 Dearborn St., has drawn plans for a three-story livery stable, 50' x 125', to contain stalls for 64 horses, which is to be built on Halsted St., near 55th St., at a cost of \$25,000.

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

J. Youngberg, 218 La Salle St., has designed a two-story residence and barn, of brick and stone, to be built at 45th St. and Ellis Ave., at a cost of \$30,000.

Plans have been prepared by Andrew Sandegren, 134 Clark St., for a three-story apartment-house, 75' x 100', to be erected at Cornell Ave. and 53d St., at a cost about \$85,000.

Plans for the big apartment-house to be built for Walter C. Gunn at the southeast corner of 21st St. and Calumet Ave. are now being prepared by W. Carby Zimmerman. The building will be of fireproof construction, eight stories high, with exterior of stone and pressed brick, and will cost about \$100,000.

S. N. Crown is the architect of a three-story apartment-house, 73' x 137' in ground dimensions, which is to be built at the southwest corner of Clarendon Ave. and Edgecomb Pl. for Mrs. Sarah M. Isham at a cost of \$50,000.

John Keller will build a three-story apartment-house at the intersection of Sheridan Road and Byron St. after plans by Oscar Johnson, at a cost of \$35,000.

Cleveland, O.—At the last meeting of the Cleveland Transfer Co. the directors decided to expend between \$125,000 and \$150,000 on a six story stable to take the place of their three stables now in use. The new barn will be the largest and most complete in the country and will have accommodations for 450 stalls.

Phillips Block is to be converted into an up-to-date office-building. This will be done without disturbing the outer appearance of the existing structure.

Colorado Springs, Col.—Calvin Kiessling, living at 4320 Washington St., Roslindale, Mass., has won the competition for the Carnegie Library. The building is to cost \$60,000.

Crookston, Minn.—Mr. Carnegie has offered the town \$12,500 for a library, under the usual conditions. The gift is due to the active influence of the librarian, Miss Elizabeth Sommen.

Danbury, Conn.—Hartwell, Richardson & Driver have completed plans for the new State Normal School to be erected here under the auspices of the State Board of Education. The building will be three stories high, with basement and slate roof. It will be constructed of red brick and limestone trimmings. An appropriation of \$100,000 was voted by the recent General Assembly for its erection. This town has given to the State a free site for the institution.

Des Moines, Ia.—Smith & Gage, architects, have had their design accepted for the agricultural hall to be erected at the State fair grounds. Cost, \$45,000.

Harmon Bros., of Omaha, have bought the Rollins pickle works here and will enlarge them and erect a new plant. Cost, \$25,000.

The legislature will be asked to appropriate \$300,000 to finish the State Historical Building.

Detroit, Mich.—C. H. Lawrence, of the Guaranty Bond Co., has had plans prepared for a six story stone and steel apartment-house, to be built at the corner of Woodward and Hendrie Aves. The building will be known as the Hotel Royal.

Devon, Pa.—Preliminary plans are in preparation by Horace Trumbauer, of Philadelphia, for a house, stable and coachman's house for C. Hartman Kuhn, to cost about \$50,000.

Dorchester, Mass.—Annie M. Connelly has sold to

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Bernard Dorsey a lot at the corner of Coffey and Newhall Sts., containing \$10,000 feet, assessed on \$1,000. The property will be improved shortly by the erection of buildings.

Dover, N. H.—Alvah T. Ramsdell has been selected as architect for the new high-school building. A year ago the City Council appropriated \$50,000 for the new building.

Evanston, Ill.—Plans have been drawn by H. H. Waterman for five two-story flat buildings which are to be built at the northeast corner of Hinman and Keeney Sts. for Van S. Dresser at a total cost of \$32,500.

Harrisburg, Pa.—The Harrisburg Mason's Temple Association has been organized and chartered and will build a splendid temple in that city to cost \$75,000 or \$80,000. It will be built in a style befitting its surroundings of an architectural design that will be a credit to the order and the city.

