THE increasing use of Indiana Limestone Random Ashlar construction in school, college and church buildings, for residences and other purposes, makes it particularly important that you receive the fullest information on this subject.

The Architect's Service Bureau of Indiana Limestone Company is organized for the express purpose of supplying the architectural profession—not with "advertising matter"—but with information that will be genuinely helpful and which will keep important facts at your finger-tips.

Write us today and let us send you illustrated data on Indiana Limestone Random Ashlar. There will be no obligation. We will not solicit you further after receiving your inquiry unless you request it. Just keep the data for reference. Address Box 784, Service Bureau, Indiana Limestone Company, Bedford, Indiana.

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The All Terra Cotta Exterior

The Architect who designs for Atlantic Terra Cotta from sidewalk to roof has unlimited freedom in color, texture and modeled form.

He can avoid the dull monotony of the hackneyed type with base in one color, shaft in another and entablature that repeats the base.

He can include in his design the individual touches that add so much of charm—and that so often cost too much or are impossible in a less plastic material.

He can give his client a building above the usual welter of red and gray, attractive and unusual without being fantastic or bizarre.

In Atlantic Terra Cotta he has a modern, up-to-the-minute material that is thoroughly dependable, durable; the final word in weather and fire resistance; the final word in practical and actual economy.

Atlantic Terra Cotta Company
19 West 44th Street, New York

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Atlanta, Georgia
Making Model Homes models of Safety with ARCH LATH

The introduction of Wheeling Arch Lath has created new interest in metal lath. The reason is that Wheeling Arch Lath insures fire-safe construction at a cost comparable to that of inflammable types of lath.

Wheeling Arch Lath is fabricated from a solid sheet of steel. The arches are so formed as to permit only the correct amount of plaster to squeeze through for perfect "key." There is no waste due to plaster piling up between walls.

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Wheeling Arch Lath combines time, labor and plaster-saving advantages with low cost of erection. The rigidity of the sheet makes it practical for one man to handle; the extra 3' width (27' width instead of the usual 24' width) enables one man to cover more surface in less time.

Wheeling Arch Lath advertising in National Magazines is creating demand for Fire-Safe homes. Arch Lath helps to supply this demand. Let us send you additional information, prices and sample.

WHEELING CORRUGATING COMPANY
Wheeling, West Virginia

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Wheeling Spanish Metal Tile
For a roof of enduring beauty at low cost, use Wheeling Spanish Metal Tile. It is proof against rust, leaks and lightning. Permanent and highly practical as well as artistic and attractive. Write for full information.
Cork Serves Double Purpose in this Church Installation

The installation of Armstrong's Corkboard on the roof of the Broadway M.E. Church, Indianapolis, is an excellent example of the two-fold value of corkboard for the insulation of church roofs. It materially reduces the heat loss, which for such large areas is very great, and it serves the valuable acoustic purpose of correcting reverberation and echo.

In the Broadway M.E. Church, Armstrong's Corkboard was applied to the under side of the roof, and left exposed, the color and texture of the corkboard being admirably adapted to the interior decorative treatment.

Because of the intermittent use of church buildings and their high ceilings, heating is difficult and costly. The use of even one inch of Armstrong's Corkboard, as in this case, lessens the heat loss materially, making it possible to bring up the temperature in less time and to maintain it comfortably and uniformly with less fuel.

Armstrong's Corkboard has sound absorbing qualities that produce excellent acoustic effect, reducing reverberation and echo without deadening the intensity of the sound.

Armstrong's Corkboard is pure cork, non-absorbent and non-deteriorating. It does not decay or disintegrate, nor does it shrink, swell, warp or buckle. It is slow-burning, and will not ignite from sparks or embers. It is easily applied at a low cost for labor.

The counsel of Armstrong Engineers on the use of corkboard for either insulation or acoustic purposes is offered without charge to architects. Armstrong Cork & Insulation Company, 201 Twenty-fourth Street, Pittsburgh, Pa.; McGill Building, Montreal, Quebec; 11 Brant Street, Toronto 2, Ontario.

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for the Roofs of All Kinds of Buildings
HOW often does the owner of a Barrett Specification Roof think about that roof?

He forgets it. His roof is so trouble-free that he never has to give it a thought.

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Made of ATP Old Style Pitch and ATP Approved Tarred Felt—one quality only—the best—backed by a bond if you want it.
FRIENDLINESS

Metropolitan Museum exhibit demonstrates how simply the XVIII Century home-owner attained Beauty

IN THE American Wing of the Metropolitan Museum of Art is this early Colonial bedroom, transferred from a house in Hampton, N. H. It would seem that nothing could be added to or taken from this room without injuring its inherent character.

Yet, its owner, desiring to give it even greater beauty, added to its late XVII Century rugged simplicity all of the XVIII Century panelling here shown.

Can you visualize the room barren of the panelling?—still a room, yet how much warmer, friendlier, more appealing that sheathing of carved wood makes it!

Only in wood—wood, the friendly, the “living” construction material—could that early Colonial builder express so simply and so harmoniously his sense of the beautiful . . . Wood is the natural resource which maintains its own abundance. You have but to order. The right wood for every purpose is available, to you, and to posterity.

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for prizes offered by
The Mohawk Carpet Mills

In order to direct the attention of both amateur and professional designers to the fertile field of creative work offered by rug designing, the Mohawk Carpet Mills announces a Rug Design Competition to be held under the auspices of the Art Alliance of America.

This contest is now open. It will close on April 24th, at midnight, and the awards will be made known as soon as possible thereafter.

Prizes are as follows:
First ............... $1,000
Second............... 500
Third................. 250

In addition, special prizes are offered for designs submitted by art students now registered in schools of design.

It is the wish of the Mohawk Carpet Mills to draw out designs which are distinguished by originality and which, without becoming bizarre, incline towards the expression of the modern spirit. Entries will be judged rather on this basis than upon the degree of technical precision manifest. In other words, while contestants must be familiar with the major limitations of rug design it is not intended that minor technical errors shall debar an otherwise brilliant conception.

Full information regarding both the main Rug Design Competition and the supplementary student contest is needed for intelligent participation. It can be obtained by addressing

THE SECRETARY
THE ART ALLIANCE OF AMERICA
65 East 56th Street
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The Fandolier

A desirable combination

Cooling effectively combined with lighting, and both harmoniously combined with architectural and decorative thought.

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Drapery motive over mirror at right, brown.
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This first year only with our compliments one copy to each firm of licensed, recognized Architects or Engineers. (Next year $7.50.) A suggestion: To make sure the right man in your office receives your copy, fill in and mail the coupon below. No obligation whatsoever.

Condensed Index

*General Conditions
Instructions to Bidders
General Instructions
Wrecking
Excavation
Foundations
Sub-Structures
Excavation
Hollow Tile Floors
Brick Work
Structural Tile Work
Water Proofing
Architectural Terra Cotta
Concrete Roofing Tile
Artificial Stone
Granite, Limestone, Marble
Structural Steel
Miscellaneous Iron
Architectural Iron
Hollow Metal Doors
Fire Doors
Steel Rolling Doors
Steel Casements

Fine Windows
Steel Partitions
Marble, Slate
Finish Tile Work
Terrazzo
Terrazzo Tile
Plastic Flooring
Magnetic Flooring
Cork Tile Flooring
Rubber Tile Flooring
Lino-crest Flooring
Wood Block Flooring
Plastering
Carpentry
Building and Sheet Metal
Painting and Finishing
Glass and Glazing
Finish Hardware
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ONE OF THE things which has gratified us most as publishers is the fact that PENCIL POINTS has been able to grow from year to year, adding a little now and then to its size and its usefulness as a periodical serving the architectural profession, using this word in its broadest sense. From its modest start in 1920, when each issue contained about sixteen pages, PENCIL POINTS has developed to its present stage where every month we send out sixty-four pages of editorial matter together with two reproductions in color of architectural renderings or drawings.

We are pleased to announce that the growth of our advertising section places us in a position financially where we are able to give to our subscribers more for their money and so we expect shortly to increase the space in PENCIL POINTS devoted to editorial matter by eight pages a month. Naturally, in doing this, we are anxious to use the additional pages to the best advantage of all concerned. Hence, we are inviting you, our readers, to let us know what we can do with this space to make it of the greatest possible use to you. Of what sort of material are you most in need?

We have several possibilities in mind. We may very possibly include material on construction, particularly as applied to small buildings. It is possible, also, that we might include additional material on the design and economical construction of small houses. It is probable that we will devote considerable space to discussion by architects, located in different sections of the country and working under different conditions, of the cost of preparing drawings for different types of work. This subject, of course, is of vital importance to the architect, for the cost of his drafting room may furnish the element which will make all the difference between profit and loss in conducting his business. It should also be vitally important to the draftsman for if he can, by using common sense methods, cut down on his drafting time on a given job, he can make it possible for his employer, the architect, to reward him by increased salary.

There are a number of other subjects which have occurred to us as worthy of consideration in our pages. What we eventually decide to do will depend in some measure on what you tell us you want. Perhaps there is some problem which has come up in your daily work concerning which you have had difficulty in discovering authoritative information. Let us know about it and we will make every effort to supply that deficiency, both for your benefit and for that of all of our other readers. Here is your golden opportunity to exert your influence in the editorial office.

Contents

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>French Comrades in America, III</td>
<td>195</td>
</tr>
<tr>
<td>By Luther Lashmit</td>
<td></td>
</tr>
<tr>
<td>Stone and the Draftsman, II</td>
<td>211</td>
</tr>
<tr>
<td>By Marion Davidson</td>
<td></td>
</tr>
<tr>
<td>The Greek Spiral</td>
<td>219</td>
</tr>
<tr>
<td>By Richard S. Buck, Jr.</td>
<td></td>
</tr>
<tr>
<td>Color Plates</td>
<td>Insert</td>
</tr>
<tr>
<td>Plates</td>
<td>227-234</td>
</tr>
<tr>
<td>Whittlings</td>
<td>235</td>
</tr>
<tr>
<td>Here &amp; There &amp; This &amp; That</td>
<td>244</td>
</tr>
<tr>
<td>The Specification Desk</td>
<td>247</td>
</tr>
<tr>
<td>Service Departments</td>
<td>253</td>
</tr>
</tbody>
</table>
PENCIL SKETCH BY CAMILLE ÉTIENNE GRAPIN
OLD STREET IN TOUL, FRANCE
FRENCH COMRADES IN AMERICA, III

CAMILLE ETIENNE GRAPIN

By Luther Lashmit

CAMILLE GRAPIN is Professor of Architecture at Carnegie Institute of Technology. He came to this post in 1923. His coming added another comrade to the noted band of French Architects teaching and practicing in this country, and gave added evidence of the faith of our architectural schools in the constructive influence of the École des Beaux Arts on the architecture of America.

Born in Burgundy in the little town of Savigny-les-Beaune, Grapin grew to boyhood in the eastern foothills of the Côte-d'Or in the peaceful beauty of the Burgundy landscape.

Dijon, twenty-seven miles away, was the goal of his first architectural adventure. There the numerous fine monuments of the Old Burgundy School, a rich heritage dating from the eleventh century, were the first influences to bear directly on the career which he had chosen.

He began his studies at the École des Beaux Arts in Dijon under M. Danne, who had been trained at the atelier Lebas et Ginain. With a diligence and seriousness that has been characteristic of all his undertakings, he soon completed the preparatory requirements for the second goal of his ambitions,—admission to the École des Beaux Arts in Paris. In recognition of his talents his department of the Côte-d'Or gave him a scholarship for Paris enabling him to continue his studies. In Paris he entered the atelier Bernier, famed for its good taste in architecture. Under the supervision of his patron he amassed a great knowledge of detail. By observing the work of older students he learned to evaluate his own work. By studying the exhibitions he learned to discriminate in the choice of parts.

The successes of this period were many. In the first year he won the Muller-Schonee Prize for having received the most awards. In the second year he won the medal in mathematics and construction, and later, in the first class, the Grande Médaille d’Emulation for having received the most awards in the first class. In the years after were won the Prix Labarre, a Prix Chenavard, the Prix Abel Blouet, Prix Stillman, Prix St. Agnan-Boucher. And in 1914, the last year before the war, was attained the coveted position of logiste for the Grand Prix de Rome.

During the five years of war Grapin served in the army.

Returning to his studies he entered the atelier Laloux, where, under the guidance of "the master of broad and powerful compositions," he sought to link with his excellent training in good detail, learned at the atelier Bernier, a thorough understanding of
PLAN BY CAMILLE GRAPIN FOR "UN CHATEAU EN PROVINCE"
SUBMITTED IN CHENAVARD COMPETITION OF THE ÉCOLE DES BEAUX ARTS IN 1914
PLAN FOR "UN PALAIS DE LA MUSIQUE," BY CAMILLE ÉTIENNE GRAPIN
WINNING DESIGN IN LABARRE COMPETITION AT THE ÉCOLE DES BEAUX ARTS IN 1914
PLAN BY CAMILLE GRAPIN FOR "UNE HEMEROTHEQUE"
AWARDED SECOND PRIZE IN THE CONCOURS ROUX OF THE ÉCOLE DES BEAUX ARTS IN 1919
PENCIL SKETCH BY CAMILLE ÉTIENNE GRAPIN

[200]
sound composition. His chief honors during this period were the second Prix Roux and the first Prix Roux a year later. The final and crowning achievement of his school days was the Deuxième Grand Prix de Rome.

When Grapin was logiste for the Grand Prix in 1920, Laloux wrote him a letter which is an interesting revelation of the character of Laloux for those of us who know him chiefly in legend.

"MY DEAR FRIEND:"

"Just a line, not to give you words of encouragement—I know full well that you do not need any—but to explain, in a measure, our complete change of opinion.

"For some time already I have been embarrassed by the comparison of our study with your esquisse. It had an embarrassing effect upon me and my advice was concerned only with infinite details. At close range I was charmed; at a distance, when I saw only the whole, I was not quite so well pleased.

"While I was wrong, I frankly admit it, was not to have expressed to you my regret before leaving for the country. Nevertheless, I believe that your esquisse is infinitely better than our work. It is much more individual, more original, more yourself. So let us come back to it without hesitancy. I am firmly convinced that you will not regret it.

"In your esquisse everything is better; the mass, the proportions; the general form is more impressive, greatly to the advantage of the whole composition.

"It took me perhaps a long time to realize it, but, on second thought, I believe that your esquisse is a good solution of the program, a clear and decorative vision and we were wrong in not being willing to accept it. Have therefore confidence!

"Does that mean that your studies will not be useful in attaining quickly the desired results? Do not think so. Your studies will be helpful in getting immediately at the details and will thus enable you to make up lost time.

"On the other hand, should you need some fellows 'to nigger' for you, in order to make up the days you lost, I shall find them for you.

Sincerely yours,

(Signed) LALOUX.

"Cheer up!! I'll see you tomorrow."

School days finished, Grapin spent some months in travel. Returning to Paris, he sought an appointment as Architecte des Batiments Civils et des Palais Nationaux. He was received second and named Architecte Ordinaire du Palais du Louvre. The position, being only honorary, was not accepted.

There followed a period of practical work in Milan and in Paris. In Paris he worked on the new
FROM A WATER COLOR SKETCH BY CAMILLE ÉTIENNE GRAPIN

"PORCH OF CHURCH OF ST. GILLES"
PENCIL SKETCH BY CAMILLE ETIENNE GRAPIN

"A ROAD IN BURGUNDY"
FAÇADE BY CAMILLE GRAPIN FOR “UN MONUMENT À LA VICTOIRE”
AWARDED SECOND GRAND PRIX DE ROME AT THE ÉCOLE DES BEAUX ARTS IN 1900 COMPETITION
PLAN BY CAMILLE GRAPIN FOR "UN MONUMENT À LA VICTOIRE"
AWARDED SECOND GRAND PRIX DE ROME IN 1920 COMPETITION
STUDY BY CAMILLE GRAPIN FOR PLAN OF "ÉCOLE MILITAIRE"
DRAWN IN 1827 AT THE ÉCOLE DES BEAUX ARTS
abattoir, on a new railroad station for Le Havre and on the new Cercle des Officiers. He did a competition for the new school of Decorative Arts and made several studies for the Automobile Club.

In 1923 he was asked to come to Carnegie Institute of Technology, as chief of the design faculty for the Department of Architecture. He is fulfilling his new duties with characteristic seriousness.

The projects chosen for reproduction in connection with this article consist chiefly of prizes won at the Ecole. Their technical and decorative qualities are apparent. The plan for a Military School is reproduced from a small scale study about twice the size of the reproduction. It is an interesting example of finished technique in indication.

