

WHAT IS AHEAD?

THAT sometime and somehow he is going to fill a better position than he now has is probably at the back of the mind of almost every draftsman. Just what he is going to be, just how he is going to get there, and just when he is going to start are often matters that have not been determined. As a matter of fact, most men either stick in a rut or drift aimlessly from one thing to another, and get nowhere. As one comes into contact with life, his tastes, his abilities, and his limitations become more clearly defined, and he may discover that he fits best into a line of work either allied to or quite different from the kind of work he expected to follow. One's first choice of employment is largely a matter of chance and at the best is the result of little more than a shrewd guess at his capabilities. Though it is unwise to stick to a line of work for which one is not well suited, it is important not to be diverted by every thing that looks like an opportunity and discouraged by difficulties encountered in developing in one's chosen field.

If an architectural draftsman is to develop without going outside of the field of work in which he is engaged—and there is plenty of room in that field for men who have the right qualifications—there is a future for him in several different branches of the work. He may become a designer, a chief draftsman, a superintendent of construction, a specification writer, or perhaps an architect.

If he is to develop into a designer, the thing of primary importance is obviously to study architectural design systematically and thoroughly, to develop an ability to organize the elements of a design whether it be for a whole building or for a bit of ornament, to store his mind with a knowledge of the best work of the past and to refine his taste through familiarity with and appreciation of good design, to become a cultured man through acquaintance with good literature, good painting, good sculpture, as well as good architecture.

If he is to be a chief draftsman he will need to develop executive ability, to make himself absolutely dependable, as well as to gain a good knowledge of architecture, particularly of the practical aspect of architecture, as it appears both in drafting room work and in actual construction.

The man who wishes to become a superintendent of construction will, naturally, centre his attention

chiefly on the construction details and on construction work, with a thorough study of materials, their cost and use. He should know design well enough to see that the designer's ideas are sympathetically embodied in the construction.

The man who wishes to become a specification writer will, naturally, gain all the information he can relating to the materials and methods of construction, the various types of equipment and fittings that enter into buildings of all classes. He will study the use of language as a means of direct and unmistakable expression and will endeavor to get a broad view of the construction field and to know every detail that enters into a building. To develop orderliness of mind and method, thoroughness and reliability are of prime importance to the man who hopes to become a specification writer. He must have the ability to give almost infinite attention to detail and must have a knowledge of every detail of the work of construction from experience on the work.

The practice of architecture is not open to the man with merely a "taste for architecture" or closed to the man who is without financial advantages. The atelier, scholarships, the libraries, the museums, are available for all who wish to learn, and are willing to pursue their chosen course with unswerving persistence. The man who wishes to become a successful architect should concentrate mainly on developing the ability to make a clean-cut, well-organized solution of each problem, to produce a design that will take care of all the practical requirements, and as a matter of fact, will grow from them. The ability to give beautiful expression in terms of architecture to a practical problem is the quality that makes the architect. To acquire this ability the potential architect must make himself a part of the best side of life, familiarize himself with the uses of different types of buildings and seek every means of cultivation, as well as training and experience in architectural design, presentation and construction.

Natural ability is necessary in each of these branches of work, as it is in the practice of architecture, but to natural ability must be added much hard, well directed work, both in the developing of this ability and in the carrying out of the work. Genius alone is not enough to bring success—a brilliant idea if it is not worked out thoroughly is of little value, but the field is open to the man who will study and work intelligently and enthusiastically.



Photograph by Wurts Brothers

BUSH HOUSE, LONDON, ENGLAND. HELMLE & CORBETT, ARCHITECTS

Third, and Final, Stage of Rendering by Hugh Ferriss. For First and Second Stages See Pages 8 and 9

PENCIL POINTS

THREE STAGES OF A RENDERING

BY HUGH FERRISS

PRELIMINARY to the beginning of work on the rendering the writer studied the project as a whole with the architect, the character of the design, the relation of the building to its surroundings, etc., receiving information as to what view of the building was desired for this delineation, what the purpose of the drawing was, and whether it was to be made essentially for reproduction. He also received the necessary data to work from, consisting in this case mainly of a scale drawing of the elevation and a photograph showing the existing surroundings.

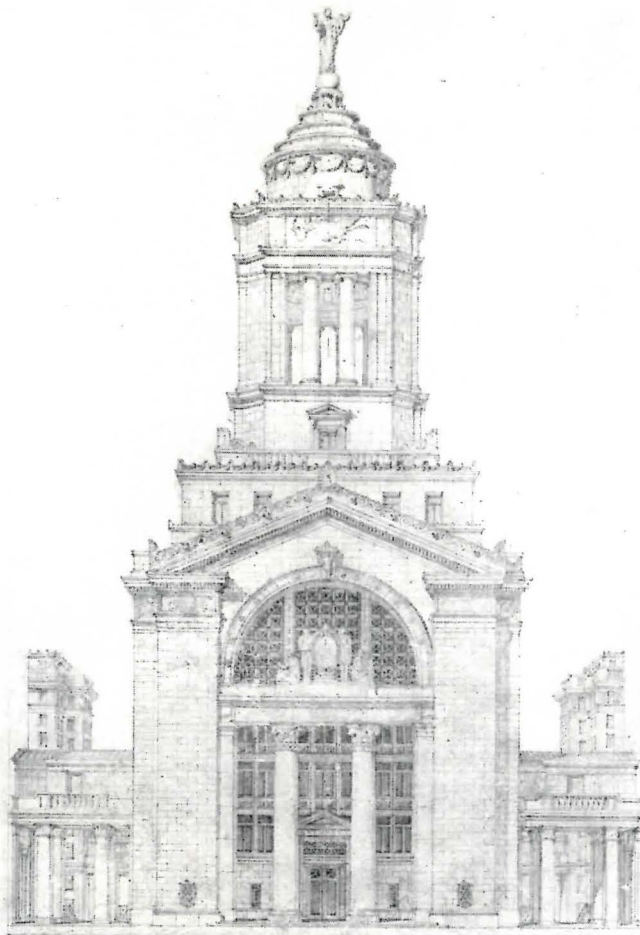
The spirit in which the drawing was to be carried out was considered; whether, for instance, it should tend toward the impressionistic or suggestive or toward the literal. In this case a literal treatment was chosen, as the architect's designs had reached a definite stage, the surroundings were well known and of significance to the project and the object in having the drawings made was to convey a realistic impression.

Black and white had been specified, but the question as to what medium to use next called for consideration. The necessity for defining detail with some accuracy suggested that such mediums as charcoal or lithographic crayon would be too broad. On the other hand, as it was desirable to recognize the characteristic, varying tonal qualities of London buildings, and as it was the aim to produce a drawing not entirely without atmospheric affect, a hard pencil line did not seem appropriate; nor did the gray of the ordinary lead pencil lend itself well to the depth of tone desired. A carbon

pencil was chosen allowing the use of a fairly definite line, with the sharpened point, and a comparatively rich tone quality, when using the broad edges of the lead and when rubbing with it. Grades 2B and 3B were employed. A fairly smooth, heavy drawing board was used.

First Stage—The composition, being visualized,

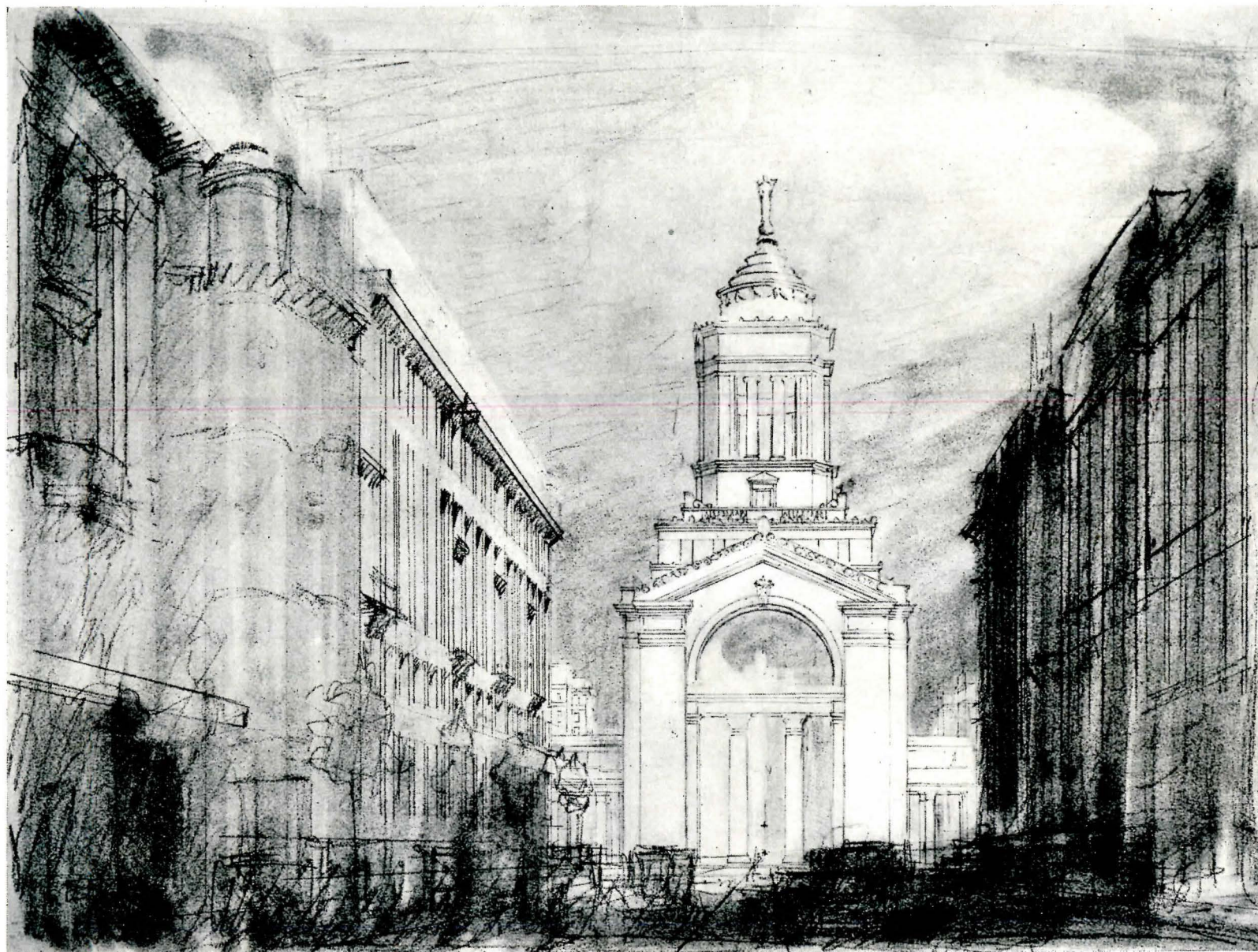
the horizon line, vanishing point, center line of Bush House, silhouette of its mass and the masses of adjoining buildings to left and right, likewise the traffic in the foreground (the latter as one mass) were suggested in seven or eight free hand lines. Bush House was then roughly drafted with T-square and triangle, information being taken from the architect's elevation; buildings to left and right were similarly indicated in a relative degree of definiteness, likewise the foreground. Light tone values were produced by rubbing over the lines with the finger. It was the object at this stage to have the essentials both of line and tone values sufficiently indicated to suggest the final result, but sufficiently tentative to allow any changes which might prove desirable to be easily made. See reproduction of the drawing at the end of the first stage on page 8.