Idaho Springs, Col.—F. J. Stevner, of Denver, has been selected as architect of the Carnegie Library building.

Jersey City, N. J.—Ground will be broken on February 17th for the proposed new church for the M. E. Society to be erected at Bergen and Belmont Aves. Cost to be in the neighborhood of \$60,000.

Lawrence, Mass.—The proposed new grammar school-house in Ward 2, which is to cost \$140,000, will be built this year. Work will begin as soon as the weather will permit. It will be a three-story structure, substantial in construction and attractive in appearance. It will be provided with all the modern improvements. The site is on the northerly side of Park St., bound on the east by Bruce St. and on the west by Saunders St. The exterior walls will be faced with selected water-struck brick, and all the trimmings will be of granite.

Lee, Mass.—Mr. Carnegie has offered to build for the town a \$10,000 library on the usual conditions.

Le Mars, Ia.—Mr. Carnegie has increased his first grant of \$10,000 by a second one of \$12,500 for the library here. The new building is nearly finished.

Listowel, Ont.—Mr. Carnegie has offered the town \$10,000 for a library under the usual conditions.

Lowell, Mass.—At a special meeting of the trustees of the Lowell General Hospital, a check for \$50,000 was received from Frederick Ayer for the construction of an additional building which will provide 24 or 30 more beds, a maternity department and an operating room.

Money is being raised to build a brick and stone church edifice in Centralville, for the Roman Catholic Society, to cost \$50,000. A temporary structure for use of the parish is being erected near the site.

Mexico, Mex.—It is reported that extensive building operations are under way in this city, or projected for 1904. The government has planned to erect public buildings at an expense approximating \$50,000,000. In the past contractors in Mexico have experienced much difficulty in securing material, particularly brick, lime and cement. Stone and brick are the chief building materials. The Mexicans are not manufacturing building material sufficient for their own needs, although some quite extensive brick plants are in operation. Considerable lime and cement and some brick are imported from foreign countries. As a market for American cement Mexico seems promising.

Middletown, Conn.—The Wesleyan Chapter of the Alpha Delta Phi fraternity has decided to erect

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

a new club-house on the site of their present building at the corner of High and Crose Sts. The plans will call for a much larger structure than the present building. It will face the college campus and will probably be of brick, costing something over \$25,000. The contractors will begin work early in the spring. C. A. Rich is the architect.

Milwaukee, Wis.—A committee representing the Woodmen of the World, the Knights of Pythias and the Equitable Fraternal Union, is securing figures and estimates for a report on the proposed fraternal building. A building to cost \$150,000 is proposed. A. C. Sims is the architect.

It is reported that Jos. McC. Bell will erect a three and four-story brick and Bedford stone flat buildings on 24th St., between Grand Ave. and Wells St., at a cost of \$250,000.

The C. G. Norton Co. will erect a one-story and basement brick building on Broadway, for an automobile barn. It will be about 30' x 60'. Cost, \$15,000.

New Haven, Conn.—Architects Brown & Von Beren are now busily engaged in completing the plans for rebuilding St. Michael's Church on Wooster Pl., destroyed by fire several weeks ago. It is estimated that the proposed alterations, repairs and additions will cost about \$30,000. The specifications will soon be ready when bids will be called for. It is expected that work will be begun as soon as the cold weather lets up.

The gift of \$50,000 by John Hays Hammond, of New York, for a mining metallurgical laboratory at Yale, has just been increased by him to \$100,000. This makes possible the construction of a laboratory of adequate size and with equipment suited for all modern requirements. Mr. Hammond is professor of mining engineering in the university.

Newport News, Va.—Mayor Moss is interested in the erection of a hotel and theatre at a cost of \$100,000.

Newton, Mass.—That this city will not have a new city-hall for the present was made certain by the report of the select committee on the mayor's inaugural and his predecessor's valedictory. It was recommended that the matter be indefinitely postponed.