Grapin’s pencil sketches attracted attention at the Salon in Paris in 1921. An extract is taken from a criticism of the architecture at the Salon. “The presentations of ancient monuments are submitted in two ways: in geometric elevation and in picturesque views. The second manner does not belong to the architectural section, it belongs more to the realm of painting. A very useful exception would be to make this section accessible to the work of Cancelletto and Piranesi. Mr Grapin is represented there by his five pencil drawings of views of old Paris,
which are excellent pieces of work. Our painters of
city views might take them as an example. Mr. Grapin
draws with solidity and charming precision
the fleeting perspective of streets. The lights and
shades are treated with a perfect sense of effect . . ."

Among the reproductions a group of water colors
is added. The two in color show sufficiently the real
qualities of Mr. Grapin’s work in that direction.
It is regrettable not to have more printed in color for
they have a brilliant effect.

Some of Grapin’s thoughts on architecture, gathered
from conversations, are set forth in the remaining
paragraphs.

Architecture should keep pace with science, industry, politics. The scientist, the industrialist, the politician, have studied the accomplishments of the past. But they live in the present and meet modern problems with modern solutions. Every indication of progress in human effort can be traced in the concurrent material and spiritual life.

Achievements in architecture are no exceptions. But present-day progress seems to have been blocked by architects who cling too affectionately to the past. They call constantly to mind the antique monuments of foreign countries. The reflection of dead epochs is too apparent in their work. Clients are partly responsible for the persistent recurrence of abortive details of past styles. Having traveled, having seen charming bits of detail here and there, they demand the same things although climatic conditions, accessibility of material, structural difficulties may deny the logic of such demands.

The realities of life today indicate new programs. Modern methods of mass production, processes of fabrication, new structural possibilities give new means of execution. Modern workers are not skilled
in the same way that Gothic workers were skilled. But there are compensations. Machines replace human hands. Pneumatic tools set a new character for carved details—steel and concrete challenge the imagination. Electro-chemistry and the blast furnaces are at the bidding of the visionary capable of producing a new wealth of products in polychrome terra cotta, colored glasses, metals. Photography makes accessible a wide knowledge of plant forms, animal forms and forms of marine life, from which can be taken fresh and interesting motifs for ornament. Microscopic photography is more modern still. From its revelations of microbe groupings and plant sections may be evolved decorative motifs of a superior sort.

Thus far attempts at "modernism" have existed chiefly in some changes of proportion and detail. The grotesque masquerade of present-day buildings is highly amusing. The architect chooses the costume. The engineer produces a skeleton to wear it. But all present-day buildings are not in masquerade. Some new skyscrapers, particularly, are apparently sincere in their outward appearance. They may be the first fruits of a new era. It is only through a shameless recognition and a frank acceptance of modern structural and decorative elements that continued progress in architecture is possible.

Perhaps the most valuable lesson in building should be learned from nature. In animals, for example, structure and beauty of finish are achieved directly and purposefully with the elimination of all unnecessary things.

New ideas take root slowly. But it is encouraging to see the very interesting attempts of the younger generation. Older minds, entrenched in the easy security of an acceptable past, are sometimes hostile to the spirit of change. Younger minds, lacking assurance, hesitate to impose their thought. But as there is no imperialism in architecture and as youth asks to be understood, it is the duty of every architect to assume part of the responsibilities of the present and to encourage new essays. In spite of the respect we owe our ancestors we must make way for youth!
FIGURE 1—SKETCHES TO SHOW COMMON ERRORS IN DETAILING STONE
(See text opposite)
STONE AND THE DRAFTSMAN, II

By Marion Davidson

EDITOR'S NOTE:—This article continues the discussion of stone begun by Mr. Davidson in the January 1928 issue. In this installment he takes the question of detailing stone on the architect's drawings and on the stone shop drawings and brings out a number of points which should be of assistance to the draftsman.

EVEN GOOD DRAFTSMAN is a jack-of-all-trades. Isn't it logical for him to know about the working qualities of the materials incorporated in his plans, when he expects contractors to follow these and produce a successfully executed building? Whether detailing bronze or glass or stone, or writing a specification for a Twentieth Century wine cellar, where a good man may be down but not out, he must constantly see through the eyes of each trade or else the drawings do not carry their message.

Of the three operations described in this series, his closest contact with the work of the stone contractor is during the preparation of details and the checking of shop drawings for the process of manufacture. Frequently, however, drawings show information that is incomplete, indefinite or contrary to common practice and which may have a bearing on the preparation of estimates and the execution of the work. It is difficult to describe semi-technical subjects without dropping into a matter-of-fact style which soon becomes irksome and dry reading, and while we guard against this inclination, we hope that our discussion will cover at least a few items which may assist the man in the office when working on stone.

In the first place, the purpose of working drawings and particularly scale-details includes presenting proper information for contractors to prepare intelligent estimates as well as for them to follow in constructing the building. In order to take off the quantity of stone in cubic feet, the size of each member must be obtained; but often important sections and plans through belt courses, lintels, cornices, and joints are lacking, and the estimator must ask innumerable questions or just guess. As a rule too few sections are drawn. It is surprising what is left hidden and what they can bring to light Courses in walls should be only deep enough to secure sufficient bond in the wall and balance for a projecting portion—further depth is excess stock, costing additional freight, increasing the expense of handling and likely requiring extra hand cutting for back-checking on the building, but adding nothing to the face of the stone.

A characteristic that is almost universal with all men who draw and which requires a constant guard, lest it become natural and difficult to shake, is visualizing the units of construction at a reduced scale from what they actually are. The author speaks with the background of several years' experience making architectural details when this tendency of running in too much detail and drawing at too small scale, rather than too large, continually followed and haunted him. Frequently, this inclination will cause drafts men to dwarf the units of the architectural members, and when these are stone, it becomes a serious fault, because the physical properties do not lend to an economical fabrication at an extremely fine scale. This of course affects especially the joints—their location, size, and number.

We want to mention an incident which illustrates the habit one is likely to acquire unsuspectingly. An excellent draftsman, who had been working continually for several weeks on eighth-scale drawings received the first batch of shop drawings to check for a 4-cut granite base course. After several days these were returned with a mass of corrections, neatly lettered in yellow crayon, showing that the location of many joints had been shifted by only one-sixteenth inch. Besides being waste of time, this extreme checking was impractical because the material could not be cut this accurately—but the project was large, and by the time the last shop drawings had arrived this same man was allowing a latitude of 3/4 in establishing the location of joints. The point is: after he shifted from working at eighth scale to checking shop drawings, one-sixteenth inch still remained in his mind as meaning six inches.

Ashlar cornices and belt courses, but particularly ashlar, are shown repeatedly as jointed, both horizontally and vertically, into too many courses and pieces, preventing an economical manufacture and setting of the stonework, for the reasons that each joint requires two beds to be cut and a small piece costs approximately the same to handle as a stone of large size. It is worth while to remember that the heights of courses above the eye-level are often foreshortened and the joints appear nearer together. The locations of vertical jointing are not always sufficiently studied on scale details to obtain the best result. Sketches A, B, C, D in Figure 1 are portions of drawings that have been picked at random from architectural details to illustrate conditions that have occurred.

The left-hand plan of A is through a corner pilaster in which no vertical joints were indicated on the 3/4" scale detail, consequently the cube was figured on the basis of 3'-0" x 3'-0", the size of the pilaster, for ordinarily no allowance is made for the stock
FIGURE 2—PORTION OF 1/4 INCH SCALE DRAWING FOR MISSOURI STATE HIGHWAY BUILDING
EGERTON SWARTWOUT, ARCHITECT

[212]
checked out in the back. The proposals on the basis of this detail were far above the budget established for the stone, but by alternating 10" heads in the faces, illustrated by the right-hand plan, the cost was reduced several hundred dollars. This illustration is applicable to headers and returns at corners that often can be similarly jointed to reduce the cost without lowering the standard of the work.

The left-hand sketches of B are copied from a detail which showed the method of jointing a series of wall pilasters. The stone proposal was made up and shop drawings prepared on this basis, but when these were returned for correction, the joints had been changed so that most of the pilaster stones were integral with the ashlar. Obviously this was a more expensive method of fabrication because of increasing the amount of stock and requiring all the pieces to be manufactured or special, for no two are alike. We believe the stone contractor was justified in howling, which he did, because the pilasters occurred at a high elevation where this special jointing would neither be expected nor count for much. The object, of course, in changing the joints was to prevent the irregular line of the alternating joints occurring in the corner, which is a refinement and to be recommended for monumental work. Buttresses and piers that project from walls in all high-grade work demand a certain number of stones cut integral with the wall and buttress to break up the joint line in the corner. If these are expected the stone contractor ought not to be misled by the details into estimating on a cheaper method. Along with all of us he desires to keep worry out of his face and poverty off his back.

Jointing of architectural members similar to the pilaster bases in C are rarely ever indicated as jointed in a definite way so the estimator will know whether handcutting will be necessary on the return, as the left-hand base, or whether it can be cut entirely by machinery as the other. One of the two methods should be shown. Pilaster caps and returns in general often need the same information to be established.

In sketch D the draftsman went too far in skinning down the cube at the expense of manufacturing and setting, for the two small pieces ought to have been combined with the large center stone that could have been made and set cheaper than the three pieces. Although the cube is increased, the cost of the extra stock is more than offset by the saving in the mill operation, and the elimination of the two vertical joints by combination will produce a better result. The setting of the piers on the building where this occurred ran high and similar instances are worth anticipating and preventing.

The examples that have just been mentioned are typical of many that could be given of instances where draftsmen can assist in portraying to the stone man practical information for preparing a just estimate and receiving good work.

The kind of stone, the finish and the size of individual stones determine to an extent the size of joints. One immediately reasons that a coarse-grained stone will not work to a joint as small as a stone with a fine texture; and that large pieces have a tendency to increase the size. Generally, architects desire joints as narrow as possible, often too small for the working qualities. In everyday practice 3/16" and 1/4" are the rule. Stone men prefer the latter because dimensions are easier to figure but it is our opinion, after checking many joints on a building, that 3/16" should be specified if a thin joint is wanted and the stone is fine texture with a smooth or fine tooled finish. This size permits a sufficient bed of mortar between the stones, and if slight variances occur in their sizes, which do because of the inability to work the material to small fractions of an inch, these variations are less noticeable in 3/16" joints than in 1/4".

Truthfully, horizontal joints tend to run oversize and vertical joints run under. Occasionally 3/8" joints are wanted, but unless the material is suitable, like marble, or the joints are in sculpture, we don't believe they work out practically. With gang saw finishes and some hand-tooled surfaces, the joint sizes run up to 3/4" and in cases where the ashlar is broken to sizes they may be as large as 3/4".

Unfortunately jointing in sculptured work is often disappointing, for sculpture is habitually designated on the plans with an apologetic note, something like "Leave stock for sculpture" or "Sculpture—see later detail" because the subject has not been approved, accepted or decided. Frequently the stone is set before the motive has been settled and in this case it is always advisable to confer with the stone contractor so that large stones and small joints can be secured, as joints have an unhappy manner of coming in wrong places. An instance is recalled where each of three figures in the same panel had a vertical joint splitting its face as accurately along the nose as Mr. Tell split the apple. The jointing of the sculptured frieze in the Liberty Memorial at Kansas City by Mr. Magonigle is excellently laid out. By slight humoring on the job, the carver will hide most of the joints.

In dimensioning stonework the heights are measured from "bed to bed"; that is, from the top of one stone to the top of another. Dimensions on details should be the same. Horizontal lengths are figured from the center of the joints. Mr. Egerton Swartwout furnished us with the interesting detail, Figure 2, which he made of the Missouri State Highway Dept. Building. At the first glance one sees that a large portion of the rusticated base course and a still greater percentage of the plain ashlar field is typical in size, i.e. 2'-2" x 1'-0". The arch stones are equal and the headers are carefully dimensioned. Mr. Swartwout says that these stones more or less happened to work out at these sizes, but the important point is that by the application of a few dimensions every stone estimator
FIGURE 3—PORTION OF ARCHITECT'S 3/4 INCH SCALE STONE DETAIL DRAWING
YALE UNIVERSITY ART MUSEUM, EGERTON SWARTWOUT, ARCHITECT
STONE AND THE DRAFTSMAN

will be impressed immediately by the fact that a great number of typical stones exist; which means simplification in ticketing, listing, and making patterns in the drafting room, of handling in the shop and setting on the building. We venture that the prices in connection with all items of stonework shown on this building were the best obtainable and we also think that many items, such as this, which escape draftsmen, are worth while and tend to give the stone contractor a better insight into what he be required to do if he obtains the contract. For example, voussoirs in many arches, particularly Gothic, vary in size, but instead of actually making all the stones different, several typical ones can be made and the variation secured by shifting their location in the arches.

The areas of ornamental portions that are to be carved should be defined on scale-details and some idea of the character of the carving given, but on full-size details it is a waste of time to do elaborate drawing for work to be modelled since this binds down the modeller and is later confusing when models are completed. Wherever models are wanted for ornament it is a good scheme to number them in the approximate numerical order in which they will be required in the building and to define each area to be modelled by a line enclosure on the plans. If mouldings such as pediments occur within these limits, it is most advisable to describe in the specification or by note on the plans whether or not these are to be included with the model. Sometimes both carving and modelling contracts are let directly by the architect. If the former is done during the construction of the building it is better for its progress to have these contracts let by the general contractor, for the time schedules of many other trades hinge on the work of these artisans; but unless their contracts are made directly with the general contractor, he is not legally recognized by them and sometimes, for this reason, he finds it difficult to secure their cooperation.

Where letters go, indicate the number, kind (incised or raised), and the size. Have we ever carefully lettered in the word "Suscription" and hopefully expected it to cover any wording from "Let there be Peace" to a list of the names of the building committee?

The contracts for the windows and stone in a building ought to be let immediately after excavation, foundations, and steel. We include windows with stone to lay emphasis on the fact that the type must be decided so their sections can be incorporated in the

FIGURE 4—STONE COMPANY'S DRAWING FOR BRIDGE, YALE ART MUSEUM
MADE FROM ARCHITECT'S DRAWING SHOWN OPPOSITE

[215]
full-size details for the information of the stone contractor in manufacturing sills, lintels, and joints. So far nothing has been said about full-size details. Faults of many are their unwieldy large size, the showing of unnecessary information, and the delay in preparation.

Details are often made in single sheets and when unrolled they look as long as a rug in a hotel corridor. This size is inconvenient to handle, the drawings become torn and ragged, and as a consequence the stone draftsman immediately tears them into convenient sizes for his use. It would be of assistance to contractors in handling large full-size drawings if the draftsmen would put the drawing number in each corner of the drawing. It is not necessary to take time to make beautiful figures, but use a black Blaisdell pencil which will make the numbers plain on the blue prints. This not only allows one to tell by a glance at any corner what drawing it is, but if a corner becomes torn off there is always a number left.

What we meant in saying that full-size details show too much information is this—the most time in the preparation of drawings should be applied to working out complete, scale details, preferably 3/4" scale, so that 1/16" on a common rule will mean one inch. Full-size details are only supplementary to these and should indicate only what cannot be put down at a small scale, for instance the full size of moulds. Good scale details are frequently made and then followed with unnecessary duplication of sections, like the backside of cornices, on the large drawings. The inclination to see and think in units of small scale influences the draftsmen at times to full-size moulds too small for cutting in stone and with sharp interior corners that are impossible to cut. The character of mouldings is improved by allowing the corners to be very slightly rounded, which produces a softening effect to the lines and relieves that hardness which extremely sharp arrises produce. The contours of moulds ought to be drawn in sharp narrow lines because better patterns can be made from following a thin line than a heavy sketchy one whose thickness will cause the shape to vary.

Stone shop drawings are customarily drawn at ½" scale in ink on tracing cloth. While the usual procedure is to draw
and submit them for approval in the order of the requirements for stone in the building, it does not necessarily follow that all stones will be manufactured in this sequence, for the reason that stock is sawed with the idea of obtaining as many small pieces as possible from the waste of the larger.

The actual making of shop drawings is only a small part of the stone draftsman's work. Figure 3 illustrates an architectural detail that the company used in conjunction with the general plans for preparing the shop drawing shown in Figure 4. The stone represented by this drawing is a mixture of two Ohio sandstones, one has been shaded in so the architect could study the distribution and to facilitate the handling in the shop and the setting on the building. After a drawing like this is approved, the draftsman makes the corrections, rechecks the dimensions, and numbers the pieces from left to right, beginning at the lower left-hand corner of each elevation. Following this he tickets and lists each piece and cuts the patterns—all are guides in the manufacture. On intricate work such as domes, tracery, circle on circle arches, ramps and twists, expert knowledge of stereography is required to lay out work so the patterns can be made and the information listed for the men in the shop to follow. The cost of drafting is one of the largest operating expenses in the stone industry, and on intricate work the cost per cubic foot often exceeds that of the rough stock.

