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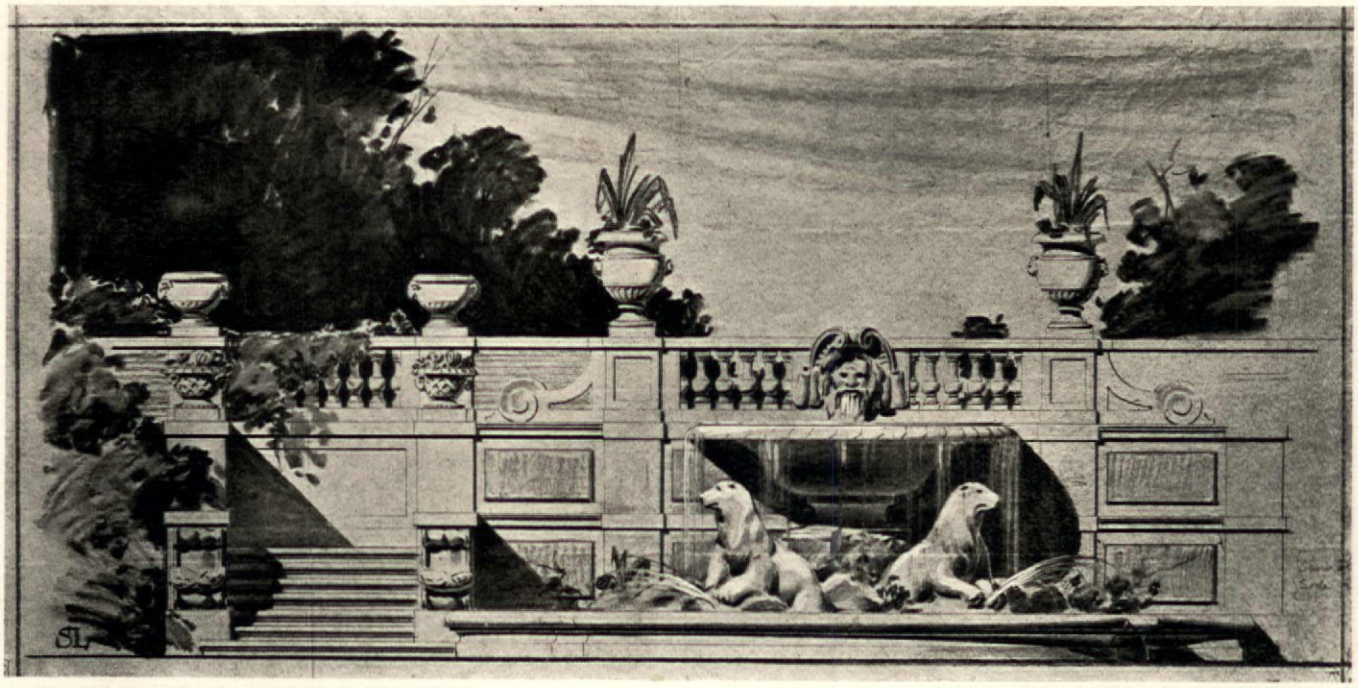


A GARDEN FOUNTAIN. STUDY IN CHARCOAL. Charles A. Platt, Architect.

I. CHARCOAL STUDIES FROM THE OFFICE OF CHARLES A. PLATT, ARCHITECT

BY JERAULD DAHLER

WHEN I first entered Mr. Platt's office a number of years ago, I was immediately struck by the unusual manner in which he studied his architectural designs. It was quite different from anything I had before encountered. Every Architect has a more or less individual way of working, but Mr. Platt's method seemed to me decidedly individual as well as extremely interesting.

In attempting an explanation of why Mr. Platt's office seemed to me different from others I had known, I should say that it was because here architecture is considered to a greater degree as an art, and that the ideal of that art is the impelling force behind all work. Every design, before it goes to the artisan for execution, is studied thoroughly. By that I intend the fullest degree of that word's implication. Mr. Platt does not guess at results. He attains them by an infinite perseverance, in conjunction with a rare eclecticism. To my mind, study is the keynote to his success.

One of the first marks of distinction in Mr. Platt's manner of studying his work is the vehicle he employs for presenting his designs for his criticism. It is the use of charcoal renderings. The æsthetic value of every important detail of a structure, in regard to which there is the slightest doubt, is put to test by being presented in charcoal form. A glance at the studies illustrated herewith, which are a few typical examples in this medium, that have been made and used in Mr. Platt's office for work already executed, or in course of construction, will convince the observer of their worth for such a purpose.

I believe the use of charcoal for architectural renderings like these, is something new. It has been my lot to have worked in a number of offices in New York and in other cities. In none of these have I found charcoal employed to any great extent for rendering purposes, nor have I been able to learn by inquiry among my Architect friends and acquaintances, of anyone who so employs it. Therefore, I believe its potentialities are, to a great extent, unknown, or at any rate, disregarded, because not understood. Aside from its novelty, the use of charcoal as a means of studying designs and details, seems to me to be of unusual interest because of the superior qualities it possesses, which make it suitable for the architectural office, compared to rival methods. First of all, it is quick and it is forceful. It is facile, it is clean, and it is a true way of expressing realistic values. These are indeed virtues in the active office of today, especially the first mentioned. It is with the hope that my fellow Architects and draftsmen will find an interest in the employment of charcoal for their work, that these studies, with Mr. Platt's generous permission, are presented for their consideration, with a few words explanatory of its uses and merits.

Studies such as these should not be classified or confused with the usual and more or less familiar architectural portrayals. Almost continually we are having brought to our attention in magazines and in exhibitions, accounts of those in our profession who have specialized in the art of architectural rendering, together with examples of their skill, varying in its scope from sketches in pen and ink, to elaborate drawings in wash and water color. These drawings are called architectural presentations. They are executed as a rule with great care and without regard to time spent in their doing. No expense is spared in order to make them as "chic" as possible, for their fundamental purpose is to be an attractive picture, with smiles to charm a doubting client or some equally doubting building committee. They are what I might term an emphatic instance of the best foot forward movement. Consequently, in large competitions, too, we never fail to see brought forth a grand collection of this type of drawing, where each man strives to outdo his rival by the "stunningness" of his offering.

The idea of employing such presentations is an old one and a useful one. However, the influence on our profession in recent years, of the Ecole Des Beaux Arts, has undoubtedly accentuated its practice as well as its importance, and it has certainly increased the standard of skill in producing it. So much so, in fact, that there has grown up a distinct class of men who specialize in this one branch of work, thus removing it, in a sense, out of the architectural profession, often to the embarrassment of that Architect who cannot afford the expensive services of such a specialist, and moreover cannot afford not to compete with him. I am open to conviction as to the merits of the French school in matters of design, but as to draftsmanship, its virtues are obviously pronounced; that is, if one is inclined to regard the clever draftsmen of today as a bona fide asset. I am inclined to regard him more as a "magician," for how often he can present a sketch of a building, very poor in design, and make it appear like a veritable masterpiece. For instance, it may not be that the superior design loses in a competition, because of inferior presentation, but on the other hand, I have never seen a large competition won by a design that was not presented extremely well, from which we may draw any conclusion we care to. In any case, this kind of rendering has grown to be an important factor for the Architect's consideration, because the quality of his work is apt to be judged by the excellence of his preliminary presentation. I regret that such is the case, since it is a false principle, but have no intention of suggesting a remedy. My idea of mentioning it here at all is to point out the distinction of that type of rendering from that of which I am going to tell you, and which is here shown, with the belief that it would work for the ultimate benefit of our art if a more simple and less deceptive method were inaugurated for the purpose of presenting embryonic designs, and the time and energy thus saved, devoted to intelligent, truthful study of actual working drawings and details.