Architects' drawing which, together with a photograph of the surroundings, supplied data for the rendering shown on the opposite page. Bush House, London, England. Helmle & Corbett, Architects

Second Stage—The next step was to advance the essential values to approximately the final degree, ignoring indication of detail (certain essential lines were first reinforced sufficiently to keep them from being obliterated during this process). General tones were applied over the surface, using the broad edge of an inch of the lead cut from the pencil, and

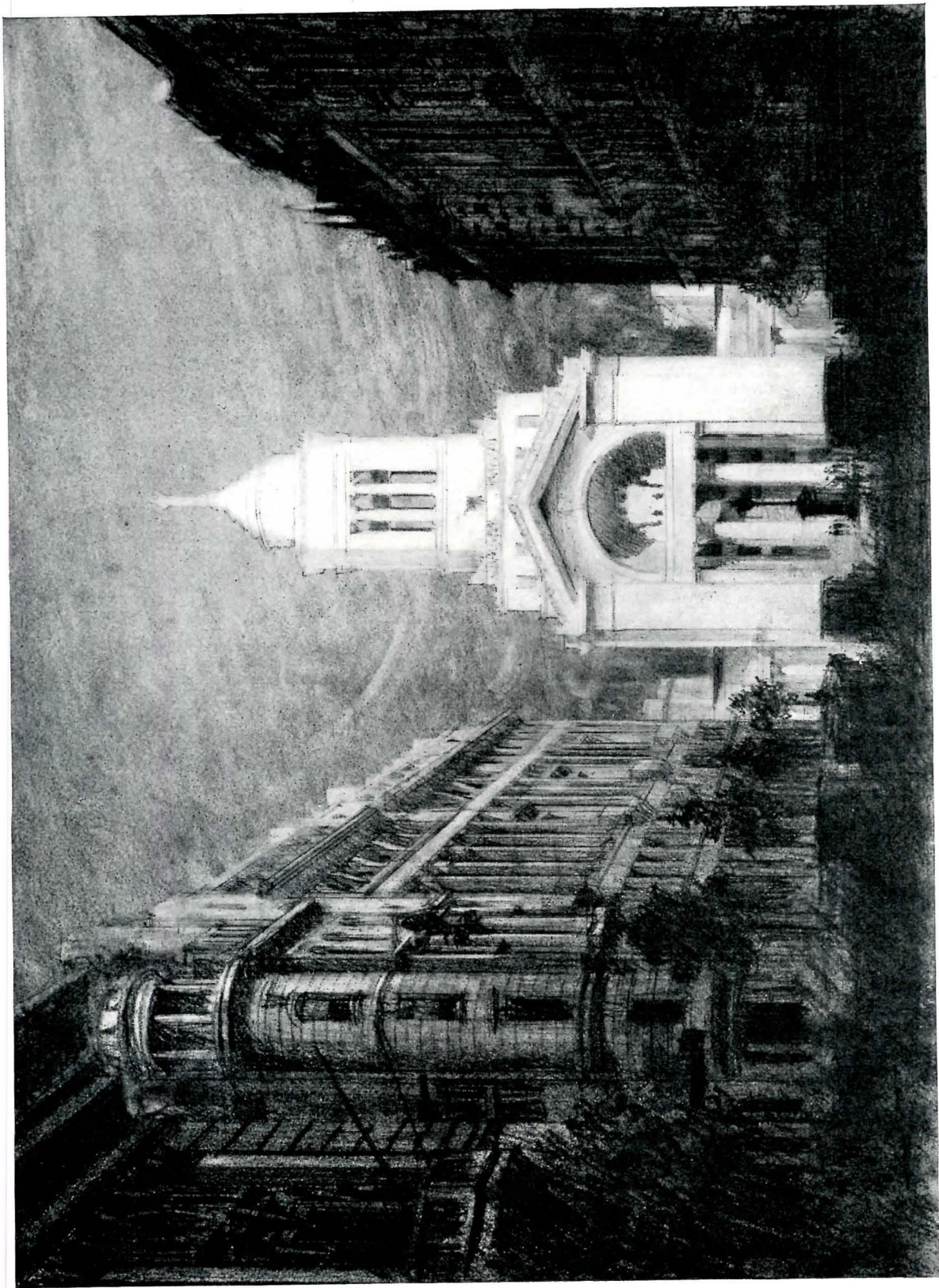
(Continued on page 36)



Photograph by Wurts Brothers

First Stage of Rendering by Hugh Ferriss the Final Stage of Which is Shown on Page 6. See Text on Page 7.

PENCIL POINTS



Photograph by Wurts Brothers

Second Stage of Rendering by Hugh Ferriss the Final Stage of Which is Shown on Page 6. See Text on page 7.

PERSPECTIVE DRAWING, PART VIII

BY PAUL VALENTI

REFERRING to Figure 22, in the case of $D = 3 \times \frac{1}{2}$ the height or width of the picture (whichever the maximum dimension may be), we shall find the perspective of point A in the usual manner—first by referring point A to the ground line by a perpendicular to point a , thence a straight line to the vision point V . Centering in point a with radius aA rotating to the left describe arc of circle Aa' intersecting the ground line as was done in Figure 14 in a previous lesson. (Part IV.) Unite point a' with the point D in the opposite direction. As before, at the intersection of this line $a'D$ and line aV we will find point A' or the perspective of point A . To check up our operation we may center again in point a with radius aA , rotating this time to the right, describe arc of circle Aa'' intersecting the ground line as before. Unite point a'' with point D in the opposite direction. Again, at the intersection of this line $A''D$ and line aV we will find point A' or the perspective of point A which it will readily be seen occurs in exactly the same place. But this is what we wish to eliminate, that is, point D which is so far out of our picture plane. Consequently we will proceed to divide for our convenience the distance VD into three parts, bringing point D exactly on the border of our picture calling it $D \div 3$ (D divided by 3). Now by dividing in similar manner line aA (or the distance of our object from the picture plane) also into three parts, centering in point a , rotate $\frac{1}{3}$ of this distance first to the left (as in the previous case) to the ground line. Unite the point of intersection of this arc and the ground line with

point $D \div 3$ in the opposite direction and it will be found that this line intersects line aV in exactly the same point as before, or in point A' which is the perspective of point A . Checking up this operation as before we may center again in point a rotating once more $\frac{1}{3}$ of line aA this time to the right to the ground line. Unite the point of intersection of this arc and the ground line with the point $D \div 3$ in the opposite direction and we will observe that this line will intersect line aV in exactly the same point as before, or in point A' which is the perspective of point A .

The same applies in the case when we have selected a condition of $D = 2 \times \frac{1}{2}$ of the width of the picture (having drawn up closer to the transparent plane), dividing each time line aA

or distance of object from picture plane in the same number of parts as we divided line VD or distance of observer from picture plane. (See Figure 23.)

CONSTRUCTIVE ANATOMY.

A BOOK of great value to every one who wishes to learn figure drawing is "Constructive Anatomy" by George B. Bridgman, instructor in drawing and lecturer on the construction and anatomy of the human figure at the Art Students' League, New York City. This book has just been published by Edward C. Bridgman, Pelham, N. Y., at \$7.50. It consists of 216 pages of text and illustrations, is neatly bound and well printed. The illustrations are from numerous drawings that show effectively the conceptions of the human figure that have made Mr. Bridgman so successful a teacher of figure drawing.

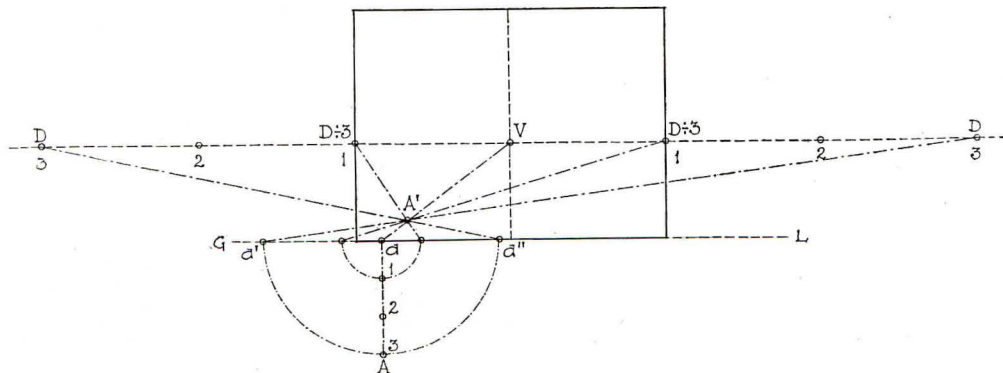
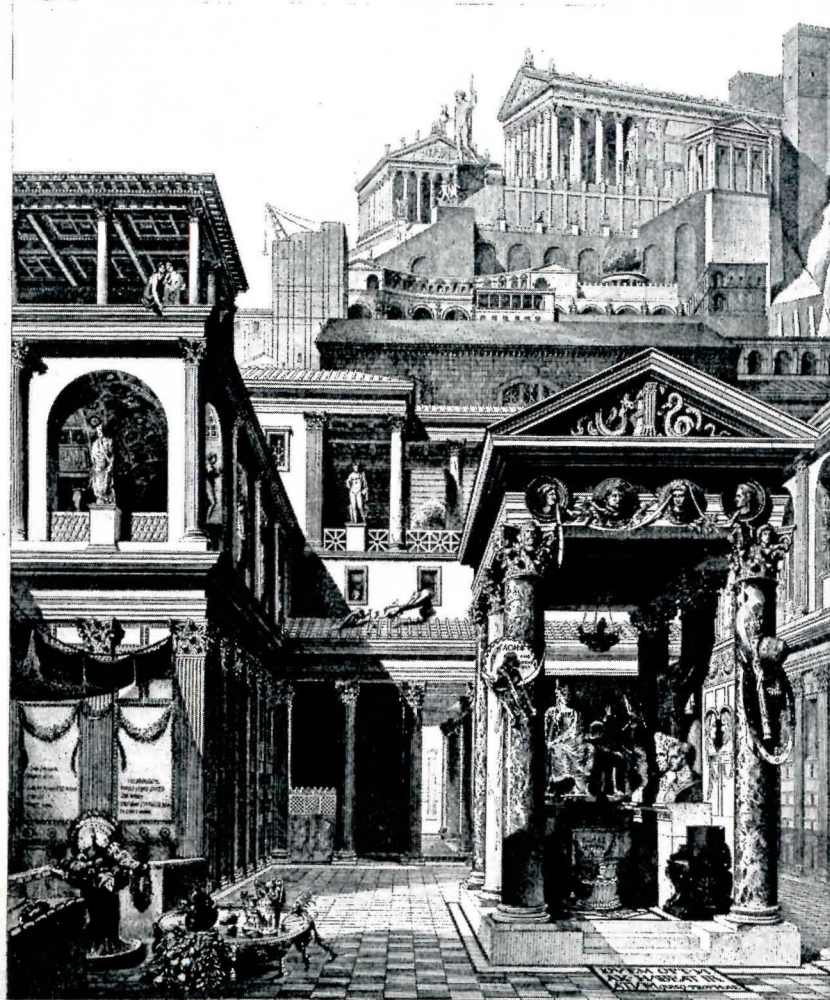


Figure 22



LE PALAIS ROMAIN

Composition de F. J. M. B. d'après les plans de L. N. C. L.

LES BAINS DE DIOCLETIEN

D'après les plans de L. N. C. L.