Figures 5 and 6 show a shop ticket and schedule and while this scheme is not typical of all mills, the theory is essentially the same. Stone S85 has been taken as an example. Its ticket, Figure 5, is issued to the shop superintendent and travels entirely through the mill with the stone. The three right-hand stubs are for the use of the stone company in recording costs as a check against the estimate and for references on the costs of future work. As each portion of the manufacturing is finished the proper third is torn off, filled out and filed at the office. The ticket containing the sketch remains with the stone until shipment is made, then the shipping clerk turns it in as a record of shipment. The shop schedule, Figure 6, is a compilation of the various pieces and shows, for instance, that eight stones like S85 are to be cut. A copy is given the plant superintendent, the cutter superintendent and the shipping clerk at the time the tickets are issued and the stones put in the mill.

Simultaneous with the preparation of the ticket and the schedules the patterns are laid out. Patterns are cut from either zinc or heavy paper and numbered so that each will be identified with the proper shop ticket and stone. Figure 7 shows the two made for stone S85; pattern No. 185 is the vertical section and No. 186 is the horizontal or bed pattern. These are full size and the cutting lines are laid out on the stone from these. On some stones in complicated work as many as a dozen or more are needed.

Notice that the stone of the sill course in which S85 is located is jointed for an economical manufacture, for had vertical joints been made in the center of all the stones like No. 85 instead of one at each side, the sills could not have been planed by machine but would have to be cut by hand.

We have hastily described some of the work of the stone draftsman for the purpose of emphasizing that he has much careful work to do after the approval of the shop drawings and before the stone starts through the mill. For this reason full-size details should be furnished promptly and the shop drawings checked without delay, so there will be time to do this work. Shop drawings cannot be returned in one day and stone expected on the way the next. And now just a word about notations on corrected shop drawings—it is this, use only yellow pencils in checking because the notes show plainly against the contrasting blue print. Corrections in red hurt the eyes, and ones in white are sometimes overlooked.

As a final word let us drop this note of advice—use your stone man, for he will always be glad to assist you with detailing and clearing up many points that cause confusion in estimating and producing good work.
CONSTRUCTION OF A VOLUTE
BY MEANS OF THE TANGENT BOX

FIGURES 1 TO 6 FOR "THE GREEK SPIRAL"
THE GREEK SPIRAL

By Richard S. Buck, Jr.

OF THE ARCHITECTURAL DETAILS left to us by the Greeks, one of the most interesting and widely used is the Ionic volute. By the same token, it is one of the most difficult to draw satisfactorily. The Greeks, who had been using spirals for ornament since the Stone Age, drew these curves freehand; if you doubt this, look at the Sardis cap in the Metropolitan Museum of Art.

The Romans preferred not to trust the hands and eyes of their draftsmen for details so prominent as the volutes of Ionic caps, and devised a geometric scheme for laying out the volutes with compasses. This scheme has been handed down to us by the Roman Kidder, Vitruvius, and further elucidated by Vignola.* Its disadvantages are, first, that it is not readily adaptable to volutes of varying proportions,† and secondly, that in order to draw a successful volute by it, one needs a wire-drawn accuracy of drafting of a sort that is otherwise useful only for solving problems in graphic statics. (If you have ever “drawn the Orders” in school you have doubtless sweated blood over this foolish little graphical problem, and I doubt if you were a better architectural draftsman for your pains.) Then, too, a compass-drawn curve can never have the life of a freehand curve.

A mathematically trained modern is tempted to say, “Why not devise an equation for the sort of curve you want, and then plot, by points, a line that shall have at least the cold beauty of things mathematical?” As a matter of fact, this has never been done. The conditions that the volute-spiral must fit, when expressed mathematically, form a nasty problem in differential equations.

The best working scheme in general use, then, is the freehand method of the Greeks; and a long, weary method it is, too. A good spiral is no easy thing to draw under the simplest conditions; when the conditions are as many and as rigorous as those that govern the curve of the Ionic volute the difficulty, for most draftsmen, grows of all reason. The usual compromise is to go to D’Espouy for a crib.

In the present article, I propose to explain a practical method of laying out guide-lines as an aid in drawing freehand spirals. I shall then show that this method can be further developed into a scheme for plotting a volute to fit any set of conditions that will ordinarily be given.

Given: The following conditions on an Ionic volute (see figure 1)

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1. The height, \( h + e \), from the bottom of the spiral to the bottom of the abacus.
2. The width of the spiral band at the end of curvature, \( b \).
3. The diameter of the eye, \( e ** \)
4. The condition that the spiral shall make three complete turns between the end of curvature and the point where it touches the eye.
5. The condition that the curve shall be graceful; that is,
   (a) That the spiral shall look round
   (b) That the band shall increase steadily in width from the eye outward to the end of curvature.
   (c) That the spiral shall be free from bumps and depressions.
   (d) That the curve shall not hug the rim of the eye too closely near the beginning.

Note that the breadth over-all of the capital is regulated by the placing of the volutes, not by adjustments of their form.

To construct a series of tangent straight lines boxing in the curve of the proposed volute.

Procedure by use of tables.
1. On the elevation of the capital, lay off the bottom line of the abacus, \( AB \), and the vertical line, \( AC \), tangent to the outside of the spiral. The latter marks the extreme width of the capital.
2. From tables I-V, choose the spiral whose proportions are closest to that which you intend††. Note that in these tables, the value \( h' \) is the height of the spiral less the diameter of the eye, \( "e" \); the size of the eye can be assumed independently of the other proportions. Its diameter is usually about one-half the maximum width, \( o \), of the spiral band.
3. On the same table multiply each of the values by the value of \( \frac{1}{h' + e} \) on your proposed spiral. A 10-inch slide-rule gives ample accuracy for this process. Thus, if the height of the spiral, less the diameter of the eye, is 9\(\frac{3}{4} \) inches, all values are to be multiplied by 9,75.
4. On the elevation, lay off the horizontal line \( FG \) a distance down from the line \( AB \) equal to \( r_{12} + \text{radius of eye} \)—(see figure 4.)
5. On the elevation, lay off the vertical line \( DE \) a distance from the line \( AC \), toward the axis of the column equal to

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*This is the method so ably discussed by Mr. Egerton Swartwout in the January, 1928, issue of "Architecture."
†The Greeks varied the proportions of their volutes noticeably. Contrast the volute of the interior columns of the Propylaia at Athens with the volute of the Temple of Athena Pallas at Priene.
††The entire range of variation in the main proportions of volute spirals is slight, the variation from one spiral of our series to the next is barely perceptible.
PENCIL POINTS

AUXILIARY DIAGRAM
TO CONSTRUCT SPIRAL OF ANY HEIGHT

Fig. 7

Fig. 8

Fig. 9

Fig. 10

Fig. 11

Fig. 12

Values $e, r_{12}, r_{10}$ etc. correspond to a value of $h$ equal to unity.
Values $e', r'_{12}, r'_{10}$ etc. correspond to the value of $h$ desired.

Figures 7 to 12

[222]
THE GREEK SPIRAL

\[ r_{15} + \text{radius of eye} \] (see figure 4.)

Then, FG and DE meet at O, the center of the eye (Figure 2).

6. Draw the eye, and through the center O draw lines at 45° (Figure 3); you now have four diameters of the eye, extended.

7. On the four diameters lay off, outward from the circumference of the eye, the distances \( r_1, r_2, r_{13}, r_{20} \), etc., shown in figure 4, giving the points \( \frac{1}{2}, 1, \frac{1}{2}, 1, \frac{2}{2} \), etc.

8. Through each of these points draw a line normal to the diameter, giving a spiral box as shown in figure 5.

9. Draw the spiral, tangent to all the sides of the spiral box. The points of tangency are undetermined; they are not the plotted points \( \frac{1}{2}, 1, \frac{1}{2}, 1, \frac{2}{2} \), etc.

To avoid the use of the slide-rule in laying out the spiral box, we can construct a graphic diagram. Tables I to V are figured for a spiral of unit net height. This unit we can take as any quantity which we can easily divide by means of a scale into tenths and hundredths. If you have an engineer’s scale, 10” will be convenient.

To construct a diagram for a spiral of the proportions you have chosen, turn to the proper table, and

1. Along a vertical line, lay off the \( r_{15} \) of that spiral from the table in terms of the unit that you have chosen, (10”) - 12H in figure 7.

2. Below this, lay off the diameter of the eye, \( HI \), in the same terms.

3. Below this, lay off \( r_{15}, r_{20}, \) and \( r_{10} \) in the same terms, each measured downward from \( I \).

4. Likewise, lay off \( r_8 \) and \( r_5 \), each measured upward from \( H \) (\( r_{12} \) brings us back to the initial point 12). (Fig. 8).

5. Through a point \( O \), midway between \( H \) and \( I \), draw a horizontal line; on this lay off the distance \( OP \) equal to the line 12, 10, which is the gross height of the unit spiral. (Fig. 9).

6. Draw the lines \( P_1, P_2, P_3, P_4, P_5, P_6, P_7 \), etc. (Fig. 10).

7. Along \( P_iO \), lay off \( P_iO' \) equal to the gross height of your proposed spiral. Through \( O' \) draw a vertical line cutting \( P_{12} \) at 12', \( P_8 \) at 8', etc. then 12', 8', 4', \( H' \), 1', 2', 6', and 10' all have the same spacing along 12', 10' that they should have on the vertical diameter of your proposed spiral. (Fig. 11).

Draw similar diagrams (as in Fig. 12) for the graduations of the horizontal and oblique diameters. Note that in every case the distance \( OP \) is equal to the gross height of the unit spiral, and \( O'P \) is equal to the gross height of the proposed spiral, just as in the first case. Once such a set of diagrams has been constructed at reasonable scale, it can be used for constructing spirals of any size.

MATHEMATICAL THEORY OF THE TANGENT BOX

It is assumed that the plotting points—\( \frac{1}{2}, 1, 1\frac{1}{2}, 2, 2\frac{1}{2}, \) etc. lie along a spiral whose polar equation (in general, \( r = f(\Theta) \)) is of simple form. If this spiral is not the volute curve itself—it is merely a device for plotting the tangents to the volute.

The pole is assumed to be at the center of the eye. The initial line \( (\Theta = 0) \) extends vertically upward from the center of the eye.

On a left-hand volute like the one shown, positive values of \( \Theta \) are measured clockwise.

Positive values of \( r \) are measured outward from the rim of the eye; at the rim, then, \( r = 0 \). (This notation is a matter of convenience).

The unit value of \( \Theta \) is 90°; that is, at the end of one turn, \( \Theta = 4 \). The value of \( r \) corresponding to any value of \( \Theta \) will here be given with that value subscript: e.g. \( r_4 \) = value of \( r \) when \( \Theta = 4 \).

We assume arbitrarily that the equation of the spiral is of the form, \( r = m\Theta + n\Theta^2 + l\Theta^3 \).

A curve of this sort may be termed a spiral of mixed type; by adjusting the coefficients \( m, n, \) and \( l \), it may be modified to suit a variety of conditions.

The equation \( r = m\Theta \) gives a spiral (Fig. 14) whose curving band increases in width for the first turn, and beyond that section remains uniform.

The equation \( r = n\Theta^2 \) gives a spiral (Fig. 15) whose curving band increases in width continuously; for the first quarter turn, however, it is excessively narrow; that is, the inner part of the spiral hags the rim of the eye too closely.

The equation \( r = l\Theta^3 \) gives a spiral (Fig. 13) whose band increases rapidly in width for the first turn, and then diminishes. The diminution is rapid at first and then slows gradually, until the width of the band becomes almost uniform.

Each of the terms of our proposed equation impresses some of its own character on the curve. The term \( n\Theta^2 \) provides the increase in band width that should characterize the volute; the term \( m\Theta \) prevents the increase from being excessive, while the term \( l\Theta^3 \) provides width for the band near the beginning of the curve.

The constants \( m, n, \) and \( l \), in equation (1) are determined by certain of the conditions which we gave at the beginning of this article, and which can be expressed as algebraic equations.

From the assumed form of equation (1), it follows that

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***The diameter of the eye on the unit spiral is found by proportion:

\[
\frac{\text{Diameter of eye, unit spiral}}{\text{Diameter of eye, spiral on drawing}} = \frac{\text{net height, unit spiral}}{\text{net height, spiral on drawing}}
\]
**PENCIL POINTS**

**LOCATION OF SIDES OF SPIRAL BOXES**

Net Height = Gross Height Minus Diameter of Eye

\( \theta = \text{Serial Number of Point} \)

\( r = \text{Distance of Point From Rim of Eye} \)

**Net Height = 1.00**

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<td>( r )</td>
<td>( \theta )</td>
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<table>
<thead>
<tr>
<th>No. IV - Width of Band = 0.31</th>
<th>( r_1 = -0.4965 )</th>
<th>( r_2 = -0.5848 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \theta )</td>
<td>( r )</td>
<td>( \theta )</td>
</tr>
<tr>
<td>1/4</td>
<td>-0.0077</td>
<td>1</td>
</tr>
<tr>
<td>1/2</td>
<td>-0.1004</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>-0.3071</td>
<td>9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No. V - Width of Band = 0.32</th>
<th>( r_1 = -0.4963 )</th>
<th>( r_2 = -0.5882 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \theta )</td>
<td>( r )</td>
<td>( \theta )</td>
</tr>
<tr>
<td>1/4</td>
<td>-0.0086</td>
<td>1</td>
</tr>
<tr>
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<td>-0.0936</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>-0.3011</td>
<td>9</td>
</tr>
</tbody>
</table>

**TABLES I TO V FOR PLOTTING SPIRAL BOXES**

[ 224 ]
(2) $r_0 = 0$; this equation starts the curve at the top of the eye.

(3) The net height, $h = r_{10} + r_{12}$. (See Fig. 4) that is

$$-10m + 10^2 n + 10^4 l$$

$$+12m + 12^2 n + 12^4 l = h$$

This equation makes the first three turns of the volute fit in the desired height.

The width of the band at the end of curvature, $b = r_{12}$; (See Fig. 4) that is

(4) $b = 12 m + 12^2 n + \sqrt{12} l$

$$- 8 m - 8^2 n + \sqrt{8} l$$

(5) $r_{11} = 1m + 1^2 n + \sqrt{1} = m + n + l$

The value of $r_1$ is chosen; it is made just large enough to keep the spiral clear of the eye near the start. The choice of this value is a matter of design. The mathematical form of the equation insures that the spiral shall look round.

These three independent equations, solved simultaneously, give us the values of the constants $m$, $n$, and $l$, in terms of the assumed dimensions, $h$, $b$, and $r_1$, and numerical coefficients.

These equations are

(6) $m = 0.188284 h - 0.56314 b - 0.88966 r_1$

(7) $n = 0.0079815 h + 0.036472 b + 0.02970 r_1$

---

**Table 2**

<table>
<thead>
<tr>
<th>$\theta$</th>
<th>$\delta$</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0^\circ$</td>
<td>0.1</td>
<td>0.2</td>
<td>0.3</td>
<td>0.4</td>
<td>0.5</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>$90^\circ$</td>
<td>0.7</td>
<td>0.8</td>
<td>0.9</td>
<td>1.0</td>
<td>1.1</td>
<td>1.2</td>
<td></td>
</tr>
</tbody>
</table>

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**Table 3**

<table>
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<tr>
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<th>$\delta$</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0^\circ$</td>
<td>0.1</td>
<td>0.2</td>
<td>0.3</td>
<td>0.4</td>
<td>0.5</td>
<td>0.6</td>
<td></td>
</tr>
<tr>
<td>$90^\circ$</td>
<td>0.7</td>
<td>0.8</td>
<td>0.9</td>
<td>1.0</td>
<td>1.1</td>
<td>1.2</td>
<td></td>
</tr>
</tbody>
</table>

---

![Fig. 13](image1.png)

$r = \theta^{1/2}$

![Fig. 14](image2.png)

$r = m\theta$

![Fig. 15](image3.png)

$r = n\theta^2$
With the aid of these equations, then, you can assume the following dimensions of your volute independently.

- Height, $h$
- Width of band, $b$
- Diameter of eye
- Distance of point No. 1 from rim of eye, $r_1$

There are, however, certain limitations on the choice. The value $r_1$ should be about one-fiftieth the net height of the spiral from the bottom of the band, that is

$$r_1 = 0.02 (h - b) = 0.02 (r_8 + r_{19})$$

If we assume this value, spirals of good shape can be plotted where the band $b$ is relatively wide, (up to 0.32 $h$); if, however,

$$r_1 = 0.02 (h - b),$$
and $b = 0.2924h$, then $l = 0$.