New York, N. Y.—Plans for the new Tenderloin station-house on W. 30th St. have been received at Police Headquarters and approved. Work will begin on the building as soon as temporary quarters can be found. The new station-house is to cost \$165,000.

The Orphans' Home and Asylum of the Protestant Episcopal Church has bought as the site for its new buildings the block front on the west side of Convent Ave., from 135th to 136th Sts. The purchase also covers three adjoining lots at the rear on either street, so that the entire plot includes 14 city lots. Work on a group of buildings will be started this spring.

A \$60,000 school-house will be erected in West New York on a site owned by William H. Schmidt. The building planned by the Board will be two stories containing fifteen classrooms and a large assembly room. It will be erected so that additions to it can be readily made.

Plans have been filed with Building Superintendent Hopper by McKim, Mead & White for the Rivington St. branch of the Carnegie public libraries. It will be erected at Nos. 61 and 63 Rivington St., and will be a four-story building with facades of limestone and brick, 40 feet front and 80 feet deep, with a roof garden, being the first of the libraries of the Carnegie endowment to be provided with such a feature. The cost is estimated at \$80,000.

Norfolk, Neb.—State Architect Tyler has completed the specifications for the asylum buildings here. According to the plans an administration building and three cottages will be constructed at a cost of \$73,000.

Norman, O. T.—The first installment of Mr. Carnegie's grant of \$30,000 has been received. The library is building in connection with Oklahoma University.

North Lee, Mass.—George N. Black, of Springfield, Ill., has offered to be one of 10 to raise \$5,000 to put with the Carnegie fund to build a library.

Peshigo, Wis.—The movement for a library here receives the support of interested people in other places.

Philadelphia, Pa.—Architect Cook, of the Board of Education, reports a need of \$463,000 to repair the schools of the city. A resolution has been adopted asking Council for additional appropriations, in addition to the \$129,000 already allowed.



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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

- St. Paul's Reformed Episcopal Society, formerly at 224 and Chestnut Sts., has decided to spend \$100,000 on a new church and parish-house to be erected on the lot at the corner of Broad and Venango Sts., purchased at a cost of \$30,000. Stearns & Jastor, architects, will prepare the plans. The church will be of granite, having an auditorium with a seating capacity of 1,200 persons. The parish-house is to be three stories.
- Plymouth, Ind.—John Sutcliffe, of Chicago, has made plans for a new church for St. Thomas's Episcopal congregation. It will cost about \$20,000.
- Radnor, Pa.—Horace Trumbauer, of Philadelphia, is drawing plans for a stock barn here for James W. Paul.
- Richland Center, Wis.—Law F. Porter, of Madison, is making plans for a jail for Richland County, to be erected here, of pressed brick and stone, tile roof, hard wood finish, steam heat, steel cells. Cost, \$20,000. Plans will be ready for figures about February 15th.
- Richmond, Va.—John T. Wilson, of Richmond, is stated to have secured the contract to erect the Mutual Assurance Society office building at 9th and Main Sts. Approximate cost, \$600,000.
- Rochester, N. Y.—The committee appointed recently to decide upon a lot for the new library building, and also for the new central fire-station, has selected for the library the old Main St. school-house lot, adjoining the Congregational Church, and that for the fire-station the city lot, so called, the building to be placed on the front and upper end of the lot.
- The old Smith Arcade at the corner of Main St. West and Exchange St. is to be pulled down in March and the new bank building that is to occupy that corner will be begun immediately. The new building will be the home of the Rochester Trust and Safe Deposit Co. and construction will be pushed rapidly. The company is planning to occupy its new quarters sometime during the coming summer. The new building will cost \$200,000.
- Rosindale, Mass.—The Rosindale Club corporation has purchased from the New York, New Haven & Hartford Railroad a large piece of land on the corner of Conway and South Sts. It is the purpose of the club to erect a handsome club house with entrances on both streets, to cost about \$30,000.
- Saginaw, Mich.—The Western Newspaper Union intends erecting a three-story brick building on 14th St., between O and P Sts., at a cost of \$25,000.
- Salem, Mass.—The matter of a new high-school building for this place is being discussed.
- San Diego, Cal.—Representative Daniels has introduced a bill at Washington, D. C., appropriating \$250,000 for a public building here.
- San Francisco, Cal.—The Bishop Building at Market and Annie Sts. is to be raised several stories