A ROMAN PALACE AND THE BATHS OF DIOCLETIAN

From H. D'Espouy's "Fragments d'Architecture Antique"

On the other side of this sheet is presented a reproduction of a plate from D'Espouy's "*Fragments D'Architecture Antique*," showing a Roman palace from a composition by Felix Duban, also a restoration of the Baths of Diocletian. Halls in which were baths of different temperature, also an open place for gymnastic exercises, with halls at the side in which exercises were taken under instruction were provided. There was a hall for games, an assembly room, and there were various other rooms necessary to the operation of these completely-appointed and luxurious baths.



THE LINCOLN MEMORIAL, WASHINGTON, D. C., HENRY BACON, ARCHITECT

FROM A RENDERING BY BIRCH BURDETTE LONG

The work by Mr. Birch Burdette Long, reproduced on the opposite side of this sheet, presents the Lincoln Memorial at Washington, D. C., as it will appear when seen across a portion of the lagoon that will form part of the landscape gardening around the memorial. Though the building is complete, the landscape planned will require a long time to reach the stage of development intended in order that it may form a suitable setting for this memorial, which is justly considered one of the finest memorials ever erected. Mr. Henry Bacon was the architect. The building contains a series of great mural paintings typifying the various aspects of Lincoln's life painted by Jules Guerin. Some of Mr. Guerin's figure studies for these murals have been published in earlier issues of this magazine and others will follow. The memorial will contain a statue of Abraham Lincoln by Daniel Chester French.



VIEW FROM A WINDOW IN MILAN

FROM A DRAWING BY OTTO R. EGGERS

On the other side of this sheet is a reproduction, at the exact size, of a drawing made by Mr. Otto R. Eggers, from his window in Milan in 1912, when he was studying as the first holder of the Le Brun Travelling Scholarship. This drawing is in pencil with a few light washes of color.



Courtesy of Kennedy & Co.

A FIGURE STUDY BY TROY KINNEY

The figure study for "Provoquante," reproduced on the opposite side of this sheet, is marked by the sensitiveness and delicacy of drawing that are characteristic of Mr. Troy Kinney's work, qualities to be seen in his many etchings of dancing figures inspired by the Ballet Russe, various interpretive and Classic dances, and by the dances of Spain. In this figure drawing we have an especially delightful study and an interesting example of this artist's technique.

THE STUDY OF ARCHITECTURAL DESIGN

WITH SPECIAL REFERENCE TO THE PROGRAM OF THE BEAUX ARTS INSTITUTE OF DESIGN

THE BEAUX-ARTS METHOD

BY JOHN F. HARBESON

This is the first of a series of articles in which Mr. Harbeson will explain the method of working and how to get the greatest benefit in following the program of The Beaux-Arts Institute of Design. This series is designed to cover matters of method and leave the time of the instructor and the student free for the individual problem. It is not intended as a substitute for personal instruction and criticism, but as a means of clearing the ground. Mr. Harbeson is closely identified with the work of the Beaux-Arts Institute of Design. These articles are based on his experience in the teaching of architectural design. The subjects covered will embrace the following: "The Analytique or Order Projet," "The B Class Plan Projet," "The Class A Plan Projet," "The Class A Decorative Projet," "The Archaeology Projet and Measured Drawings," "Sketch Problems."—Ed.

THE system for the study of Architectural Design conducted by the Beaux Arts Institute of Design is, of course, founded on that of the Ecole des Beaux Arts in Paris. The scheme of education is similar, and architectural education in this country has been for many years largely under the tutelage of men who have had the training of the Paris School. In transplanting this system to America, its sponsors have interpreted it freely into American ways and it now has certain traditions differing slightly from those of the parent school. But in order to understand the scheme of study one should know something of the Ecole itself.

The Ecole des Beaux Arts was founded in 1671 as a royal academy of architecture by a minister of King Louis XIV named Colbert, perhaps known best to Americans through the novels of Dumas. Cardinal Mazarin had previously founded an academy of painting and sculpture, and at a later period these two schools were joined.

Since this early beginning the Ecole has slowly formed the tradition that governs its procedure today. The purpose of its training is to impart to each student a *method of attacking and studying any problem in architectural design which may be presented*. It gives a training in composition and

design—and the science of design is necessary to the architect in order that he may express himself clearly.

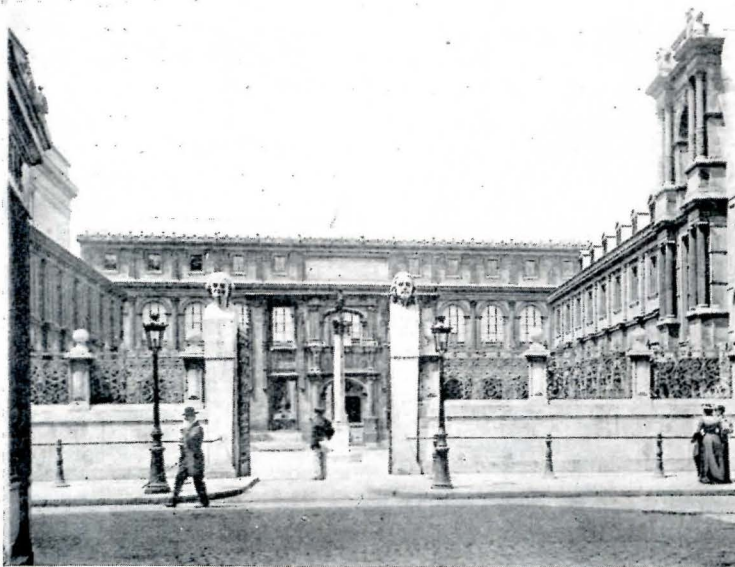
The Ecole is different from any school in this country in several ways; ways that suggest a possible future development here and the growing demand for a governmental department of fine arts

may result ultimately in a national school.

In the first place the Ecole is recognized in France as the final school for architectural education. In this country, there is as yet no such authority, and a number of schools claim, and in fact have had by turns, superiority in training, as evidenced by the results of competitions in which men trained in the different schools have entered.

Then, too, the Ecole in Paris is

surrounded by notable monuments of architecture, and by galleries filled with the masterpieces of all ages. The whole city is a museum, and within a few hours ride are hundreds of superb buildings, ancient, medieval and modern. England, Spain and Italy are no farther from Paris than is Chicago from New York. Nowhere can be found so complete a set of representative buildings as in Paris. There is no modern architectural program that has not there an excellent translation. If a library, for instance, is the subject of competition, in a few

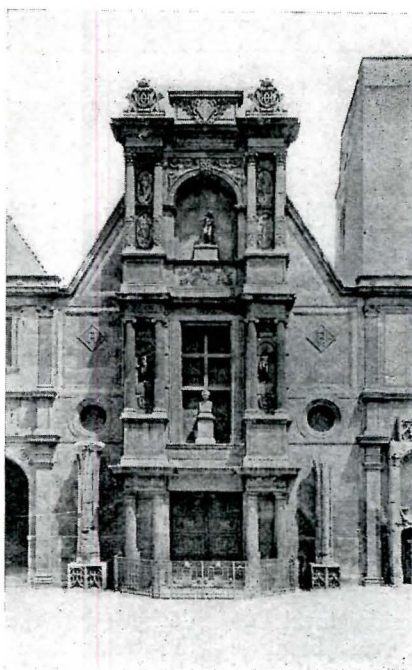


Main Entrance, Ecole des Beaux Arts, Paris

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hours the student can visit many libraries and start his work with all the benefits of existing tradition. Several of our schools are fortunate in being near excellent museum collections—but none of them is as yet surrounded by such a wealth of actual architecture, for this is a young country.

Furthermore the school itself is a grouping of fine architecture. The nucleus of this group is the old convent of Petits Augustins, founded in 1608 by Queen Margaret of Valois, and completed after her death by Queen Marie de Medicis. This convent was suppressed during the Revolution and became for a while a museum where relics from Churches and Chateaux were collected. One of these, a portion of the façade of the Chateau d'Anet, is shown in one of the illustrations in this article. When in 1830 the Ecole took possession, various alterations were made to the buildings to adapt them to their new purpose, and portions have been added from time to time. The Cour du Murier, a view of which is shown, is part of the cloister of the convent. Note the delightful atmosphere of this court, with the fountain, the old tree, and the casts of statues under the arches. Another interesting part of the old convent which remains is the chapel, not illustrated, now containing an exhibition of casts and small objects. Forming a decoration at the end of the room is a copy of the "Last Judgment" painted by Michelangelo in the Sistine Chapel in Rome. A view of the vestibule of the Salle Melpomene is shown. The library is attractive both for the wealth of books and for the architectural beauty of the room in which they are housed. In the court of the library are a number of the archaeological remains that



Entrance to Chateau D'Anet, Ecole des Beaux Arts, Paris

form part of the student's background. The main entrance through the ground court is shown in one of the illustrations published here.

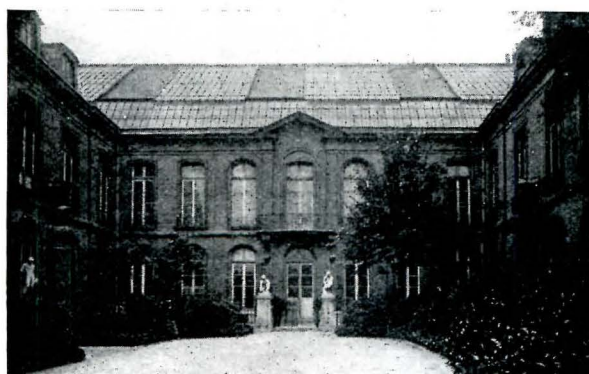
But most important of all is the method of study of the Ecole, as on this its success depends. The features of this system at the Ecole, as summed up by one of its professors, and quoted by Walter Cook in an article that appeared in the issue of *The Architectural Record* for January, 1901, are: 1. The division into ateliers. 2. The tradition of the older pupils helping the younger. 3. The teaching of design by practising architects (and we might add here the judgment of the competitions by a trained jury of practising architects). 4. The beginning of the study of design as soon as the student enters the atelier. 5. The system of the esquisse.

All of these features the Society of Beaux Arts Architects, composed of former Ecole students, has incorporated in the work of the Beaux-Arts Institute of Design, which can be made use of by any one who is industrious and wishes to study. The individual student in a small town can learn much. Students in the cities where ateliers have been formed in which criticism in design can be had from school-trained men and where libraries and museums exist, have an opportunity for the finest kind of architectural training. Also there is always the opportunity for the student to become ultimately a competitor for the Paris Prize. The winner of this prize may enter the higher class in the Ecole des Beaux Arts, finish his architectural studies in Paris and travel in Europe.