For lower values of $b$, $l$ then becomes negative, and the curve does not work. Accordingly, we let $r_1$ take care of itself (in spiral of this type it does not tend to be too small) assume only $h$, $b$, and the diameter of the eye. Then we assume that the curve is of the form,

$$r = m\theta + n\theta^2$$

By the same methods as before, we find

$$m = 0.102041b - 0.311224b$$
$$n = 0.0051020b + 0.028061b$$

The method of figuring these spirals by these two sets of formulas is shown in tables 2 and 3. Of the spirals in table 1, Nos. I and II are based on equations (10) and (11), and the rest on equations (6), (7), and (8).
In this plate as well as on the other color plate of this issue we have reproduced a water color sketch by Camille Étienne Grapin whose work is the subject of the leading article in this issue. This drawing is notable for the free use of color and although it is a little indefinite as to form it succeeds in conveying the impression of autumn foliage in an admirable way. The color was applied from a full brush and was worked wet with the result that there is hardly a square quarter of an inch of it without gradation both in color and intensity. The student of rendering can learn much from this plate about the production of pleasing color harmonies. The original measured 12" x 9½" and was drawn on egg-shell paper.
AUTUMN LANDSCAPE, BURGUNDY
WATER COLOR BY CAMILLE ETIENNE GRAPIN
EGLISE ST. PIERRE, AVIGNON
WATER COLOR BY CAMILLE ETIENNE GRAPIN
The original of this sketch by Camille Étienne Grapin measured 9 1/2" x 13" and was drawn on a sheet of plain white, smooth, water-color paper. Notice that the buildings in the foreground at the left were sketched in with a soft carbon pencil, while the church itself was lightly drawn with a red pencil before the color was applied. While this sketch is not, in the accepted sense, an architectural rendering it will repay study by renderers of the way in which the color is used to gain atmospheric perspective and to concentrate interest on the principal element of the composition. Both this and its companion in this issue should also be of help to the student of outdoor sketching with water colors.
FROM THE DRY POINT BY SAMUEL CHAMBERLAIN
CATHEDRAL SPIRES, ANGERS

PENCIL POINTS
We have reproduced here a recent drypoint by Samuel Chamberlain, who is still abroad recording on copper, zinc, and stone his impressions of picturesque European architecture. The present example was done on copper and measured 5½" x 9". It was printed in a rich warm ink.
FROM A PENCIL SKETCH BY A. THORNTON BISHOP

CHURCH OF S. GIOVANNI DELLA CATACOMBE, SYRACUSE, SICILY

PENCIL POINTS
Drawn on Cameo paper with a graphite pencil, this sketch by A. Thornton Bishop furnishes a good example of the sure, crisp technique which marks all his work in this medium.
"These finely sculptured pulpits, or Ambos, are said to have been executed by an Italian sculptor in the year 1529, and, together with the connecting screen, form the east end of the choir. The other portions of the 'resaldo del Coro' were entrusted to Juan de Segrera, whose design for the west portal of the choir shows more Spanish than Italian influence. The sculptured subjects in the square panels around the pulpit are deeply cut, and the ornament shows great spirit.

"A small key plan is added to explain the general arrangements."

A. L. Prentice
TEMPERA EMULSION PAINTING BY FRANK SCHWARZ

FOR THE HOLY NAME ALTAR OF THE CHURCH OF ST. VINCENT FERRER, NEW YORK

PENCIL POINTS
This painting was done on wood in brilliant primary colors for the Holy Name Altar of the Church of St. Vincent Ferrer, New York. Wilfred E. Anthony was the architect for this altar; the church itself is well known as the work of the late Bertram G. Goodhue. The painting measures about four feet in length. The figures of which it is composed were drawn from studies of splendid types found in a hill town in Italy.
In a book review in the New York Herald-Tribune gives the architect a hint as to the effect of his buildings on the passer-by:

"The average city dweller has a secret contempt for the conglomeration of styles and gingerbread on the city street, which gives him a headache, so that he closes his eyes in self-protection. We don't really see our buildings; we don't care much about them. Only at night, from a distance, when the 'architecture' becomes invisible, and the logic of the masses stands forth in great simplicity, while the single decorative pattern is the crosswork of the lights, no one needs an explanation, and we are all entranced. It is then the hidden style of today shadows itself forth."

**Dr. S. Parkes Cadman, Noted preacher, answers a question in the New York Herald-Tribune as to his advocacy of better church architecture:**

"A philosopher in speaking of architecture called it frozen music. Goethe corrected this saying by calling architecture speechless music. Strong, silent, changeless beauty of structure consistent with the purposes for which it is designed is not a spiritual necessity, but it is a splendid incentive to spirituality.

**Dr. W. H. P. Faunce, President of Brown University, at a rocking-chair meeting of the Rhode Island Chapter of the A.I.A.:**

"Because America is getting the taste, a glorious opportunity is presented to American architects. A great challenge, also, is presented. American architects must avoid the penalty of extremes in their forthcoming efforts to create a truly American style of architecture.

"Our American architects must be original, but they must not be eccentric or fantastic. Such things are not originality, they are audacity."

"The work of the architect is dangerously permanent. Architecture is not as the art of the musician, that is over after a song, nor as the art of the orator, which is gone at the end of a speech. Our buildings will endure for centuries; perhaps for a thousand years."

---

**Goldwin Goldsmith, Professor of Architecture and head of the architectural school of the University of Kansas, speaking before the Wisconsin Chapter of the A.I.A., gives his listeners some good advice:**

"You needn't resent it if architects come in from other cities to do work here.

"It is not at all detrimental if that thing happens. Perhaps other architects will be able to show you a few new ideas, and they may give you something worth looking at."

**Mrs. Robert C. Morris, Of Toledo, Ohio, in an address to four hundred women of that city, points out the desirability of cultivating public interest in architecture through observation of local buildings:**

"Though we may never visit Rome or Greece, there are in Toledo buildings which show the influence of ideas which live and blossom in beauty all around the world. When our eyes are upon these buildings, why not form the habit of tracing them back to their sources?"

---

**In a syndicated newspaper article, advances a picturesque argument for the employment of an architect by the home-builder:**

"Take for example, a porch column. Its business is to hold up the roof of the porch. It can be made of a sawn stick of timber, or even an old galvanized iron pipe, and perform its work in a practical manner. But will you be satisfied with such a column? No, not any more than you would be satisfied to see the pet canary lose its neck feathers or the favorite cat drop all of the fur from its legs. A raw, skinny neck on a canary may function, and so may the furless legs on a cat, but the eye that can stand such a sight is truly hardened.

"For the same reasons a porch column must be more than a structural thing. It must look well, and have a graceful form. As soon as we demand this of it, we must find someone who can make it pleasant to look upon. Who can do this? The carpenter, the mason or the town contractor? No. An architect and artist."

---

**Ralph Adams Cram, "The Gothic architect of America," tells the American Club in Paris to be of good cheer as to the condition of the art of architecture in this country:**

"The arts of the world are suffering an eclipse. Creative music has almost ceased. Painting has fallen back and sculpture is in almost the same condition.

"Ten years after the Civil War American architecture had reached the lowest depths of degeneration. There has been no parallel to the American architecture of that period in all history.

"Today, however, it is on a higher level than that of any other country in the world. The change for the better began with Richardson and McKim, and now there are, in ecclesiastical work alone, thirty or forty men doing excellent things."

---

**Douglas Haskel, In a book review in the New York Herald-Tribune gives:**

"The work of the architect is dangerously permanent. Architecture is not as the art of the musician, that is over after a song, nor as the art of the orator, which is gone at the end of a speech. Our buildings will endure for centuries; perhaps for a thousand years."

---

**Architects' Small House Service Bureau, In a syndicated newspaper article, advances a picturesque argument for the employment of an architect by the home-builder:**

"Take for example, a porch column. Its business is to hold up the roof of the porch. It can be made of a sawn stick of timber, or even an old galvanized iron pipe, and perform its work in a practical manner. But will you be satisfied with such a column? No, not any more than you would be satisfied to see the pet canary lose its neck feathers or the favorite cat drop all of the fur from its legs. A raw, skinny neck on a canary may function, and so may the furless legs on a cat, but the eye that can stand such a sight is truly hardened.

"For the same reasons a porch column must be more than a structural thing. It must look well, and have a graceful form. As soon as we demand this of it, we must find someone who can make it pleasant to look upon. Who can do this? The carpenter, the mason or the town contractor? No. An architect and artist."
RENDERING BY HUGH FERRISS, WINNING DESIGN FOR THE NEW SAN FRANCISCO STOCK EXCHANGE

J. R. MILLER AND T. L. PFLUEGER, ARCHITECTS, SAN FRANCISCO

(See text on page 238)
THE NEW SAN FRANCISCO STOCK EXCHANGE
MILLER AND PFLUEGER, ARCHITECTS

THE DESIGN for the new building for the San Francisco Stock Exchange, reproduced on the preceding pages, was selected by a competition conducted under the rulings of the American Institute of Architects.

Five San Francisco architects were invited to compete, and were paid for their time. The architects selected were Arthur Brown, Jr., Bliss and Fairweather, Weeks and Day, Lewis P. Hobart, and Miller and Pflueger. The drawings demanded were few, and of a small scale, and in addition to two rendered elevations, a most sensible thing was done in the call for a monochrome perspective. The jury was composed of two architects from Portland and Los Angeles, respectively, with one juror only to represent the Owners, San Francisco Stock Exchange. As the verdict was unanimous, it follows that the selection rested finally with the profession, and was outside and practically independent of the Owners.

As the lot is small, and the requirements of the Exchange quite definite, all the plans were in rather close accord. The layout seemed self-evident. For all that, the winning design was the most straightforward.

Of the plan, it is not necessary to go into detail, other than to point out that the two large room units are placed in the rear on top of one another, the Trading Room on the ground floor, and the Gymnasium directly over it. The smaller rooms occupy the front part of the lot with five stories, instead of two.

The winning design, with three bays on Montgomery and seven bays on Summer Street, is divided vertically into three distinct stages; a base for the first story, compound piers making one high architectural story out of the four real ones, since no masonry crosses the window heads; and finally, a very deep frieze, in reality a super-firewall, twenty feet high, the inside of which does service for a group of handball courts on the roof. The exterior fenestration, apart from very small openings in the base, consists of high vertical slots without more horizontal interruption than is necessary to define a grilled window screen from the same metal screen where it is panelled at the dado, or perforated at the sash.

Regarding the entrance framework, an earlier study of the architects' which we were privileged to see, showed a plainly bordered square-topped scheme upon which a group of heroic sculptured figures gave a truly magnificent "uplift," in a purely pictorial and not ethical sense (for the benefit of Mr. Menken) without at all suggesting, as the present scheme does, anything whatever held over from architectural antiquity.

The entire "basement" story, of which this is separate detail, is, we think, very splendidly conceived; the whole symbolic frieze incised in a field of polished black granite would, we might almost hope, cause traffic disturbances, especially if an eminent sculptor handled the subject more or less "in modo antico."

The logical opportunity to substitute diagonal corners of stone instead of the tinesome edges squared with the building has here been seized upon with most refreshing and stimulating results, because absolutely new to the eye and capable of splitting all incident light into sparkling brilliance on one side of the thin front edge, and into deepest shade on the other, with what remains parallel to the street line in a medium tone and the splayed jams of the window openings in still another shade.

The windows differ completely from all the office windows we have ever seen. They are no longer small, dark rectangles of glass, but large, bright rectangles of grille-work. We understand that if the stonework is carried out in polished green granite, the grille will be done in silver; that is, some type of white metal. If, however, a green polishable stone is not available, a polished pink granite may be substituted with the metal work of Pompelian green. In any event, the color scheme will be both new and entrancing.

The very deep frieze band, or head, of the building, will again strike an unusual note in its utter freedom from anything like an overhanging cornice. This, again, is in line with sheer logic.—B. J. S. Cahill.

PRIZES AWARDED IN COMPETITIONS FOR WAYSIDE REFRESHMENT STAND

DESIGNS SUBMITTED in the Competitions for a Wayside Refreshment Stand were judged on March 17th and the following prizes awarded:

Group I—A Refreshment Stand.
1st Prize, $500. to William E. Frenaye, Jr., New York; 2nd Prize, $400. to Franklin Scott, New York; 3rd Prize, $300. to Laurence Doubleday, Itahca, N. Y.; 4th Prize, $200. to James A. Britton, Boston, Mass.; 5th Prize, $100. to Burton A. Bugbee, Itahca, N. Y.

Group II—A Refreshment Stand and Gas Station.

The members of the jury were A. F. Brinckerhoff, Harvey Wiley Corbett, George B. Ford, Ely Jacques Kahn, and Eleta C. Litchfield.

The first prize winning drawings are reproduced on Pages 240 and 241.

In commenting on Mr. Frenaye's design the judges said:

"The first prize is outstanding for its appropriateness and beauty of design. It needs no signs to show that it is a roadside stand. Its rustic character would make it seem in harmony along any roadside. The plan is delightedly simple and straightforward, and exceptionally economical as to construction. It has distinct charm, both inside and outside."

And quoting from the judges' report on Mr. Cobb's design:

"The first prize-winner stands out from all the drawings submitted in both competitions for its sheer charm. It is delightfully simple in design, excellent in proportions, and most economical in planning and construction. The interior arrangement is particularly interesting. The gas station features are extremely practical in their handling. The building is especially suitable of reproduction in series."

These competitions were the second of a series of four in a campaign initiated by Mrs. John D. Rockefeller, Jr., to improve the appearance of the wayside refreshment stands. The campaign is sponsored by The Art Center of New York and The American Civic Association of Washington, D. C., and is supported by contributions from Adolf Gobel Company.

The winning drawings in both groups are to be published and a set may be had for ten cents upon application to the Secretary of Competitions, The Art Center, 65 East 56th St., New York.
The design of roof trusses is characterized by the use of one 8-inch Carnegie beam for each top and bottom chord with flanges vertical; to the outer surfaces of which are welded channel diagonals and to inner surfaces 7-inch I-beam verticals. By thus welding diagonals and verticals directly to chord flanges the use of over 1,200 gusset plates were avoided in the trusses. Another feature is the absence of lattice bars, not only in all trusses but generally throughout the building. In only two members in the entire building were lattice bars used.

The fillet welds, of triangular cross section with base and altitude generally ¾ inch each, are subjected to longitudinal shear, and the unit shearing stress used in the design is 3,000 pounds per linear inch for ¾-inch fillets. In comparison with many tests made by the General Electric Company this represents a factor of safety of at least four.

At the Trenton fabricating shop five welders were generally used, each using a single operator motor generator set which consists of a generator, control panel, motor, starter and reactor assembled on a base. At the building site in West Philadelphia two welders were used each supplied with a machine brought from Trenton and made portable by mounting on simple hand trucks.

The design of this building was based in part upon tests made by Rensselaer Polytechnic Institute for the General Electric Company. The plates were of such sizes and thicknesses that at the ultimate loads the stresses in the plates were much below the elastic limit. For specimens in tension the ¾ inch x ¾ inch triangular fillets of varying lengths gave an average longitudinal shearing strength of 13,300 pounds per linear inch of fillet; whereas, compression specimens with varying lengths of ¾ inch x ¾ inch fillets gave from 17,800 to 15,800 pounds ultimate shearing strength per linear inch of fillet.

It is apparent that the 3,000 pounds per linear inch used in design for this building gives ample security.

PRODUCERS’ COUNCIL

The Fifth Annual Meeting of The Producers’ Council, affiliated with the American Institute of Architects, will be held at the Kingsway Hotel, St. Louis, Missouri, on Tuesday, May 15th, 1928, the day preceding the opening of the Annual Convention of the Institute. Several prominent architects will address the meeting on subjects of mutual interest.

All members of the Institute are cordially invited to attend the meetings of the Council at the Kingsway Hotel, which is only one block from the Institute’s headquarters at the Chase Hotel.

ILLUMINATING ARCHITECTURE AT NIGHT

Our attention has been called during the past month to an unusual example of the use of flood lighting to illuminate architecture and to make it more effective at night. The building in question is the new Edison Building of the Philadelphia Electric Company, designed by John T. Windrim, Architect. By a system worked out by the engineers of the Pittsburgh Reflector Company and the A. Hopkin, Jr. Company of Philadelphia, the tower is now illuminated at night in changing colors applied by a wash lighting system involving the use of white and colored light. By means of this system scores of combinations of color are available. The constantly shifting tones of color and light make this building the most prominent spot in the skyline of Philadelphia at night.
PRIZE WINNING DESIGN IN THE COMPETITION FOR A WAYSIDE REFRESHMENT STAND

WON BY WILLIAM E. FRENAYE, JR., NEW YORK, N. Y.