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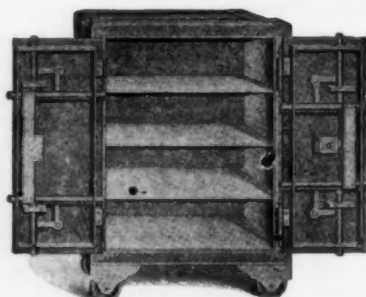
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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

- by the new owner, H. E. Law, and remodelled for a fine hotel by the architects Meyer & O'Brien. The cost of this improvement is estimated at \$300,000.
- The J. K. C. Hobbs estate Co. has accepted plans for a four-story apartment-house on Turk St., to cost \$50,000.
- Schenectady, N. Y.—The Schenectady Hotel and Amusement Co. will shortly erect a hotel and theatre in S. College St. Work will be started as soon as the contracts are awarded, and the theatre and hotel will be completed by the beginning of the next theatrical season. The theatre will be called the Mohawk, and the hotel will also be known by that name. The exterior of the structures will be of Roman pressed brick and Indiana limestone, and the general color will be light buff. The color scheme of the theatre's interior will be old rose and white. The chairs will be upholstered in light green and the trimmings in the interior of the house will be of brass.
- Seranton, Pa.—Owen McGlynn has prepared plans for a handsome edifice to be erected by the members of the Polish Catholic Church. It will be in the Roman style and will cost in the neighborhood of \$75,000.
- Sedalia, Mo.—It is probable, though not positively known as yet, that the Missouri Pacific management will decide upon Sedalia as the location of the new shops which are to be built soon at a cost of \$1,500,000.
- Skowhegan, Me.—John Calvin Stevens is the architect for the renovation of the court-house, authorized by the Legislature of 1903. The sum of \$35,000 is available.
- South Boston, Mass.—As soon as weather permits work of construction will begin on the new school-building to be erected on the corner of 8th and N Sts. All modern improvements will be installed and everything done to make the school commodious and healthy.
- An attempt is being made to secure the erection of a new municipal building for South Boston. The present structure at the corner of 4th and Dorchester Sts. has long been inadequate. The plan includes a liberal consideration for public library purposes, for which the city now has to pay \$3,000 annually.
- S. W. Johnson has purchased 6,250 feet of land on E. 7th St., between N and O Sts., upon which to erect two new three-family apartment-houses for investment. This land is near the site recently purchased for a school-house.
- Spokane, Wash.—The Consolidated Improvement Co. will build a brick block. Cost, \$30,000.
- St. Joseph, Mo.—Henry and William Krug will erect a two-story brick business structure on Francis St., between 7th and 8th Sts. The cost will be \$15,000. The plans have been prepared and bids will be asked for within the next week or ten days.
- Troy, N. Y.—Sylvester Hickey, owner of the Griswold Opera-house property, has had plans prepared by Architect Lee for the improvements at the theatre recommended by the city authorities and embodied in the report of the grand jury. The improvements will be carried into effect without delay.
- Walla Walla, Wash.—Mr. Carnegie offers to give the town \$25,000 for a library, under the usual conditions.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