In the first place, then, these studies were not intended to give what I might call an "artistic" effect, and so differ from such architectural presentations as I have described. The studies reproduced here were made to look as much like the actual work they represent, as possible—no better nor no worse. Flattery was not only not attempted—it was not desired, because these are the Architect's own studies, made for his scrutiny only and his own enlightenment. As Mr. Platt himself says, they are made to show the "brutal facts" about the designs.

If one of the studies, page 128 for example, were shown to a client with the explanation that it was a photographic likeness to the cornice of the entrance of his new house, the chances are, if he be the average man, it would mean absolutely nothing to him. It is but natural that we deny the lay mind the power to see the possibilities in a design from a fragmentary sketch of it, while we believe ourselves capable of doing so. But the client, who is only familiar with picturesque likenesses of houses, not with their plans, must be appealed to in a language he understands. Drawings suitable for the trained eye may not be so for the other. Deception would be ridiculous in a rendering for professional criticism. Heaven knows, the Architect is so often deceived by his own building when he sees it completed, that it would be twice folly for him to deceive himself when designing it.

The "landing" of a job, with the various methods employed in its doing, is but one of the demands made on the Architect's versatility, be it by over statement of fact or what not. After this is accomplished and the work goes under way, it becomes his duty to bring it to completion by sincere and earnest endeavor. If he has convinced his client of his ability, he is now obliged to furnish the proof, in return for the confidence placed in him, as well as to satisfy his own altruistic desires. To do this demands every energy, talent and useful agent at his command. Under the latter classification come these drawings in charcoal. They are true working studies, for they were not made until after the scale plans and elevations were completed and the contract for the work let.

That these studies are useful is evident. No matter how vivid one's imagination may be, it is extremely difficult, well nigh impossible, to know from looking at an Architect's geometric drawing of a building, exactly how that building will appear when built. It is just as the premiated plans of any undertaking, social, political, or military, are never precisely like their actual consummation, because some outside and unconsidered influences enter and bear an effect that is not foreseen. It is only by eliminating or lessening this percentage of error to a minimum that we can attain good results. Blind luck sometimes helps but should not be relied on, as I fear it often is in architectural matters, much to the sorrow of those who behold the creation.

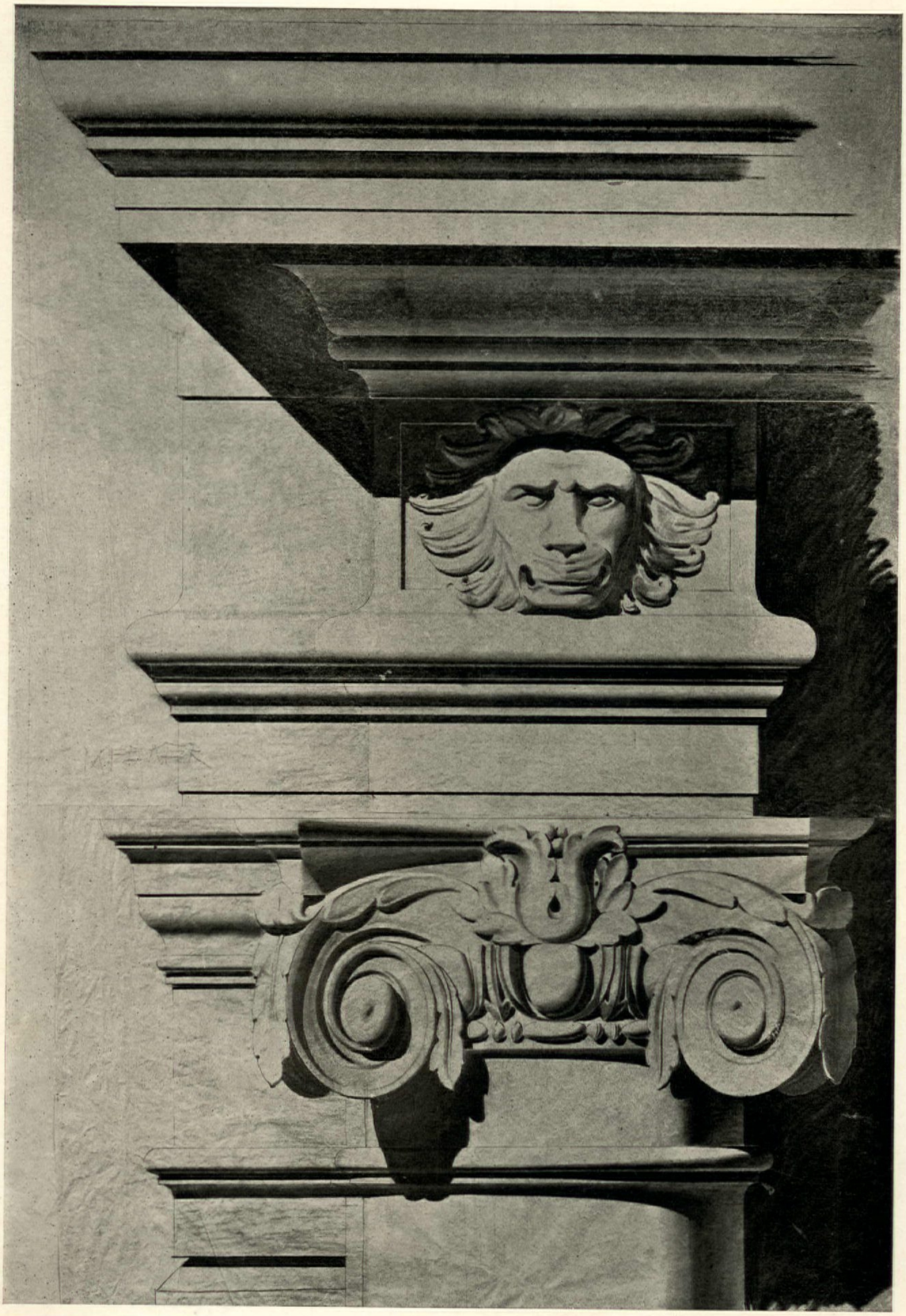
Architectural design is based on the relation of masses and voids. Therefore it is these two elements principally with which we have to work and to contend. Of course line enters in too for its share of consideration, but as it is possible to study that quite satisfactorily by means of simple line drawings, it is not of especial interest to us here. The study of the effect to be developed by the juxtaposition of masses and voids, is however, much more difficult to pursue, and any means that will lend a helping hand to the designer is welcome, since it is of paramount importance that the Architect should know as nearly as possible what the interpretation of his drawings into solid material is going to bring forth.