(See text on page 238)
NOTES FROM THE DETROIT ARCHITECTURAL BOWLING LEAGUE

Another month has passed with but few changes in the standings of the teams. McGrath & Dohmen, and Smith, Hinchman & Grylls have completely outclassed the field this year and most of the interest is centered on the race for third place.

Just now it seems quite probable that we shall increase our membership before next season starts. Letters have been sent to most of the architects in the city who are not already represented, asking if they would care to enter the League. Several firms have already signified their intention of putting in a team in case it can be worked out advantageously to all concerned. It has been suggested that we add six teams and divide the new League into two eight-team sections.

The standings of the teams on March 10th were as follows:

<table>
<thead>
<tr>
<th>Team</th>
<th>W</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>McGrath &amp; Dohmen</td>
<td>51</td>
<td>18</td>
</tr>
<tr>
<td>Smith, Hinchman &amp; Grylls</td>
<td>47</td>
<td>22</td>
</tr>
<tr>
<td>Albert Kahn</td>
<td>34</td>
<td>35</td>
</tr>
<tr>
<td>Frank H. Nygren</td>
<td>34</td>
<td>35</td>
</tr>
<tr>
<td>Louis Kamper</td>
<td>33</td>
<td>36</td>
</tr>
<tr>
<td>Donaldson &amp; Meier</td>
<td>32</td>
<td>37</td>
</tr>
<tr>
<td>Malcolmson &amp; Higginbotham</td>
<td>32</td>
<td>37</td>
</tr>
<tr>
<td>Janke, Venman &amp; Krecke</td>
<td>30</td>
<td>39</td>
</tr>
<tr>
<td>Van Leyen, Schilling &amp; Keough</td>
<td>30</td>
<td>39</td>
</tr>
<tr>
<td>Weston &amp; Ellington</td>
<td>23</td>
<td>46</td>
</tr>
<tr>
<td>High Ind.—1 game Krecke (J. V. &amp; K.)—266</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot; &quot; —3 games Jolson (F. H. N.)—654</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Team—1 game Janke, Venman &amp; Krecke—1027</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot; &quot; —3 games Smith, Hinchman &amp; Grylls—2866</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CLEVELAND ARCHITECTURAL BOWLING LEAGUE

The present standing of the teams in the Cleveland Architectural Bowling League is as follows:

<table>
<thead>
<tr>
<th>Position</th>
<th>Team</th>
<th>Won</th>
<th>Lost</th>
<th>Pet. Ave.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>62</td>
<td>7</td>
<td>.898</td>
</tr>
<tr>
<td>2</td>
<td>Corbuier &amp; Foster</td>
<td>48</td>
<td>21</td>
<td>.696</td>
</tr>
<tr>
<td>3</td>
<td>Small &amp; Rowley</td>
<td>44</td>
<td>25</td>
<td>.638</td>
</tr>
<tr>
<td>4</td>
<td>City Architects</td>
<td>39</td>
<td>30</td>
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<tr>
<td>5</td>
<td>Warner &amp; McCormack</td>
<td>31</td>
<td>38</td>
<td>.449</td>
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<tr>
<td>6</td>
<td>Board of Education</td>
<td>31</td>
<td>38</td>
<td>.449</td>
</tr>
<tr>
<td>7</td>
<td>Chas. S. Schneider</td>
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<td>40</td>
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<td>8</td>
<td>Howell &amp; Thomas</td>
<td>27</td>
<td>42</td>
<td>.391</td>
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<tr>
<td>9</td>
<td>Meade &amp; Hamilton</td>
<td>23</td>
<td>46</td>
<td>.333</td>
</tr>
<tr>
<td>10</td>
<td>Abram Garfield</td>
<td>11</td>
<td>58</td>
<td>.158</td>
</tr>
<tr>
<td>High team (3 game) total</td>
<td>Walker &amp; Weeks</td>
<td>2710</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High team (1 game) total</td>
<td>Walker &amp; Weeks</td>
<td>979</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Individual High Single game.

1 Zaiser (Corbuier & Foster) | 246 |
2 Bradner (Board of Education) | 245 |
3 Rose (Walker & Weeks) | 234 |

Individual High (3 game) Series.

1 Schrimpton (Small & Rowley) | 659 |
2 Oram (Corbuier & Foster) | 633 |
3 Worthley (Corbuier & Foster) | 608 |

Individual High Average for Season.

1 Rose (Walker & Weeks) | 181 |
2 Schrimpton (Small & Rowley) | 175 |
3 Ventker (Walker & Weeks) | 174 |

SKETCH CLUB OF NEW YORK

The annual meeting of the Sketch Club of New York will be held on April 28th at a studio in Greenwich Village. Dinner will be served and a water color class will be conducted under the personal direction of Hughson Hawley, with entertainment by club talent. All members are requested to notify Henry C. Van Cleef, 2207 Broadway, of changes in address.

GARGOYLE CLUB OF NEW YORK

A meeting of the Gargoyle Club of New York will be held on April 17th at the Architectural League of New York clubhouse at 115 East 40th Street. The meeting, which will be "Ladies' Night," will be held under the direction of the Entertainment Committee. Dinner and a variety of entertainment will be followed by dancing.

PRATT ARCHITECTURAL CLUB

Dear Members:

The first paragraph of this month’s letter will be the important one for the members. Mr. Wm. H. Gompert, charter member of the Club and member of the Board of Governors, resigned as Architect of the Schools of New York City. In order to protect his reputation and professional standing from possible hurt (stories will start when an architect resigns such a position as this) the New York Chapter of the A.I.A. made a thorough investigation and passed a resolution in which Mr. Gompert was highly commended for the way in which his office had been run and in all that he accomplished while in office. The Club gave him a dinner and we are sure that he was thoroughly satisfied as to where he stands with us.

While we did not attend the dance the Club gave for its members, their wives and prospective wives, we heard about it. It was a success in all manner and shapes; special orchestra, a prominent broadcasting gang, lots of entertainment and dancing. The perspiring architects danced, and otherwise, at every chance they had. Trust them to get their money’s worth from a well fed orchestra. Our profs from School where there in all their native glory (and you know where some of them hail from). One of them danced the last dance with his coat on. Probably figured, after looking the gang over, that a coat on the back is worth two in the check room when neither is yours.

The membership is still increasing and it is a good bet that the third year will see a 100% jump over the second year membership total.

That the Tuesday luncheons are well received is proven by the gang at the round table. A bigger table was recently set aside for the members. Once a month they occupy the grill by themselves and listen quietly (it is possible) to a short talk by some imported speaker. The importation is to give the Club orators a rest. We never knew how many orators we had until a recent dinner. Here necessity and not opportunity knocked and we discovered that we did not have to go outside the Club for our talent unless we wanted some talk foreign to an architect—such as how to collect the last payment from the client.

If the Board of Governors does something at their next meeting we hope to be able to tell you some good inside information at the next writing.

Sincerely,

The Committee

Chairman, P.G.K.
RESTORATIONS ON THE ACROPOLIS

EDITOR'S NOTE:—On page 573 of the September, 1927, issue of PENCIL POINTS we published a letter received from Clarence Badgley, Fellow in Architecture, American Academy in Rome, concerning the restoration work on the Parthenon. Mr. Alexander Philadelphia, Curator of Archeology and former Commissioner of the Acropolis, replies to Mr. Badgley in the following letter to PENCIL POINTS, which has been translated from the Greek by T. Protopopas, of the Massachusetts Institute of Technology.

Athens, Greece
February 17, 1928

DEAR MR. EDITOR:

I was surprised to read in your distinguished magazine a letter by Mr. Clarence Badgley, Fellow in Architec­ture, American Academy in Rome, about the restoration work on the Parthenon. In so far as that letter contained inaccuracies which may harm this great work and at the same time defame my country, I shall request you to publish these few lines so that those inaccuracies be rectified, for the sake of truth and justice.

Mr. Badgley writes that he was surprised when he saw the workmen using concrete as filler, where marble could be used, and that this is a great mistake. But this is not new for the restorers of the Parthenon, because many parts of the famous temple have been finished with marble, particularly during the year of 1894, when the terrible earthquakes occurred on Good Friday. The whole western façade was in danger of falling down then. Three famous architects came to Athens at that time; Penrose from Lon­don, Magne from Paris, and Durm from Germany. They prepared plans for the restoration of that façade. New huge architraves of Pentelic marble were placed which strengthened this immortal building for many centuries to come.

Since then all the restoration work is based on that plan and all work is done on the same system of scaffolding, under the direction of Mr. N. Balanos, head of the Architectural Division of the Department of Education. Mr. Balanos has been working for thirty years on the Acropolis. Many years ago he restored many parts of the Propylaeae and of the Erechtheion, and if Mr. Badgley observed these monuments, he would have noticed that marble has been used everywhere. Recently, however, concrete has been considered more suitable. This step was approved by all archeologists of the foreign schools (in Athens) so there is no question of arbitrariness and superficiality.

Neither is it true that the restoration of the Parthenon is being paid for by American money only. As soon as our country gained its independence, the Greek nation began to restore the Parthenon. Notwithstanding the fact that the blood of our heroes who gave their lives for our independence was yet fresh, nevertheless the Greek government began the work of strengthening and renewing the most splendid temple of Greek antiquity. At that time also the small temple of Niké Apteros (Wingless Victory) was restored entirely from its foundations. The Turks had razed the building and used all its marble to construct entrenchments in front of the Propylaeae, which are called "Serpentéz." And for all this work the needy Greek nation, particularly at that time when its poverty was greatest, spent millions without asking pecuniary aid from anyone. It is only recently or about a year ago, I think, that a banquet was given in New York where many professors, friends, and admirers of ancient Greece participated. Edward Capps, professor of Greek literature and former United States minister to Greece was present, and he spoke with admiration about the work which is progressing on the Parthenon. He proposed that America contribute toward such noble effort and thus unite forever the name of the American people with the most perfect monuments of the world. Everybody showed great enthusiasm over Professor Capps' happy inspiration and welcomed his proposal. Immediately, each one present contributed various sums which resulted in a significant fund worthy of the nation which these noble lovers of Greece represent.

Such is the condition in all sincerity and truth, dear Mr. Editor, of the restoration of the Parthenon which differs substantially from that of your correspondent who throws such blame on the Greek people as if they were not taking care of their monuments and their ancestral glories. I remain,

Yours sincerely,

(Signed) ALEXANDER PHILADELPHIUS,
Curator of Archeology, former
Commissioner of Acropolis, etc., etc.

PHILADELPHIA ARCHITECTS' TOUR

In response to numerous requests from students in universities and men employed in architects' offices a special tour is being offered to those interested in architecture and the allied arts. The intent of this tour is to create an interest and further a more complete knowledge of the architectural gems of the old world by means of lectures and actual sketches made by members of the party. The tour will be under the direction of Mr. C. A. Scheuringer and Mr. E. E. Williams, who are qualified by their training and experience to instruct the members of the party in the historic background and the architectural style and development of the buildings and monuments that are to be visited. The tour leaves New York on June 30; the itinerary includes France, Italy, Switzerland, and England, returning to New York the early part of August. For additional information write to Mr. Scheuringer at 1211 Chestnut St., Philadelphia, or Mr. E. E. Williams, 9 North Avenue, Wyncoot, Pa.

PARIS SUMMER SCHOOL ART COURSES

The Department of Fine Arts of New York University, through the courtesy of the French Ministry of Fine Arts, will conduct a summer school in a quadrangle of the Louvre Museum. Nine courses will be given in English by French professors.

The school is open to both men and women and the rate of $475 each person includes tuition fees, choice of any four courses, Transatlantic passage in the Student Tourist Cabin, accommodations and meals from arrival in France to departure for New York at the end of the courses. The party will leave New York on June 16th, returning to New York on August 24th. For complete information write to the Secretary, Dept. of Fine Arts, New York University, Washington Square East, New York.

INDUSTRIAL ART SCHOOL FOR CHICAGO

The New Industrial Art School will be housed in the Art Institute of Chicago. Money is now being raised to pay the salaries of a staff of expert instructors so that the very best instruction may be offered in a wide range of industrial arts. Of particular interest to the architectural profession will be the class in Architectural Modelling, which has been made possible through the generosity of Gustav Hottinger, President of the Northwestern Terra Cotta Company.
This department conducts four competitions each month. A prize of $10.00 is awarded in each class as follows: Class 1, sketches or drawings in any medium; Class 2, poetry; Class 3, cartoons; Class 4, miscellaneous items not coming under the above headings. Everyone is eligible to enter material in any of these four divisions. Competitions close the fifteenth of each month so that contributions for a forthcoming issue must be received by the fifteenth of the month preceding the publication date in order to be eligible for that month's competition. Material received after the closing date is entered in the following month's competition.

The prize winners in the March Competitions are as follows:

Class One—William Eaton, of Cardiff, Wales.
Class Two—“Jiggs,” of New York.
Class Three—Fred H. Kock, of Cincinnati, Ohio.
Class Four—“Doc” Caulstone, of Cambridge, Mass.

“Doc” Caulstone sends us an esquisse for a built-in ash tray, reproduced on the opposite page, along with a note telling us that we should have a Competition for Bigger and Better Built-in Ash Trays. Therefore, we take pleasure in announcing such a competition. Drawings may be submitted on any kind of white paper, but must be done in black ink. Designs will be received until 5 P. M., on May 12th, and should be addressed to R. W. R., in care of this department, 419 Fourth Avenue, New York. Suitable prizes will be awarded!!

“Jiggs” poem, Beaux-Arts Building Ballad, must have been inspired by the illustrations that accompanied Francis Swales’ article in the January issue on The Competition Extraordinary.

Beaux-Arts Building Ballad
(PRIZe—Class Two—March Competition)

By “Jiggs”

Have you all seen,  
The sketches so grand,  
Made by the Patrons,  
In a four-hour stand?

If not, take a look  
At the drawings submitted,  
And you’ll see at a glance,  
Why their noses I’ve twitted.

Yet, these are not bad,  
For some you can bear,  
But think of the mess.  

Old man Hirons gets credit,  
To him credit is due,  
And there are few others  
Who have nothing to rue.

Couldn’t they think of this building  
In terms pure and simple,  
Without getting the aid,  
Of old Rip Van Winkle?

Some were not happy  
Until they had placed,  
A shopworn old detail,  
On our building’s new face.

Just look at the others,  
Made in Georgian and Greek,  
Romanesque and Grotesque,  
With minds that are weak.

Let’s be more modern,  
Away with the trash,  
The jumble, the mixup,  
Of wornout old hash.
Gerald Anthony Paul sent us two nice pencil sketches of windows, one of which is reproduced below, and some good advice on how it's done:

"Window patterns are dandy things to work out when you render buildings and perhaps a few tricks that I have picked up will make the job easier. When there are many windows on the same surface, such as an office building, work up those that fall within the center of interest and merely suggest the shadows of the openings of the others. Omit most of them—it looks better and the drawing doesn't seem to be labored. Where there are only a few—render those at the center of interest—the spot to which the eye is first attracted—subordinating all others, but do not omit any.

"Work with a round point until it has worn flat then use it to 'paint in' the shadows with a 'brush-like' stroke. Cast shadows should be light and transparent and should describe the forms on which they fall. Shadows on white surfaces are light; black tones should be saved for openings to show depth. Hide your 5B or 6B until the drawing is complete—then put the icing on the cake."
This drawing, in the words of the designer, is "An attempt to illustrate the state of mind of Christ, at the time when he, a boy of thirteen, talked to the scribes in the temple. Using his powers for the first time, he becomes conscious of them and, like an hallucination, a horrifying presentiment of his life's tragedy arises within him. This appearance marks the boundary of two worlds of thought and sentiment. Hence his head is shown between their symbols: the Thora, the scroll of laws of the ancient Hebrews, and the Cross, crudely made of twigs, as indication of Christianity dawning. Above the head as a kind of halo, threatens the crown of thorns. With its three bows it reminds of the Holy Trinity. The initials of the sarcastic inscription on the Cross of Golgotha, ‘Jesus Nazarenus Rex Judorum,” Jesus of Nazareth, King of the Jews, in connection with his own monogram are meant to characterize the tragic irony by which this Superhuman has been persecuted, that irony which is part of the fate of all mortals."
THE SPECIFICATION DESK
A DEPARTMENT FOR THE SPECIFICATION WRITER

EMERY STANFORD HALL AS A SPECIFICATION WRITER

By Wilfred W. Beach

Although not boasting one of the largest practices, no architect is better known to his confrères of the Central West than Emery Stanford Hall of the firm of Emery Stanford Hall, Bisbee and Rhenisch, Chicago, Ill.