The Beaux Arts Institute of Design has achieved a position of authority in this country in that most



Cour du Murier, Ecole des Beaux Arts, Paris



Hotel de Chimay, Ecole des Beaux Arts, Paris

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Exhibition of Students' Drawings at a Judgment of Work from Ateliers in Various Parts of The Country in a Room at The Headquarters of The Beaux Arts Institute of Design in New York City

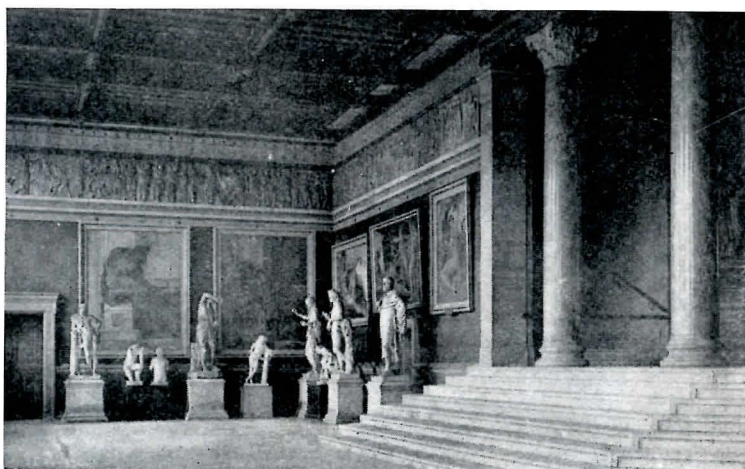
of the architectural schools now use its programs, and send their work, in whole or in part, to be judged by its juries in New York City. The knowledge that an award is made on a problem after it has been compared with some hundreds of others, from all parts of the country, makes the rating especially valuable as an indication of the student's progress, and makes the award precious if it be one given only for distinguished work—a medal in Class A, or a first mention in Class B.

The most important thing is for the student to take the work with the right attitude. Any one problem must be considered not as an end in itself, but as a part of a well mapped-out training in design—and design is not concerned primarily with ornamentation or detail, but with making an arrangement that will satisfy the practical requirements, with the composition of elements, with the proportion of masses, with the arrangement and disposition of openings, etc., and with producing a building of pleasing appearance.

If the student can join an existing atelier he should by all means do so. If there is none near, he should try to persuade some other draftsmen, as many as possible, to take up the work at the same time; discussion of the problems during the course is of great value in spurring one's own efforts and stimulating one's imagination.

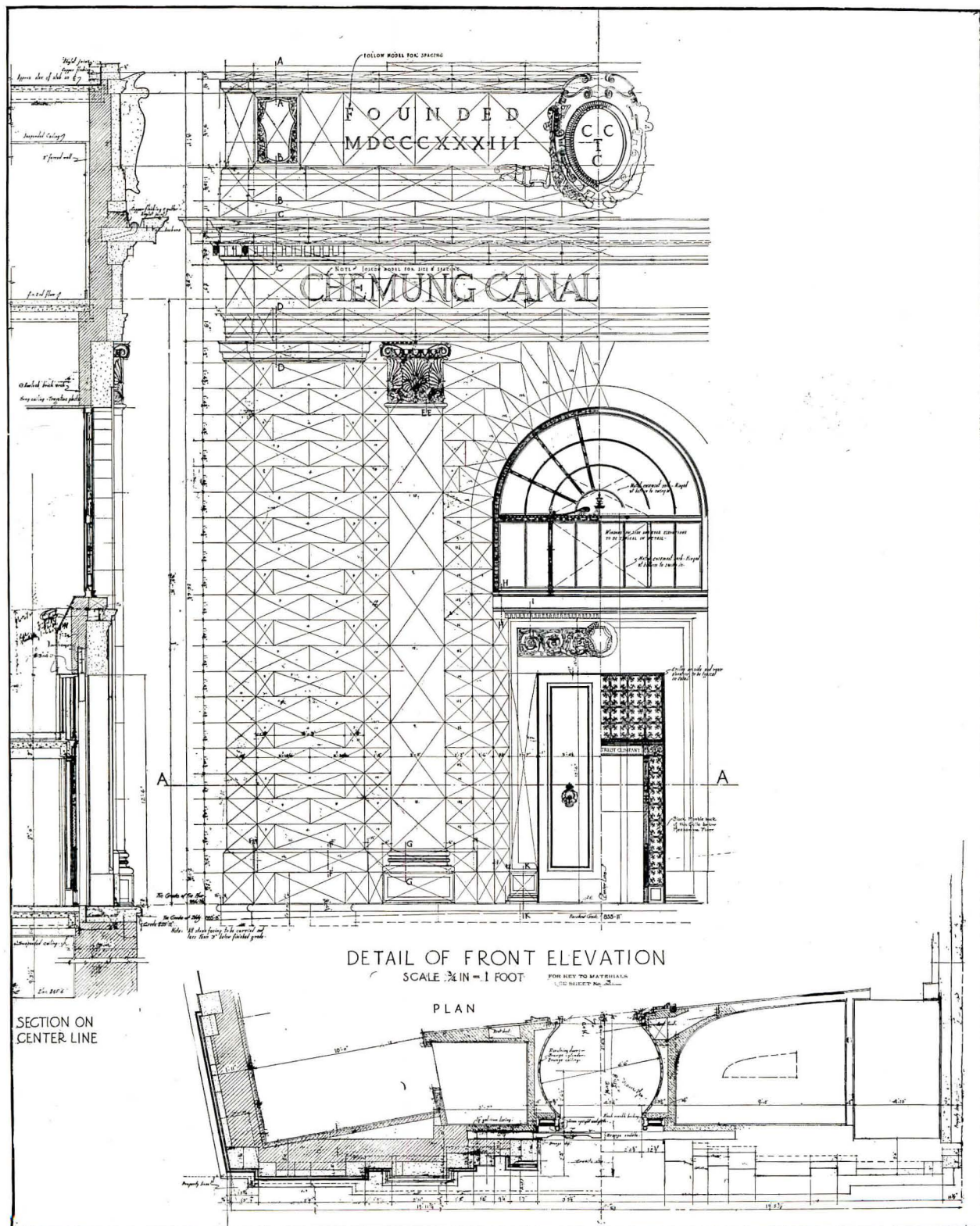
In an atelier one of the causes for the rapid development of the new student is the tradition already mentioned as one of the features of the Ecole system—the older, more-advanced pupils helping the younger; and what goes with it, the younger men working for the older. This is called “niggering” and consists in doing anything the advanced

man asks—usually taking a study to double a scale, rubbing a drawing, inking-in, laying out mechanical work, etc. It is in return for this that the older man gives criticisms to the younger, shows him how to better his problem, tells him of documents that fit his case, gives him a lift with his rendering, and in other
(*Con. on p. 34*)



Vestibule of the Salle Melpomene, Ecole des Beaux Arts, Paris

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DETAIL OF FRONT ELEVATION
BUILDING FOR THE CHEMUNG CANAL TRUST CO., ELMIRA, N. Y.
DENNISON & HIRONS, ARCHITECTS

This drawing, Figure 16, shows front studied in model shown in Figure 17 on page 23.

THE USE OF SCALE MODELS, PART III

BY FREDERIC C. HIRONS

In the article of which this is the third installment, Mr. Frederick C. Hirons, of the firm of Dennison & Hirons, Architects, points out the practical advantages in the use of scale models for study during the designing of buildings and explains methods of procedure, step-by-step. The process as applied to the exterior and interior of a bank building is described in this installment. The working out of other problems will be taken up in the same manner in the next issue.—ED.

AMONG the most important questions in design which may be answered by the use of models are those relating to the building as seen in perspective and the effect of light in relation to the color of the materials used. As for the first of these, the models will serve to correct the errors made in giving too much or too little projection to the major elements of the design and will enable the architect fully to appreciate the relief that is necessary to be given to ornament and detail located at various heights above the observer's eye. The model of the Chemung Trust Co. of Elmira, N. Y., a photograph of which is shown on this page, solved the problem of determining the proper size of the lettering in the attic and the right weigh of moulding at the point marked "X" on the photograph. By the use of this model also it was possible to study the effect of light on the car-touche when viewed from different angles.

It may be noted that ornament placed flat on a ceiling must be treated with different relief from the same ornament placed on the side walls. The intensity and direction of the light should largely govern this relief. Some modellers go so far as to say that any ornament, if well modelled, will look well under any light. That may be a matter of opinion, but it is safe to say that in the case of interior carving and detail it is most advisable to consider carefully the direc-

tion of the light, noting whether it comes from the side walls or ceiling and whether the room will be lighted by diffused or by direct sunlight.

The interior of the building for The Chemung Canal Trust Company, at Elmira, N. Y., was irregular owing to the shape of the lot, and a diffi-

cult problem to solve was found in the ceiling. In this case careful construction drawings were made giving the radii of the arches and all information necessary for putting up the furring and the rough plastering. A sketch drawing showing the general character of ornament desired was then made and a scale model at $1\frac{1}{2}$ " scale was subsequently made of one bay, which was found to be perfectly satisfactory. We then proceeded to the full-size models. The models when they were finally approved in the clay were cast in the plasterer's shop in New York on plaster burlap, enough casts being made for the entire job. The back-ground was made very thin so that

the casts could be rolled up and sent by express. This however is only possible when the relief of the ornament is low and flat.

Upon the scale model we experimented with color, and finally arrived at a color scheme that was followed at the building with one or two minor modifications. There were no drawings made for the ceiling other than the $\frac{1}{4}$ -in. scale drawing of the ceiling which was part of the contract drawings;



Figure 17. Model of Portion of Front of Building for The Chemung Canal Trust Co., Elmira, N. Y. Dennison & Hirons, Architects

PENCIL POINTS

the structural drawings for the furring and rough plastering, giving the various radii, spring of arches, depth of reveals, etc., supplemented by the sketch at $\frac{3}{4}$ -in. scale of one penetration and pendentive. It can thus be seen that much time was saved by this means of study without any full-size drawings, and using the $1\frac{1}{2}$ -in. scale model in the place of drawings.

As to the material in which the ornamental work is executed, it will be well to point to a few of the qualities and the limitations of the commonly used materials. In studying from the small-scale models it is necessary to consider the material in which the modelling will be copied. In using granite, which is a very coarse stone, it is advisable to keep all ornament and relief simple; this elimination of detail being, however, governed by the distance of the ornament from the eye of the observer. A most excellent example of modelling and carving in granite and one which shows the qualities of this stone to best advantage, are the eagles in the panels on the end pavillions of the Pennsylvania Station at Thirty-third Street, New York. Limestone is softer than granite and carving may be carried successfully much further. In some of the softer limestones the most intricate Gothic tracery and pierced ornament may be executed. Marble is the most variable of all building stones, because of its many varieties of color and texture, is capable of the most beautiful effects in the hands of a master carver. Iron occupies the same relation to bronze that limestone does to marble. In delicate ornamental work, such as bank screens or ornamental grilles, if iron be used, the relief and detail should be kept considerably bolder than if the work is executed in bronze. Iron so used is usually given a shop-coat of paint and later several coats of paint at the job. It can readily be seen what would happen to modelling too delicately carved. In the case of bronze, the metal is left in its natural color without treatment other than that given slow oxydization.

Note—The model shown in the photograph on page 23 was made by Ricci, Ardolino & Di Lorenzo.



Portion of Ceiling Treatment in Building for The Chemung Canal Trust Co. Dennison & Hiron, Architects

The question of selecting the modeller to do the work is important. The most satisfactory way, in the opinion of the writer, is to select a painter or sculptor by the quality of his work—and not by competitive bids. The difficulty of the latter method arises as follows: It is still customary among the majority of architects' offices to mark on the working drawings what portions are to be modelled, and to stipulate just exactly what is to be finished. Then bids are obtained from a number of modellers. The lowest estimate is accepted and, frequently, the modeller begins to worry whether he is "stuck" or not. As to that, it all depends on what the architect demands and to what degree he wishes to study his work and experience will prove that it is best to work with two or three modellers until they get to know your

tastes and to what extent you carry the study of your work. As a detail in the matter of practical execution of the model, it is a good idea if one has the time to do it, to take two casts from the glue mould, one for carving and finishing for the iron or bronze foundry, and the other cast to be colored the exact color which you wish the finished metal work to have. The contrast between the white plaster cast and the same cast painted black is astonishing, so greatly does the darkening of the cast reduce its apparent size.