Already there has been brought into use for this purpose a number of agents, the best of which is doubtless a small scale model of the projected structure, made absolutely in accord with the architect's drawings. These give a perfect reproduction of the building in true proportion and show the relation of the various parts, so there is little left for conjecture. The employment of models by the profession is probably as old as it is useful. Proofs are existant that such prototypes in miniature of buildings, were employed as far back as Greek and Roman times. Today finds their service equally appreciated because of its unsurpassed benefits. However, they have one fault which is almost fatal, namely, their cost. This is indeed prohibitive, though the facility of constructing them is being increased by modern mechanical methods. Nevertheless, even now, the difficulties caused by their delicacy of construction are many and because of the expense incurred therefrom, they cannot be employed except for the largest commissions, where the cost of the building warrants it. To give an idea of the general attitude held in regard to these models, not long ago in speaking to a friend of mine, I inquired the cost of a plaster model he had had made of a projected building, which building was to cost in the neighborhood of a half a million dollars. Jokingly, he answered that he did not remember exactly, but that he believed the model cost not much more than the contract price of the structure itself. Now, of course this was absurd exaggeration, but it illustrates the point that models are no mean consideration and are decidedly out of the question for average work. Even if it were possible to have made a small scale model of a medium sized country house, for instance, larger scale models for the purpose of studying the detail, which is very important (as it is of any type of building, for that matter), would be so expensive and extravagant that it could not be hoped for from a client. Surely the Architect could not stand such expense, to be deducted from his commission, even though it apparently belongs with his services as a means for producing his designs. The percentage of clients who would realize the importance of having such a model, that is, to the point of paying for it, is, I fear, very small. When an Architect finds such a one he is indeed fortunate. My experience has been that the rate of professional services is considered very excessive—even to the point of extortion. On the contrary, as we all know too well, an Architect's commission for services is so small that it behooves him to practice the strictest economy, if he wishes his financial account to show a profit at the year's end, and this when he is required to furnish only the minimum of drawings, let alone models. These are indeed to be rated as luxuries, and as a rule, some less expensive method must be resorted to by the architect for the purpose of studying his designs.

For the man who holds ideals of his art, the present system of remuneration for services is very difficult, because study is absolutely necessary to produce a good design. More than that, as work is a personal expression of its author, it is impossible to really embody one's character into his work except by thorough study. Yet, the more time and energy one devotes to his solutions of problems, and in the quest of beauty, the more it costs him in actual dollars. I think something must be wrong here in the scheme of things. It has always seemed a pity to me that an Architect is paid according to the cost, instead of according to the æsthetic merits of the structure he builds. The genius who gave to this country the University Club certainly deserved more material reward than the authors of the countless mediocre buildings, equally expensive, scattered throughout the land. The other arts (as distinguished from architecture) follow this system, and not unsuccessfully, even though the tale of the unrecognized genius starving for lack of appreciation, is ever with us. I believe it will work equally well with architecture when the time is ripe for it. The trouble is the poor old public that has been getting educated all these years, hasn't progressed yet to where they know a good building from a bad one. Consequently, why should they pay more for one than another, as long as both are good shelters, with faultless heating plants and plumbing pipes that do not leak. Of course there are some lay people who are exceptions, in fact a considerable percentage I believe. Nevertheless, the average taste in architectural matters, is unfortunately, but slightly cultivated. Despite what is said and hoped to the contrary, this is a practical age, and must be accepted as such. It remains for the Architect to do the best he can under the circumstances, as he does with the thousand and one other difficulties he has to endure.

(To be continued)

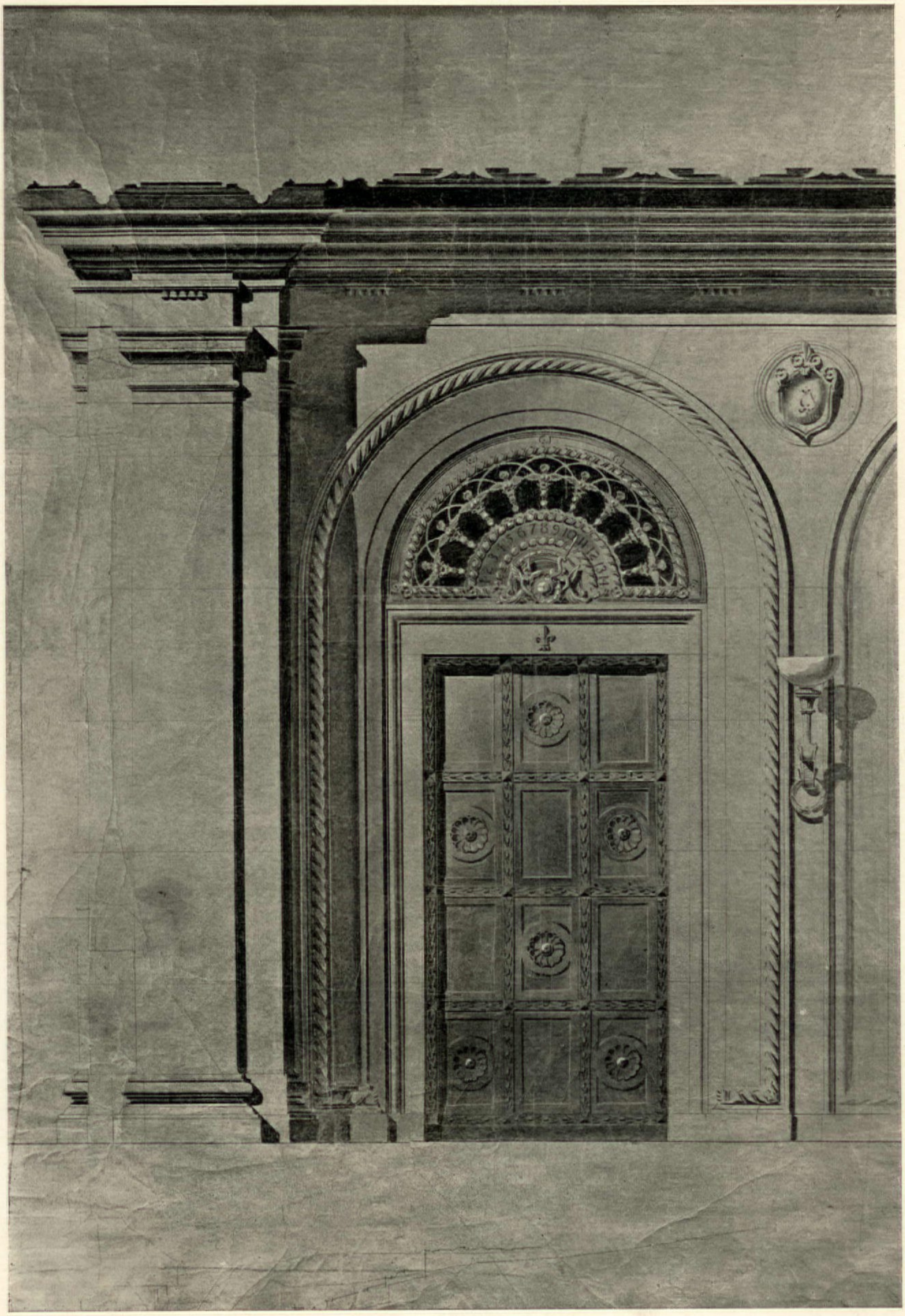
STUDY IN CHARCOAL. Charles A. Platt, Architect.