Mr. Hall has been a hard-working participant in the management of the affairs of the Illinois Society of Architects from its inception as the Chicago Architects' Business Association and has been twice honored by its presidency. Meanwhile, he has also been a truly active member of both the Illinois Chapter of the American Institute of Architects and the national body.

For many years he has edited the annual Handbook of the Illinois Society and has been the chief factor in making it invaluable in the office of every architect—alongside Kidder and the local code.

Some architects fish in their spare time, some golf and some tour Europe and the antipodes, but Mr. Hall's hobbies are the Handbook, his filing system, and his specification makeup. These are closely interrelated, as he uses his numerical reference system (published in the Handbook) throughout his whole office procedure—catalogue and plate filing and specification divisions and sub-divisions. Mr. Hall was appointed by the American Institute of Architects as its representative to committee and convention sessions on the standardization of advertising documents in which, as secretary of the Illinois Society, he had taken the initiative as far back as the year 1900. Mr. Hall's system for filing such documents is founded upon the well-known Dewey System of library catalogue fame.

He has extended and perfected its application to architectural practice, publishing an up-to-date revision in the Handbook, year after year. This is quite worthy of study, as is the consideration of its adoption in any office.

Under the ten major divisions of the Dewey System, 6 (or 600) is the numeral allotted to the Useful Arts, under which are the following sub-headings:

- 610 Medicine
- 620 Engineering

- 630 Agriculture
- 640 Domestic Economy
- 650 Communication and Commerce
- 660 Chemical Technology
- 670 Manufacture
- 680 Mechanic Trades
- 690 Building

Of the foregoing, Mr. Hall's classification for the use of architects is, of course, concerned with the last numbered, 690, Building. This he sub-divides after this manner:

- 690. Building—Materials and Trades—General
- 691. Earth-Working, Transportation and Teamimg Trades
- 692. Mortar-using Trades (Inc. Masonry, Plastering, Tile and Marble Setting and the preparation for same)
- 693. Wood-Working Trades
- 694. Heavy-Metal Trades—(Employing Metal heavier than No. 10 gauge)
- 695. Sheet-Metal Trades—(Employing Metal of No. 10 gauge or less)
- 696. Brush, Broom and Swab-Using Trades
- 697. Pipe Trades
- 698. Wire and Conduit Trades—Electrical Work of All Kinds
- 699. Machinery Trades and Miscellaneous Building Items—(Not Otherwise Classified)

The amplification of these sub-headings makes a classification for the catalogue file as nearly ideal as may be. But it is not of Mr. Hall's catalogue-filing system that we are treating.

Referring to the general subject, 690 (Building—Ma-

EMERY STANFORD HALL

[247]
terials and Trades), he lists the following:

690.0 General.
690.1 Education of Personnel Concerned in Building.
690.2 Building Material in the Abstract.
690.3 Plans (Drawings) for Buildings.
690.4 Specifications for Buildings.
690.5 Estimates for Buildings.
690.6 Contracts and General Conditions.
690.7 Supervision of Construction and Accounts.
690.8 Professional Services.
690.9 Laws and Rules Controlling Building.

We now get to the point, as it is sub-division 690.4, Specifications for Buildings, with which we are concerned. This Mr. Hall further divides in a manner paralleling the sub-divisions of 690, thus:

690.40 Matter Pertaining to all Trades.
690.41 Earth-Working and Transportation Trades, including Miscellaneous Labor.
690.42 Mortar-Using Trades.
690.43 Wood-Working Trades and Hardware.
690.44 Heavy-Metal Trades (Employing Metal heavier than No. 10 gauge).
690.45 Sheet-Metal Trades (Employing Metal of No. 10 gauge or less).
690.46 Brush, Broom and Swab-Using Trades.
690.47 Pipe Trades.
690.48 Wire and Conduit Trades.
690.49 Machinery and Miscellaneous Trades.

It will be noted that the segregation employed is not in the approximate order in which the various trades attack the work, as is more customary, but according to the tools and materials of those trades. As worked out, however, the sequence is not vastly different.

Obviously, any system of specification writing should be usable, without material change, for the letting either of a general contract, or for a major contract and minor contracts, or for a number of contracts without a major. This phase of Mr. Hall's topical system is to be particularly noted.

Inasmuch as the users of specifications are not at all concerned with the derivation of the method of numbering of sections employed therein, Mr. Hall simply refers to his nine major divisions as Groups I to IX. These one can sub-divide at will depending upon one's method of handling sub-contracts or minor contracts.

The following are Mr. Hall's sub-divisions as published in the 1927 edition of the Handbook.

Group I. Earth-Working and Transportation Trades.
A. Preparation of Site.
B. Wrecking.
C. Shoring and House Moving.
D. Excavating.
E. Caisson and Special Foundations.
F. Construction Plant.
G. Maintenance Contract.
I. Grading and Filling.
J. Preparation of Soil, Sodding and Seeding.
K. Planting.
Z. Miscellaneous Labor not Otherwise Classified.

Group II. Mortar-Using Trades.
A. Masonry Materials.
B. Foundation Work.
C. Concrete Work.
D. Stone Work.
E. Brick Work.
F. Fireproofing, Furring and Partitions.
G. Architectural Terra Cotta.

H. Paving.
I. Smoke Stacks of Masonry.
J. Plastic Reinforcement, Lathing and Furring.
K. Plastering.
L. Models, Clay and Plaster.
M. Plastic Insulation, Pipe Covering, Etc.
N. Marble and Substitutes (Including Slate, Structural Glass, Terrazzo Slabs, Etc.)
O. Tile and Substitutes.
P. Terrazzo Blocks.
Z. Miscellaneous Mortar Using Trades not Otherwise Classified.

Group III. Wood-Working Trades and Hardware.
A. Wood-working Materials and Methods.
B. Carpentry.
C. Rough Carpentry Hardware.
D. Finish Hardware.
E. Revolving Doors.
F. Special Doors, Folding, Rolling, Etc.
G. Screens, Wood Frame, for Insects.
H. Wood Registers, Screens, Etc.
I. Mantels, Etc., of Wood.
J. Wood Specialties, Show-cases, Cabinets, Etc.
K. Seating for Assembly, Pews, Opera Chairs, Etc.
L. Wood Platform Furniture, Pulpits, Lectern Sedilia, Altars and Altar Furniture.
M. Portable Furniture of Wood, Chairs, Etc.
N. Domestic Furniture.
Z. Miscellaneous Wood-working Trades not Otherwise Classified.

Group IV. Heavy-Metal Trades—(Employing Metal Heavier than No. 10 Gauge).
A. Metal Materials and Methods.
B. Structural Metal (over No. 10 gauge).
C. Miscellaneous Metal.
D. Ornamental Metal (over No. 10 gauge).
E. Vents, Safes, Vault Doors, Etc.
F. Solid Metal Sash.
G. Heavy Metal Doors and Shutters.
H. Fire Escapes.
I. Stairs, Metal.
J. Fences, Metal.
Z. Miscellaneous Heavy Metal Trades not Otherwise Classified.

Group V. Sheet-Metal Trades—(Employing Metal of No. 10 Gauge or Less).
A. Sheet-Metal Materials and Methods.
B. Ordinary Sheet-Metal.
C. Slate and Tile Roofing.
D. Ventilating Ducts, Fans, Stacks, Furnaces, Etc.
E. Hollow Metal Windows.
F. Metal Clad Wood Doors.
G. Enamel Sheet Metal Ceilings.
H. Art Sheet Metal Trim and Doors.
I. Enamel Sheet Metal Cabinets.
J. Enamel Sheet Metal Lockers.
K. Enamel Sheet Metal Radiator Covers and Seats.
L. Enamel Sheet Metal Toilet Partitions.
M. Metal Furniture.
N. Sheet Metal Utensils.
O. Drawn Sheet Metal Store Fronts, Etc.
Z. Miscellaneous Sheet Metal Trades not Otherwise Classified.

Group VI. Brush, Broom and Swab-Using Trades.
A. Brush Trade Materials and Methods.
B. Waterproofing Membrane and Mastic or other...
PENCIL POINTS

Viscous Compositions, mopped, broomed or swabbed in place.
C. Composition Roofing.
D. Plain Painting and Varnishing.
E. Decorations (Plain, Painted or Water Color).
F. Hangings, Fabrics, Etc.
G. Upholstery.
H. Window Shades.
I. Mastic Tile and Sheet Floor Covering.
J. Rubber Tile and Sheet Floor Covering.
K. Cork Tile and Sheet Floor Covering.
L. Carpets, Linoleum, Etc., Floor Covering.
M. Plain Glass and Glazing.
N. Art Glass and Glazing.
Z. Miscellaneous Brush Trades not Otherwise Classified.

Group VII. Pipe Trades.
A. Pipe Trades Materials and Methods.
B. Sanitary Plant.
  1. Sewerage and Drainage.
  2. Sewage and Bilge Pumps.
  3. Sewerage Disposal.
  4. Plumbing.
  5. Tanks and Towers for Water Supply, Stand Pipes.
C. Sprinkler Fitting.
  1. Storage Tanks and Towers.
  2. Pressure Tanks, Etc.
  3. Pumps.
D. Boiler Plant.
  1. Steel Stacks and Breathing.
  2. Tanks for Water Storage.
  3. Tanks for Oil Storage.
  4. Super Steam Heaters.
  5. Tube Blowers.
  6. Tube Cleaners.
  7. Furnaces.
  8. Stokers.
  9. Coal Handling Equipment.
  10. Ash Handling Equipment.
  12. Oil Burners.
  15. Soot Burners.
  17. Smoke Indicators.
  18. Feed Water Heaters.
  20. Service Pumps.
  22. Governors for Pumps, Etc.
  24. Lubricators.
  25. Injectors for Compound.
  27. Feed Water Regulators.
  29. Flow Meters.
  30. Draught Gauges.
  31. CO₂ Recorders.
E. Steam and Hot Water Fitting.
  1. Vacuum Pumps.
  2. Vacuum Valves.
  3. Miscellaneous Specialties.
F. Steam Power Plant.
  1. Engines.
  2. Compressors.
G. Vacuum Cleaning Plant.
H. Mechanical Refrigeration.
  1. Tanks.
  2. Compressors.
  3. Cooler Towers.
I. Mechanical Ventilation.
  1. Heating Units.
  2. Cooling Units.
  3. Air Washers.
  4. Fans and Engines.
Z. Miscellaneous Pipe Trades not Otherwise Classified.

Group VIII. Wire and Conduit Trades.
A. Wire Trades Materials and Methods.
B. Electrical Conduit and Wiring.
C. Lighting Fixtures.
D. Electrical Power Work.
E. Electric Signs.
F. Private Telephone Systems.
G. Clock Systems.
H. Signal Clock Systems.
I. Fire Alarm Systems.
J. Burglar Alarm Systems.
K. Projecting Machines.
Z. Miscellaneous Electrical Trades not Otherwise Classified.

Group IX. Machinery and Miscellaneous Trades.
A. Machinery and Miscellaneous Materials and Methods.
B. Elevators.
C. Conveying Machines.
D. Mechanical Cleaners.
E. General Machinery.
F. Foundry Equipment.
G. Insulation, Pipe Covering, Etc.
H. Refrigerators, Coolers and Freezers.
I. Laundry Equipment.
J. Kitchen Equipment.
K. Laboratory Equipment.
L. Gymnasium Equipment.
Z. Other Equipment not Otherwise Classified.

The following excerpts from a current church job may be considered typical of the specifications turned out by Mr. Hall's firm. A word of explanation is given in a Preface on the title page:

"In order to avoid repetition, materials common to the several trades of a group of trades using common materials are specified in one place under Article I of that group and not again repeated except by paragraph title and number.

"For illustration: The mention of a material title in a construction paragraph means that the proportion of materials therein specified shall be furnished in strict accord with detailed specification for the material enumerated under that particular title in the specifications for the various materials grouped under the general heading MATERIALS in Article I of that Group, the same as though therein repeated. Paragraph reference numbers are only added to make it easy to refer back in case the reader has forgotten the exact specification for that material. Material specified under the general heading MATERIALS, or construction specified under the general heading CONSTRUCTION, and not called for either directly or by reason-
able implication, either on the plans or in the schedule, under a contract specification are not required to be furnished, but would be required to be furnished under an extra involving that particular type of material.

Here is inserted the standard form of General Conditions of the Illinois Society of Architects, followed by

TRADE GROUP I

EXCAVATING, GRADING, CARTING, WRECKING, SHORING AND MISCELLANEOUS LABOR

Article O—Group I—General Requirements

(101) In General the contractor, or contractors, who undertake to furnish work or materials under this Group shall be governed by the General Conditions of the Contract as defined in documents known as the Illinois Building Contract Documents, which General Conditions are made a part of every specification for work required for this improvement, the same as though separately attached and repeated in connection with each separate topic or trade heading of these specifications. The General Conditions before mentioned and identified shall be understood to define and govern all matters of mutual relationship between contractors, Owner, Architect, and the public, responsibility for insurance, etc. (see pars. 1 to 61, inclusive).

(102) Issuance of Certificates by the Architect for payments on account during the progress of the work are conditioned on the contractor’s furnishing a statement to the Architect as described in paragraph 19 of the General Conditions of the Contract, and also such statements as to sub-contractors and outstanding obligations to complete the work, as are prescribed by the Mechanics Lien Law of the State of Illinois and therein required to be furnished by the contractor to the Owner as a prerequisite to making payment on contract.

(103) Group I comprehends and includes every sort of labor and transportation necessary to prepare the site ready for actual building construction, and also to clean up same when all construction is complete, including any shoring, piling, wrecking, excavation, filling, grading, sodding, seeding, planting, teeming, cartage, hauling or trucking hereinafter required by these specifications or accompanying drawings and not otherwise required to be furnished by any of the construction trades.

(104) Delivery of Work Required • • • •

(105) Apparatus • • • •

(106) Legal Disposal of all Excess Materials • •

Article I—Group I—Precautionary Measures Required

(107) Old House now located on the lot is to be • • • •

(108) Sheet Piling or Shoring shall be • • • •

(109) Anchor Rods shall be • • • •

Article II—Group I

(110) Excavation operations shall be divided into two general divisions as follows:

(a) Division "A" shall comprehend and include what is commonly known as "General Excavation," including all team, scraper and excavating-machine work to carry the excavation down to required levels over the entire area as far back as it is practical to do so with either team work or excavating-machine work. This Division does not include any hand-spade work but does include all cartage and disposal of material for the team work, machine-excavation work and hand-spade work; in other words, all of the hauling is included under Division "A," both for Division "A" and "B."

(b) Division "B" shall comprehend and include the necessary hand-spade work for truing up the excavations ready for building, including all trenches and pits for foundation walls, footings and piers. It also includes all excavation from under the old building, including wheelbarrow work, to bring out the earth to where it may be handled by the excavating-machine or team-scraper. It also includes all back-filling around walls and footings both inside and outside the building. It also includes the cutting of openings in the old walls, the shoring of old walls and all of the necessary incidental work to get the site ready for construction after the work of Division "A" has been completed.

(111) It is distinctly understood that the contractor assuming work under Division "B" shall always place surplus material in a position where it can be practically and easily reached either by the excavating-machine or team-scraper.


(112) Contract "A", Group I, shall comprehend and include everything in the way of labor and materials required for doing all work described under Division "A," Article II, of these specifications, • • • • enumerated as follows:

• • • •

(113) Contract "B", Group I, shall comprehend and include • • • •

From the foregoing may be noted the meticulous care exercised by Mr. Hall in establishing the lines of demarcation between contracts or sub-contracts, as the case may be. In this segregation he is influenced by his previous experiences in supervising the work, in the convenience of contractors in allotting and carrying on the work and in observance of trade union jurisdictional awards, the latter of especial importance in territory controlled by building-trade unions.

The old-time idea of architects that they should compel each contractor to circumscribe his sub-contracts carefully, without recourse to the architect in case of dispute, is excellent and proper—in theory—but contractors are prone to let sub-contracts intended to be bounded by specification divisions, hence it behooves the architect to make all such divisions and sub-divisions explicit and comprehensive, if he would avoid misunderstandings and unexpected demands for extras. This Mr. Hall is most careful to do.

He does not, as is the practice of many architects whose documentary products are otherwise of real merit, relegate the specifications to a sphere of innocuous desuetude on the theory that contractors who work out of their offices will be more influenced to do what is expected of them by their desire to keep on good terms with the architect than by being bound by harsh contract restrictions. The latter is dangerous and unprofessional practice and may easily result in a new client paying for something that was left out of the preceding contract and donated by the contractor to prove he was a "good fellow."

The younger members of the profession would do well to bear this in mind and begin early in their careers to make their specifications as nearly bullet-proof as they know how.