EXHIBITION OF ARCHITECTURAL WATER COLORS.

THE Massachusetts Institute of Technology will hold an exhibition of architectural water colors, which will open to the public on January 5, 1921, and continue for three weeks, at the Rogers Building, 491 Boylston Street, Boston. This exhibition will contain examples of the work of Whistler, Sargent, Winslow Homer, Janin, Joseph Linden Smith, and of many men who are well-known throughout the country. This exhibition is one of several steps taken in an attempt to place before the students of this school, and the interested public, examples of good architectural work in painting, drawing, faience and terra cotta.

SKETCHING AND RENDERING IN PENCIL, PART VI

BY ARTHUR L. GUPTILL

In this series of illustrated articles, the first of which appeared in the August issue of this journal, the technique of pencil sketching and rendering is being taken up step by step, carrying the architectural draftsman or student through a systematic course of study which has been gradually developed and put into practice by Mr. Guptill in his classes at Pratt Institute, Brooklyn, New York City. The illustrations are not merely copy plates, but each is drawn to illustrate some principle of composition or suggestion for technique in the text.—Ed.

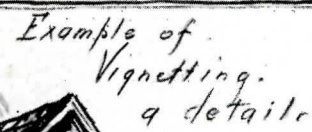
Composition (Continued)

IN landscape painting and decorative drawing more such liberties are taken, however, than are permissible in most architectural sketching or rendering, for architecture must as a rule be truthfully portrayed, the changes to better the composition being made for the most part in foliage, shadows, and the like. To illustrate this matter of changes, we have shown in Figure 14, Sketch 2, the dark boat in exactly the same position as on the photograph. This spacing is not wholly satisfactory as the boat seems isolated in the center of the sheet, attracting by its placement more than its proper share of attention. In such a case as this it would be better to improve the composition by moving the boat to the right or the left or it might be tied into the scheme by the addition of extra lines or tones. Amendments like this are always advisable, and it is also wise to omit from a sketch such objects as have little or no relation to the subject itself, and which, for this reason, detract from the main idea which the drawing is intended to express. This means that we must observe the "Principle of Unity," which requires that a composition must be a homogeneous whole, all its parts related and so thoroughly merged and blended together that they become a single unit. In order to secure unity in a drawing only as much of the material before us is selected as relates directly to the subject of the sketch. Separate your subject from everything else that is visible, and think of it as a single harmonious whole. This rule applies whether your subject be an entire building, or some portion such as a dormer window or some still smaller detail,—a door knocker, for example. Once you have determined which of the ideas are to be rejected as irrelevant, you must decide on the relative importance of those which have been accepted as essential, for unity in a drawing depends not only on the selection or rejection of material but on its emphasis or subordination as well, for unless each detail is given just the amount of attention that is proportionate to its importance, the composition will not count as a complete and satisfactory unit. Failure to give sufficient emphasis or accent to the leading parts of a drawing causes a loss of force to the entire composition and in the same way neglect to properly subordinate the unimportant parts leads to confusion and complication.

To further illustrate this principle of unity let us consider some simple objects found in everyday

use. An ink-bottle, a turnip and a vase of roses might be arranged into a pleasing composition so far as variety of form and size and value are concerned, but unity would always be lacking in such a group for these objects are not sufficiently well related by use to ever become a satisfying single whole. It would be equally difficult to compose a coal scuttle, a hair brush and a cut glass pitcher, but a comparatively simple matter to form an excellent composition of a loaf of bread partly sliced, with knife, plate, etc., or of a garden trowel, flower pot and package of seeds. Fortunately nearly all objects of an architectural nature are so closely related that little difficulty is experienced in finding things which go well together, so the delineator of architecture has much less trouble in this respect than does the painter of still life. Unity in architectural work is often injured, however, because certain accessories are too important in relation to the architecture itself. It is not inappropriate to show an automobile at the curb before a Colonial doorway but if it is indicated so large in size or made so conspicuous in any manner that it detracts from the doorway it then prevents a perfect unity in the sketch. It is mainly for this reason that in rendering architectural drawings such accessories are often left in what sometimes seems to the beginner an unfinished state. Trees are shown in a conventional and inconspicuous manner, clouds are often either omitted or only lightly indicated and shadows are simplified. This brings us to a discussion of the "Principle of Balance" which is so closely related to the principle of unity as to be really a part of it; in fact without balance there can be no unity, for by balance we mean, as the name implies, the equilibrium or restfulness that results from having all the parts of a composition so arranged that each receives just its correct share of attention. Every part of a picture has a certain attractive force which acts upon the eye and in proportion to its own power to attract it detracts from every other part. If we find our interest in a drawing divided between several parts,—if certain tones or lines seem too insistent or prominent,—we know that the composition is lacking in balance and likewise lacking in unity as well. It is impossible to give concise and definite rules for obtaining balance in drawings, mainly for the reason that the attractive force of each portion of a drawing depends on an infinite number of circumstances which are variable. A short, straight line drawn near the center of a clean sheet of paper has a power to catch and hold the

0 1 2 3 4



E. L. Gaptill. 1920

PENCIL POINTS

eye. Let a figure "6" or some other curved line be drawn near the straight one and even though they are of equal size the curved line will prove the more powerful attraction of the two. In the same way a star-shaped form or a triangle has more strength to attract than a square or rectangle of like area. This power depends not entirely on shape, however, but on the value of light and dark as well. Draw two squares on paper, side by side, the one dark and the other light and if the paper is white the dark square will exert the strongest force but if the paper is black the white square will jump into prominence. Again, the attractive power of an object varies in proportion to its proximity to other objects. If, for example, a man is shown at small scale in a standing or sitting position near the center of the sheet he will receive considerable attention if by himself, but if surrounded by other objects he will seem much less noticeable. Then, too, a moving object or one which suggests motion, will be more prominent than a similar object in repose. Let a man be shown running and he is seen far more quickly than if he is at rest. Objects near the edges of the sheet or in the corners usually arrest the eye more quickly, too, than they would if near the middle of the paper.

These examples are sufficient to show the difficulty of attempting to give definite directions for obtaining good balance. The best suggestion we can offer is that the student make first of all, as soon as a drawing has been blocked out in its main proportions, a preliminary sketch such as we have described. A painter is able to make many corrections in his work as he progresses, until excellent balance in every part is gained, but in pencil sketching, where the nature of the medium and the limitation of time demand that the work be done very directly and with few changes, it is difficult to make well balanced drawings unless the artist or student has had considerable practice or unless preliminary studies are made. Almost invariably such studies save time and give results in the end that more than justify the labor spent on their preparation. Then, by way of additional precaution, as the final sketch progresses set it away from you at intervals or turn it upside down or on end or even reflect it in a mirror so as to see it in a reversed or changed position. When so viewed the balance should still be good and if not, the necessary adjustments should be made. If some part seems too prominent either tone it down or accent other parts until balance is restored.

These principles of unity and balance which we have described all too briefly are most important as they apply to all forms of drawing and design, but we must leave them to offer a few suggestions which relate especially to architectural work.

First of all, in making drawings of architecture strive for an effect of restfulness and repose. A painter of birds and animals or of marine views often desires an appearance of motion, but care must be taken not to suggest much movement when drawing architecture, for each building should look

permanent and solid and should appear to rest firmly on the ground. Avoid, therefore, any effect of violent wind or of speeding automobiles or hurrying people. If persons are indicated it is well to have them walking quietly into the picture or approaching the center of interest, for if they are shown walking away from the center towards the margin line the eye follows them and the balance is thus disturbed. There are, of course, exceptions to this. If many people are shown, as in a street scene, they may be represented as going in all directions, for the sense of motion in one direction will be offset by that in the other. Figures of any sort greatly injure a drawing, however, unless they are well drawn and naturally arranged into effective groups, and so should either be omitted entirely or represented well.

Figure 15 is designed to show certain displeasing effects often found in architectural drawings, which it is best to try to avoid. A reference to Diagram 1 will disclose that the foremost corner of the house is equi-distant from the two end margin lines. It is seldom advisable to place a building in this position, a possible exception being a tower which is absolutely symmetrical. Diagram 3 illustrates the same point, while Diagram 5 applies the idea to an interior, and in both of these the effect is somewhat unpleasant. Do not, then, divide the picture space into two equal parts by having some important line directly in the center. Look again at Diagram 1, 3 and 5 and you will find that the horizon line or eye level towards which all the receding horizontal lines seem to vanish is just one-half way from top to bottom of the picture space, and this division is unsatisfactory, too, and better results are obtained when the horizon or eye level is either above or below the center of the sheet. In the same way the sketch of the bridge at 3, Figure 14, would be better if the top line of the bridge was not so near the center, for here the picture space is also divided into two nearly equal parts by this line. Again, it is usually well to avoid many opposing lines of the same slant or angle, for variety is always desirable. In Diagram 1 the lines at A, B, C and D are all of equal pitch. This leads to monotony. The same fault is found in 3 and 5. It is better to so place the building on the sheet as to avoid these difficulties and Diagrams 2, 4 and 6 are better in placing than 1, 3 and 5. Diagram 3 has other faults. First the perspective is so violent that the building has the unstable effect of resting on its lower corner, and the crossed lines of the streets form too conspicuous a pattern with a tendency to draw the eye away from the building towards points A and B. Diagram 4 has a more pleasing variety of masses and the interest plainly centers in the main building. Diagram 5 shows a fault in that the two visible wall surfaces are equal in size and shape, as are also the ceiling and floor, and here, too, there is no real center of focus for the eye jumps back and forth between A and B. Diagram 6 is better, for the interest undoubtedly

(Continued on page 36)

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DEPARTMENT OF ARCHITECTURE, AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS.

WORK in the Department of Architecture of the Agricultural and Mechanical College of Texas, is making excellent progress and more than fifty men are now registered in that department. This indicates a marked development since the resumption in January 1919, of architectural instruction, which had been suspended on account of the war while all efforts were centered upon training young men for the service.

An additional drafting room has been fully equipped for the use of sophomores, while the old drafting room, similarly equipped is used for juniors and seniors.

During last year a large number of plaster casts were added to the department's collection and valuable books were added to the library.

The annual Southern Intercollegiate Competition in Architectural Design will be conducted this year by the architectural faculty of this college. The competition, open to seniors only, is held early in the Spring.

The architectural faculty also has announced that at the end of the year a prize, consisting of valuable architectural books, will be given to the student who does the best all-around architectural work during the year in the senior, junior, and sophomore classes. The cost of these books is to be defrayed by the faculty.

The architectural teaching staff consists of E. B. La Roche, J. M. Kellogg, H. N. June, who are all well prepared for their work, each having had practical experience in addition to being a graduate of a leading American University. The first two named graduated in architecture at Cornell, and the third at Pennsylvania.

Professor Henry Norton June of Cincinnati is the new member of the Architectural Department. He brings with him a record of accomplishment from the Ohio Mechanics Institute where he headed the architectural work over a period of years, at the same time giving attention to the private practice of his profession.

In the December issue of this journal a news item about this college was confused with an item about the Department of Architecture in the University of Texas, with the result that E. B. La Roche, J. M. Kellogg, and H. N. June were erroneously mentioned as composing the teaching staff of the latter school, a mistake which we take this opportunity to correct.