DETAIL, ENTRANCE, CITY HOUSE. STUDY IN CHARCOAL.

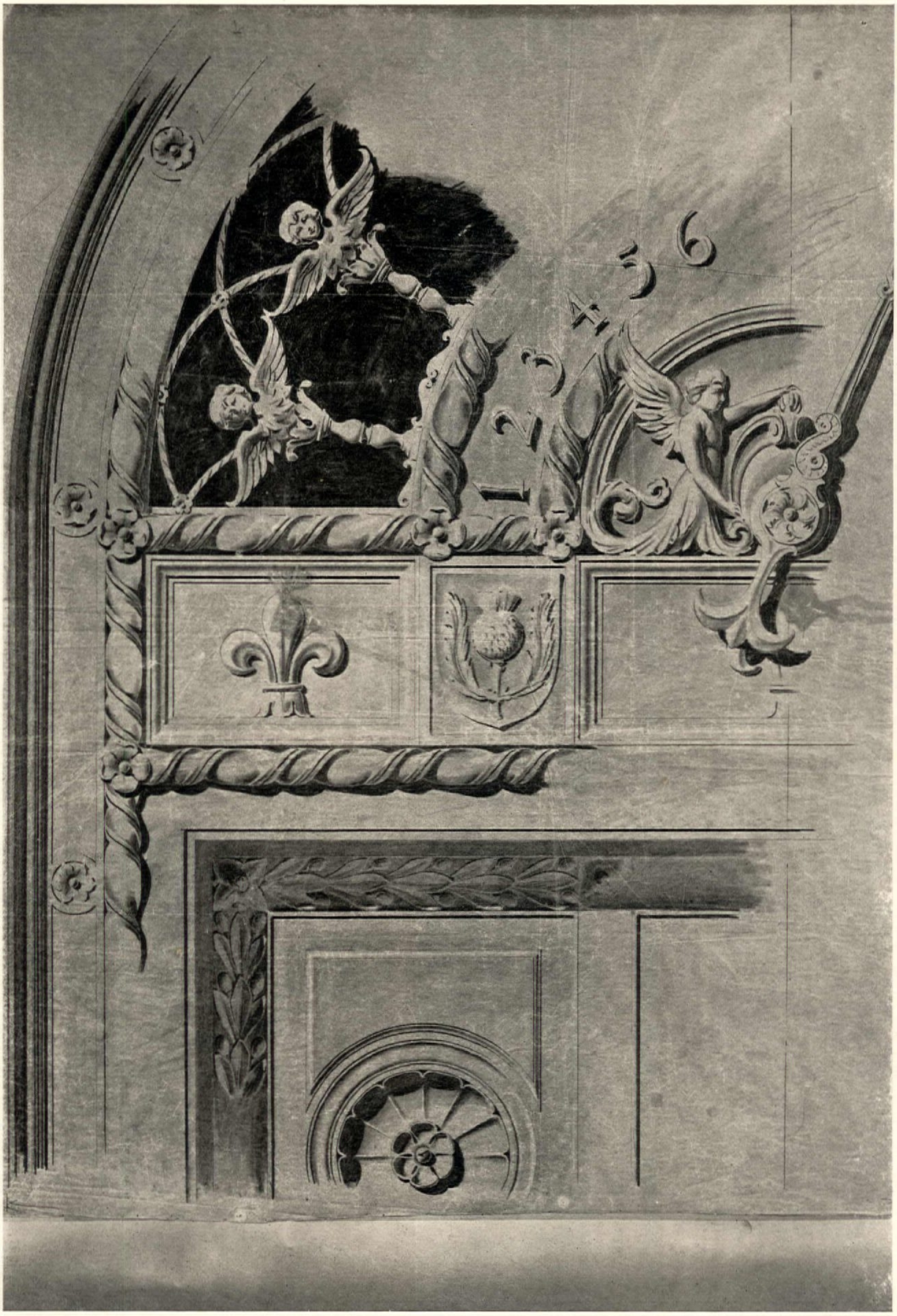
Charles A. Platt, Architect.

ENTRANCE, CITY HOUSE. STUDY IN CHARCOAL. Charles A. Platt, Architect.