- Warren, N. H.—Sophia B. Eastman, widow of the late Damon Y. Eastman of this town, has bequeathed \$500 providing the sum of \$2,500 be raised, including the \$500 bequest, within five years, for the purpose of erecting a public library building in the village to be known as the "Joseph Patch Public Library Building," in honor of Joseph Patch, the first white settler in this town, who came here in the year 1767.
- Washington, D. C.—A site on 17th St., between C and D Sts., has been bought for \$50,000 by the National Society, Daughters of the American Revolution, upon which to erect the Memorial Continental Hall. It is hoped to lay the corner-stone early in the spring. The plans of the building which will cost \$300,000 have been drawn and approved.
- The work of repairing the Luther Pl. Memorial Church in Thomas Circle, badly damaged by fire recently, will be commenced almost immediately. Contracts will be let at once, but it is believed that it will be five or six months before services can be held in the structure.
- Whitehall, Ill.—The Mercantile Club, organized two years ago, has decided to increase its membership in order that it may build and equip a library.
- Woodland, Cal.—The Carnegie Library controversy has been settled by the selection of a site offered by the Board of City Trustees.
- Worcester, Mass.—The matter of building a dormitory at Holy Cross College at a cost of \$100,000 is being considered by the faculty.
- Youngstown, O.—H. O. Griggs has been awarded the contract for building the new hotel that is to be erected at the corner of Boardman and Water Sts. by Tom Hardesty. The award was made by Architect Edward R. Thompson, who prepared the plans. The building will contain 60 rooms and will cost about \$40,000 exclusive of the furnishings.

PROPOSALS.

BUILDING.

[At Golden, Col.]

Bids will be received February 22 by the Board Control of State Industrial School for Boys at Golden for furnishing material and erecting a building. Roe & Gile, architects, Grand Opera-house, Pueblo. THOS. J. DOWNEN, Sec'y. 1468

BANK BUILDING.

[At Westby, Wis.]

The undersigned hereby gives notice that sealed proposals for the erection of a two-story solid brick and stone business building, including all labor and material, will be received by M. H. Bekkedal, at Westby, Wis., until the 1st of March, 1904. All bids must be in strict accordance with plans and specifications prepared by A. E. Parkinson, of Sparta, Wis., which may be had on application to the undersigned or A. E. Parkinson, architect, of Sparta, Wis. (Signed) M. H. BEKKEDAL. 1468

SCHOOL.

[At Stockholm, S. D.]

O. P. Johnson, school clerk, will receive bids until February 23 for the erection of a two-story frame school, 30' x 34'. 1468

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PROPOSALS.

ELECTRICAL SUPPLIES, PORTLAND CEMENT, ETC.

[At Mare Island, Cal., and Puget Sound, Wash.]
Bids will be received February 23 at the Bureau Supplies and Accounts, Navy Dept., for furnishing the navy yards, Mare Island, Cal., and Puget Sound, Wash., a quantity of lighting wire, electrical supplies, Portland cement, galvanized sheet steel, wrought iron pipe, pipe fittings, etc. H. T. B. HARRIS, Paymaster-Gen., U. S. N. 1468

ADDITION TO SCHOOL-HOUSE.

[At Brookline, Mass.]
Office of the School Committee. Sealed proposals for the erection and completion of an addition to and alteration of the Pierce Primary School-house on Prospect St. will be received by the Board of School Committee until February 24, 1904, at the Selectmen's Office in the Town-hall, at which time and place they will be publicly opened and read. Separate proposals will be received for the main building, with an additional and separate bid for changes in the old part, for the heating and ventilating, for the plumbing and for the roofing and copper work. Plans and specifications may be seen at the office of J. A. Schweinfurth, architect, Room 1111, Exchange Building, No. 53 State St., Boston, to whom all inquiries must be addressed. Bids indorsed "Proposals for additions to and alterations of the Pierce Primary School-house," "Proposal for Heating and Ventilating," "Proposal for Plumbing," and "Proposal for Roofing and Copper Work," addressed to Prentiss Cummings, Chairman of Board of School Committee, may be left with George F. Joyce, Clerk of Board of Selectmen, at his office in the Town-hall. MICHAEL DRISCOLL, EVERETT M. BOWE, WALTER CHANNING, Committee on Buildings. 1468

CHIMNEY.