The Architectural Club, connected with the college is showing the real spirit this year and holds meetings regu-

larly, often having an informal feed following the regular program, the social side properly balancing the more serious aspect of the Club's work.

THE STAMFORD MONUMENT.

ALTHOUGH not unlike the famous circular monument of Lysicrates, the Stamford Monument has a character distinctly its own. It has an individuality in many of its features such as columns, cornice and base. It commemorates all the wars from the early Indian wars down to the Great War, in all of which sons of the City of Stamford took part.

Between the Ionic columns engaged in the drum of the monument, the names of the battles are carved. The names of those who took part in the action are cast in bronze and the tablets are placed directly underneath on the base. George A. Freeman was the architect.

SHADES AND SHADOWS.

THE revised translation by Julian Millard of M. Jules Pillet's work on shades and shadows, simplifies the practice of casting shadows into simple and easily remembered rules. Mr. Millard has kept well to the original but has made deviations to further elucidate some points.

The geometric figures explain the more complex architectural forms and their shades and shadows. The problem of construction of the shades and shadows of the more difficult forms such as capitals, bases, balustrades, etc., are solved and demonstrated. The size of the book is 9½x12¾ inches.

A reader of PENCIL POINTS has sent in the following inscriptions copied from the panes of a window of an old English Inn.

"Should you ever chance to see A man's name writ on glass, Be sure he owns a diamond, And his parents own an ass."

"I told the waiter James, to fetch me for my picken some Beaune of '87 and a tender little chicken. He took my order in a trice, but as I hope for Heaven, the wine was bottled in the Spring, the bird was '87."

Friend (looking over Brown's flat)—"And what is this passage for?" Brown—"Passage! Great Scott, this is the dining room!"

"If it is versatility you seek, go find an architect. He must be an artist, or his buildings will offend the eye; an engineer, or they will crumble; a lawyer, or he will get his patrons into trouble; a doctor, or his buildings will be hygienically unfit to live in; and last, but not least, he must be a gentleman or we will have nothing to do with him."—*Richelieu*.

A branch in St. Louis will be maintained by the Cutler-Hammer Manufacturing Company, which has secured suitable office space in the Railway Exchange Building, St. Louis. This office is a branch of the Chicago District office and is being established because of the increasing amount of business done in the St. Louis territory. Mr. Harold Phillips, formerly of the engineering department, Chicago, and later office manager of the Chicago office, will be in charge of the new St. Louis branch.

Courses of instruction in artificial illumination will be given by Mr. Frederick J. McGuire, of the Department of Water Supply, Gas and Electricity of the City of New York, under the auspices of The Department of Education, in two high schools. The courses will open on January 3 in the Murray Hill Evening Trade School, Manhattan, and on January 4 at The Manual Training High School in Brooklyn. Attendance at these courses is free. The course includes a consideration of the practical value of a knowledge of this subject, the nature of light, the physiological aspect of the subject, the causes of injury to eyesight in badly designed lighting installation, the technical side of the subject, with a discussion of the different types of light sources, etc.

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TROY KINNEY.

THE spirited and sensitive etchings and dry-points which Mr. Troy Kinney has made, during the past few years, of dancing figures have given him a unique place among present-day artists. His interpretations convey the spirit of the subject in each case, in a distinctive manner that is not marred by mannerisms, in fact this artist gets his results in such a way that one is not conscious of his technique until one deliberately turns to examine it.

With all their spiritual quality his drawings are sound in composition, showing much the same feeling for massing and the proper inter-relation of the parts of a design that is a characteristic of well designed architecture.

Mr. Kinney gained much of his development during the time he spent in Spain where he studied from an artist's viewpoint the principles and methods of Spanish dancing, and since that time dancing in general has occupied much of his attention as a subject for interpretation. From accomplished dancers he has learned how infinitely expressive a single line may be, how varied its meanings. Mr. Kinney's work has lately been exhibited very prominently and "The Journal of the American Institute of Architects" recently devoted much space to the publication of a number of his dancing figures. His work has also been reproduced in magazines that reach the general public.

Mr. Kinney is an American whose ancestors were identified with the early history of this country. He was born at Kansas City, Mo. For several years he was an illustrator in collaboration with Mrs. Kinney over the signature "The Kinneys." Mr. Kinney's studio is in New York City.

FIELD SERVICE FELLOWSHIPS.

THE Cornell Alumni News of November 18th contains an interesting account of the memorial for the one hundred and twenty-seven American Field Service men who lost their lives in France. A series of Field Service Fellowships, named after these men, in French universities, have been made available to American graduate students. For 1920-21, these fellowships are offered not to exceed twenty-five fellowships covering thirty fields of study. Applicants must be citizens of the United States, of good moral character, and possess a knowledge of French; they must have completed a four-year college

course or be graduates of a professional school requiring three years study for a degree, or they must be twenty-four years of age and have spent five years in an industrial establishment in work requiring technical skill. Dr. I. L. Kandel, 522 Fifth Avenue, New York, is secretary of the Society for American Field Service Fellowships for French Universities and will send further information upon request.

EXHIBITION AT THE ARDEN GALLERY.

NOW that the inter-relation of the arts is becoming generally recognized, the interest of architects and of designers in various fields is turned toward many of the forms of art expression which, though they may bear little superficial evidence of relation to the work in which the designer is engaged, do form very interesting and sometimes inspiring subjects for study. One of these fields that is little known excepting to those who devote much time especially to the subject, will be represented by the exhibition of ritual and theatrical masks, together with a collection of decorated costumes designed and executed by Madame Marie Gallenga of Venice, which will open on January 3 and continue till January 18 at the Arden Gallery, Fifth Avenue, at Forty-eighth Street, New York. The reason for the holding of this exhibition is the recent and widespread revelation of interest in the use of theatrical masks, which has fixed the attention of a group of American artists who are now experimenting in this new-old art with gratifying results.

From a statement issued by the Arden Gallery, we quote the following: "Masks for ritual and theatrical purposes have been used by primitive peoples from time immemorial, appearing first in crude coatings of clay daubed directly upon the performers and later as removable masks made of every description of material and used to disguise participants in religious mysteries and dances.

"The invention of the tragic and comic masks used in the Greek theatre and attributed by Attic tradition to Thespis was undoubtedly merely a development of these more ancient and cruder disguises, which transformed the actor in mysteries and dances at will, into a god, animal or demon, etc., as the occasion demanded.

"Greek and the Japanese art lifted these crude, but often elaborately decorated disguises, into the realm of subtle characterization.

"Specimens ranging from Ceylon to America will be shown, this series culminating in a wonderful noh mask from Japan and a group of modern masks by contemporary artists. To these will be added Javanese marionettes distinctly Greek in feeling, probably the last remnant of the influence of Alexander the Great's Indian conquest, and a few marionettes of the Punch-and-Judy type, some of which show by their vividly decorated faces the conventions of the larger masks.

"Madame Gallenga's costumes, designed and executed under her direct supervision in her Venetian studio, are important enough as an art product to form an exhibition quite by themselves. In Europe Madame Gallenga's genius in her particular field is acknowledged. Every detail of these superb costumes is designed and made in her atelier. Their lines are founded upon the inspiration of great art periods."

Lord Chesterfield in 1749 advised his son when at Vicenza to "employ three or four days in learning the Five Orders of Architecture, and you may know all that you need know in that time. Palladio's own book of Architecture is the best you can make use of for that purpose, skipping over the lowest mechanical parts of it such as the materials, the cement, etc."

A series of travelling exhibitions which will, ultimately, embrace such items of home decoration as wall-paper, pottery, etc., has been inaugurated by The American Federation of Arts, as a part of its program to put "art in every home." The exhibition of "Pictures for the Home," recently held at the Sage Foundation Building, New York City, will be sent on a tour of the country. The similar exhibition held last year was immediately successful and three exhibitions of the kind were assembled.

QUERIES

In this department PENCIL POINTS will endeavor to answer questions of general interest pertaining to Architecture and allied arts, giving the best available information from authoritative sources. We desire that you feel free at all times to make use of this service, inviting your co-operation in making the department both interesting and valuable. Should you desire an answer by mail, enclose stamp for reply. Address queries to, PENCIL POINTS, (Attention of E. M. Urband), Metropolitan Tower, New York City.

Question—Can you inform me where I can buy a book or plates from which I can get some ideas about building backgrounds for show-windows, etc.? M. A. L., Cedar Rapids. **Answer**—The Merchants Record, 1909, 403 pages; "Window Trimming," Merchant's Text Book Co., 1905. *Decorative Furnisher*, "The Connection Between Sight and Sales," V. 33, pp. 37-38. "Window Backgrounds," *Dry Goods Reporter*, 1912; "Display Window Lighting," F. Laurent Godinez, W. T. Comstock Co., 1914; "Lord & Taylor Window Displays," Upholsterer, 1919. "One Hundred Easy Window Trims," Chicago, Byxbee Pub. Co., 1913; "The Window Trimmer," *Merchant's Record & Show Window*, New York and Chicago. Monthly.

Question—Will you please advise if "The Lincoln Memorial" at Washington, D. C., has been illustrated by any architectural magazine; if so will you advise name of publication? J. E. K., Patterson Creek, W. Va. **Answer**—"The Architectural Review" has published Competitive Drawings in the issue of October, 1913; a series of articles has been published during November by the "American Architect."

Question—May I take the liberty of asking you, if you can advise me as to the most up-to-date treatise on library requirements, flooring and construction. B. W. W., Providence, R. I. **Answer**—"A Portfolio of Carnegie Libraries" by Theo. Wesley Koch, Wm. T. Comstock Co., publishers, 23 Warren Street, New York. It contains 120 plates showing different library designs and plans.

Question—Can you supply a reader of PENCIL POINTS with the following information? Believing that architectural models are becoming more valuable for enlightening a client, I wish to know about the materials employed, the scale used for different classes of buildings, the names of any books written on this subject. In short, any helps that will enable a draftsman to make a realistic model with its surroundings. J. R. T., Raleigh, N. C. **Answer**—"Architectural Modelling" by Percy Collins, in *American Homes and Gardens*, Vol. 12, pp. 261-63. "Architectural Sketch Models" in *The Architect and Engineer*, San Francisco, Vol. 49, pp. 57-61. "Models for Architecture" in *The American Architect*, Vol. 109, pp. 265-270; "Modelling in Cardboard," by F. W. Hammond, Blackie & Son, London; "Clay Modelling," by F. Farrington, Blackie & Son, London; "Clay Modelling and Plaster Casting," by P. N. Hasluck, D. McKay, Philadelphia, 1912. The materials employed and the methods used for different classes of buildings are discussed in these references.

Question—Can you refer me to any late treatise with example illustrations on Spanish Mission Architecture as applied to small house work such as is commonly used in our Southwestern Cities and Mexico, of "adobe." C. F. C., Indiana, Pa. **Answer**—There are no special treatises issued on the small standard mission house, text books being available on the larger types of houses as illustrated in "The Picturesque Architecture of Mexico" by L. A. Baume, "Franciscan Mission Architecture of Alta" by Rexford Newcomb, "Mission Architecture" by Prentice Duell. The architectural magazine, "The Archi-

tect and Engineer," published in San Francisco, often shows the type of architecture which you describe. Their address is Foxcroft Building, San Francisco. "The Western Architect," a monthly magazine, also publishes architecture of this type. Their address is 215 South Market Street, Chicago, Ill.