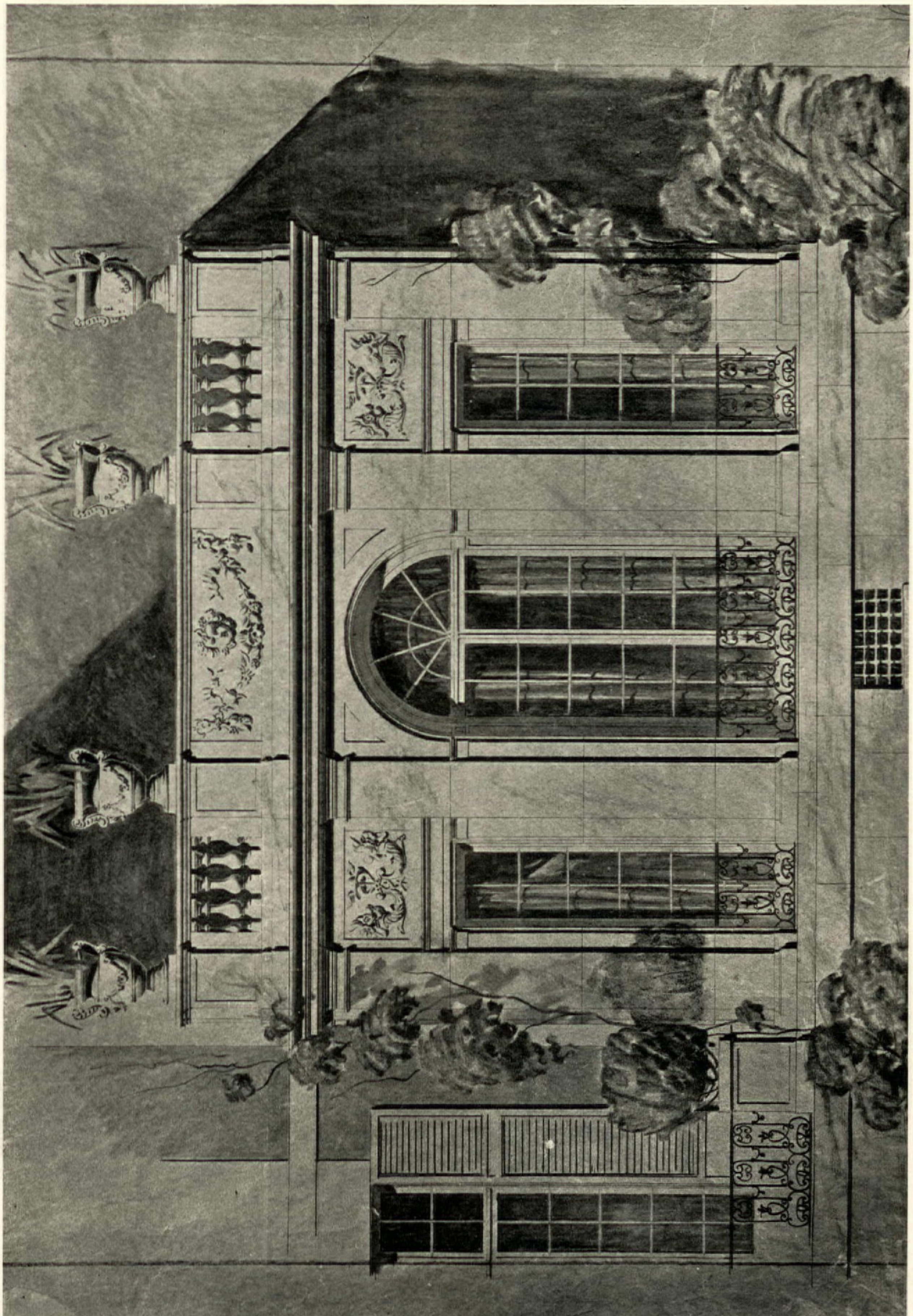


ELEVATOR DOOR, COMMERCIAL BUILDING. STUDY IN CHARCOAL.

Charles A. Platt, Architect.

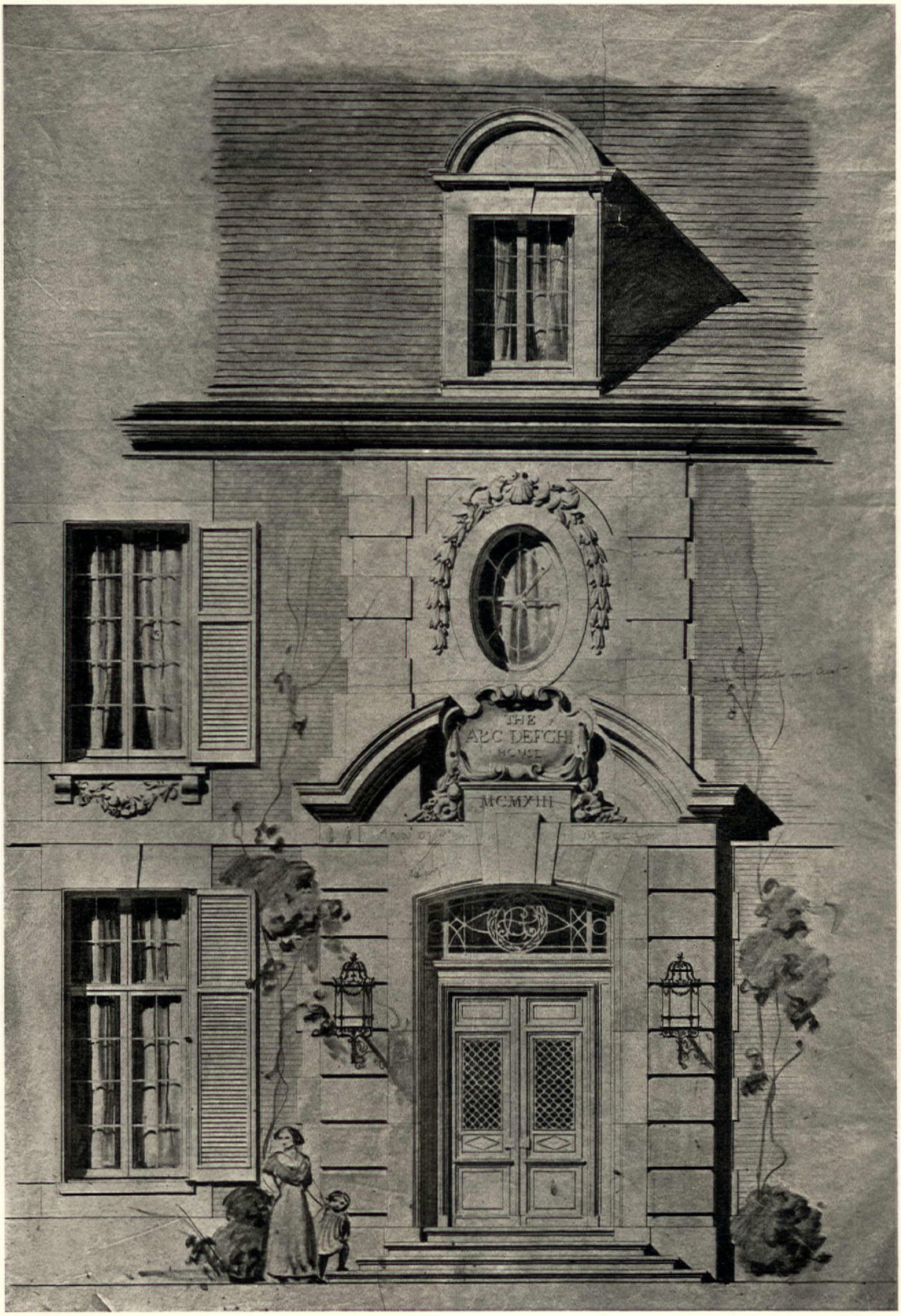


DETAIL, ELEVATOR DOOR, COMMERCIAL BUILDING. STUDY IN CHARCOAL. Charles A. Platt, Architect.