[At Washington, D. C.]
Sealed proposals will be received at the Bureau of Yards and Docks, Navy Department, Washington, until February 20, 1904, for a circular brick chimney, 200 feet high, at the navy yard, Washington, D. C. Plan and specifications can be seen at the navy yard, or will be furnished by the bureau. MORDECAI T. ENDICOTT, Chief of Bureau. 1468

SEWER.

[At Danielson, Conn.]
Proposals will be received until February 20 by K. A. Darbie, borough clerk, for constructing one section of the proposed sewer system by Engineer C. E. Chandler, Norwich. 1468

HOSPITAL.

[At Fort McDowell, Cal.]
San Francisco, Cal. Sealed proposals will be received here until February 25, 1904, and then opened for construction of a brick hospital (including plumbing, gas piping and heating) at Fort McDowell, Cal. W. M. S. PATTEN, A. Q. M. G., chief Q. M. 1468

SEWER MAINS.

[At Lakewood, O.]
Proposals will be received until February 27 by Henry J. Senel, village clerk, for furnishing and laying sewer mains in Newman Ave. and Webb Road. 1469

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PROPOSALS.

POST EXCHANGE.

[At Fort Duchesne, Utah.]
Denver, Col. Sealed proposals will be received here until February 29, 1904, and then opened for constructing frame post exchange building at Fort Duchesne, Utah, including plumbing, steam heating and gas piping. Information furnished on application to Q. M. Fort Duchesne, or the undersigned. COL. J. W. POPE, C. Q. M. 1469

CEMENT.

[At Honto Creek, Ariz.]
Department of the Interior, United States Geological Survey, Washington, D. C. Sealed proposals will be received until February 29, 1904, at the department for furnishing 150,000 barrels or more of first-class Portland cement, delivered at the dam site near the mouth of Honto Creek, on Salt River, Ariz. Specifications and forms of proposals may be obtained upon application to the director of the U. S. Geological Survey, Washington, D. C., or to Arthur P. Davis, Phoenix, A. T. E. A. HITCHCOCK, Secretary. 1469

Treasury Department, Office of the Supervising Architect, Washington, D. C., February 8, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 21st day of March, 1904, and then opened, for the low pressure steam heating apparatus, complete in place, for the U. S. Post-office at Joplin, Mo., in accordance with drawings and specification, copies of which may be had at this office or at the office of the Superintendent at Joplin, Missouri, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1469

Treasury Department, Office of the Supervising Architect, Washington, D. C., February 8, 1904. Sealed proposals will be received at this office until 3 o'clock P. M. on the 23d day of March, 1904, and then opened, for the low-pressure steam-heating apparatus, complete in place, for the U. S. Post-office building at Butte, Mont., in accordance with the drawings and specification, copies of which may be had at this office or at the office of the Superintendent at Butte, Mont., at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1469

BUILDINGS.

[At Fort Riley, Kan.]
Bids will be received by Capt. G. O. Cross, Constructing Q. M., on March 3 for the construction of buildings at this post. 1469

COURT-HOUSE.

[At Huntington, Ind.]
Bids are wanted March 10 for erecting a court-house. Probable cost, \$200,000. J. W. Gaddis, architect, Vincennes. 1470

ADDITION TO COURT-HOUSE.

[At Perry, Ga.]
Bids will be received March 3 by the County Commissioners for erecting an addition to court-house. 1470

PROPOSALS.

QUAY WALL AND CONCRETE AND STEEL PIER.

[At Portsmouth, N. H.]
Bids will be received March 5 by Mordecai T. Endicott, Ch. Bureau Yards and Docks, Navy Dept., Washington, D. C., for constructing about 730 feet of quay wall and a 400-foot concrete and steel pier at the navy yard here. Funds available, \$205,000. 1470

SCHOOL.