PENCIL POINTS
DETAILS OF CONSTRUCTION—GLEN ALDEN COAL COMPANY BUILDING, SCRANTON, PA.
KENNETH M. MURCHISON, ARCHITECT
DETAILS OF CONSTRUCTION—GLEN ALDEN COAL COMPANY BUILDING, SCRANTON, PA.
KENNETH M. MURCHISON, ARCHITECT
SERVICE DEPARTMENTS

THE MART. In this department we will print, free of charge, notices from readers (dealers excepted) having for sale, or desiring to purchase books, drawing instruments and other property pertaining directly to the profession or business in which most of us are engaged. Such notices will be inserted in one issue only, but there is no limit to the number of different notices pertaining to different things which any subscriber may insert.

PERSONAL NOTICES. Announcements concerning the opening of new offices for the practice of architecture, changes in architectural firms, changes of address and items of personal interest will be printed under this heading free of charge.

QUERIES AND ANSWERS. In this department we shall undertake to answer to the best of our ability all questions from our subscribers concerning the problems of the drafting room, broadly considered. Questions of design, construction, or anything else which may arise in the daily work of an architect or a draftsman, are solicited. Where such questions are of broad interest, the answers will be published in the paper. Others will be answered promptly by letter.

FREE EMPLOYMENT SERVICE. In this department we shall continue to print, free of charge, notices from architects or others requiring designers, draftsmen, specification writers, or superintendents, as well as from those seeking similar positions. Such notices will also be posted on the job bulletin board at our main office, which is accessible to all. Owing to the very large number of advertisements submitted for publication under this heading we are asking those desiring to use this service to make their advertisements as short as possible, in no case to exceed forty words.

NOTICES submitted for publication in the Service Departments must reach us before the fifteenth of each month if they are to be inserted in the next issue. Address all communications to 419 Fourth Avenue, New York, N. Y.

THE MART

STARRETT & VAN VLECK, 393 Seventh Avenue, New York, Att. Mr. Rice, wants a copy of PENCIL Points for January, 1921, and a copy of The Architectural Review for July, 1925.

Floyd Mueller, 544 So. New Hampshire Ave., Los Angeles, Calif., has for sale a copy of Byne & Stapley's Spanish Interiors and Furniture, Vols. 1 and 2, portfolio form, good condition, $100.00.

PERSONALS

HENRY R. DIAMOND, architectural renderer, has moved to 67 West 44th St., New York.

WILLIAM BAILEY, architectural student, 295 Washington Ave., Brooklyn, N. Y., would like to receive manufacturers' samples and catalogues.

CHARLES N. WHINSTON and SELIG WHINSTON announce the opening of an additional office due to the large increase in their Westchester practice. It will be temporarily located at 58 West 1st Street, Mt. Vernon, New York. A new building will shortly be erected on N. 4th Avenue for their own occupancy.

CYRIL W. SUNDERLAND, architectural student, 96 Fourth Ave., East Greenwich, R. I., would like to receive manufacturers' samples and catalogues.

LAWRENCE A. REHM, architectural draftsman and student of ecclesiastical design, P. O. Box 104, Galveston, Texas, would like to receive manufacturers' samples, catalogues, A.I.A. data, etc.

ROSE & HALL have dissolved partnership. A. Fraser Rose will continue to practice architecture at 208 Sixth St., Miami Beach, Fla.

CARLOS MENDOZA, Aguaj 116 Departamento 93, Havana, Cuba, is opening an office as sales representative of manufacturers in the building field and would appreciate samples and catalogues.

WERNER AMREIN, architectural student, Sigma Nu House, Gainesville, Florida, would like to receive manufacturers' samples and catalogues.

R. STANLEY REID, architectural student, 720 Arbor St., Ann Arbor, Mich., would appreciate manufacturers' samples and catalogues.

LAND, RAGLAN & LEWIS, ARCHITECTS AND ENGINEERS, 412 Essex Bldg., Minneapolis, Minn., have opened a branch office at 195 5 University Ave., St. Paul, Minn., Rooms 3 & 4, and would like to receive manufacturers' samples and catalogues.

BLACKALL & ELWELL, ARCHITECTS, have moved to 29 Central St., Boston, Mass.

MILTON M. FRIEDMAN, ARCHITECT, has moved to Interstate Bldg., 6001 Santa Monica Blvd., Los Angeles, Calif.

IRVING MARCON, ARCHITECT, has become associated with Mr. Smith's architectural practice at 106 I. C. Office Bldg., Gulfport, Miss.

IRVING MARCON, ARCHITECT, has become associated with Adolph M. Holder under the firm name of Margon & Holder with offices at 29 West 57th Street, New York.

CHARLES A. SIMONS, Fort Scott, Kansas, desires manufacturers' samples and catalogues.

BRANDON SMITH, R. A., has formed a partnership with Harold O. Reif for the continuation of Mr. Smith's architectural practice. Offices are located at 429 Penn Avenue, Pittsburgh, Pa.

LOUIS J. BRADBURY, architectural student, 271 Adelphi St., Brooklyn, N. Y., is starting an A.I.A. file and would like to receive manufacturers' samples and catalogues.

W. H. WILSON, architectural student, 1803 Sawtelle Blvd., Sawtelle, Calif., would like to receive manufacturers' samples and catalogues.
DETAILS OF CONSTRUCTION—GLEN ALDEN COAL COMPANY BUILDING, SCRANTON, PA.

KENNETH M. MURCHISON, ARCHITECT
PERSONALS (Continued)

RAYMOND G. CLIFFORD, ARCHITECT, has moved to 616 Guaranty Building, Portland, Oregon.

A. ROY KELLEY, ARCHITECT, has moved to 1102 Architects Bldg., Fifth and Figueroa Sts., Los Angeles, Calif.

VICTOR LA FORTE, CONSTRUCTOR, 50 Leslie Terrace, Springfield, Mass., would like to receive manufacturers' samples and catalogues pertaining to hotels and apartment houses.

MORISON & WALLACE, ARCHITECTS, have moved to Adams-Franklin Bldg., 222 W. Adams St., Chicago, III.

GEORGE F. BERTAN, architectural student, 140-17 Cherry Avenue, Flushing, L. I., would like to receive manufacturers' samples and catalogues.

ARTHUR W. DAHLSTROM, architectural student, 847 Francisco St., Los Angeles, Calif., would like to receive manufacturers' samples and catalogues.

FREE EMPLOYMENT SERVICE

(Other Items on Page 126, Advertising Section)

POSITION WANTED: Architect and specification expert, 20 years' experience in general design, construction and supervision, including building and zoning laws on hotels, hospitals and other fireproof building construction. Specifications written in spare time at reasonable rates or consider permanent executive connection with a good firm. Box No. 808-A, care of PENCIL POINTS.

POSITION WANTED: Construction supervisor or superintendent. Graduate engineer wants employment preferably out of town; experienced in earthwork, concrete foundations, power, sub-station and industrial plants, warehouses, etc., transit, level work, measuring, estimating, cost-keeping. Also sales work. Address H. J. K., care of PENCIL POINTS.


PARTNERSHIP WANTED: Wish to make arrangements with well established architect who considers retirement from business. Middle-sized Texas city preferred. Have more than 30 years' experience in all lines of architectural business. Box No. 810-A, care of PENCIL POINTS.

SPARE TIME WORK WANTED: By senior architectural draftsman in New York City. Box No. 811-A, care of PENCIL POINTS.

POSITION WANTED: Junior draftsman, college student, 2 years' actual drawing experience with architect, desires position. A. Louis Gioggia, 208 20th Street, West New York, N. J.

POSITION WANTED: Young man, 20 years old, desires position as junior draftsman. College student. Sam. Schub, 1253 78th St., Brooklyn, N. Y.

POSITION WANTED: Draftsman-Designer, 5 years' experience. Also do renderings and perspectives, also plan work. Box No. 812-A, care of PENCIL POINTS.

PLASTER MODELS of buildings, groups, dams, bridges, and building sites, made to any scale from drawings. Box No. 813-A, care of PENCIL POINTS.

POSITION WANTED: Experienced, expert specification writer seeks connection with good firm. Location immaterial. Box No. 814, care of PENCIL POINTS.

SPARE TIME WORK WANTED: Expert typist, can file, compile data, fairly accurate at figuring. Box No. 815-A, care of PENCIL POINTS.

I AM DESIROUS of placing in the office of an architect or builder, a young man now in my employ. Very rapid typist, and can take "spec" from dictation. Also, competent and expert bookkeeper, and student of accounting. Can be depended upon fully and trusted in matters of extreme confidence. Salary reasonable. Communicate with Mr. Harold E. Hall, Architect, 1345 Shakespeare Ave., New York, N. Y.

POSITION WANTED: Graduate of University of recognized standing, training abroad, three years' experience at delineation, designing and working drawings. Will start at moderate salary in office offering good experience and possibilities of permanent connection. Box No. 816-A, care of PENCIL POINTS.


[255]
Gypsum Partition Tile.—Treatise by Henry J. Schwein covering the use of this material for all types of buildings. Detail drawings, tests, etc. 24 pp. 85¢ x 11. The Gypsum Industries, 844 Rush St., Chicago, Ill.

Exterior Lighting Fixtures.—A.I.A. File No. 31-f-33. Literature leaf illustrated portfolio covering complete line of lighting fixtures for the exteriors of buildings as well as equipment suitable for parks, streets, etc. Standard filing size. Union Metal Mfg. Co., Canton, Ohio.


The Blue Book of Steel Windows.—A.I.A. File No. 16-E-1, just off the press. Contains a large number of construction drawings and really constitutes a handbook on the subject of steel windows as applied to all types of buildings. 80 pp. 85¢ x 11. Detroit Steel Products Co., 2250 East Grand Blvd., Detroit, Mich.


Terra Cotta Detail Plates.—A portfolio containing a collection of detail plates covering a wide variety of buildings, details, ornament, etc. 95¢ x 14. Midland Terra Cotta Co., 105 W. Monroe St., Chicago, Ill.


The Scientific Super- Efficient System for Warming and Ventilating Homes.—Interesting data on this subject, illustrated and containing installation directions for gas furnaces. Standard filing size. The Scientific Heater Co., Cleveland, Ohio.

Blue-Printing Machinery, Blue-Print Paper, Drafting Room Furniture.—Catalog M-27 illustrates and describes this line of drafting room equipment. Much useful and interesting data including drawing of the arrangement of a blueprint room. The C. F. Pease Co., 813 N. Franklin St., Chicago, Ill.


Fitzgibbons Steel Heating Boilers.—A.I.A. File No. 30-c-1 Bulletin No. H-7 Fitzgibbons Steel Heating Boilers describes this type of boilers. Profusely illustrated, detailed descriptions of construction, tables, etc. Fitzgibbons Boiler Co., 570 7th Ave., New York, N. Y.

Newman Bronze Tablets.—Handsome catalogue illustrated in color showing complete line of bronze tablets for honor rolls, commercial signs, nameplates, etched brass signs, cast characters, etc. 8 x 10½, 64 pp. Newman Mfg. Co., 416 Elm St., Cincinnati, O.

Richmond Standard Automatic Tin-Clad Fire-Doors and Fixtures.—A.I.A. File No. 16-c-1. Catalog TC-24 illustrates and describes this line of fire-Doors. Illustrations showing application of tin sheets, construction details, tables of dimensions, etc. Standard filing size. Richmond Fireproof Door Co., Richmond, Ind.


McCray Refrigerators for Hotels, Restaurants, Clubs, Hospitals and Institutions.—Completely illustrated plans, details of construction and complete data. McCray Refrigerator Sales Corporation, Kendallville, Indiana.
Two Methods of Indicating Ironwork

The drawing of the left half of the iron gate above required two hours; the right half was sketched in fifteen minutes. Yet both sides give the same effect when viewed casually. If the purpose of the drawing be to illustrate the design of the gate in detail, the more elaborate and accurate treatment is desirable—if, on the other hand, the general effect is the only requirement, it is evident that the rapid sketch method is adequate and more economical.

The diagrams 1, 2, and 3 indicate the importance of analysis of the design when using the shorthand method. The general mass effect and the leading lines of the design must be carefully observed. The details which are not so important can be suggested by scumbled lines.

There is no better way to learn than to make many such analytical sketches of iron designs.
COMPETITION FOR A RUG DESIGN

A RUG DESIGN competition has been announced by the Art Alliance of America which is open to artists, free lance designers, and art students generally, with the purpose of arousing them to the present-day demand for expression of modern motifs and color trends in interior decoration. The prizes offered to professional artists are:

First Prize, $1,000.00; Second Prize, $500.00; Third Prize, $250.00. Other prizes will be offered to students. All the prizes are given by the Mohawk Carpet Mills, Inc., of Amsterdam, N. Y. The competition closes April 24th.

Copies of the announcement may be had from the Secretary, Rug Design Competition, The Art Alliance of America, 65 East 56th Street, New York.

LOS ANGELES ARCHITECTURAL CLUB

Benefitted by the building up of the organization during the past year, the Club has now stirred itself into considerable activity with the incoming régime of the newly elected officers. There have been numerous applications for membership and the Club promises to grow in numbers as well as interest.

The February meeting brought out a large number, about 100 in all. The meeting was addressed by Francis Vreeland, Artist, and Roger Noble Burnham, Sculptor, two very enthusiastic and interesting speakers. The newly formed Club quartette rendered several vocal numbers which were well received. The meeting was held at the new Architects' Building.

The annual ball was held the early part of February and was more successful than ever. In a glorious Venetian setting there gathered a swarm of happy carnival makers, Spanish Dons and Spanish Dancers, sheiks and maids from Araby, sullen monks and rollicking Russians, their faces hidden by masks and only gleaming eyes and flashing teeth gave hint to their personalities. The proceeds of the affair were used towards a scholarship at Fontainebleau, the Spanish Dons and Spanish Dancers, sheiks and maids from Araby, sullen monks and rollicking Russians, their faces hidden by masks and only gleaming eyes and flashing teeth gave hint to their personalities. The proceeds of the affair were used towards a scholarship at Fontainebleau, the Spanish Dons and Spanish Dancers, sheiks and maids from Araby, sullen monks and rollicking Russians, their faces hidden by masks and only gleaming eyes and flashing teeth gave hint to their personalities. The proceeds of the affair were used towards a scholarship at Fontainebleau, the Spanish Dons and Spanish Dancers, sheiks and maids from Araby, sullen monks and rollicking Russians, their faces hidden by masks and only gleaming eyes and flashing teeth gave hint to their personalities. The proceeds of the affair were used towards a scholarship at Fontainebleau, the Spanish Dons and Spanish Dancers, sheiks and maids from Araby, sullen monks and rollicking Russians, their faces hidden by masks and only gleaming eyes and flashing teeth gave hint to their personalities. The proceeds of the affair were used towards a scholarship at Fontainebleau.

The Club is exhibiting with the Architects League of Hollywood in their third annual show at the California Art Club, located in the former Barnsdale residence, designed by Frank Lloyd Wright.

GEORGE G. BOOTH TRAVELLING FELLOWSHIP

The College of Architecture, University of Michigan, has announced that the annual competition for the George G. Booth Travelling Fellowship in Architecture will be held from April 6th to April 20th, 1928.

LETTERS OF AN ARCHITECT TO HIS NEPHEW

Ebroon's Note.—This is the eighth of a series of letters by William Rice Pearsall, Architect, of New York, addressed to young draftsmen and students about to take up the study of architecture. Mr. Pearsall, who may be addressed at 527 Fifth Avenue, New York, has expressed his willingness to answer any questions which may be addressed to him by our readers.

March 1st, 1928.

Dear George:

A month or so ago my letter discussed the subject of design, taking it for granted that you had looked up its definition. Now let us look at the other part of the office work, that of engineering, sometimes called "Architectural Engineering."

The dictionary definition of engineering reads: The art and science by which natural forces and materials are utilized in structures or machines.

In my letter on design I spoke of the use of suitable materials with which to carry out the character and spirit of the design as in contrast to what I called "paper designing."

Do not confuse the engineering work of the specialist in the various branches—structural and mechanical—with architectural engineering; these are subdivided because they fit in with the engineering of the architect's office. A better name might be co-ordination, for it is the engineer in the architect's office who brings together all the drawings with the specification (which should be a description of materials and methods) in a form that presents the work complete in its various parts, divided as trades for the estimating of the cost.

The one who fits into such a position must have the ability to grasp quickly the large volume of detail that must be listed, scheduled, and checked, select materials and decide methods of putting such materials in their relation to other kinds of material. A knowledge of the unit sizes and where to look for information regarding materials is necessary. Have you read that before? Keep that thought in mind.

Many times a diagram or outline drawing to call attention to the location or use of certain materials will make clear much description, because there are methods and kinds of finish that cannot be pictured in words, nor can the regular detail drawings always show clearly what is wanted or the way to use the material.