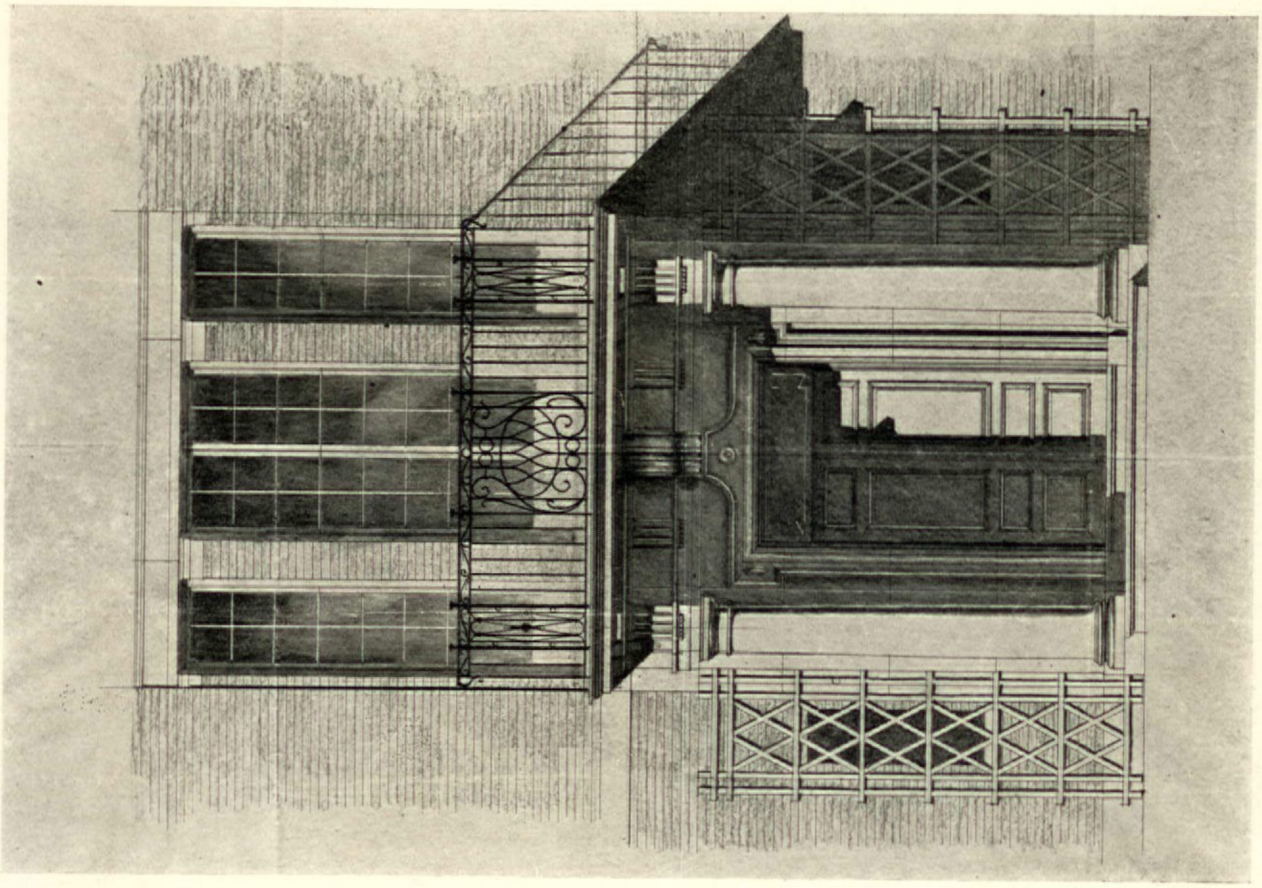


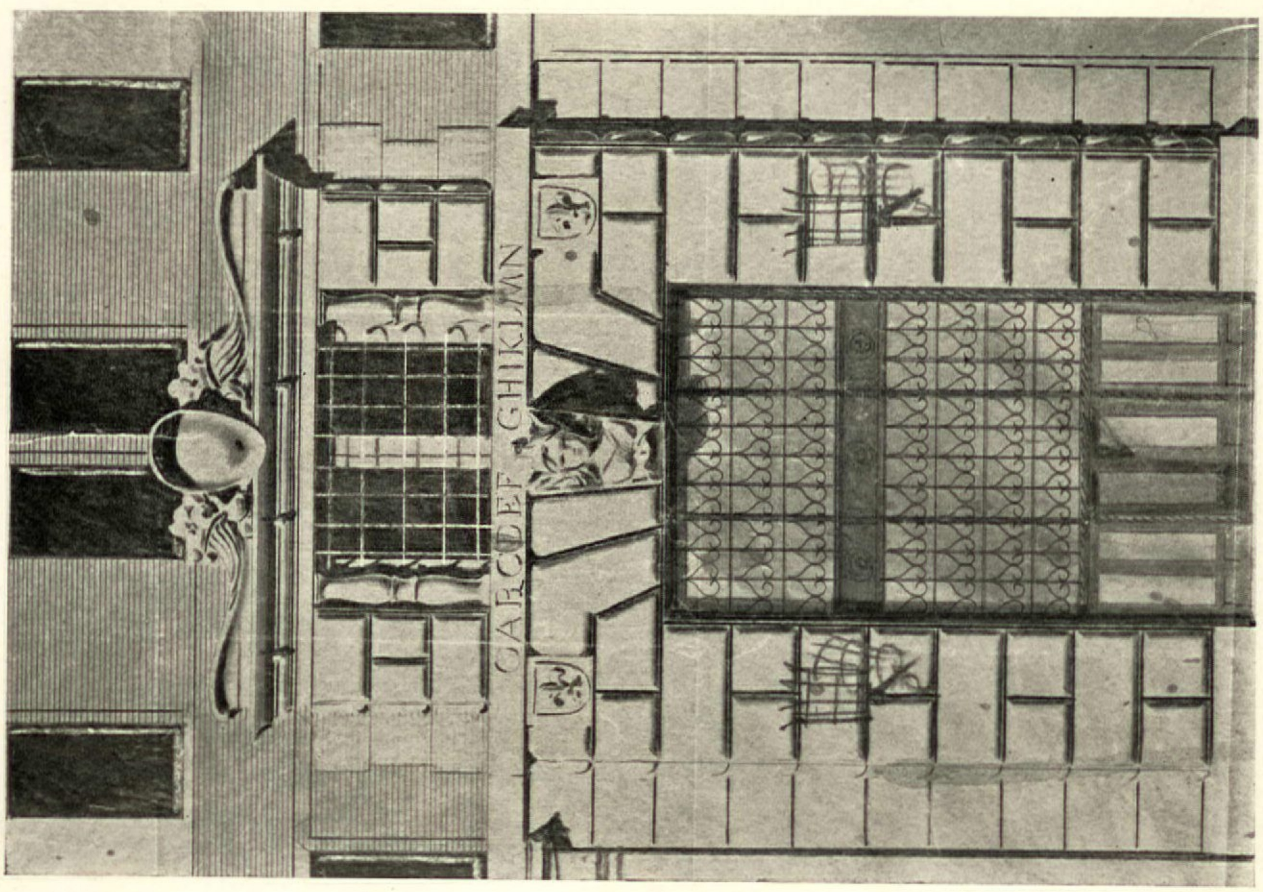
LOGGIA, COUNTRY HOUSE. STUDY IN CHARCOAL.

Charles A. Platt, Architect.