[At Winnetka, Ill.]
Bids will be received March 1 by the Bd. Educ. for erecting a brick school. 1470

RIPRAP.

[At Gardiner's Bay, N. Y., and N. Y. Lower Bay.]
Sealed proposals will be received at the office of the Light-house Engineer, Tompkinsville, N. Y., until March 7, 1904, for furnishing riprap stone, as follows: 2,000 tons at Cedar Island light station, Gardiner's Bay, N. Y.; 600 tons at Romer Shoal light station, New York Lower Bay, N. Y.; 400 tons at Point Comfort light station, New York Lower Bay, N. Y., in accordance with specifications, copies of which, with blank proposals and other information, may be had upon application to MAJ. WM. T. ROSELL, corps of engineers, U. S. Army. 1470

CEMENT.

[At Great Gull and Plum Islands, N. Y.]
U. S. Engineer Office, New London, Conn. Sealed proposals will be received here until March 5, 1904, for furnishing 10,000 barrels of American Portland cement on docks at Great Gull and Plum Islands, N. Y. Information on application. CHAS. F. POWELL, maj., engrs. 1470

TUNNEL.

[At Santa Barbara, Cal.]
Proposals will be received until February 23 by the water commissioners for constructing a tunnel 19,560 feet long, size 5' x 7'. J. B. LIPPINCOTT, engineer, 422 Byrne Building, Los Angeles, Cal. 1468

SEWERS.

[In District of Columbia.]
Sealed proposals will be received until February 20 for constructing sewers in the District of Columbia. HENRY B. F. MACFARLAND et al., Commissioners, D. C. 1468

BRIDGE.

[At Boonville, Ind.]
Proposals will be received until March 7 for constructing an iron bridge. R. D. O. MOORE, auditor. 1469

CHAPEL.

[At Manchester, N. H.]
Bids will be received until February 20 by the Com., H. A. Young, Chmn., for erecting a chapel in Pine Grove Cemetery. McFarland, Colby & McFarland, architects, Boston, Mass. 1468

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SECTION 3. No Member should be a party to a building contract except as "owner."

SECTION 4. No Member should guarantee an estimate or contract by personal bond.

SECTION 5. It is unprofessional to offer drawings or other services "on approval" and without adequate pecuniary compensation.

SECTION 6. It is unprofessional to advertise in any other way than by a notice giving name, address, profession, and office hours, and special branch (if such) of practice.

SECTION 7. It is unprofessional to make alterations of a building designed by another architect, within ten years of its completion, without ascertaining that the owner refuses to employ the original designer, or, in event of the property having changed hands, without due notice to the said designer.

SECTION 8. It is unprofessional to attempt to supplant an architect after definite steps have been taken toward his employment.

SECTION 9. It is unprofessional for a Member to criticise in the public prints the professional conduct or work of another architect except over his own name or under the authority of a professional journal.

SECTION 10. It is unprofessional to furnish designs in competition for private work or for public work, unless for proper compensation, and unless a competent professional adviser is employed to draw up the "conditions" and assist in the award.

SECTION 11. No Member should submit drawings except as an original contributor in any duly instituted competition, or attempt to secure any work for which such a competition remains undecided.

SECTION 12. The American Institute of Architects' "schedule of charges" represents minimum rates for full, faithful and competent service. It is the duty of every architect to charge higher rates whenever the demand for his services will justify the increase, rather than to accept work to which he cannot give proper personal attention.

SECTION 13. No Member shall compete in amount of commission, or offer to work for less than another, in order to secure the work.

SECTION 14. It is unprofessional to enter into competition with or to consult with an architect who has been dishonorably expelled from the "Institute" or "Society."

SECTION 15. The assumption of the title of "Architect" should be held to mean that the bearer has the professional knowledge and natural ability needed for the proper invention, illustration and supervision of all building operations which he may undertake.

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