The engineer, like the draftsman, cannot succeed if he is afraid of work, is a clock watcher or does not want to dig his way out when the large volume of work almost overwhelms because pressure from outside demands the work at once.

Training and experience will teach how to judge the most important thing to be done first from those which can be postponed.

Interest and studious attention to the required duties will hasten the advancement desired by ambition to succeed, much faster than constant discussion of salary values and using as a sign of success the $.

Sincerely,

Your Uncle.

EXHIBITION OF CHICAGO ARCHITECTS' CLUB

The First Annual Exhibition of the Architects' Club of Chicago is being held at the Clubhouse, 1801 Prairie Avenue, and will continue for a period of two months. This exhibition embraces displays by the Club Members and represents interesting phases of the building industry. It includes examples of material and processes, as well as drawings, paintings and models by architects, painters and sculptors.
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Two model offices which are part of an Exhibit of Model Offices, created by Randolph and Hang, Office Equipment Specialists of Cleveland.

At right, a realistic made-to-order floor in "plank" effect laid in Gold Seal Jaspe Linoleum, with "dowels" and "joints" fashioned by inlaying with mahogany brown interliners.

Below, a cork-composition tile floor of Gold Seal Marble-iced Tile gives spaciousness and dignity.

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These attractive rooms prove conclusively that you can have distinctive floors in perfect accord with the most elaborate and luxurious office and still secure all the approved advantages and assured economies which modern resilient floors offer.

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Yet the Sealex Process actually increases the durability and flexibility of Gold Seal Linoleums. It makes them easier to lay, enhances their beauty and keeps them new-looking for years.

Architects, contractors and business men who have seen this remarkable development regard it as a notable advance in linoleum manufacture.

Being soil-proof and easy to clean, all Gold Seal Linoleums, made by the Sealex Process, offer maintenance economies which business men are sure to welcome.

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In "Architectural Granite" we have reprinted our 24-page catalogue in the latest edition of Sweet's. It contains twenty-one color reproductions of standard building granites, charts and information for the designer and draftsman, valuable data for the specification writer and other valuable information for the architect and user of architectural granite.

Specific attention is called to the various services this Association can render and you are cordially invited to make free use of these services. In this connection it will interest you to know of our exhibits of granite samples at the Architects' Samples Corporation, 101 Park Avenue, New York, and at Association Headquarters in Boston. A similar exhibit is being arranged at the Master Stone Cutters Association, 220 South Sixteenth Street, Philadelphia.

A copy of "Architectural Granite" is yours for the asking.

National Building Granite Quarries Association, Inc.

H. H. Sherman, Secretary
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- Hotel Manger—Addition, New York
- Don Cesar Hotel, St. Petersburg, Fla.

### COLLEGES AND UNIVERSITIES
- Muhlenberg College, Allentown, Pa.
- Southern Railway Building, Danville, Va.

### STATE AND MUNICIPAL BUILDINGS
- Sussex and Merchants Bank, Newton, N. J.
- Talbot Tent Temple Mason, Brooklyn, N. Y.

### SCHOOLS

### OFFICE BUILDINGS
- Rhode Island Trust Co., Providence, R. I.
- Signed Bank, Reading, Pa.

### HOTELS

### CHURCHES
- First Presbyterian Church, Glen Falls, New York
- Providence Baptist Church, Brooklyn, N. Y.

### RESIDENCES

Nailcrete data and specifications are given in Sweet's Architectural Catalog. We will be glad to assist in solving special problems. Stocks are carried in 12 leading cities and packaging is supervised by experienced men.

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Plate No. 3

Complete folio of these drawings sent on request
Detail of main entrance to Administration Building, continued from Plate 20, indicating the adaptability of stock shapes and colors of Enamelled Brick to modern architecture.

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By JOHN F. HARBESON

This book is not intended as a substitute for personal instruction, but as an aid to it.

Mr. Harbeson has found in his experience in teaching architectural design that many things must be said over and over again to each student before they finally "sink in" to his consciousness and become a part of his mental process. The book, therefore, allows the student to study at will the underlying principles of architectural design, and serves to save a great deal of time for him and for the instructor as well.

There is a well thought out introduction of the method of the Beaux Arts—followed by a foreword by Lloyd Warren, which was written while the book was still in the formative period.

As a whole, the book follows the various steps of the Beaux Arts method—the Analytique or Order Problem; the Class B Plan Problem; the Archeology and Measured Drawings; the Class A Problem; the Sketch Problem and Prize Problems; and chapters on the Use of Perspective, the Psychology of Success, and The Background.

An excellent textbook for the student, and a reference book for the more advanced—a book not to be glanced at and laid aside, but kept at hand for ready reference.

300 pages, 9 x 12. Well illustrated.

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By JOHN V. VAN PELT, F.A.I.A., A.D.G.F.

This volume, the first one to be published in "The Library of Architectural Documents," contains the full 110 plates of the original edition. In these plates are represented works of Brunelleschi, Ammanati, Vasari, Giuliano de San Gallo, Antonio de San Gallo, Alberti Falconieri, Michelozzo, Grosso, Settignano, and many other architects and sculptors. Among the palaces represented are Pitti, Riccardi, Strozzi, Gondi, Bartolini, Guadagni, Ruccelai, Ugiccion, Giugni, Gherardesca; among the ecclesiastical buildings are the Church of St. Magdeleine, Church of the St. Esprit and the Convent of the Augustines, Chapel of the Pazzi, St. Mary of the Flowers. There are also several of the more interesting old market buildings and of other structures.

The plates are beautifully drawn and engraved and are reproduced by the photographic process with the utmost care to insure faithfulness to the originals.

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Veneer-Steel Partitions
The designs shown in this portfolio were chosen by the Society of Beaux-Arts Architects as the best solutions submitted by the ablest American architectural students of the past 24 years in what is generally accepted to be the most important and exacting planning problem offered annually in this country. The architectural student can therefore profit greatly by studying the program of each competition in conjunction with its accompanying solution. This portfolio, while particularly valuable to students taking work in design under the Beaux-Arts system, cannot fail to help all other students of architectural design.

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1912—“A Governmental Printing, Lithographing, and Engraving Establishment”
1913—“The Monumental Treatment of the End of Manhattan Island”
1914—“A City Hall”
1919—“The Capitol Building of the League of Nations”
1920—“The Great War Memorial for the City of New York”
1921—“An Exhibition Center”
1922—“A City Hall”
1923—“An Office and Reception Building for the President of the United States”
1924—“A Transportation Institute”
1925—“A Summer Capitol”
1926—“A Natatorium in a Park”
1927—“A Radio Broadcasting Station”

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By PHILIP G. KNOBLOCH

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CONTENTS

WATERPROOFING 1 and 2
BRICK BONDS 3
WATERTABLES 4
CHIMNEY CONSTRUCTION 5
SLOW BURNING CONSTRUCTION 6
FIREPROOF COLUMNS 7
FIREPROOF FLOORS 8
CURTAIN WALLS 9
STONE DOORWAYS 10
HOLLOW TILE DETAILS 11
BASEMENT WINDOW, MULLIONS, TRANSOMS 12
WOODEN DOUBLE-HUNG WINDOW IN MASONRY 13
WOODEN DOUBLE-HUNG WINDOW IN FRAME 14
WOODEN CASEMENT WINDOWS IN MASONRY 15
WOODEN CASEMENT WINDOWS IN FRAME 16
METAL COVERED DOUBLE-HUNG WINDOWS 17
HOLLOW METAL DOUBLE-HUNG WINDOW 18
WOODEN DORMER WINDOW IN FRAME 19
IRON STAIRS 20
WOODEN STAIRS 21
WOODEN CORNICES 22
MARBLE AND STONE CORNICES 23
ARCHITECTURAL TERRA COTTA 24 and 25
SHEET METAL CORNICES 26
FLASHING 27 and 28
ROOFING 29 and 30
PLUMBING 31
ELEVATOR CONSTRUCTION 32
FIREPLACE WITH DAMPER 33
FIREPLACE 34
GROUNDS, JOINERY, MOULDINGS 35
METAL LATH AND PLASTER 36
WALL SURFACES 37
WOODEN PARTITIONS 38
WAINSLOT AND PANELING 39
WOODEN MANTELS 40
KITCHEN CABINET 41
FLOOR SURFACES 42
FRENCH DOOR, OFFICE CORRIDOR DOOR 43
WOODEN DOORS AND VENEERING 44
METAL-COVERED DOORS 45
PORCH CONSTRUCTION 46
BANK VAULT 47
BANKING SCREEN 48
BANKING SCREEN WICKETS 49
CAST IRON DOORWAY, RADIATOR ENCLOSURE 50
LETTERING AND INDICATIONS 51
MATERIAL KEY AND ABBREVIATIONS 52

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CONTENTS

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The competition is open to citizens of the United States of good character, who are between twenty-one and twenty-nine years of age, and who have had at least three years of office experience.

The competition will be held last Saturday and Sunday in April.

The scholarship is under the direction of a managing committee of three, composed of the Chairman of the Committee on Education of the Beaux Arts Institute of Design, the Head of the Department of Architecture at the Massachusetts Institute of Technology, and a practicing Architect in Boston.

Competitors are allowed to prepare their drawings wherever conditions conform to the requirements of the committee in charge, but these drawings must be sent to Boston for judgment.

Applications should be addressed to Mr. H. P. Richmond, 12 West Street, Boston, Mass., and should be received on or before March 19th.

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CONTENTS

BALLOON FRAMING ........................................... 1
BRACED FRAMING ........................................... 2
FLOOR FRAMING, I ......................................... 3
FLOOR FRAMING, II ......................................... 4
TOWER FRAMING, I ......................................... 5
TOWER FRAMING, II ......................................... 6
HALF TIMBER .................................................. 7
IMITATION HALF TIMBER ..................................... 8
BRICK VENEER AND STUCCO .. ................................ 9
WOOD COVERED CONCRETE STEPS AND OUTSIDE CELLARWAY ........................................... 10
CORNER STONE ............................................... 11
STORE FRONTS, I ........................................... 12
STORE FRONTS, II .......................................... 13
EXTERIOR DOOR IN BRICK WALL AND CIRCULAR HEAD WINDOW IN BRICK WALL ........................................... 14
EXTERIOR DOOR IN STONE WALL ........................................... 15
SLIDING DOOR .................................................. 16
SECRET DOOR ................................................... 17
ROLLING DOOR PARTITION ...................................... 18
ENTRANCE DOOR AND PALLADIAN WINDOW ........................................... 19
ENTRANCE DOOR AND PALLADIAN WINDOW, II ........................................... 20
WOOD VESTIBULE ............................................... 21
WOOD VESTIBULE, II, AND MIRROR DOOR ........................................... 22
ORIEL WINDOW, I ........................................... 23
ORIEL WINDOW, II ........................................... 24
RADIATOR BASE AND BACKING AND DOUBLE HUNG WINDOW MULLIONS ........................................... 25
LEADED GLASS WINDOW IN STONE WALL ........................................... 26
STORM SASH FOR DOUBLE HUNG WINDOW ........................................... 27
STORM SASH FOR CASEMENT WINDOW ........................................... 28
WOOD ENTRAPPLATURE ........................................... 29
WALL GUTTERS .................................................. 30
PENT HOUSE, AND FLAG BOX ........................................... 31
FIRE ESCAPE ................................................... 32
WOOD WINDOW SEAT .......................................... 33
RADIATOR ENCLOSURES, I ........................................... 34
RADIATOR ENCLOSURES, II ........................................... 35
WINDOW BOX AND WALL CABINET ........................................... 36
CEILING LIGHTS, WOOD FRAMING ........................................... 37
CEILING LIGHTS, STEEL FRAMING ........................................... 38
BUILT-IN WARDROBE ........................................... 39
BOOKCASES .................................................... 40
TOILET STALLS ................................................ 41
SEPTIC TANK ................................................... 42
LOG CABIN, I ................................................ 43
LOG CABIN, II ............................................... 44
TYPICAL SCHOOL CLASSROOM ........................................... 45
BLACKBOARDS ................................................ 46
SCHOOL DOORS ............................................... 47
BULLETIN BOARDS AND LOUVRES ........................................... 48
STAGE DETAILS, I ........................................... 49
STAGE DETAILS, II ........................................... 50
TILE CEILING, VAULT CONSTRUCTION ........................................... 51
TILE CEILING, DOME CONSTRUCTION ........................................... 52

None of the details in Part II duplicate the material in Part I.

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Leonard-Rooke Company ................................ 116
Leonard Brothers ........................................ 98
Lord & Burnham Company, The ....................... 48
Louisville Cement Company ......................... 21
Louisville Cement Company ......................... 21
Louisville Cement Company ......................... 21
Ludowici-Celadon Company .......................... 139
Lunt's Sons Company .................................. 50
McCray Refrigerating Sales Corp. ................. 125
Macartney Concrete Pipe Corp. .................... 55
Macomber Steel Company ............................ 109
Major Equipment Company .......................... 39
Master Builders Company, The ..................... 19
Mayer Co., D. A ........................................ 61
May Oil Burner Corporation ......................... 41
Mills Company ......................................... 121
Mills Company, The ................................ 121
Milwaukee Corrugating Co. .......................... 139
Milwaukee Corrugating Co. .......................... 139
Mississippi Wire Glass Co. 4th Cover ............ 95
Mobile Bay State Front Co. .......................... 143
Mohawk Carpet Mills, The .................................. 10
Mohler Mosaic Company ................................ 94
Murphy Varnish Company .............................. 54b
Nailcote Corp., The .................................... 78
National Bldg. Granite Quarries .................... 77
National Lumber Mfrs. Ass'n ......................... 55
National Terra Cotta Society ......................... 127
North American Cement Corp. ...................... 117
North Central Terra Cotta .................................. 12

Orange Screen Company ....... 125
Peach Company, The C .................... 49
Pecora Paint Company .................................. 55
Pfeil & Co ............................................. 51
Pelican Works Gunther Wagner .................... 133
Pfandler Company ...................................... 17
Perkius Commercial Woodwork ....................... 34
Portland Cement Association ....................... 24b
Premier Bldg. Roofing Co. ............................ 143
Premier Building Corporation ....................... 111
Raymond Concrete Pipe Co. ........................... 56
Richards-Wilcox Mfg. Co. 3rd Cover ............. 107
Rigas & Nelson Slate Company ....................... 104
Rixson Company, The ................................ 46
Roeckle & Hasselbach Chemical Co. ............... 86
Roseman Corporation ................................. 130b

Safety Car Heating & Lighting Company, The .. 23
Samoson Cording Works ................................ 19
Sargent Granite Company, J. D. ..................... 114
Security Finishes ...................................... 107
Sedgwick Machine Works ............................... 23
Shuey-Boyer Company .................................. 117
Sonnenberg Sons, Inc. ................................. 55
South Amboy Terra Cotta Co. .......................... 83
Standard Textile Products Co., The ................ 101
Standard Textile Products Co., The ................ 101
Starn's & Co. Inc ....................................... 27
Structural Slate Company .............................. 100
Swartwout Company, The ............................. 44
Sykes Company, The .................................. 12

The 62
The C ............................................. 37
The Tru-Steel Company ................................. 90
Tuttle & Bailey Mfg. Co. .............................. 93

Tuttle & Bailey Mfg. Co. .............................. 93

Tuttle & Bailey Mfg. Co. .............................. 93

Tuttle & Bailey Mfg. Co. .............................. 93

Tuttle & Bailey Mfg. Co. .............................. 93

Tuttle & Bailey Mfg. Co. .............................. 93

Tuttle & Bailey Mfg. Co. .............................. 93

Tuttle & Bailey Mfg. Co. .............................. 93

Tuttle & Bailey Mfg. Co. .............................. 93

Tuttle & Bailey Mfg. Co. .............................. 93

Tuttle & Bailey Mfg. Co. .............................. 93
Another example of exterior treatment with Extruded Bronze

A rather unusual treatment is shown in the side elevation of this store. Extruded mouldings were used from the cornice down to the sidewalk and include the mouldings that retain the marble in place. The sections shown here are typical of stock shapes for immediate delivery and are priced on a basis that allows for general use.

Where decorative effects are required, sections such as ornamental cresting, enrichments, caps and bases, etc. are available in cast Bronze and are used direct in relation with the Extruded sections.

We welcome the opportunity of submitting drawings and details.

Modern Bronze Store Front Co.

And Associated Companies:

- Zorni Drawn Metals Company
- International Store Front Company
- Standard Store Front Construction Co.
- Zorni Company of California

Factory and General Office: Chicago Heights, Illinois

Names on Request

PLAN OF STORE

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PART HORIZONTAL SECTION
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