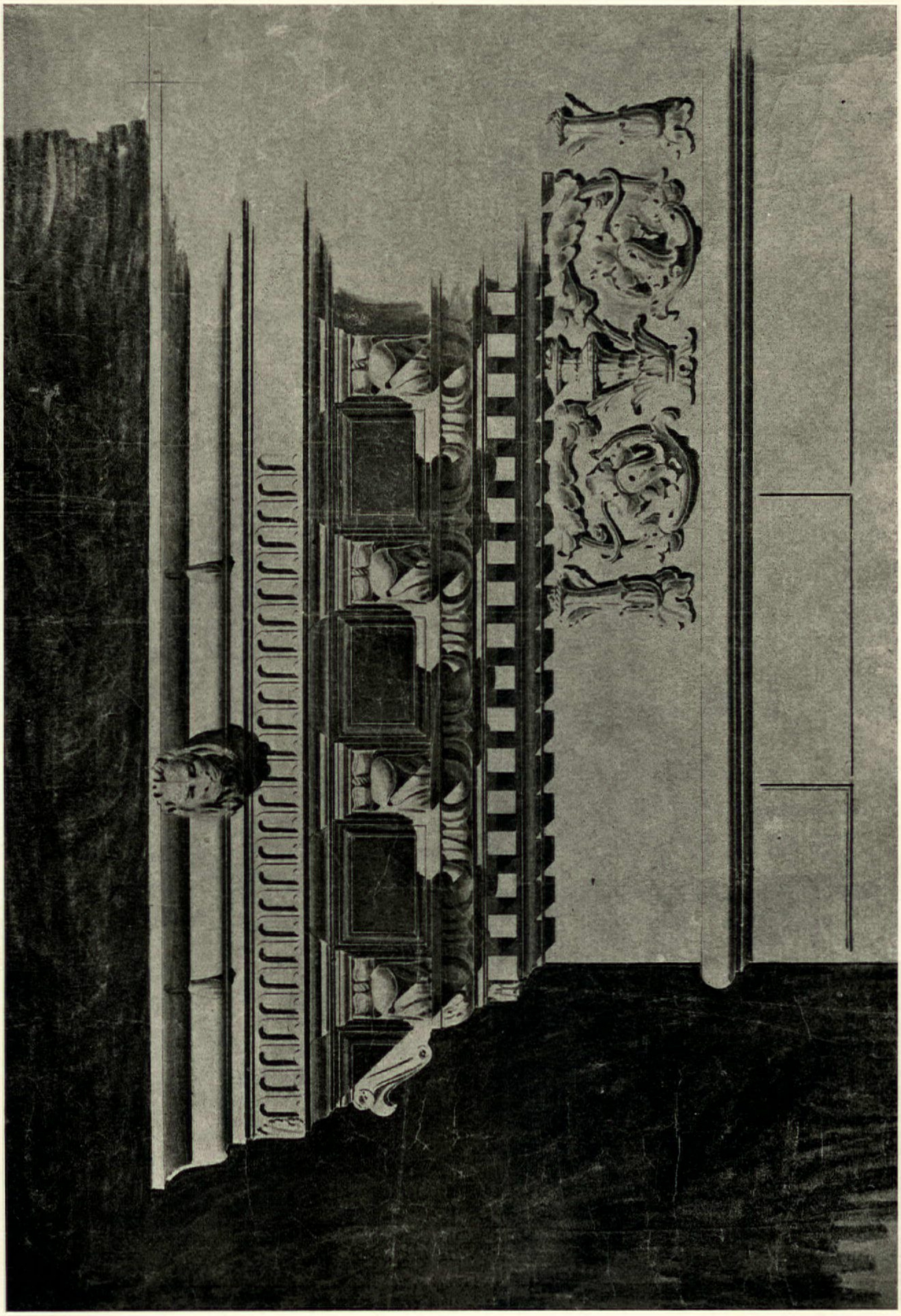
ENTRANCE, COUNTRY HOUSE. STUDY IN CHARCOAL. Charles A. Platt, Architect.





STUDIES IN CHARCOAL. Charles A. Platt, Architect.

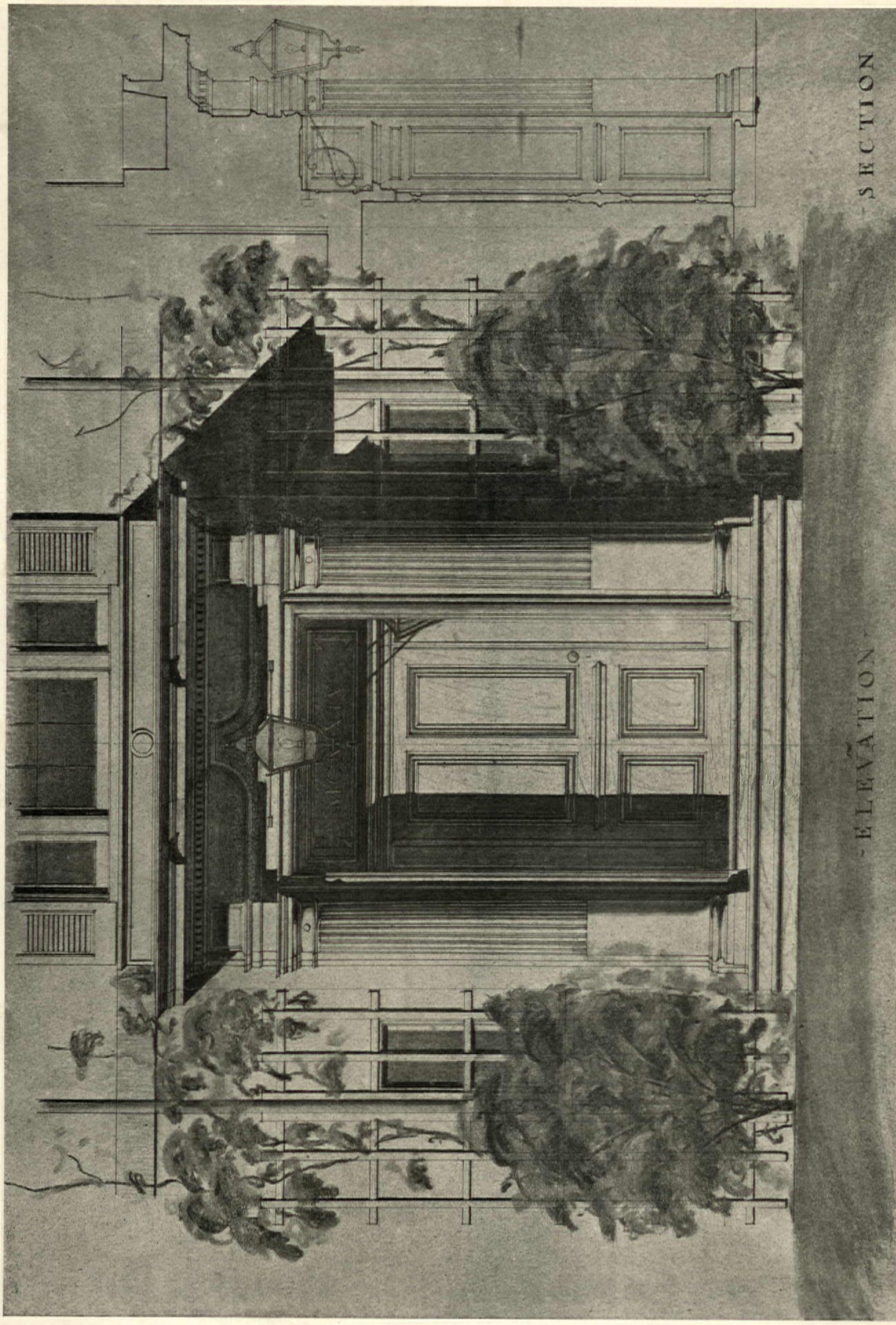
ENTRANCE, APARTMENT HOUSE. STUDY IN CHARCOAL. Charles A. Platt, Architect.