Question—Please tell me where I can get the best information on supporting and securing cut stone trimming and courses. H. A. H., Detroit, Mich. **Answer**—As a practical book for this need, F. E. Kidder's Book on Masonry Construction, published by Wiley & Son, will prove useful. For detailed information, the literature distributed by the Indiana Limestone Quarrymen's Association, Bedford, Ind., National Building Granite Quarries Association, Inc., Boston, Mass., Rockport Granite Company, Rockport, Mass., and other producers of stone for buildings will be helpful.

DRAWINGS BY KENNETH CONANT.

THE drawings by Mr. Kenneth Conant shown in a recent exhibition at the galleries of Arthur H. Harlow & Co., New York City, are of unusual interest and show great skill and a rare understanding in the rendering of architectural subjects in pencil.

At the time this work by Mr. Conant was exhibited in the Fogg Art Museum of Harvard, a few months ago, W. H. Downes, in the *Boston Transcript*, said in part as follows: "Mr. Conant, as holder of the travelling scholarship of the architectural department of Harvard, certainly put in his time in Europe to excellent advantage and from Spain in particular he brought a wonderful series of drawings—not of castles in Spain, but of the rich, splendid, majestic specimens of ecclesiastical Gothic architecture in which that country abounds. No artist sets forth with greater delicacy and distinction of style the captivating characteristics of a great Gothic building, with its spires and towers outlining themselves against the sky, its lace-like contours climbing buoyantly, its rich sculptured details losing all their sharpness in the softening distance, and hinting at even lovelier refinements of line and form than the eye can perceive. No artist unites with its sheer delight in the resources of his medium and the feeling for the grandeur of his theme a more perfect or a more admirable degree of measure, reserve, and sweet reasonableness. Nowhere is there any trace of excess, exaggeration, italics. Every last line and dot is informed with a fine architectural imagination and a sensitive appreciation of beauty and dignity.

"In contemplating this series of drawings one cannot help thinking of Samuel Prout, of Bonington, even of Meryon. The firmness and certainty of the draughtsmanship, the authentic architectural sense of structure, and the inexhaustible enjoyment of the picturesque element, controlled and ordered by a beautiful temperance and reverence, are qualities and traits inextricably associated with the works of the most indisputable pictorial interpreters of great architecture.

"Mr. Conant was appointed instructor in the architectural school of Harvard this year, upon his return from his travels."

ARCHITECTURAL ACOUSTICS

CHAPTER VI

IN our last two chapters we have laid stress on the two chief sources of bad acoustics, namely, reverberation and echo, and have attempted to show the distinction between these two classes of phenomena, generally confused in the popular mind. While it is not wise to press the analogy too far, it will perhaps help some of our readers to understand the subject more readily if we point out certain similarities in the reflection of light. Reverberation may be compared with diffuse reflection of a light wave, while echo is comparable with specular or mirror-like reflection.

If we place a source of light in a room whose interior surfaces are finished entirely with a dead black paint, or better still, covered with black velvet, the illumination will be found to be very unsatisfactory, as the low reflecting power of walls and ceiling causes only the direct rays from the source to fall on any object in the room. If, however, the surfaces of the room are coated with a flat white paint, the illumination from the same source will be brilliant, owing to the addition to the direct rays of rays reflected back and forth at every conceivable angle from the surrounding surfaces. If the original light source is very intense, the amount of light in the room will be so great as to be dazzling and uncomfortable. Evidently, neither extreme is a happy condition, and in order to obtain comfort, the walls must be toned down by paint of some soft neutral tint which will relieve the glare on the eyes, and at the same time preserve sufficient illumination to see without strain.

This is similar to what happens in the reverberation of sound. If a room has too much absorptive material in it, the sound from any source will not carry well and the room will appear "dead." If, on the other hand, there is little or no absorption of sound, the reflected waves will cross and re-cross and pile up on each other, producing a loud and heterogeneous mass of sound which is confusing and irritating to the ear and causes

loss of distinctness. The louder the original sound, the worse is this condition. As in the case of light, the solution is to introduce an amount of sound-absorbent material just sufficient to cut down the reflection to the degree best suited for comfortable hearing. In rooms which have satisfactory acoustics without artificial treatment, this condition is due chiefly to the furnishings and the clothing of the occupants. In most auditoriums, however, the design and finish require a greater degree of absorption than is supplied by such means and in these cases the additional amount must be introduced particularly on upper surfaces where the sound is most freely reflected.

For this purpose, structural materials of high coefficient of absorption like AKOUSTOLITH and RUMFORD TILE are ideally suited, as they lend themselves to pleasing architectural effects and form a permanent and integral part of the structure. As we have previously explained, the exact area of any given absorptive material which should be used to reduce the reverberation to the proper degree is susceptible of exact calculation as the result of scientific research.

Wherever conditions of echo exist, the location of this treatment is of equal importance with its extent. To return to our analogy, whenever a source of light is placed at a distance from a concave spherical or cylindrical mirror greater than the principal focal length of the mirror, there will be formed a real image of the source at some point. The same thing takes place with sound, although not to quite as marked an extent owing to the greater wavelength. If we wish to destroy the image of the light, we can coat the mirror with dark paint. Similarly for sound, we should cover the reflecting surface with absorbent material like AKOUSTOLITH or RUMFORD TILE.

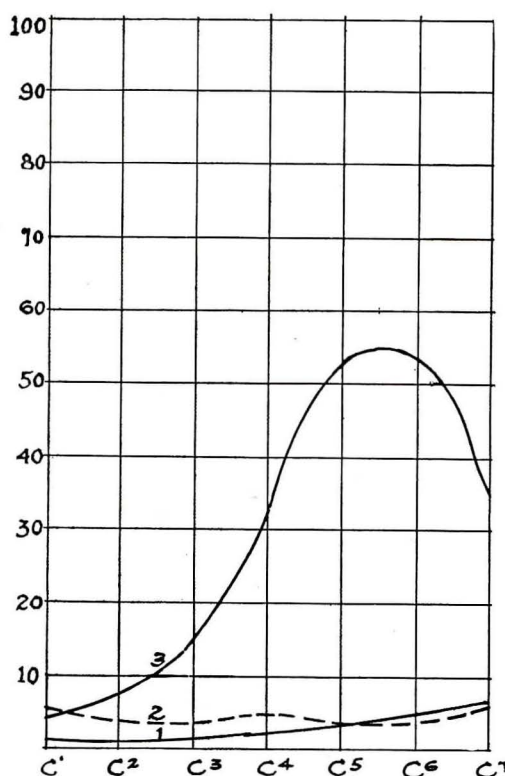


FIGURE 1

The above graph shows the variation of absorbing power for reflected sound with the musical pitch. Curve 1 shows the absorption of unpainted brick surfaces. Curve 2 shows the absorption of soft plaster on wood lath. Curve 3 shows the absorption of Akoustolith sound-absorbing stone. The figures at the left show the percentage of absorption, while the letters at the bottom indicate octave intervals of pitch, C³ being "middle C." Most of the audible energy of the voice, as well as other sounds, lies in overtones above C⁴. It will be noted that in this region the absorbing power of AKOUSTOLITH* is from seven to sixteen times greater than the most favorable of other types of construction. The advantage over glazed tile, concrete or hard plaster on metal lath is even greater.

*Akoustolith is an artificial stone and can be cast in the form of tile, wall blocks or in ornamental forms.

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New York

THE SPECIFICATION DESK

It is the purpose of this department to cover all matters having to do with specifications. The Specification Desk is to be an open forum to which manufacturers as well as architects, draftsmen and specification writers are invited to contribute. Nothing of an advertising nature will be permitted but it seems to the publishers wholly desirable that those who prepare specifications and those desirous of having their goods specified shall meet on common ground in this department of PENCIL POINTS. It is not the idea that the merits of materials shall be discussed in these pages but rather those broad questions which come up in connection with every building operation for which the specifications prepared in the architect's office form the basis not only for the builder's estimates, but also for the determination of the materials and equipment to be used.

The readers of PENCIL POINTS are invited to submit material for this department, either in the form of questions or suggestions calculated to improve any phase of specification work.

THE SPECIFICATION WRITER AND THE MANUFACTURERS' LITERATURE, PART VI

BY LOUIS R. HOLSKE

Fire Escape Construction—The architect would require complete drawings showing sizes of material and connections in order to satisfy himself as to the following points. The safe carrying capacity of the platform and stairs. The nature of the platform and treads, are they slat form or solid with perforations? The balcony construction. The size of the anchor members carried through the wall and the size of washer on the inside. Are the railings similarly anchored? The height of railings and spacing of the members comprising them. How much weight is provided to counterbalance the drop ladder and how is protection against the weather provided for pulleys and guides for weights. In the stair and platform type is the whole construction tied properly to the steel frame of the building. What foundations are provided for the posts. Are mesh guards provided above the stair and platform railings?

Gratings—In considering a grating of any kind, area, floor or shaft, the architect must satisfy himself as to its carrying capacity and consequently sufficient of the detail of the grating should be provided to show the size of members, the connection between them, and the method of attaching to supports. Regarding area gratings, inasmuch as the sun's rays are always angular, if the bars could be set at the average angle of the sun's rays, a great deal more light might be obtained in basements or cellars lighted through areas.

Flag-poles—Inasmuch as the familiar wooden pole can not be considered a manufactured article in the sense of that expression assumed in these articles, the steel pole only will be considered. The architect would want to know the proportion of the diameter at the base to the height of pole and the taper. He would want to know the thickness of metal and if any reinforcement would be necessary at the ground level. How is the joint between sections made and how long is the inside coupling used in making the joint? What is the nature of the truck, fixed or revolving, and what is the method of anchoring it in place? If a revolving truck, what bearings are used? Is the pulley housed or protected against the weather? Of what material is the axle and its bearing?

Stair Construction—One of the most important points in considering any stair construction is the string and this should be shown so clearly as to enable the architect to readily determine its size and area of cross section in order that he may calculate the carrying capacity. The type of risers and treads should also be shown.

Door Hangers—In considering a door hanger, whether for residence, garage, stable, elevator or automatic fire

door, much the same initial thoughts present themselves to the architect's mind—in all cases is the hanger ball-bearing and what is the method of attaching to the door? Is it possible to adjust the hanger, in case of settlement in the building, without removing casing and trim? What is the form of the track and what thicknesses of metal are provided for various weights? What is the spacing of the supporting brackets? In residence hangers what measures have been taken to eliminate the metallic rattle in operation? Are the wheels of cast metal or hard wood? Applying to elevator doors, particularly, what precautions have been taken to guard against the hanger jumping the track due to a violent closing of the door? For two and three-speed elevator doors how are the straps for the second and third-speed folds of the doors attached to the original plane? In the case of the so-called combination door, i.e., all folds to hinge when desired to give the full opening, how is this accomplished? In the case of hangers placed on the outside, as for barns or stables, how are they protected against the weather and is the housing such as to prevent its use by birds as a nesting place? In the case of garage doors having other than one way movement, the architect would require full details of the method proposed and where the track is curved and unsupported he would require an assurance that the unsupported track will carry the doors without deflection. When the doors are operated electrically he will need a full description of the apparatus.