CORNICE, COMMERCIAL BUILDING. STUDY IN CHARCOAL.

Charles A. Platt, Architect.

STUDIES IN CHARCOAL. Charles A. Platt, Architect.



ENTRANCE, COUNTRY HOUSE. STUDY IN CHARCOAL.

Charles A. Platt, Architect.

STUDIES IN CHARCOAL. Charles A. Platt, Architect.

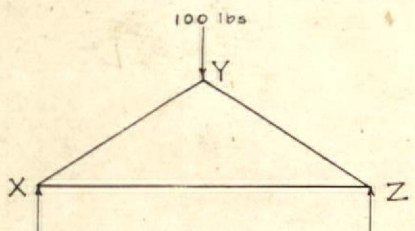
XI. ENGINEERING FOR ARCHITECTS

BY DEWITT CLINTON POND

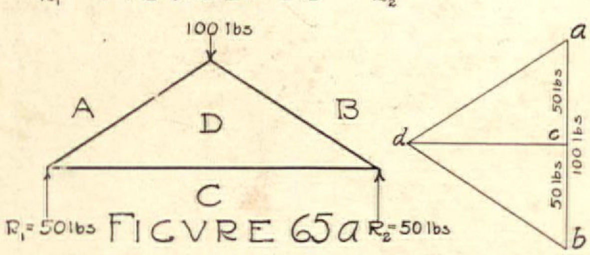
Mr. Pond has charge of the practical course in structural design at Columbia University. He is extremely successful in instructing men who have had little knowledge of mathematics, and these articles have been written with that in view.

IN the last article, the methods of determining the action of forces by means of graphical methods was considered. The most practical use to which these methods are put is that of designing roof trusses. The average Architect regards the design of trusses as a difficult matter, but there is no need of this.

A truss may be represented by a simple triangle as shown in Fig. 65 by the lines *XY, YZ* and *ZX*. Suppose a



FIGVRE 65



FIGVRE 65a

force of 100 pounds is applied at *Y*. This force is carried to the supports R_1 and R_2 through *YX* and *YZ*, and these two members are in compression. If the member *XZ* were not there, there would be an outward thrust at each reaction. *XZ* acts as a tie, holding the ends of the truss in position. This member is in tension.

The problem that a designer has to decide is the exact amount of compression or tension that occurs in any particular member. In order to do this a system of lettering is employed known as "Bow's Notation."

Note the positions of *A, B, C* and *D* in Fig. 65*a*. The line *XY* now is between *A* and *D*. The line *YZ* is between *B* and *D*. The 100-pound load falls between *A* and *B*. This means that instead of using the letters at the ends of a line to designate the line, the letters on either side of it are used. In other words *XY* becomes *DA*, the force of 100 pounds becomes *AB*, *YZ* becomes *BD*, and *XZ* is known as *CD*. In Fig. 65*a* it will be seen that *X, Y* and *Z* are done away with altogether. The reactions also are lettered in this manner. R_1 is *CA* and R_2 is *BC*. The diagram in which these letters are shown is known as the *truss diagram*. To the right of the truss diagram, Fig. 65*a*, is another known as the *stress diagram*.

When the stress diagram is drawn the use of Bow's Notation becomes apparent. The three known forces are the two reactions and the downward load. On the stress diagram lay off *ab* parallel to *AB* and equal to 100 pounds. In order to find the stresses in *DA* and *BD* draw a line through *a* parallel to *AD*, and one through *b* parallel to *BD*, and the point of intersection of these lines must be *d*. By measuring *da* or *bd* the magnitude of the stresses in the compression members can be determined. The amount of tension in the lower member can be found by drawing a line through *d* parellel to *DC* and a line through *a* which is parallel to *CA*. This last line will coincide with the line *ab*. The point of intersection of the vertical with the horizontal line must be *c*. By measuring *cd* the stress in *CD* is determined.

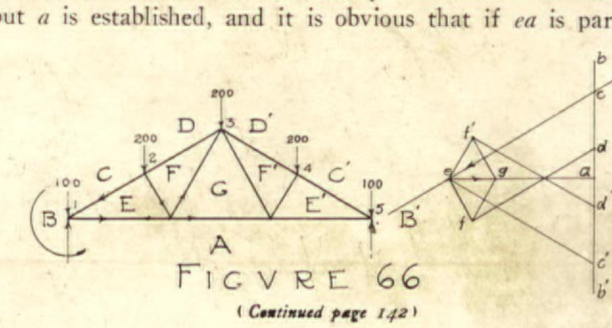
Once *c* is established the amount of weight coming upon the supports is known. It has already been pointed out that *CA* and R_1 are the same, and this is true of *BC* and R_2. *ca* and *bc* are both given in the stress diagram. It will be noted that *bc* equals *ca* and that each equals one-half of *ab*. As the load *AB* is placed directly in the center of the span, it is plain that each reaction must equal one-half the load.

In all the work in which graphical methods are employed the lines that give the magnitude of stresses, in the stress diagram, must be parallel to the members in which the stresses exist in the truss diagram. In other words, *ab* is parallel to *AB*, *bc* to *BC*, and *cd* to *CD*.

All trusses are not as easily developed as the one given above. The principles of determining the stresses in the members are, however, exactly the same in all. The truss shown in Fig. 66 is known as a "Fan Truss" and can be used to span over openings of from 20 to 35 feet. The points numbered *1, 2, 3, 4* and *5* are known as *panel points*, and the load upon the truss is generally considered as acting as concentrated loads at these points. For purposes of demonstration let it be assumed that a force of 100 pounds acts at *1*, a force of 200 pounds at *2*, another at *3*, and so on as shown in the figure. The truss diagram is lettered as shown according to Bow's Notation.

The next step is to lay off the stress diagram, starting with the forces already known. These forces are *BC, CD, DD'*, etc. The reactions are also known and so the point *a* can be established, *ab* being one-half the length of *bb'*.

The unknown forces are found by considering each joint separately. Start at the first panel point and read the forces in a *clockwise* direction. This means that the order in which the forces are read is that indicated by the arrow (Fig. 66) and corresponds to the direction taken by the hands of a clock. In other words the forces acting at the first panel point are read as follows: *AB, BC, CE, EA*. Looking at the stress diagram, *ab* and *bc* are known. *ce* is not known but its direction is parallel to the upper chord of the truss and the point *c* is known. Draw a line through *c* parallel to *CE* and continue it indefinitely. Neither is *ea* known, but *a* is established, and it is obvious that if *ea* is parallel



FIGVRE 66

(Continued page 142)