Lifting Apparatus—The information required by the architect in preparing his plans is much the same for all lifting apparatus, it concerns in the first place space requirements. Having determined the size of the car, he will require the following information: The clearance necessary for the car in the shaft, the height of the sheaves above top landing, and the space required above the sheaves; the size and position of the machine room and the depth of the pit if any be necessary. For his specification the architect will have to determine the maximum load and desired speed, the type of machine, and the cost of the car. He will require from the contractor a complete layout and specification covering the installation.

Mail Chute—The architect will require figured detail plans of the chute showing the size of the opening in the various floors and the method of attaching the chute to the walls. He will require assurance that the chute proposed complies with the postal regulations; that in case of stoppage it may be readily opened to remove the obstruction. He will require information regarding the receiving box, its material and cost.

(Continued on page 34)



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PENCIL POINTS

THE SPECIFICATION WRITER AND THE MANUFACTURERS' LITERATURE

(Continued from page 32)

Ash Receivers—In contemplating the use of an ash receiver under the boiler the architect will require detail drawings, showing the size of the receiver, its depth below the floor and the method of anchoring it in place. Also, the size and capacity of the cans and the method of supporting them. He will require a detail of the revolving mechanism.

Vault Fronts—The architect will require detail drawings giving dimensions of doors, frames, depth of vestibule, method of finishing on the walls, both inside and outside, and sill construction. Further, he will require the thickness of the inner and outer doors and the number of bolts securing each. In addition he will require some information as to the method of finishing the work.

PUBLICATIONS OF INTEREST TO SPECIFICATION WRITERS.

Any publication mentioned under this heading will be sent free, upon request, to readers of PENCIL POINTS by the firm issuing the publication.

Picture Lighting—A booklet setting forth the principles of picture lighting and methods of lighting, shows photographic illustrations of types of lamps, reflectors, etc., and of various well-lighted interiors. It contains notes on specifications and a price list. Size $5\frac{1}{4} \times 6\frac{7}{8}$ in., 24 pages. Issued by I. P. Frink, Inc., 24th Street and Tenth Avenue, New York City.

Lighting Service for Stores—A monograph on a particular type of lighting. Store window reflectors, counter-case reflectors, and wall reflectors are shown by diagrams and photographic views, together with illustrations of Polaralite sign lighting. Size $8\frac{3}{4} \times 11$ in., 24 pages. Issued by I. P. Frink, Inc., 24th Street and Tenth Avenue, New York City.

The Magic Hearth—Leaflets, with instructions on building an open fireplace, section drawings, illustrations of fireplace equipment, grates, firebacks, cranes, andirons, etc. Size $8\frac{1}{2} \times 11$ in. Issued by the Chattanooga Roofing and Foundry Co., Chattanooga, Tenn.

Simplex Window Fixtures—Illustrated booklet. Drawings, photographs and text describes weightless, reversible window fixtures, their ease of installation, ventilation and light control. Issued by The Kawneer Co., Niles, Mich.

Republic Fireproof Construction for Buildings—Brochure presenting details of floor and roof construction, illustrated with photographs and drawings, plates of construction details, tables, specification for reinforced concrete. 8×11 in. 32 pp. Published by Republic Fireproofing Co., Inc., 26 Cortland Street, New York City.

COLUMBIA UNIVERSITY ATELIER

ALL who attend the Columbia Atelier realize the "Good Fellowship Spirit" which prevails among its students. This led to a little informal dinner given at Brown's Chop House, N. Y., at which most of our members were present.

We were highly honored by having with us two of our critics, Professors Prevot and Flannigan and Professor Boring, head of the Columbia School of Architecture. They, too, entered into the song and frolic of the evening.

As a climax to our very enjoyable evening useful handbooks were distributed.

At the end of the evening it was decided that several "Get together evenings" be set aside for furthering the good team work ever present within the Atelier.

J. G. SCHUHMAN, JR., President.

THE BEAUX-ARTS METHOD.

(Continued from page 21)

ways helps him to develop quickly in all those things that are learned from experience.

It is hard for a new man to realize that working on some one else's problem is doing him as much good as working on his own, and that if it is the work of a more

advanced man it is of more value than working on his own problem, to say nothing of the guidance and help he gets in return.

This spirit of give-and-take is the finest thing in the atelier; a man will soon learn that the success of the atelier is the success of each man in it.

If the student has to work alone, he should ask some practising architect to criticize his work, preferably a man who has been trained by the Beaux Arts method either in Paris or in this country.

One of the features of the system mentioned—the method of the esquisse—will be gone into in the next installment of this article, when we will start our work by taking an esquisse.

THE ARCHITECTURAL SCHOOL GEORGE WASHINGTON UNIVERSITY.

THE success of the Architectural School of the George Washington University at St. Louis, Mo. has more than fulfilled the expectations of its benefactors, the members of the Washington chapter of the American Institute of Architects. Seven years ago the chapter committee on education guaranteed the sum of one thousand dollars to insure against monetary loss, when it requested the University to re-open the school. This fund, however, it has never been necessary to collect. But in addition to the guarantee, six hundred dollars was contributed for the purchase of books on architectural subjects, and later the Chapter's own library was turned over to the school. Several hundred volumes were also given by the American Institute of Architects.

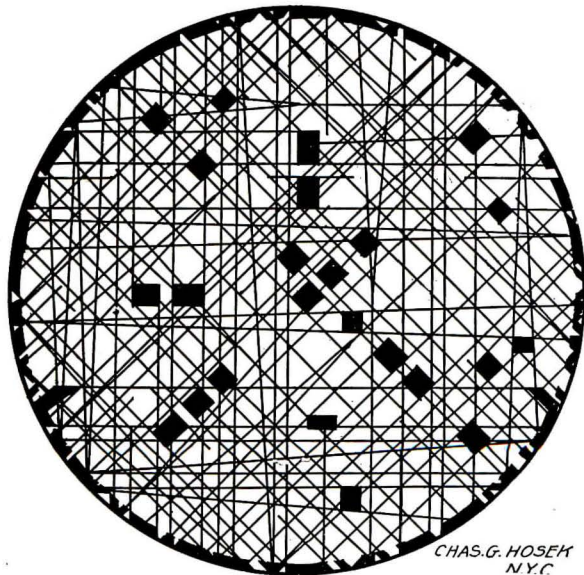
Every winter the Chapter entertains the student architectural club, at which time there is an exhibition of student work; and the standing committee on education keeps itself constantly informed on the work of the school, whose remarkable growth has been so largely due to the interest and patronage of the Chapter.

KATHRYN HARRIS.

PERSONALS

JOBSON & HUBBARD, Architects, have moved their offices from the Pullman Building to 225 North Michigan Avenue, Chicago, Ill.

MR. LOUIS HINTZ, formerly head of the drafting room of N. Stanwood Phillips, Architect, 103 Park Avenue, is now connected with the office of Electus D. Litchfield & Rogers, Architects, at 477 Fifth Avenue, New York City.



CHAS. G. HOSEK
N.Y.C.

From a cleverly-designed card bearing greetings to the readers and editor of PENCIL POINTS, designed by Chas. G. Hossek. Hold page horizontally below eye level and turn slowly three-quarters around to read.

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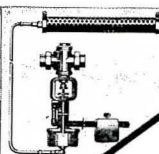
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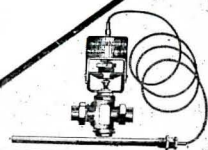
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PENCIL POINTS

THREE STAGES OF A RENDERING.

(Continued from page 7)

then rubbed with the finger. Tone was left relatively light in the sky, dark in the adjoining buildings, darkest in the foreground masses; the tone of Bush House was established by cleaning with kneaded eraser. Having fixed these elementary values, their principal subdivisions were roughly drafted and given tone value—minor darks being put in the generally light areas, minor lights erased in the generally dark areas. This stage is shown in the illustration on page 9.

Third Stage—The next step was to consider the details and bring them up to the key already established by the general tones. Using T-square and triangle, a certain degree of definiteness was given to the details throughout the drawing—beginning at the center of interest and allowing the indications to become less definite therefrom. This process was repeated several times, advancing the indications previously made and giving consideration to the less important groups of detail in turn; the object being to allow the whole picture to emerge, as it were—major elements first, minor elements thereafter, and as far as possible keeping proper relations between them throughout. This process was repeated until the anticipated key was reached; it would have halted earlier, had a more suggestive treatment been decided upon, and carried further had a more studious treatment been wished. This, the final, state is shown in the illustration on page 6.

In defining lights against darks, considerable use of kneaded eraser was made, erasing through an opening cut in a piece of paper, to the desired silhouette.

Tone, having been applied with the broad side of the lead, as mentioned, was rubbed with the bare finger, the gloved finger or a chamois stump depending upon the texture wanted. Thus, the bare finger was used in the distance, the stump in the street in the foreground. The drawing was made entirely on an upright board, the object being to easily visualize the composition, from a normal viewpoint, at all stages.

The "First Stage" occupied two and one-quarter hours; the "Second Stage" four hours; The "Third Stage" fifteen hours.

SKETCHING AND RENDERING IN PENCIL.

(Continued from page 27)

centers at A, and even though there is an important mass at B it is toned down so as to seem unimportant. The floor, too, has been made larger in mass than the ceiling, but the advantage thus gained is largely lost, for the rug is unfortunately of the same size on the drawing as the visible portion of the ceiling so that this sketch could be still further improved by adding either more rug or more ceiling. Diagram 7 shows that when a room is so turned that we are looking directly at one of its walls or is placed in "parallel perspective" as this is called, similar faults may develop. Here the main surfaces are all monotonous, the interest is divided and the drawing made still more unpleasant because the receding lines exactly meet the margin lines at the corners. At 8 an attempt has been made to avoid some of the difficulties of Diagram 7.

The little sketch of the dormer is shown to illustrate an important matter of composition. When drawing small details care must always be taken that they do not seem to be merely suspended in the air. They should appear instead to be attached to a solid background or support, and one of the best means of giving this impression is by allowing each sketch to fade out gradually into the sheet, showing enough of the adjacent surroundings to give the whole a sense of stability and strength.

If space permitted we might go on with many suggestions on composition similar to these which we have given, but if the student is interested and really serious he will take the time to obtain additional ideas from such books as we have recommended. The student is urged to make drawings of his own to illustrate and make clear in his mind any of the principles he acquires, for unless he does so it is probable that many of them will be quickly forgotten.

Classified Advertisements

Advertisements in this column Five cents a word, none less than \$1.00. Remittance must accompany order.

SALEM COLONIAL DOORWAYS, 40 cents per set, sixteen cards. Architectural Post Card Co., 1603 Real Estate Trust Building, Philadelphia, Pa.

CITY PLANNING NUMBER. This issue contains articles and double-plate pages in color of rendered perspectives by Jules Guerin, Otto Eggers, and others. Price, postpaid, \$1.00. The Architectural Review, Inc., One Madison Avenue, New York.

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THE ST. LOUIS ARCHITECTURAL CLUB.

THE St. Louis Architectural Club is outgrowing its Atelier quarters and is giving serious thought to the building of an extension to take care of its rapidly increasing number of members.

Mr. Nelson Cunliff, Chairman of the Home and Housing Commission of the St. Louis Chamber of Commerce, addressed the Club on November 18th, calling attention to the shortage of homes for workingmen and what the Commission is doing to provide suitable houses to meet the emergency.

On November 20th, the Club entertained the Board of Governors of the American Institute of Architects, the National Council of Architects Registration Board, Representatives of A. I. A. Chapters from the Mississippi Valley districts and members of the St. Louis Chapter A. I. A.

WM. A. HIRSCH,
Chairman of Publicity Committee.